REPUBLIC OF NAMIBIA

Ministry of Health and Social Services

Fourth National Strategic Plan for Tuberculosis and Leprosy 2023/24 – 2027/28

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Vision, Mission, Goal

Vision	Namibia free of TB and Leprosy - zero deaths, disease and suffering due to tuberculosis and leprosy
Mission	Deliver high quality TB and leprosy interventions with a focus on universal access, equity, gender sensitivity, key and vulnerable populations
Goal	Decrease the burden of TB and eliminate Grade 2 disabilities among new Leprosy cases by enhancing early case finding and providing universal access to timely and quality prevention, diagnosis, and treatment of all forms of TB and Leprosy
Impact	● 67% reduction in TB incidence rate by 2027 (compared to 2015) ● 59% reduction in the number of TB deaths by 2027 (compared to 2015) ● 5% RR/MDR prevalence among new pulmonary TB cases by 2027 ● 50% reduction of TB affected families facing Catastrophic costs due to TB by 2027 ● 63% reduction in rate per million population of new cases with G2D by 2027 ● 63% reduction in rate per million children of new child cases with leprosy by 2027
Outcome	**By 2027/28:** ● Case notification rate of all forms (new and relapse cases) of TB 216 per 100,000 population ● 146 confirmed RR-TB and/or MDR-TB notified ● ≥90% treatment success rate among all new and relapse TB patients ● RR/MDR-TB case detection rate of 90% ● Childhood TB case detection rate of 90% ● ≥80% treatment success rate for RR TB and/or MDR-TB ● 90% TB treatment coverage ● 50% reduction in annual number of new Leprosy cases detected

Foreword

The National Strategic Plan (NSP) for Tuberculosis (TB) 2023/24 - 2027/28 builds on the past investments and experiences of the National TB and Leprosy Programme (NTLP) and its partners. TB remains a public health concern in Namibia, with a high disease burden and significant morbidity and mortality.

At the time of writing this NSP, Namibia ranked 9th amongst the countries with the highest TB incidence and the country was listed amongst the 30 countries with the highest TB burden. This is in relation to the country's estimated TB incidence rate and the TB incidence amongst People Living with HIV (PLHIV). This NSP comes at a pivotal time as the country accelerates its efforts in the TB response in the aftermath of the COVID-19 pandemic. It serves as a comprehensive, evidence-based roadmap to guide the delivery of quality TB and Leprosy prevention, care, and treatment services.

The NSP is aligned with international guidance including the Sustainable Development Goals (SDGs), the WHO's End TB Strategy and the WHO Global Leprosy Strategy 2016-2020 and acknowledges the commitments made at the 2018 United Nations High-Level Meeting on TB. It is noteworthy that the NSP is structured on domestic policy frameworks including Vision 2030, the 5th National Development Plan and the National Health Policy Framework 2010-2020.

This NSP embraces the following four key pillars: (1) Government stewardship and accountability, with monitoring and evaluation, (2) Engagement and partnership with civil society organizations and communities, (3) Protection and promotion of human rights, ethics, and equity; and (4) Adaptation of the strategy and targets at the country level, with global collaboration

Further, with the NSP the country revives the commitment to the 90-90-90 targets which are:

- To reach 90% of all people in Namibia with TB and place all of them on appropriate therapy which could be first-line, second line and preventative therapy as indicated,
- To reach 90% of key populations – the most vulnerable, underserved, at-risk populations
- To achieve at least a 90% treatment success rate for all people diagnosed with TB

Namibia has been declared a county in the elimination stage for Leprosy and this NSP will strive to contribute to achieving the SDGs through scaling-up leprosy prevention, case detection, and management of Leprosy and its complications, preventing new disability and combat stigma, and ensuring human rights. Achieving the strategies outlined in this NSP requires sustained commitment, collaboration, and investment from all stakeholders involved in TB control and Leprosy elimination in Namibia.

I would like to express my gratitude to all those who contributed to the development of this plan, and I call upon all stakeholders to work together to implement its recommendations.

……..
Hon. Dr. Kalumbi Shangula
Minister of Health and Social Services
Republic of Namibia

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Preface

To be drafted by Communications Officer at MoH/NTLP

List of acronyms

ACSM	Advocacy, Communication and Social Mobilisation
ADRs	Adverse Drug Reactions
AFB	Acid-fast bacilli
ART	Anti-Retroviral Therapy
ASLM	African Society of Laboratory Medicine
CBTBC	Community-Based Tuberculosis Care
CCM	Country Coordinating Mechanism
CCRC	Central Clinical Review Committee
C/DST	Culture and Drug Susceptibility Testing
CDC	United States Centres for Disease Control and Prevention
CDR	Case Detection Rate
CHWs	Community Health Care Workers
CMS	Central Medical Stores
CPT	Cotrimoxazole Preventive Therapy
CSOs	Civil Society Organizations
CXR	Chest X-Ray
DAPP	Development AID From People to People
DHIS2	District Health Management Information System version 2
DOT	Direct Observed Therapy
DOTS	Direct Observed Therapy Short Course
DPS	Division of Pharmaceutical Services
DRS	Drug resistance survey
DRTB	Drug resistant Tuberculosis
DSP	Directorate of Special Programmes
DST	Drug susceptibility testing
DTLC	District Tuberculosis and Leprosy Coordinator
ePMS	Electronic Patient Management System
EPTB	Extra Pulmonary Tuberculosis
EQA	External quality assessment
FLDs	First Line (anti-TB) Drugs
HBC	Home Based Care
HEW	Health Extension Worker
IEC	Information Education and Communication
IC	Infection Control
ICD	International Classification of Diseases
ICF	Intensified (TB) Case Finding
IPC	Infection Prevention and Control
IPT	Isoniazid Preventive Therapy
ISTC	International Standards for Tuberculosis Care
KAP	Knowledge Attitude and Practices

KNCV	Royal Dutch Tuberculosis Foundation
LPA	Line Probe assay
LTBI	Latent Tuberculosis Infection
MDGs	Millennium Development Goals
MDR	Multi Drug Resistant
MDT	Multi Drug Therapy
M&E	Monitoring and Evaluation
MoHSS	Ministry of Health and Social Services
MOHAI	Ministry of Home Affairs and Immigration
MSH	Management Sciences for Health
MTB	Mycobacterium tuberculosis
NAMAF	Namibian Association of Medical AID Funds
NAMPOL	Namibia Police Force
NCS	Namibian Correctional Service
NDP-4	National Development Plan -4
NEMLIST	Namibia Essential Medicines List
NICD	National Institute of Communicable Diseases
NIMART	Nurse Initiated Management of Anti-Retroviral Treatment
NGO	Non-Governmental Organisation
NHLS	National Health Laboratory Services
NIP	Namibia Institute of Pathology
NMRC	Namibian Medicines Regulatory Council
NTLP	National Tuberculosis and Leprosy Programme
NRL	National Reference Laboratory
PDR	Poly Drug Resistant
PEPFAR	Presidential Emergency Plan for AIDS Relief
PHC	Primary Health Care
PLHIV	People Living with HIV
PMDT	Programmatic Management of Drug Resistant TB
PMIS	Product Management Information System
PMTCT	Prevention of Mother to Child Transmission (of HIV)
PoD	Prevention of Disabilities
PPE	Personal Protective Equipment
PPM	Public –Private Mix
RMS	Regional Medical Stores
PB	Pauci- Bacillary
PoD	Prevention of Disability
PSCM	Procurement and Supply Chain Management
PSM	Procurement and Supply Management
QA	Quality Assurance
QC	Quality Control

QLS	Quality Surveillance Laboratory
RR	Rifampicin Resistant
SADC	Southern Africa Development Committee
SDGs	Sustainable Development Goals
SLDs	Second Line (anti-TB) Drugs
SMS	Short Message Service
SOP	Standard Operating Procedure
TAT	Turn Around Time
THCSS	Tertiary Health Care and Clinical Support Services
TBIC	Tuberculosis Infection Control
SRL	Supranational Reference Laboratory
STI	Sexually Transmitted Infections
UHC	Universal Health Coverage
UHCAN	Universal Health Coverage Advisory Committee of Namibia
USAID	United States Agency for International Development
USG	United States Government
UN	United Nations
UNDP	United National Development Programme
The Union	International Union Against Tuberculosis and Lung Disease
UVGI	Ultraviolet Germicidal Irradiation
WHO	World Health Organization

Executive summary

The Namibia TBL National Strategic Plan (2023/2024 – 2027/2028) represents an evolution in the Government of the Republic of Namibia's response to TB and Leprosy elimination. New evidence generated over the past five years will drive a targeted and prioritised approach. The TBL NSP reflects a patient-centred approach to planning and evidence-based prioritisation of resource allocation to close the gaps along the patient pathway to quality care. The activities embodied under the TBL NSP address systemic and root causes of the gaps along the patient pathway, suggesting the complementary roles of regional and district health management teams as well as departments across the Ministry of Health and Social Services (MoHSS), partners, stakeholders, and other sectors, including private.

The TBL NSP lays out the strategic and technical direction for the elimination of TB and leprosy nationally. It presents the full aspiration of Namibia, including outcome and impact targets that align with international goals, and the full portfolio of activities needed to reach these goals. It assumes a fully funded TBL NSP in acknowledgement of likely funding gaps, an evidence-based optimisation of resource allocation is presented alongside an impact modelling scenario. An annex to the TBL NSP documents the full operational plan behind this TBL NSP and articulates the county-specific activities that will contribute to the attainment of the national goals.

This TBL NSP builds upon the successes and lessons learnt during the implementation of the third Medium-Term Plan for Tuberculosis and Leprosy 2017/18-2021/22 (TBL MTP-III). The TBL NSP provides a framework for robust and efficient coordination of the country's response to TB and Leprosy by all sectors, service providers and communities towards ending the scourge of TB and leprosy in Namibia. The overarching vision of the NTLP is to strive towards a Namibia free of TB and Leprosy - zero deaths, disease and suffering due to tuberculosis and leprosy. To achieve this, the TBL NSP's mission is to deliver high quality TB and leprosy interventions with a focus on universal access, equity, gender sensitivity, key and vulnerable populations.

This plan includes thirteen strategic objectives to realize the TBL NSP goal of decreasing the burden of TB and elimination of Grade 2 disabilities among new Leprosy cases by enhancing early case finding and providing universal access to timely and quality prevention, diagnosis, and treatment of all forms of TB and Leprosy. The TBL NSP Strategic Objectives are as follows:

- **Strategic objective 1:** Enhance Programme Management, HRH, and Leadership
- **Strategic objective 2:** Strengthen universal access to TB prevention, care and treatment
- **Strategic objective 3:** Strengthen access to DR-TB prevention, case finding and treatment
- **Strategic objective 4:** Strengthen access to TB prevention, case finding, care and treatment for Children and Adolescents
- **Strategic objective 5:** Optimize TB/HIV and other co-morbidities collaboration for improved case detection, treatment and care
- **Strategic objective 6:** Optimize Community-based TB outreach and care services and strengthen the implementation of the ENGAGE-TB Approach
- **Strategic objective 7:** Develop and implement the TB Public-Private Mix (PPM)
- **Strategic objective 8:** Increase TB testing, access and coverage to test all presumptive TB people with

WHO recommended molecular tests

- **Strategic objective 9:** Ensure an uninterrupted supply of first- and second-line TB medicines
- **Strategic objective 10:** Ensure capacity for Leprosy case-finding (screening, diagnosis), care treatment and surveillance; integrated with primary health care services
- **Strategic objective 11:** Strengthen patient support services to reduce TB -related catastrophic costs from 82% to 41% by 2028
- **Strategic objective 12:** Establish Continuous Quality Improvement of TB services
- **Strategic objective 13:** Monitoring, evaluation, research, and surveillance systems strengthening

With ambitious plans to ensure universal access to TB and leprosy care and prevention, this plan aims to strengthen multisectoral and public-private stakeholder engagement as a tool to universal access. Plans to map the sub-national DR-TB and leprosy burden and ensure targeted interventions are included. The TBL NSP also prioritizes the special needs of key and vulnerable populations for TB and Leprosy as it seeks to intensify case finding and case holding among these groups. Targeted interventions are proposed, tailored to the epidemiological, socio-economic, behavioural and biological determinants related to increased risk of TB among PLHIV, health care workers, miners, prisoners, nomadic/semi-nomadic populations and people living in informal urban settings.

Despite significant investments to improve TB case finding through facility and community-based screening, strengthening the laboratory network and enhancing community engagement, Namibia is still missing a significant proportion of TB cases (42%). To address this, the TBL NSP reflects increased focus on a patient-centred approach to TB and leprosy case-finding and management, through service integration with other comorbidities, establishing the Public-Private Mix (PPM) Strategy as well as implementing quality improvement of TB and Leprosy services. Vital to successful patient management will be the availability of uninterrupted, quality-assured laboratory commodities and medicines. The TBL NSP acknowledges the needs to strengthen supply chain management systems through an interoperable electronic case-based recording and reporting system with links between laboratories and service providers for the laboratory commodities and an electronic stock card system linked to a Product Management Information System (PMIS) for the anti-TB medicines. To this end, the Government of the Republic of Namibia (GRN) continues to show strong political will and commitment to ending TB and leprosy by ensuring commodity security for TB and Leprosy supplies by prioritizing the allocation of funds for their procurement. Further, various partners continue to support the NTLP through procurement of TB medicines and laboratory reagents (Global Fund); procurement of leprosy medicines (WHO) and providing technical support to the program (Global Health Supply Chain and CDC). The option of pooled procurement is being explored by the GRN together with the feasibility in Namibia's context.

The GRN provides free TB services that include diagnosis and treatment in addition to other social support schemes provided to TB patients and other vulnerable populations. However, despite the availability of free and subsidized services, the Patient Cost Survey conducted in 2017 indicated that 82.2% of households face catastrophic financial burden due to TB disease. The PCS highlighted that the main cost drivers were non-medical expenditures e.g. transport, nutritional supplements, food, loss of time and income. To address this, the TBL NSP provides a framework for strengthening universal access to TB and leprosy care and prevention, and social protection to achieve a 50% reduction in these catastrophic costs among TB and leprosy affected households. To reduce stigma and discrimination, the TBL NSP has prioritized the country's first Community,

Rights and Gender assessment to understand human rights and gender associated barriers to accessing TB services.

There is generally insufficient funding for TB and Leprosy activities, with sustainability concerns due to reduction in both public and donor funding compounded by the negative economic impact of the Covid-19 pandemic globally and locally. To achieve the ambitious targets, approximately 2.6 billion NAD (142 million USD) is needed for the successful implementation of this TBL NSP. The NTLP will continue to advocate for resources through GRN to end TB and Leprosy in Namibia.

Chapter 1: Background

1.1. Introduction

The World Bank classifies Namibia as an upper middle-income country, a status that masks the very real poverty of many and the overall high levels of inequality in society. Insufficient socioeconomic resources for large segments of the population presents an ongoing challenge in the fight against TB and HIV. The country's large size and low population density present an additional challenge and make health care costly in terms of providing equitable services, maintaining effective supply chains and ensuring efficient coordination of services and systems monitoring.

Namibia was one of only a handful of high TB burden countries estimated to have achieved the World Health Organization (WHO) End TB Strategy 2020 milestone of a 20% reduction in TB incidence between 2015 and 2020. The fight against the disease continues, and gradual yet critical gains are being made in key prevention and treatment criteria. Namibia's HIV epidemic is generalized and mature, with wide variation in prevalence between the different age groups, towns and regions. HIV in Namibia is transmitted primarily through heterosexual sex and mother-to-child transmission. Key and vulnerable populations – female sex workers, gay men and other men who have sex with men, adolescent girls and young women, migrant communities and hard-to-reach populations – are also disproportionately affected.

Community mobilization is a major strategy to engage communities in creating demand for HIV and TB services, promoting adherence, and strengthening behaviour change. Social and behaviour change complements and promotes the effectiveness of biomedical gains such as TPT, male circumcision, treatment access and adherence, and is critical to the overall successes of the national HIV and TB response. These people- and community-centred strategies are essential to creating an enabling environment with greater gender equality and reduced gender violence; to reduce discrimination and stigma; and to ensure that people living with HIV and key and vulnerable groups at high risk of TB, enjoy full human rights and equitable access to services.

Despite Namibia's progress in the fight against TB, the disease remains a significant public health threat. WHO lists Namibia as one of the 30 highest burden countries in the world for TB, and for HIV/TB co-infection. The epidemic is largely attributable to poverty, as well as high HIV prevalence. Strengthening the TB prevention and treatment cascade throughout the country, particularly in remote and indigenous communities where the TB burden is often many multiples higher than among the general population, is a critical element of Namibia's TB response.

1.2. Country profile

1.2.1. Geography

Namibia is in South-west Africa with a land surface area of 824,295 km^2 making it Africa's fifth largest country. It is bordered by Angola, Zambia, Botswana, South Africa, and the Atlantic Ocean. The country is prone to drought and only 1% of the land mass is considered arable, posing a severe threat to water shortage and food security. The country is divided into 14 administrative regions with 35 functional districts as shown in the figure below.

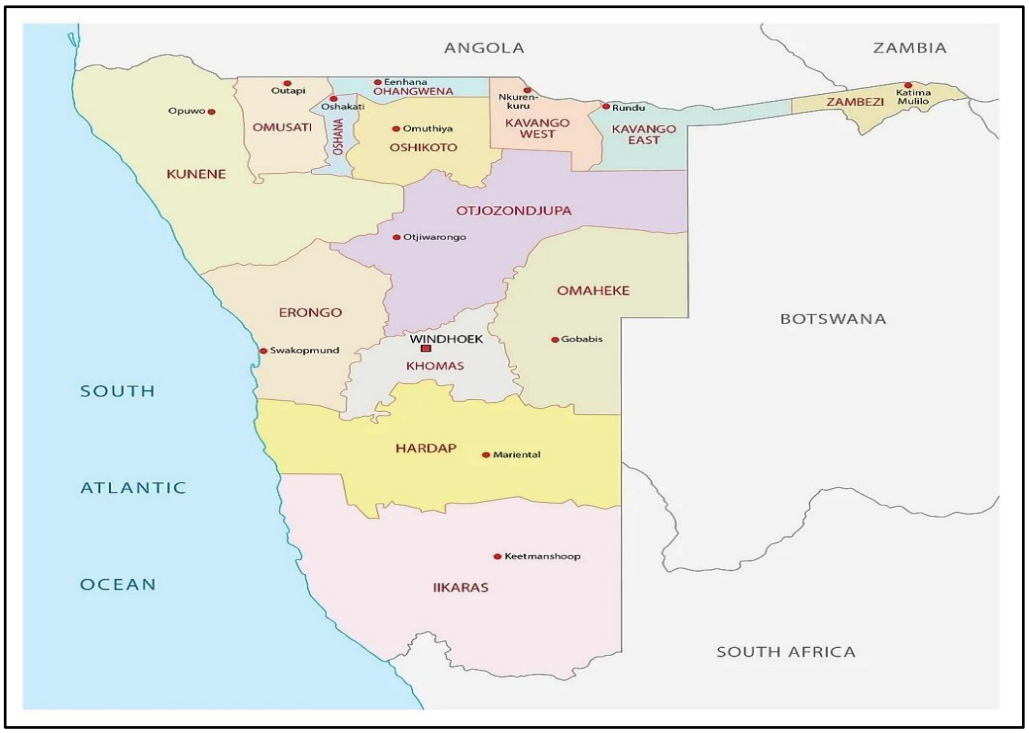


Figure 1: Map of Namibia

1.2.2. Demographics

The population of Namibia for the year 2022 is about 2,596,037 and is based on the projection of the 2011 national population census[1] with a growth rate of 1.8 % per annum[2].The country has more females, 1,333,411 (51.4%) than males 1,262,626(48.6%) with a youthful population of about 55.0% below 24 years of age, only 4.1% of the population is above 65 years old. Majority of the people live in rural areas (57%) while 43% live in urban centres. The population density is about 2.8 people per km which is one of the lowest in the world. The life expectancy for both sexes is about 67.2 years with males having lower life expectancy at birth of 67.5 years compared to females (70.9 years). The literacy rate is high at 89% with a near equal rate of males and females.

[1] 2011 Namibian National Population Census
[2] https://data.worldbank.org/country/NA

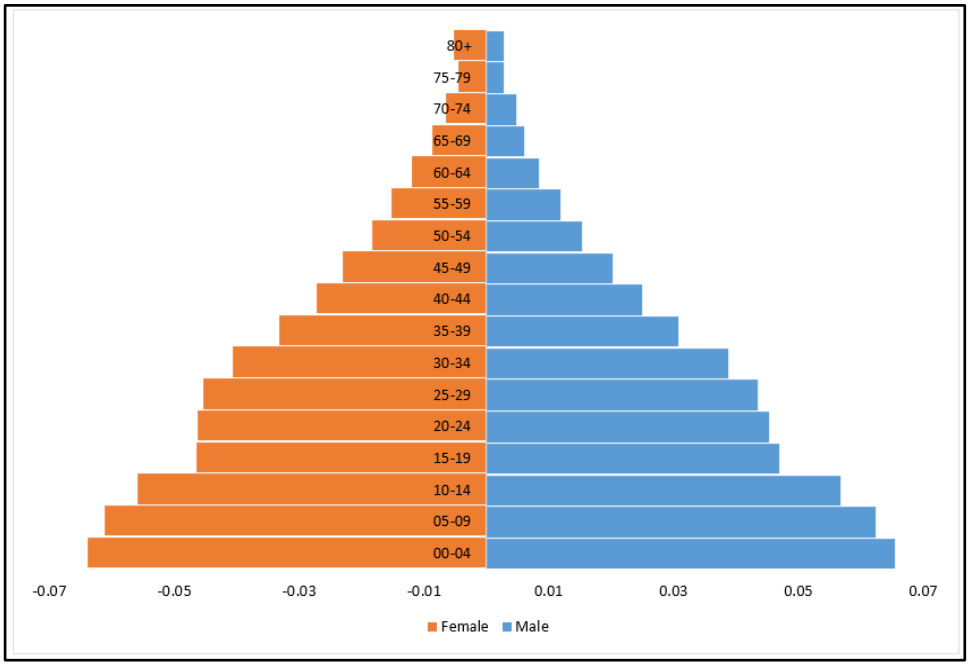


Figure 2: Population pyramid, Namibia 2022

1.2.3. Socio-economic profile

Namibia is classified as an upper middle-income (UMI) country, with a Gross Domestic Product (GDP) of USD 12.2 billion, GDP per capita of USD 4.729 and a growth rate of 2.4%[3]. Despite its UMI status, in 2015, Namibia's consumption index was calculated to be 57.65 with 17.4% of its population living below the national poverty line suggesting inequalities in income distribution. The country's economy is heavily dependent on the mining sector which accounts for about 20% of the country's GDP and is the largest producer of diamond in the world. Despite the mining sector's largest contribution to the economy, it only employs 3% of the working population. Majority of the people (70%) are employed through agriculture, yet it contributes about 12% of the GDP. Fifty seven percent (57%) of the labour force engages in informal employment, while unemployment rate in 2018 was 33.4%.

1.2.4. Health Policy

Vision 2030

Published in 2004, Vision 2030 is Namibia's policy framework for long term development. It aspires for "A prosperous and industrialized Namibia, developed by her human resources, enjoying peace, harmony and political stability"[5]. Vision 2030 is designed as a broad, unifying vision which serves to provide direction to government ministries, the private sector, NGO's, civil society and regional and local government authorities. It includes controlling preventable, infectious and parasitic diseases and securing access to quality health and other vital services among its priorities and is implemented through five-year national development plans.

National development plans

Namibia's fourth National Development Plan 2012/13-2016/17 (NDP4), highlighted TB as a health

[3] https://data.worldbank.org/country/NA

priority, as did the fifth National Development Plan (NDP5) which also includes the reduction of TB related mortality from 73/100,000 in 2014 to 47/100,000 by 2021/22. The purpose of NDP5 is to provide a roadmap for achieving rapid industrialization while adhering to the four integrated pillars of sustainable development: economic progression, social transformation, environmental sustainability and good governance. The development of NDP6 is currently ongoing.

Harambee prosperity plan

The Harambee Prosperity Plan 2016/17-2019/20 is an ambitious 4-year plan that envisages achievement of rapid economic growth and prosperity for all Namibians through a multi-pronged approach. The plan has five pillars which include effective governance, economic advancement, social progress, infrastructure development and international relations and cooperation. The components of the social progression pillar address hunger and poverty, housing and sanitation, vocational training and infant and maternal mortality. Given that the plan is based on the principle of inclusivity, it provides an opportunity for addressing poverty related diseases such as TB and leprosy.

National health policy framework 2010-2020

The National Health Policy Framework 2010-2020 forms the basis of more detailed programme policies which are to be operationalised through management plans and strategic plans. It is the third such policy framework since independence in 1990. This framework identifies infectious diseases as a major cause of morbidity and mortality in Namibia, and TB as a priority endemic disease. The vision set out in this framework is a healthy nation which is free of diseases of poverty and inequality. The mission of the MoHSS, "to provide integrated affordable, accessible quality health care and social services responsive to the needs of the population", underscores the priority that the government places on universal health coverage.

1.2.5. Health financing

The gross domestic product for Namibia is rising and is currently at USD 12 billion indicating that the country's wealth is growing[4]. The government contributes a significant portion of the funding for health (that is 75% of available funding for health). Public finances for health, including TB have been predictable over the last few years, with small declines in the last 3 years mainly due to economic recession and the COVID19 pandemic. In 2021, out of the estimated resource needs of USD27M, 29% was domestic funding, 9.7% was external funding and 62% was unfunded. Funding for leprosy activities was very minimal. There is a National Social Protection Policy 2021-2030 and the National Pension Act-Amended in 1993, that provides the legal framework for social protection and grants in Namibia. The MOHSS is also developing the UHC Policy Framework to guide efforts towards health coverage for all. The MOHSS leadership has over the years allocated funding and coordinated mobilisation of external resources for TB. The Households Out-of-pocket spending on health (OOP) is 8% (NHA 2018), which is low compared to the average in the region, but there is a high household catastrophic spending while accessing TB services of about 82,2% according to the patient survey conducted in 2021.

[4] World Bank: https://data.worldbank.org/country/namibia

1.3. Health profile, epidemiology of TB & leprosy and impact of Covid-19

1.3.1. Health status

While infectious diseases such as HIV, TB, acute respiratory infections, diarrheal diseases, and parasitic infestations remain prevalent there is an increasing burden of non-communicable diseases (NCDs) including diabetes, hypertension, cancer, and chronic respiratory disease. According to WHO, 41 million people die each year due to NCDs which is equivalent to 74% of all deaths globally and of these total deaths, 77% occur in low- and middle-income countries[5]. The top four NCDs are cardiovascular diseases (CVDs), followed by cancers, chronic respiratory diseases, and diabetes which account for 80% of all premature deaths[6]. In Namibia 43% of the total deaths are due to Non communicable diseases with CVDs leading (21%), followed by injuries (10%), Cancers (5%), CRDs (4%) and diabetes (4%)[7], emphasizing the increasing significance of NCDs in Namibia as a cause of mortality and mortality. There is need to integrate some of the screening, diagnostic and treatment services in the TB/HIV services. The main risk factors are tobacco use, physical inactivity, harmful use of alcohol and unhealthy diets with some similarities on some TB risk factors.

Table 2 Summary of key health indicators for Namibia

Heath Indicator		Value
Adult Mortality Rate/1000 population (2020)	Male	338
	Female	238
Maternal Mortality Rate (2017)		195
Under Five Mortality Rate (deaths /1000 live births) 2020		40
Infant Mortality Rate (deaths /1000 live births) 2020		30
Neonatal Mortality rate (deaths/1000 live births) 2020		20
Age Standardized deaths rate /100,000 population		1,013
Age Standardized deaths rate /100,000 population due to CDs		357
ANC coverage (at least one visit) 2013	Rural	93%
	Urban	96%
ANC coverage (at least four visits) 2020		63%

1.3.2. Tuberculosis (TB)

Namibia is listed among 30 Tuberculosis high burden countries that contributed 86% of the global TB burden (WHO TB report 2021) and ranked 9th in terms of TB incidence rate. The country has also high burden for TB/HIV with a co-infection rate of 31%. TB prevalence survey conducted in 2017-2018 found a prevalence rate of 465 per 100,000(95%CI, 340-590) of bacteriologically confirmed TB among age > 15 years with males being most affected with a prevalence rate of 643 per 100,000 populations compared to females at 304 per 100,000 populations. According to WHO Global TB report in 2021, the key risk factors for TB in Namibia includes HIV, undernourishment, alcoholism, smoking of cigarettes and

[5] WHO Non-Communicable Diseases (NCDs) Report,2022
[6] WHO Non-Communicable Diseases (NCDs) Report,2022
[7] WHO Non-Communicable Diseases (NCDs) Country Profile, 2014

comorbidities like diabetes.

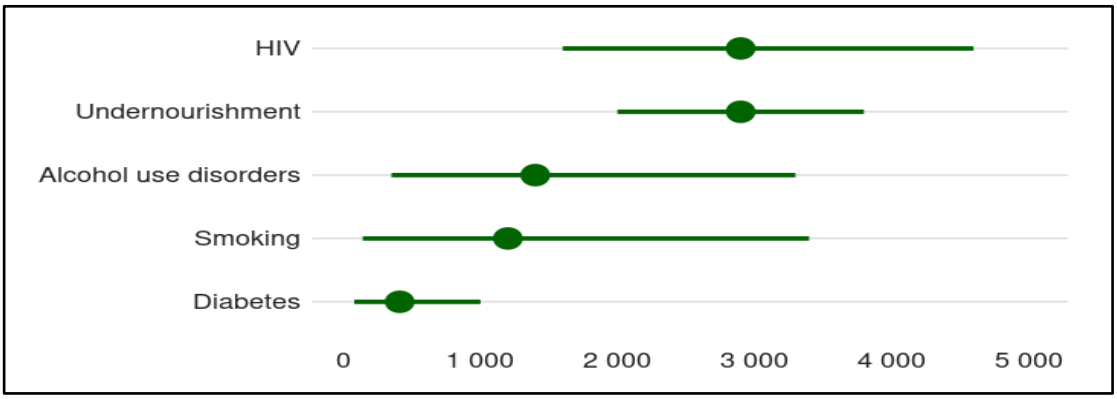


Figure 4: Risk factors attributed to TB cases (WHO estimates, 2021)

TB Incidence

There has been a gradual decline of TB incidence rate over the years from 892 per 100,000 in 2010 to 457 per 100,000 in 2021 which translates to 12 000 (8 500-15 000) people being infected with TB in 2021 down from 19000 in 2010. According to the Third Medium Term Strategic Plan (MTP-III), the country was supposed to reduce the incidence of TB from 489/100,000 in 2015 to 321/100,000 by 2021, unfortunately this was not met as shown in the graph below. According to WHO report 2021, Namibia is among the countries that achieved the 2020 milestones of reducing TB incidence by 28% compared to the 2015 baseline but there is still need for continued effort to achieve the End TB strategy targets of 90% reduction by 2035.

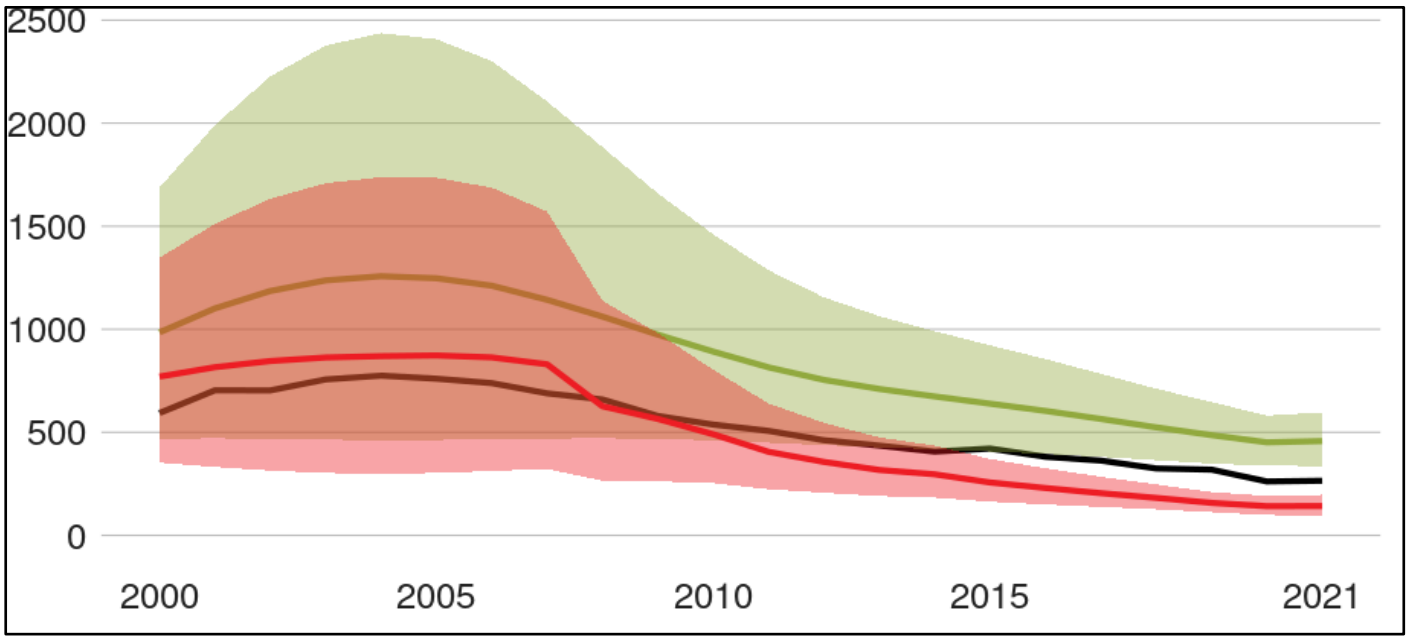


*Figure 5: TB incidence rate (Incidence, **New and relapse TB cases notified**, HIV-positive TB incidence) (Rate per 100 000 population per year)*

Tuberculosis notifications

There has been a steady decline of TB case notification from 8,854 in 2017 to 6,864 in 2021. The gap between incidence and notification has been narrowing but significant proportion of TB cases are still being missed with a treatment coverage of 58%. Hence, approximately 42% of the TB cases are missed, either undiagnosed and/or untreated. Figure 6 shows the trend of TB case notification rates (CNR) of all forms of TB between 2000 and 2020.

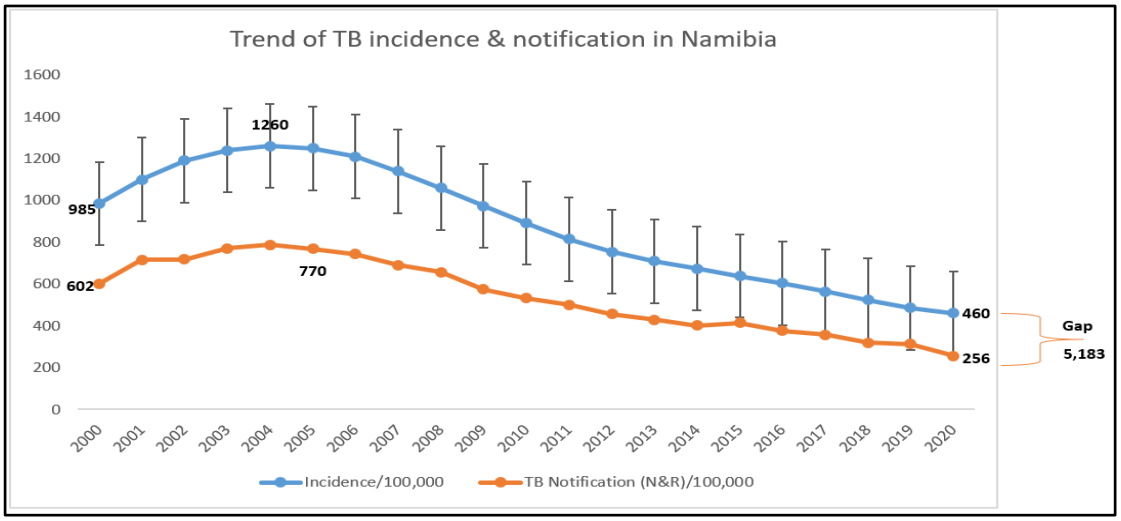


Figure 6: Incidence and notification of TB cases in Namibia

The figure 7 below shows the trends of treatment coverage which remain sub-optimal at below 60%.

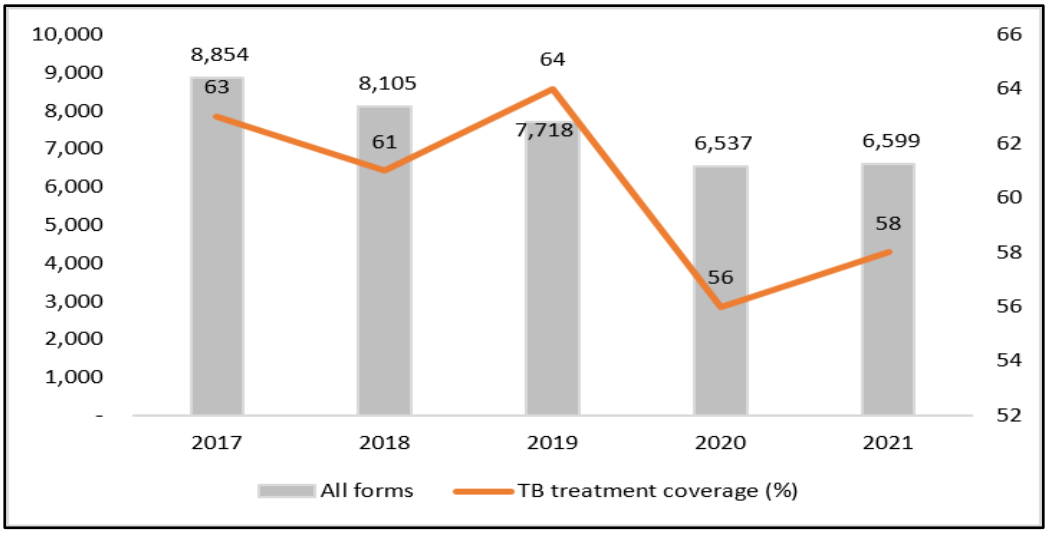


Figure 7: TB case notification and treatment coverage trends, 2017-2021

The TB pyramid below, indicates that the group mostly missed include children under 15 years and male adults of ages 25 to 44 years:

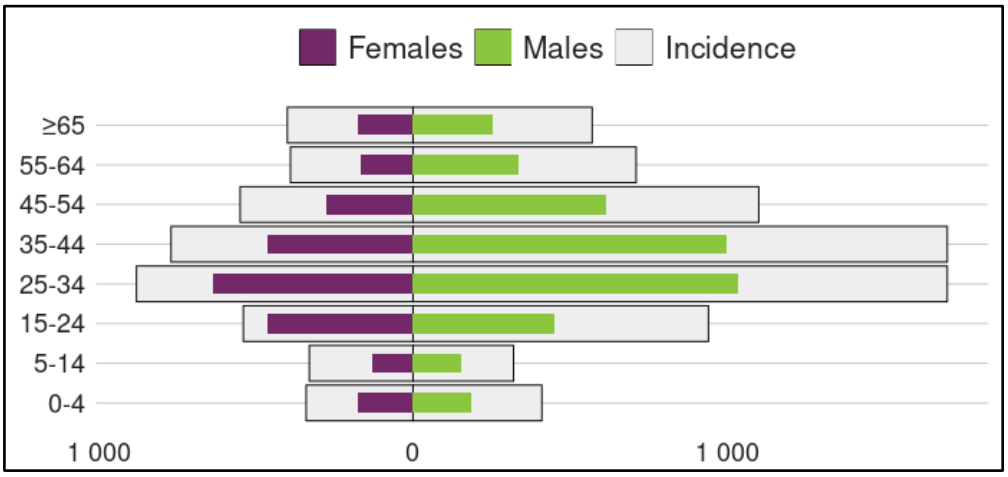


Figure 8: TB incident cases and missing cases, by age and sex (source: WHO 2021)

The notification rate for bacteriologically confirmed cases has been on constant over time as shown in figure 9 below. Namibia uses GeneXpert MTB/Rif as the initial diagnostic test for all presumptive TB cases since 2013 which has resulted in 85% bacteriological confirmation rate. The lowest rate was reported in 2020 presumably due to effects of the Covid-19 pandemic, sub optimal testing and case finding in the community. There was a slight increase in the 2021 indicating that the health systems is normalizing from the pandemic situation.

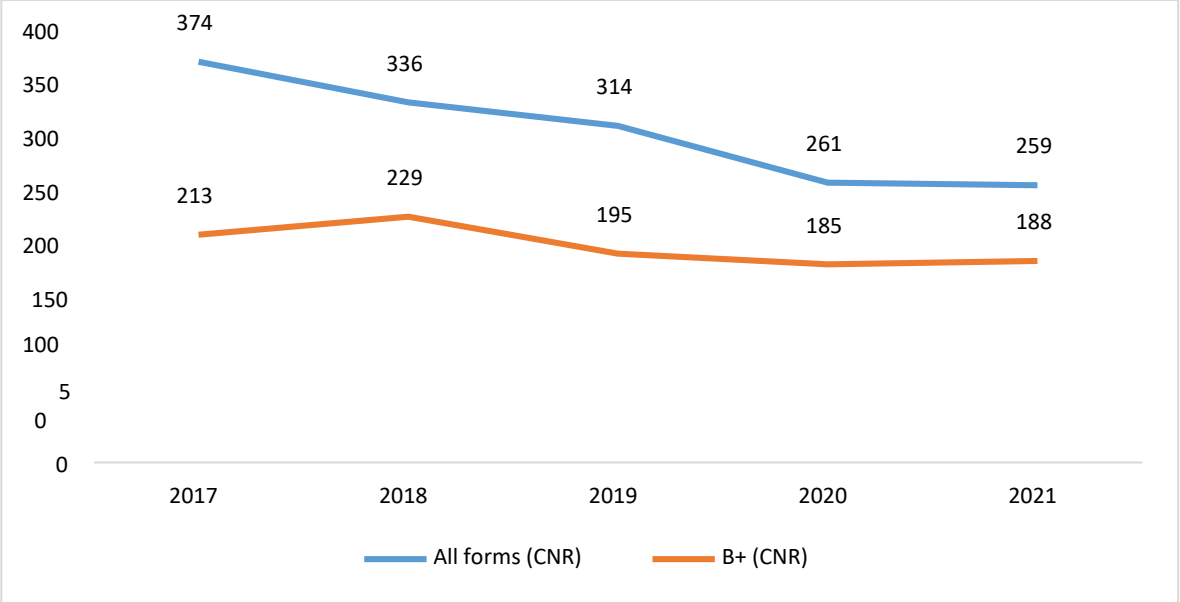


Figure 9: TB notification all forms and TB bacteriologically confirmed, national level 2017-2021

Trends in DS-TB Notification

Namibia's public and environmental act 2015 makes all communicable diseases notifiable to the authorities from regional to national level. Currently notification of TB is carried out through district TB and leprosy coordinators in all the 13 regions. The trends in notification has been on steady decline since 2017, and although the gap between incidence and notification has been narrowing, a significant proportion of TB cases are still being missed especially children under 15 years and male adults of ages 25 to 44 years, as discussed above.

TB notification by region

Figure 10 below shows TB notification rates per 100,000 by region. Omaheke had the highest notification rate of 798/100,000 followed by Hardap with 525/100,000 and the least were Omusati and Oshana with CNR of 177 and 136/100,000 respectively. Omaheke and Hardap are sparsely populated regions with migratory population. The high notification rate has been contributed partly by close collaboration of the MOH and community actors, specifically CoHeNA that implements community-based interventions in the region and work closely with the community to identify people with TB and refer for diagnosis and treatment. Community DOTs has also contributed to contact tracing that contributes to number of TB cases diagnosed.

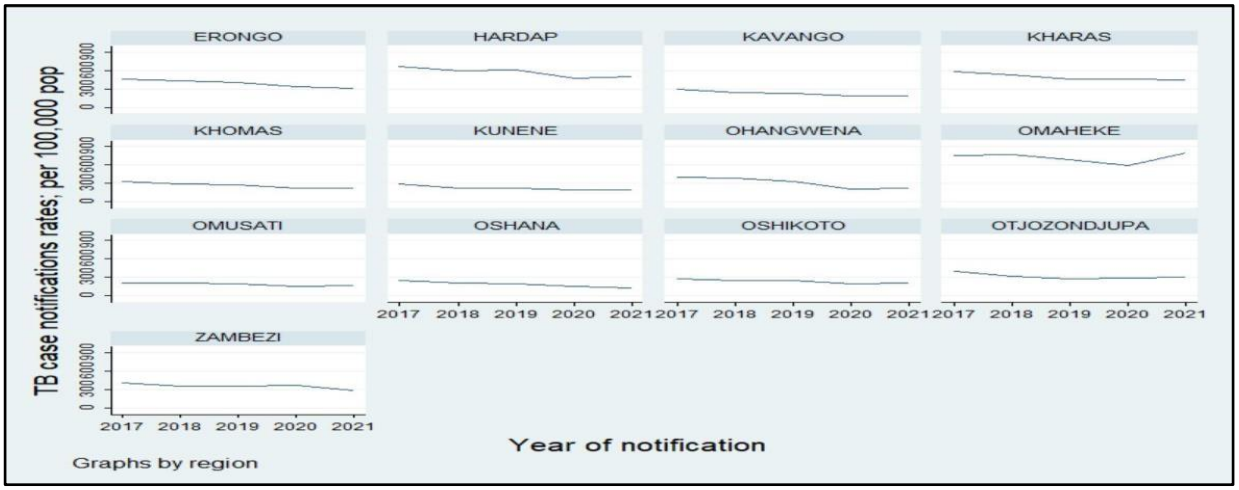


Figure 10: TB notification rates per 100,000 populations by region

TB treatment outcome of drug susceptible TB

Figure 11 below shows 4-year trends of treatment success rate, case fatality ratio and lost to follow up for patient cohorts enrolled during the period of the MTP-III. Treatment outcomes for DS-TB has continued to improve over the years with 2020 treatment success at 88% compared to 84% in 2017. This could be attributed to efforts to support the patients through community DOTs and interrupters tracing. Patient education carried out by Community Health Volunteers supported by the Ministry of Health and community partners namely CoHeNa has also played key role in treatment adherence.

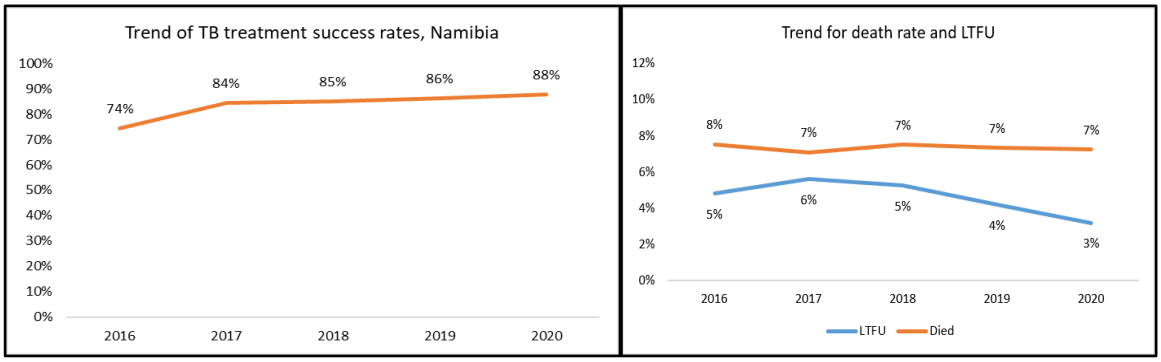


Figure 11: Treatment success, case fatality and LFTU rates

Case fatality ratio remains high at 7% over a long period of time while those lost to follow up has been reducing. TB mortality has been going down from 2011 to 2019 with a slight increase in 2020 (Source: WHO data) probably due to the Covid-19 pandemic. Despite this general decline, the mortality rates remain considerably higher (3.5x) compared to the MTP-III target of 34/100,000.

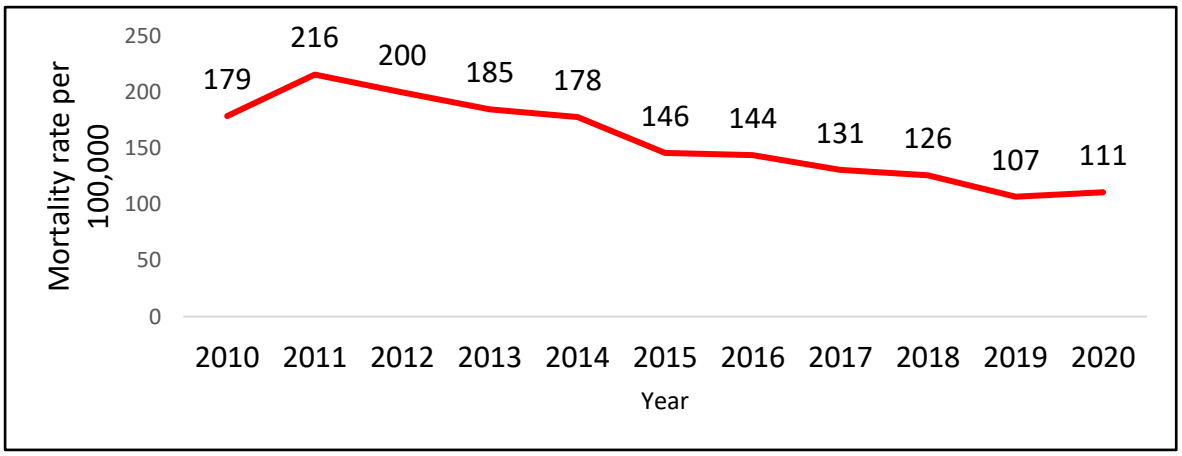


Figure 12: TB mortality rate per 100,000 population

In terms of regional variations, Omaheke region had highest treatment success rate as shown in figure 13 below. Strong community collaboration lead by CoHeNA remain a priority to be sustained and even scaled up in other regions during TBL NSP.

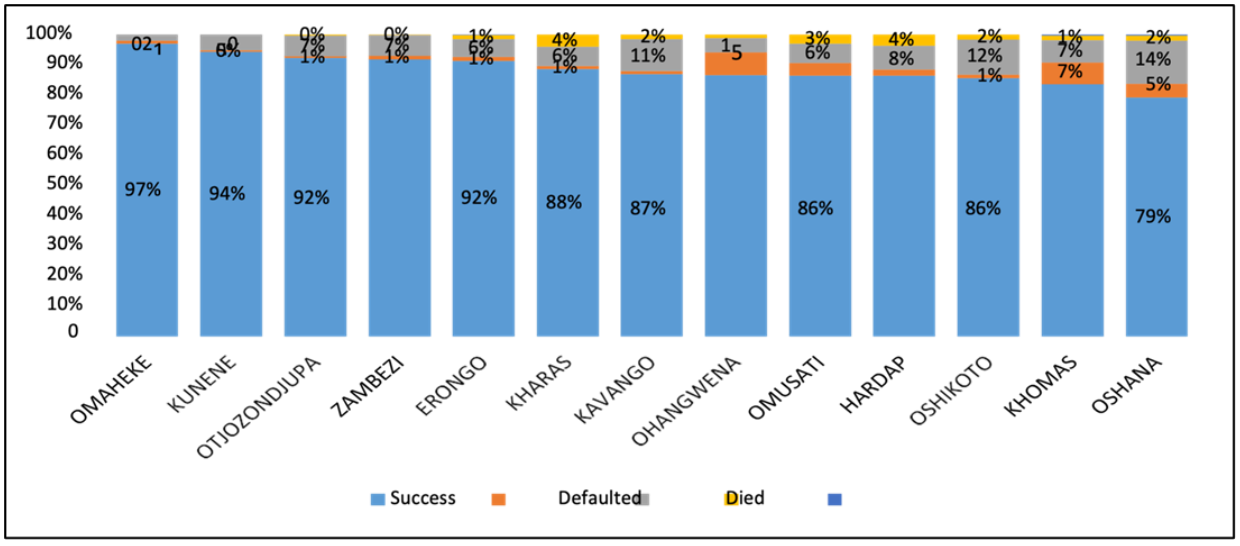


Figure 13: TB treatment outcome by region, Namibia

Childhood TB

Children are considered a vulnerable group for tuberculosis and therefore an important group to be prioritize for treatment initiation. According to the national population projection for 2021, children under 15 years of age constitute 36.6% of the population. Often case finding among children is challenging due to variety of reasons that include local cultural context, health system capacity including health care worker's capacity to diagnose TB among children.

From figure 14 below, the trends of proportion of children has been on the increase except in 2021 when it slightly declined from 10.0% to 9.9%. Omaheke region recording high proportions of children (18%) while Hardap the lowest (5%).

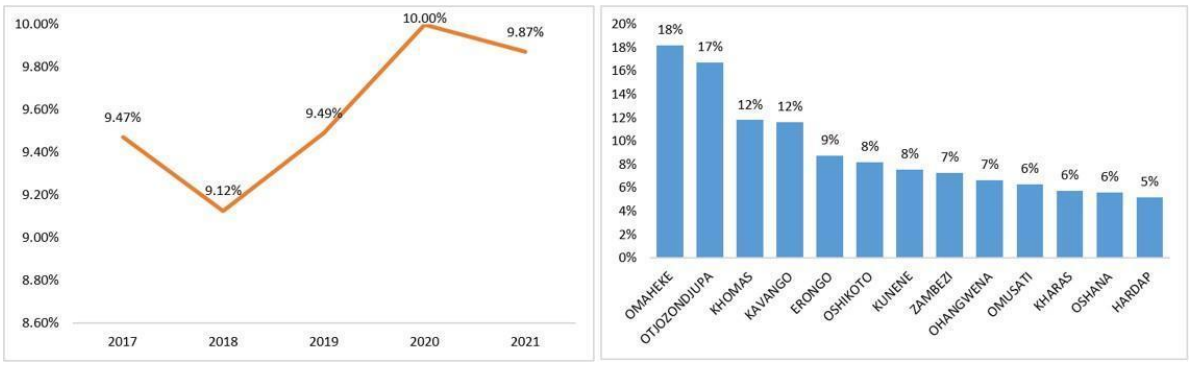


Figure 14: Trends of proportion of children notified nationally and by region, 2021

The ratio of age group 0-4 to 5-14 is 1.6 an improvement from the previous epi review findings of ratio of 1:1 in 2018 as shown in figure 15 below. This is a positive indicator of efforts to find children is bearing fruits that include sustain contact tracing and screening.

From the facilities visited; Katutura, Oguryangava and Groot Aub in Khomas district, symptom screening is evident and well documented in the patient record cards. There could also be under reporting of children for instance, in Okuryangava facility 5 out of 9 diagnosed children were notified. TPT uptake remains sub optimal among children and other eligible contacts of bacteriologically confirmed TB cases.

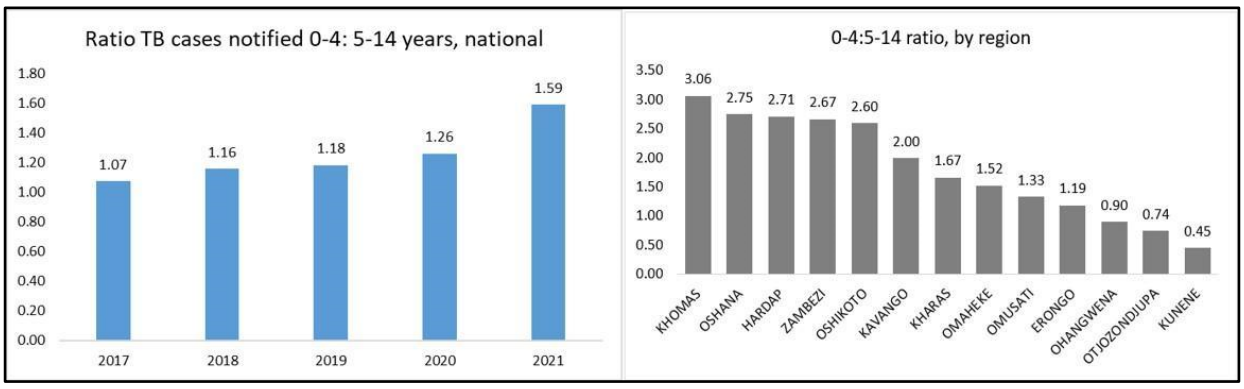


Figure 15: Ratio TB cases notified 0-4:5-15 years, national and by region

TB Treatment outcomes for children < 15 years

As per the figures below, the treatment success rate has been on a steady rise from 2017 (92%) to 2020 (94%). Majority of the regions report well above 98% treatment success rate for children, however regions such as Omusati (10%), Ohangwena (10%) and Khomas (5%) reports high rates of lost to follow up. Erongo and Hardap has the highest death rate (10%) among children.

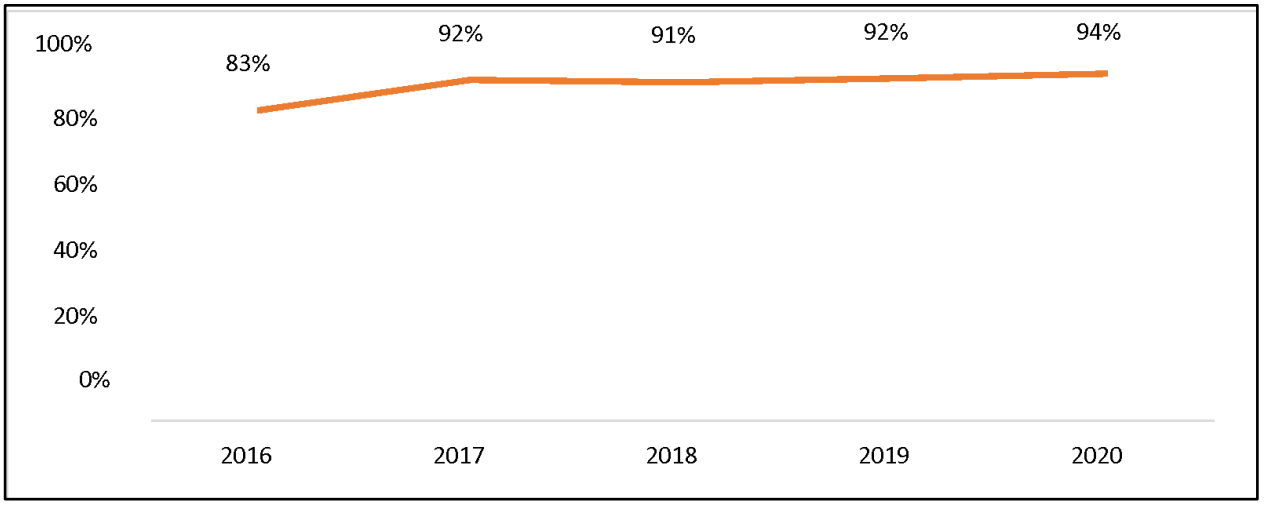


Figure 16: Treatment success rates of children < 15 years, Namibia

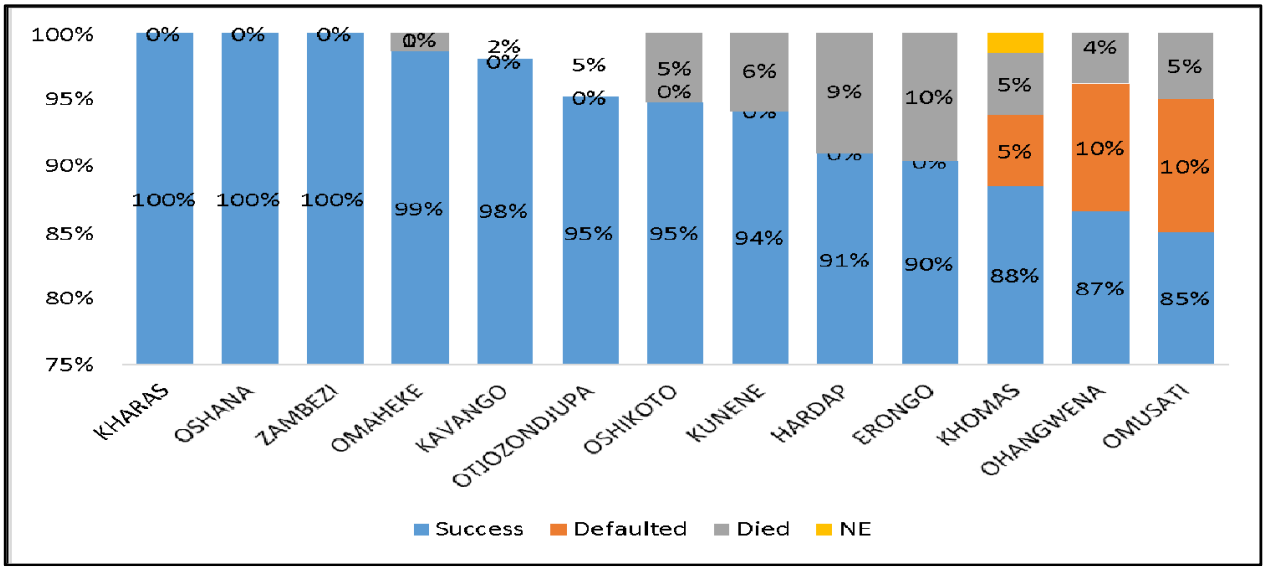


Figure 17: Treatment outcomes of children < 15 years, Namibia

TB/HIV

Namibia is a high burden country for TB and HIV. HIV prevalence in the country is high at 12.6% (NAMPHIA 2018) and TB prevalence of 465 per 100,000. Namibia has sustained high HIV testing among TB patients and ART initiation rates above 99%. Trends of coinfection have been steadily declining attributed to a strong TB/HIV collaboration. However, there is a need to strengthen TB interventions among people living with HIV. The figure 18 below shows TB/HIV care cascade with trends of coinfection since 2018 to 2021.

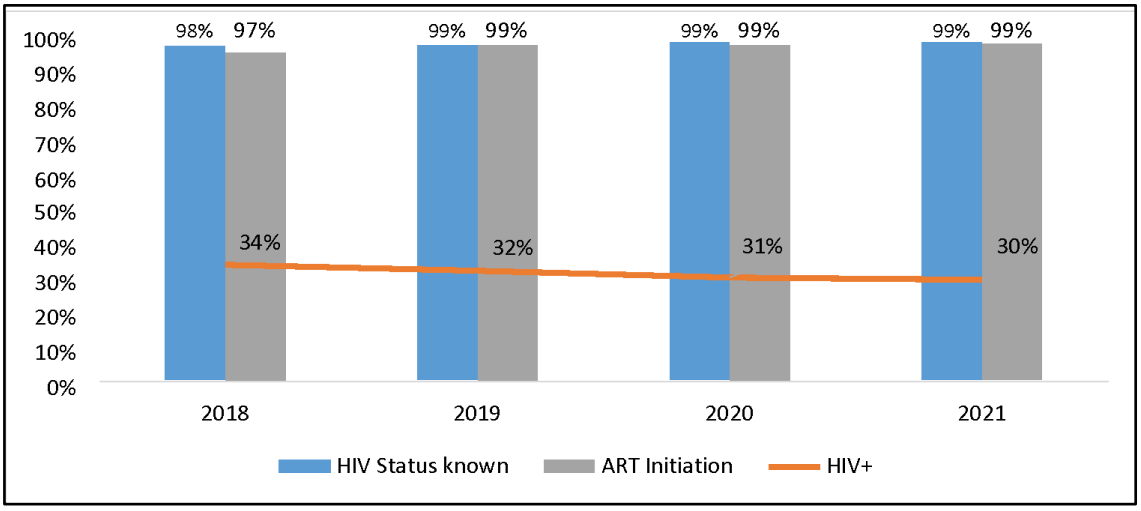


Figure 18: TB/HIV care cascade, Namibia

The TB Epidemiological review demonstrated a negative correlation between TB notification with HIV prevalence as shown in figure 19. Surprisingly, regions with high HIV prevalence notify fewer TB cases except for Ohangwena region. The possible explanation could be sub optimal screening among PLHIV and weak linkages of patients to testing facilities due to fastness of the region and economic factors. There is need to review screening activities within this population to ensure all opportunities are maximized for TB diagnosis and treatment.

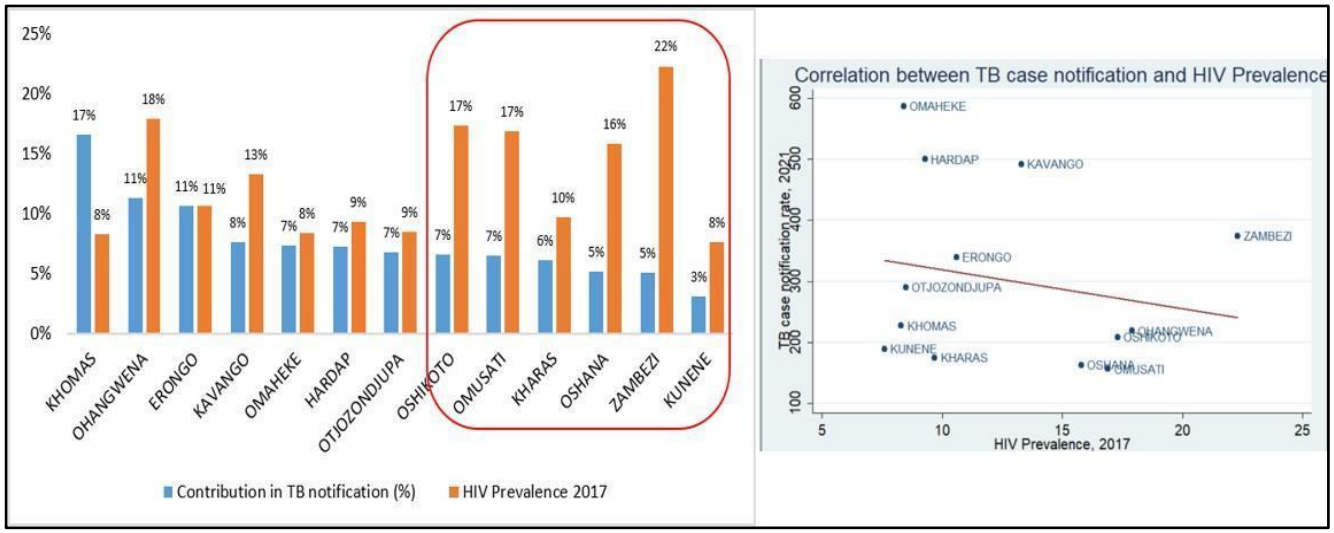


Figure 19: Contribution in TB notification and HIV prevalence by region, 2017-2021

TB/HIV co-infection rates are high in high HIV prevalent regions while TPT coverage remains sub-optimal. Death rate is also high in these regions as shown in Figure 20 below.

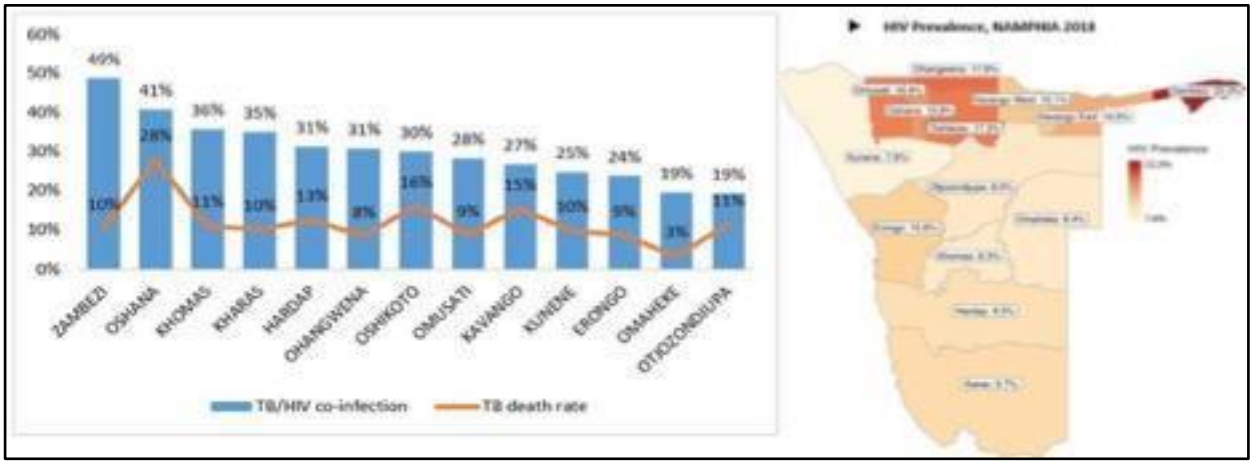


Figure 20: TB/HIV Co-infection rate by region

TB/HIV treatment outcomes

Treatment success rate among PLHIV is lower at 83% compared to the national average of 88%. This is attributed to high death rate among this group at 12% which has remained unchanged since 2018. Mortality audits shows that there are treatment adherence challenges for TB and ART, delayed diagnosis, IRIS and other comorbidities that contributes to this poor outcome.

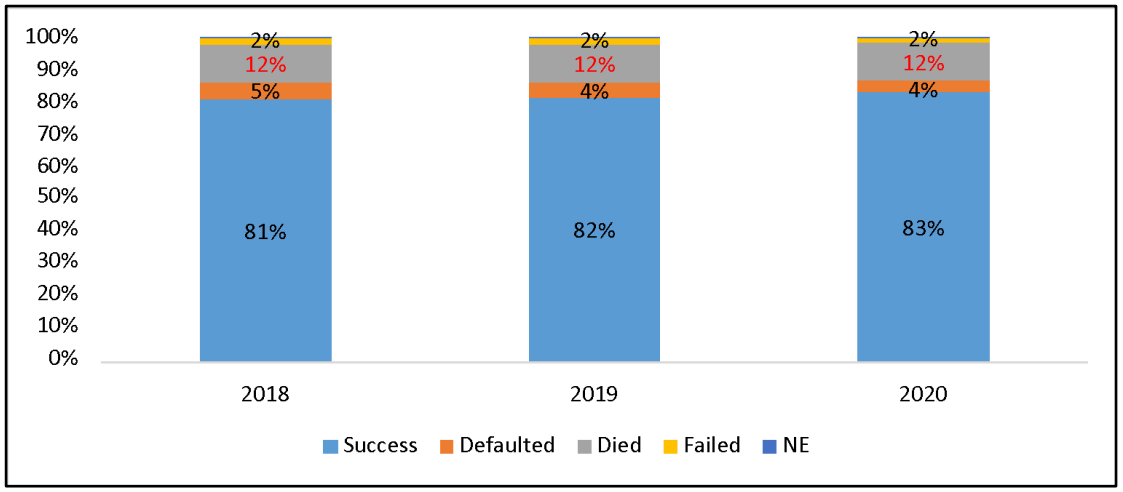


Figure 21: TB Treatment outcome among TB/HIV cases, Namibia

The figure below shows the regions with high HIV prevalence that also lead with high death rate, Oshana reported 28% case fatality in 2020.

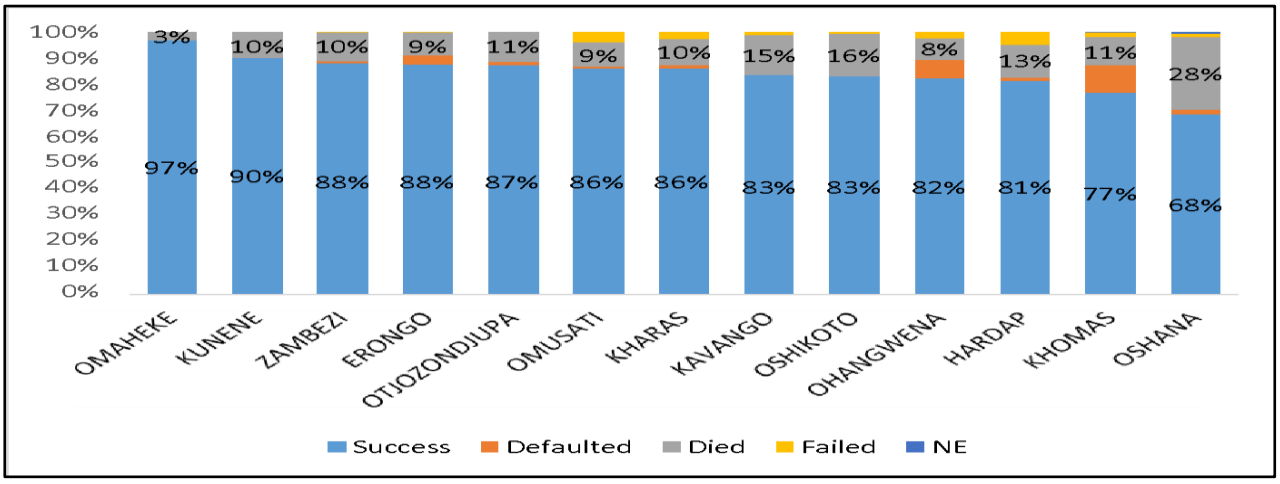


Figure 22: TB Treatment outcome of TB/HIV cases by region, 2020

Drug-resistant TB

DST coverage over time for All forms

Drug susceptibility testing (DST) coverage for rifampicin was at 82% in 2021 up, from 27% in 2017 for all forms of TB. This rise is due to policy change to use GeneXpert MTB/Rif as the initial diagnostic test for all presumptive TB cases. The rise however has not been steady due to challenges associated with funding gaps resulting in stock out of cartridges and falcon tubes. Testing in 2019 was the lowest at 44% for all forms of TB. In order to optimize drug resistance surveillance, testing for DR-TB risk groups should be prioritized.

Figure 23 shows second line DST coverage for Rifampicin resistance TB patients. It is apparent that the only DST mostly done is for RIF resistance. DST for other drugs including INH is sub optimal. Even though second line DST has been on upward trend, data indicates that it is not done routinely as indicated by the graph below. This could be due to a number of factors including restricted specimen collection, weak specimen referral system, poor recording and occasional shortages of lab commodities.

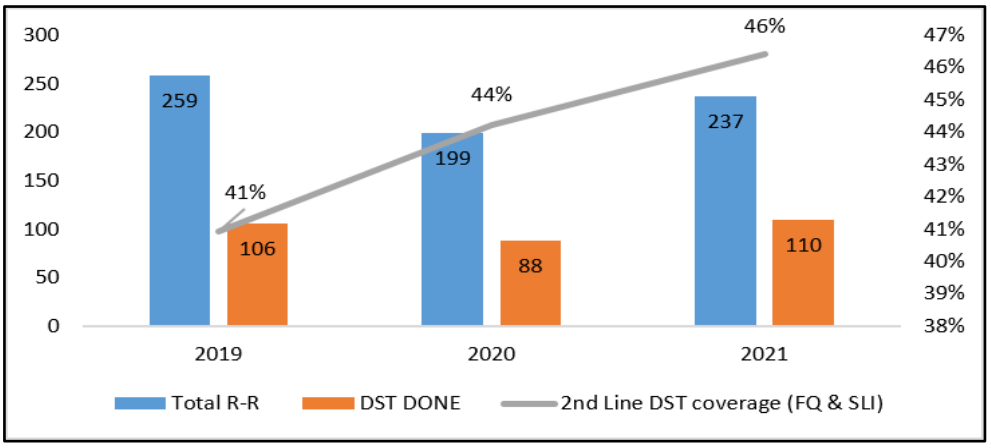


Figure 23: Second line DST coverage (%)

Trends in DR-TB notifications

Figure 24 below shows the trend of DR-TB notification in absolute numbers over the years since 2015. The trends have been declining from 2018 to 2020 due to DR-TB surveillance challenges resulting from Xpert cartridges stock outs and covid-19. Majority of the notified DR-TB cases were RR-TB while MDR-TB notification has been on a downward trend as shown in figure 24 below. This could be a pointer to the sub optimal surveillance for other forms of resistance like IHN resistance due to low access to DST services for all drugs. The region with the highest DR-TB notification in 2021 was Otjozondjupa which contributed 21% of the DR-TB cases notified with Zambezi recording the lowest 2% as shown the figure 33 below. Other regions carrying DR-TB burden are Khomas, Omusati and Kavango.

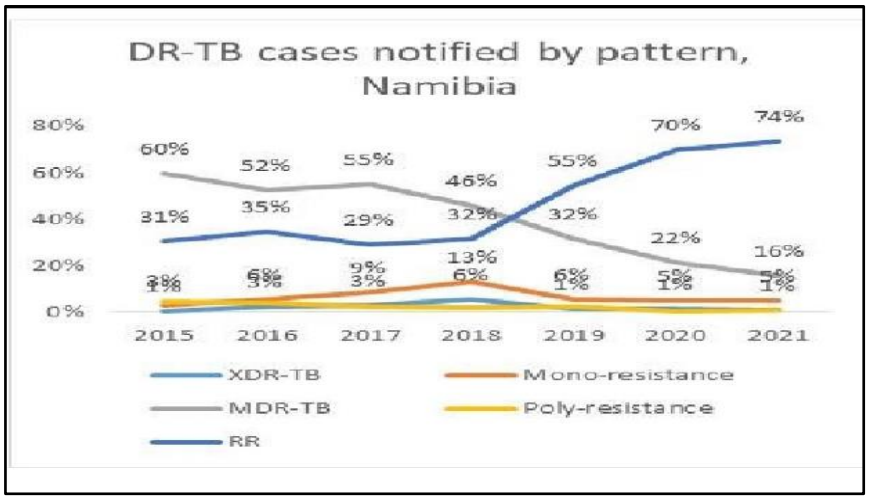


Figure 24: DR TB notification over time by TB patterns

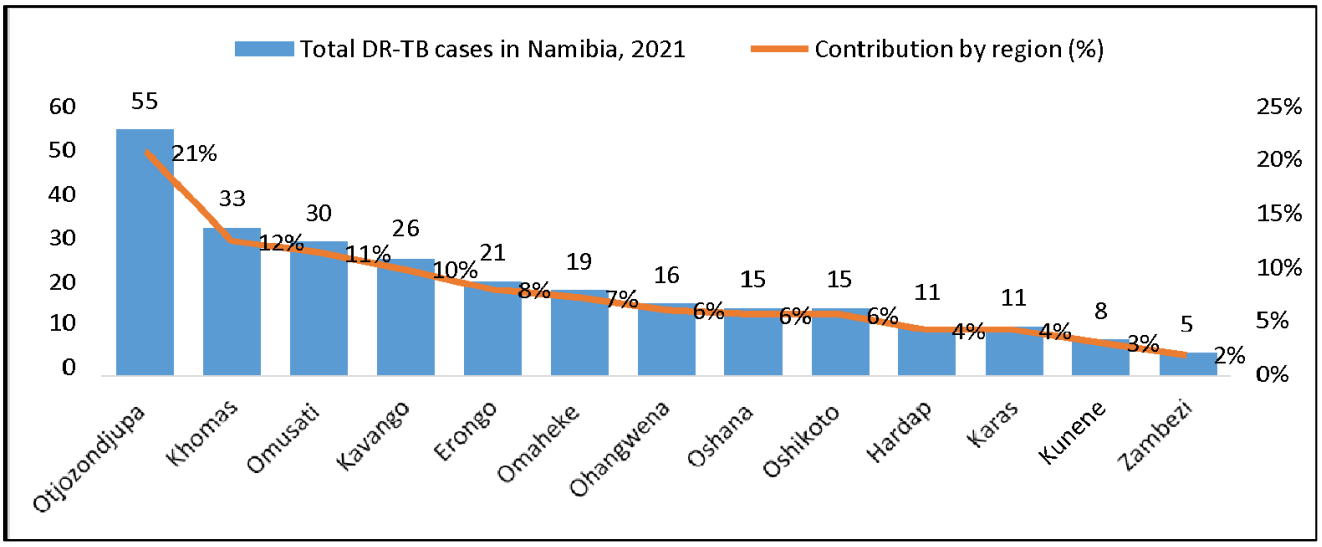


Figure 25: Total DR-TB Cases in Namibia 2021

Drug-resistant TB (DR-TB) treatment outcomes

Treatment success rate for DR-TB has been on the increase from 72% in 2015 to 80% in 2020. Proportion of deaths has however remained constantly high at 15% while lost to follow up has been fluctuating but decreasing from a high of 15% in 2018 to 5% in 2020. This is indicator of cross border challenges attributed to migration of patients with no mechanisms of treatment follow up.

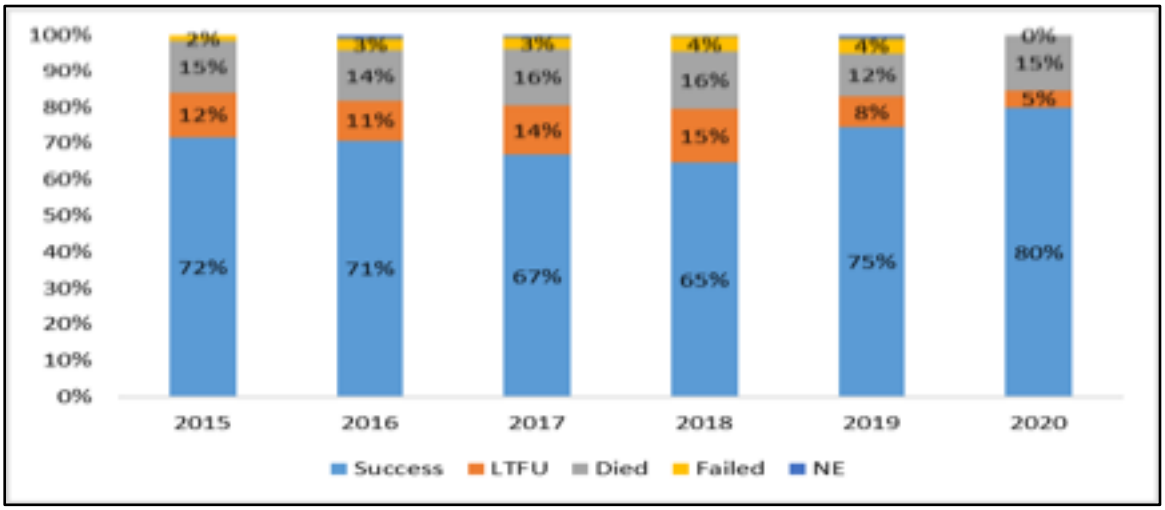


Figure 26: Treatment outcome for DR-TB cases, Namibia

Tuberculosis preventing therapy (TPT) among people living with HIV

TPT coverage among PLHIV has been on the rise and by 2021 it was at 92% among those eligible. In terms of absolute numbers, it shows a decrease of people newly started on ART from 10,907 to 7,358 in 2021. Similarly, the number started on TPT has followed the same pattern. This could be an indication of decline in new HIV infections or sub optimal HIV testing in the population. Accuracy and completeness of reporting is not ruled out. Leakages in TB screening cascade would also explain this where newly enrolled ART clients are screened for TPT but not started due to logistical reasons including transport to health facilities.

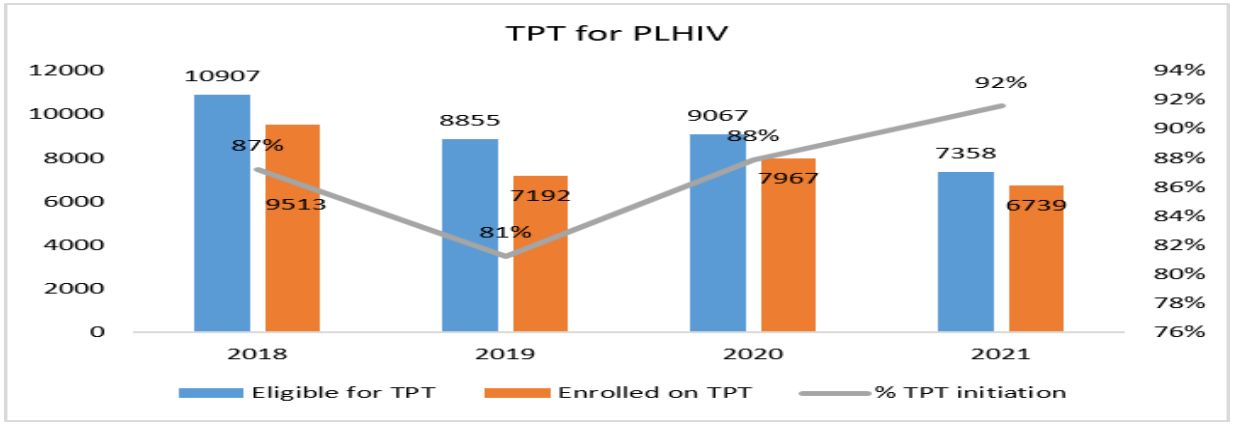


Figure 27:TPT among PLHIV

TPT among contacts children under 5 years

Compared to PLHIV, coverage of TPT among under 5 is lower where in 2021 it was at 73% having risen from 63% in 2017. There is good line listing of TB contacts in health facilities but there is need to have this reported at the national level for monitoring. Since starting of TPT is depended on household screening, there could be leakages on referrals that needs to be strengthened.

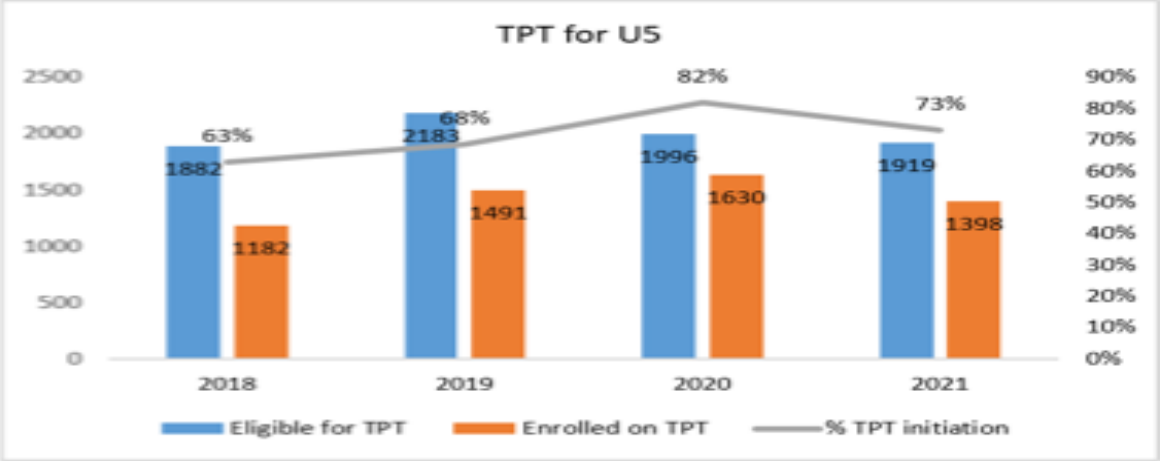


Figure 28: TPT among contacts children under 5 years

TPT among contacts of 5 years and above

This recently started program covering contacts above 5 years and implementation is still sub optimal. TPT coverage for this group is improving year to year from 42% in 2019 to 79% in 2021. In terms of absolute numbers, it is very low given the number of contacts in this age group line listed in the facilities. There could also be reporting gaps at the national level which needs to be strengthened.

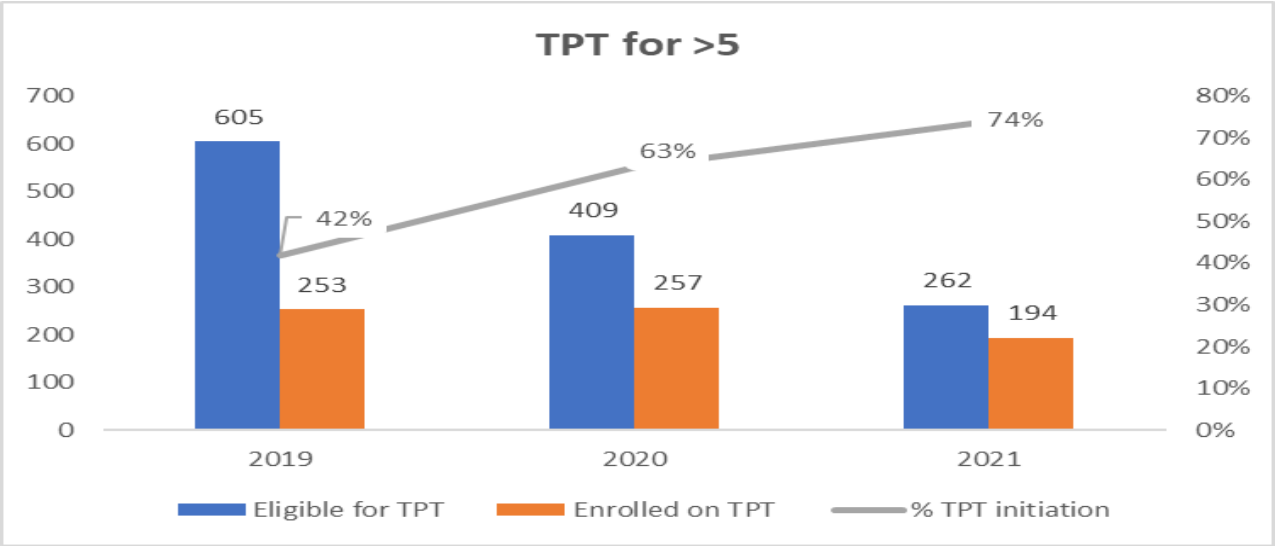


Figure 29: TPT among contacts of 5 years and above

TPT outcomes

Data on TPT outcomes has been fluctuating with the highest peak being reached during 2020 for both age groups. It is important that the program routinely monitors the outcomes of TPT to ensure the new surveillance system is fully implemented for TPT outcome data analysis.

Risk factors for TB in Namibia

According to WHO reports (2021) TB risks factors for tuberculosis in Namibia includes HIV, undernourishment, alcoholism, smoking of cigarettes and comorbidities like diabetes. The TB surveillance system collects some of these risk factors at the facility level however it's not currently reported at the national level. Indicators and data on nutrition is not routinely collected and reported. This should be considered in the implementation of the DHIS2. Statistics on use of tobacco and

alcoholism should also be routinely collected and prioritized in TB control.

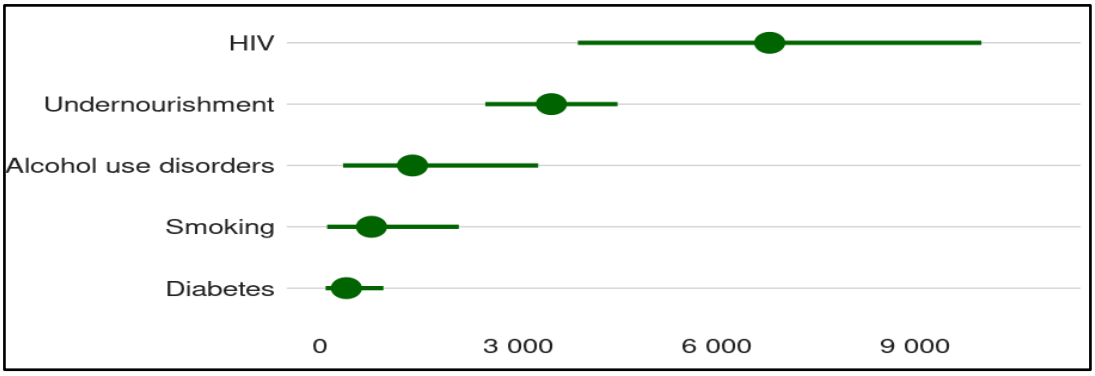


Figure 30: Cases attributable to five risk factors, 2021

- **Out-of-pocket expenditure:** The country has also completed the patient cost survey in 2017 which found that majority of the households (82.2%) incur catastrophic expenditures due to TB. There are well defined social protection schemes to cushion most vulnerable in the society against negative effects of epidemics including TB.
- **HIV:** HIV prevalence in Namibia remains the highest risk factor of TB, with the 2018 national population survey (NAMPHIA) showing the prevalence of HIV among 15-64 year at 12.6%. Females within the same age group carry the burden with a prevalence of 15.7% compared to 9.3% in males. This is significant to TB control since HIV is one of the risks factors and important drivers of the TB epidemic. HIV prevalence is higher towards the North and Northeast with Zambezi at 22.3%. The prevalence decreases towards the south.
- **Malnutrition**: Undernourishment is epidemiological risk for TB. The proportion of the Namibian population with undernourishment has been on the decline since 2010 (30%) to 20% currently. This population remains at high risk of TB.
- **Alcohol and Tobacco use disorders:** Tobacco use has been on the decline since 2000 to 15.1% in 2020. The rates differ in terms of sex with male being the highest users over the years. Alcohol consumption is still high in Namibia especially in the informal settlements.
- **Mining:** Mining industry is an important sector in Namibia's economic development. Unfortunately, miners remain exposed to risks of TB and other lung conditions.

1.3.3 Leprosy

The Global Leprosy Strategy 2021–2030 "Towards zero leprosy" was developed through a broad consultative process with all major stakeholders during 2019 and 2020. The Strategy aims to contribute to achieving the Sustainable Development Goals. It is structured along four pillars: (i) implement integrated, country-owned zero leprosy roadmaps in all endemic countries; (ii) scale up leprosy prevention alongside integrated active case detection; (iii) manage leprosy and its complications and prevent new disability; and(iv) combat stigma and ensure human rights are respected.

Interruption of transmission and elimination of disease are at the core of the Strategy. According to the Global leprosy report in 2021, the registered global prevalence of leprosy (the number of cases on treatment at the end of 2021) was 133, 802, with a prevalence rate of 16.9 per million population. At the end of the year 2021, there were 20,960 registered cases (prevalence rate of 18.0) in the African region and 112,842 in the rest of the world. Namibia is in the post-elimination phase of leprosy, having met the WHO elimination target of less than one case per 10,000 people in 2004, but case detection has been inconsistent over the last 15 years. Due to weak surveillance systems, the true burden of leprosy remains unknown. The country's trend for Leprosy New Case Detection (NCD) has not been consistent but there is a steady increase in reported leprosy cases from 2017 – 2020 with a slight drop in 2021 as shown in the figure below.

While leprosy new case detection (NCD) is generally low across the country, Kavango and Zambezi regions have consistently reported increasing numbers of leprosy cases over the years, and sporadic cases have recently been reported from Oshana. Late diagnosis of leprosy is noted in Namibia, as most of the cases have disability grade 2. According to the strategic plan, the country is looking at reducing the incidence of leprosy from 10/1,000,000 in 2016 to 4/1,000,000 by 2021, reduce the notified leprosy cases to 10 and grade 2 disability to 0%, unfortunately this was not met as the country notified 20 cases in 2021 with a higher proportion having grade 2 disability. The graph below shows leprosy notifications from 2006 to 2021.

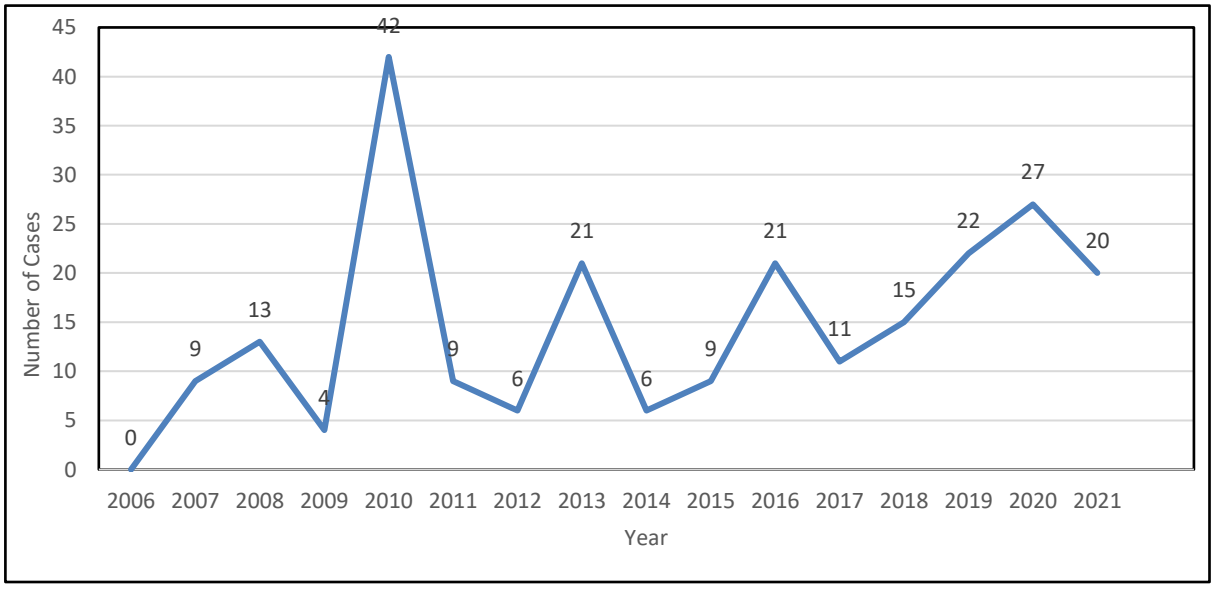


Figure 31: Leprosy notifications, NTLP annual report 2021

1.3.4 COVID-19 pandemic

TB services were disrupted during COVID 19 pandemic, mainly due to restrictions of movement and fear of COVID-19. Hospital attendance declined by 12% and TB case notification also declined by 15% in 2020. Figure 12 below shows the effect of covid-19 in 2020 compared with 2019 and 2021. There is an indication of recovery in 2021 from the impact of the pandemic.

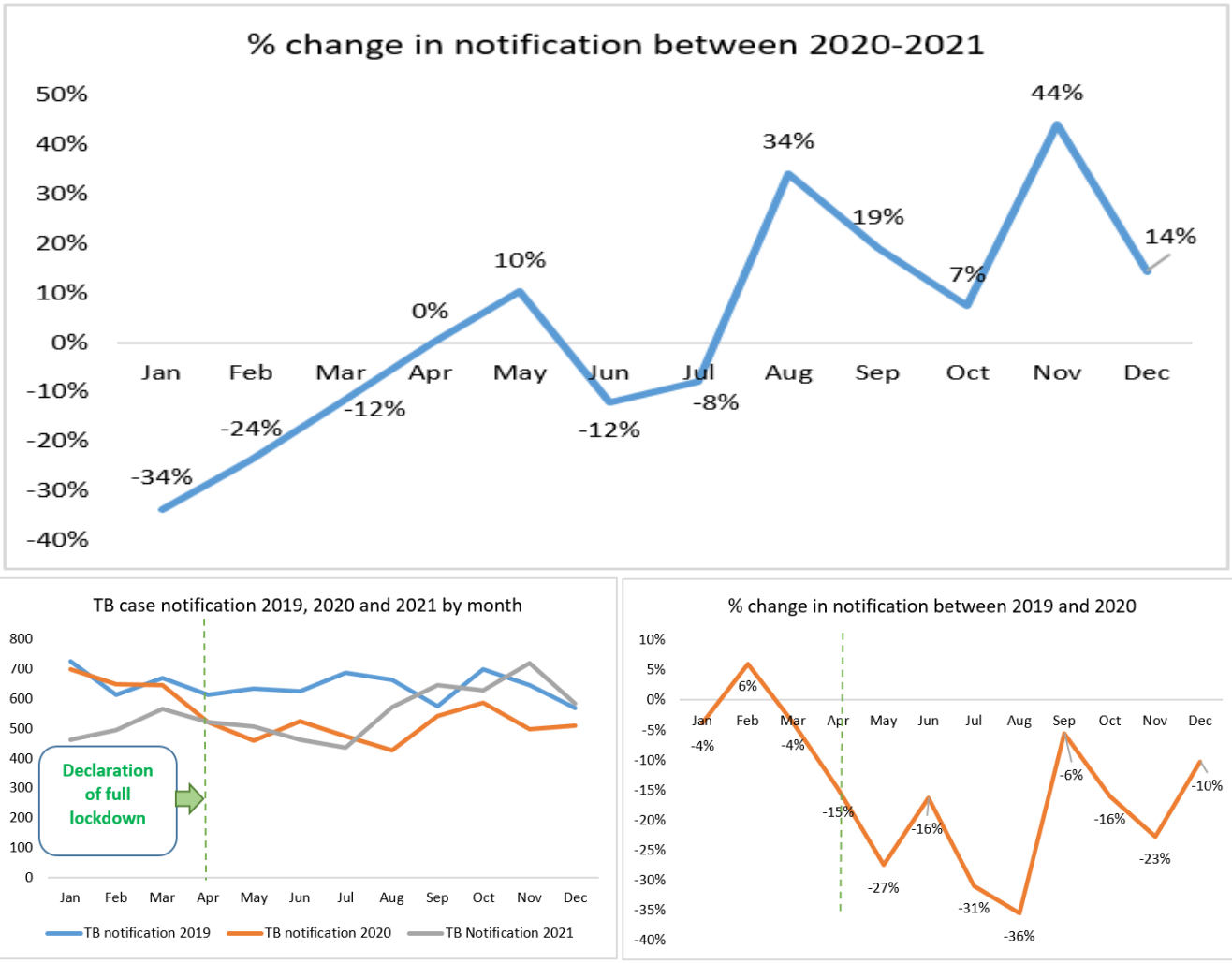


Figure 32: Effect of COVID-19 on TB case finding

Chapter 2: Institutional framework for TB and leprosy care and prevention

2.1. Health care facilities

Namibia health services are delivered through a network of hospitals, health centres, clinics and outreach clinics as highlighted in the table below. Government provides highly subsidised free health services for all patients and for all services, and minimal registration fee for public health facilities. Patients who are unable to pay are also assisted through a waiver system. TB and Leprosy services are for free in the public sector which includes diagnostic and treatment services but in the private sector, patients have to pay.

Table 2: Health care facilities in Namibia

Type of Facility	Public Sector	Private Sector
Hospitals	48	13
Health Centres	52	8
Primary Care Clinics	370	75
Private clinics and pharmacies		637
Mobile outreach clinics	1,150	

2.2. The national tuberculosis and leprosy programme (NTLP)

The National Tuberculosis and Leprosy Programme (NTLP) operates at national, regional, district, and community levels. At the national level, NTLP is one of the three subdivisions under the Health Sector Division of the Directorate for Special Programmes in the Ministry of Health and Social Services and led by a Chief Medical Officer. The Directorate was established primarily to focus on HIV, TB and malaria as significant causes of morbidity and mortality in the country. There are 14 regions in the country and each of the regions has a Regional TB and Leprosy Coordinator while each of the 35 districts has a designated District TB and Leprosy Coordinator (DTLC).

The organogram of the NTLP as of September 2022 is shown below:

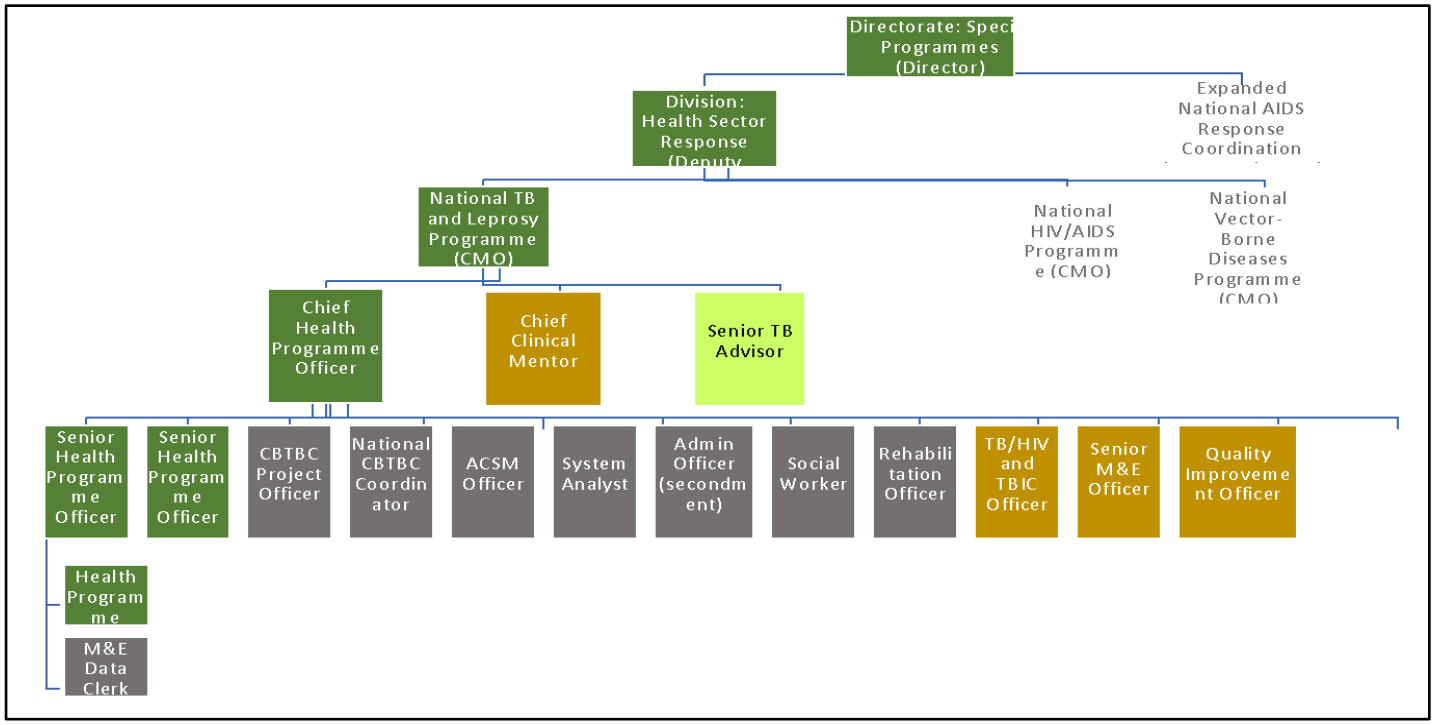


Figure 33: NTLP Structure/Organogram

Positions in green are funded by GRN while positions in blue are partner-funded

2.3. Regional, district, facility and community levels

The Ministry of Health and Social Services coordinates health services at sub-national level through into 14 regions and 35 health districts. The regional health director heads each regional health directorate, assisted by the regional Chief Medical Officer (CMO) who is responsible for coordination of all public health interventions including TB and leprosy. Each region also has a substantive Chief Health Programmes Officer (CHPO) and a Senior Health Programmes Officer (SHPO) responsible for TB, HIV/AIDS and malaria activities. Currently, there is no officially designated dedicated focal point for TB and leprosy at regional level.

The district level is headed by a Senior Medical Officer (SMO) and is responsible for supervision of clinics and health centres for all health services. Two substantive registered nurses are responsible for the implementation and coordination of TB (and leprosy), HIV (and STIs) and malaria (and other vector-borne diseases) activities at this level, but a non-substantive District Tuberculosis and Leprosy Coordinator (DTLC) is usually designated to focus on TB and leprosy. At facility level nurses are allocated to the TB clinic, usually on a rotational basis.

TB care and prevention at community level are mainly spearheaded by community-based organisations (CBOs) using lay care providers who will have been trained on the basic of TB care prevention. There has hitherto been minimal involvement of these CBOs in leprosy care and prevention. The government has since introduced community health workers to strengthen the delivery of primary health care services at community level.

2.4. Multisectoral coordination

The National Tuberculosis and Leprosy Steering Committee (TBL-NSC) steers and guides the multisectoral implementation of initiatives to address TB and leprosy in the country. The committee advises the NTLP and other stakeholders on TB, TB/HIV and leprosy care and prevention. The following are the objectives of the TBL NSC as they relate to TB, TB/HIV and leprosy in Namibia:

- To ensure the delivery of a comprehensive and high-quality prevention, diagnosis and management service,
- To foster stakeholder engagement in the implementation of TB, TB/HIV and leprosy control initiatives in the country,
- To stimulate discussion and ensure prioritization of TB, TB/HIV and leprosy as public health concerns in all relevant sectors,
- To facilitate multisectoral coordination in the prevention-diagnosis-management-care continuum,
- To provide a forum for stakeholders to identify and explore options to address key programme gaps,
- To facilitate sustained programme focus on key priorities, and
- To identify and prioritise key emerging issues regarding TB and leprosy care and prevention.

2.5. International collaboration

Various technical and funding agencies are currently supporting TB care and prevention efforts in Namibia. The existing major international partners at the time of drafting this plan were the World Health Organisation (WHO), United States Centers for Disease Control and Prevention (CDC), United States Agency for International Development (USAID), International Training and Education Centre for Health (ITECH), International Union Against Tuberculosis and Lung Disease (The Union), KNCV Tuberculosis Foundation, The Global Fund to fight HIV/AIDS, Tuberculosis and Malaria (TGF) and USAID Global Health Supply Chain Program-Procurement and Supply Management (CHEMONICS). WHO and The Leprosy Mission International (TLMI) support leprosy care and prevention

2.6. TB notification, monitoring and surveillance system

Namibia has a functioning M&E surveillance system that is both electronic and paper based. The facilities are largely manual with paper TB, DR TB, Leprosy treatment registers and patient record cards. The district level which is the basic report unit runs parallel systems of manual district register, three electronic systems namely, ETR.Net and ETB Manager for capturing case based data for DS TB and DR TB respectively. On the other side the program has been piloting DHIS2 tracker. Leprosy has no national system at the moment and data is only collected at the facility and district level. DS TB data at the national level is received from excel sheets exported at the district level that are then forwarded by the regions. This is due to challenges in ETR.net which is a local system not connected to internet. On the other hand, ETB manager is an online system that makes DR TB data available centrally at the national level.

The program has been piloting the DHIS2 tracker since the beginning of the 2021 year which is expected to merge the two systems, ETR.NET and ETB Manager into one system. This is expected to be sustainable in the long run given that the budgets for the surveillance system even though costed is not optimally funded and the country has human resources constraints for instance the district TB and leprosy coordination is not in the ministry of health establishment and yet they are utilizing for reporting.

The laboratory data is generated by National institute of pathology which is a government parastatal and have some agreement with ministry of health. The data they generate include molecular testing, microscopy and culture results. The current NTLP data flow is shown in the figure below.

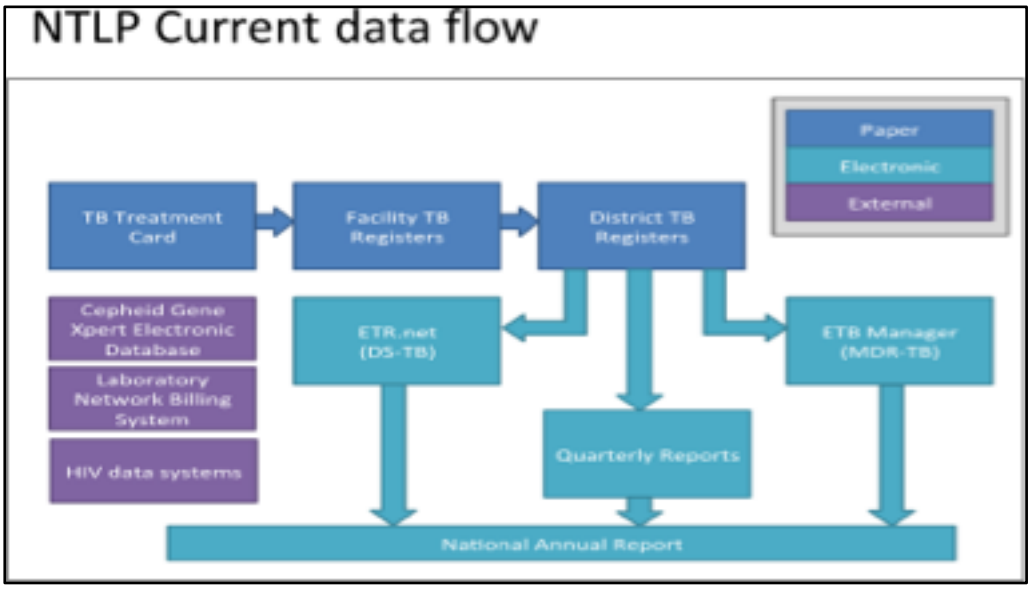


Figure 34: Current M&E surveillance data flow

Chapter 3: Development process for the 4th National Strategic Plan for Tuberculosis and Leprosy using the WHO People-Centered Framework (PCF)

3.1. TBL MTP-III programme review

Namibia's third Medium Term Plan for Tuberculosis and Leprosy (TBL MTP-III) was built upon the successes and lessons learned during the implementation of the second TBL MTP-II and it was implemented during the period 2017/18 to 2022/23.

The three main targets of the TBL MTP-III were to:

- Reduce the incidence of TB from 489/100 000 in 2015 to 321/100 000 in 2021
- Reduce TB mortality from 68/100 000 in 2015 to 34/100 000 in 2021
- Reduce the burden of leprosy to less than one leprosy patient per 1,000,000 population

An End Term Review (ETR) of the TBL MTP-III was conducted from September 9-23rd 2022 to assess the overall performance of the TB and Leprosy programs in relation to national strategic objectives and expected outcomes, and to provide recommendations to inform the development of the new strategic plan for the years 2023-2027. The review was led by a WHO team and conducted by a team of internal and external experts composed of MoHSS officials, WHO staff, temporary consultants, and staff from other development partners including USG agencies, line ministries and CSOs.

The end term review was preceded by an epidemiological review, which assessed the country's surveillance system against WHO standards and benchmarks for TB surveillance systems. It evaluated the extent to which the TB surveillance system in Namibia measures the TB disease burden and mortality and looked at the trends to ascertain the TB epidemiological profile and the interventions to address TB disease. The reports from the reviews was the main reference document that informed the consultative meetings to define the areas that should be addressed in the successor strategic plan using the WHO People-centered Framework.

3.2. Consultative meetings for developing the TBL NSP

First consultative meeting: January 2023

The first consultative meeting focused on reviewing the report of the external programme review of TBL MTP-III and was used to define the key programmatic gaps as well as identify key interventions and activities to be implemented in the fourth National Strategic Plan for Tuberculosis and Leprosy (TBL NSP). As part of efforts to strengthen multisectoral engagement, this meeting also identified key stakeholders to be included and engaged in the development of the plan; these additional stakeholders were invited to the second consultative meeting.

Second consultative meeting: February 2023

The second consultative meeting focused on defining the key activities for TBL NSP, as well as breaking these down into detailed activities. The role of the various stakeholders in the implementation of the proposed activities was also discussed. A draft activity framework for discussion at the consensus meeting was the main output of this consultative meeting.

Third consultative meeting: March 2023

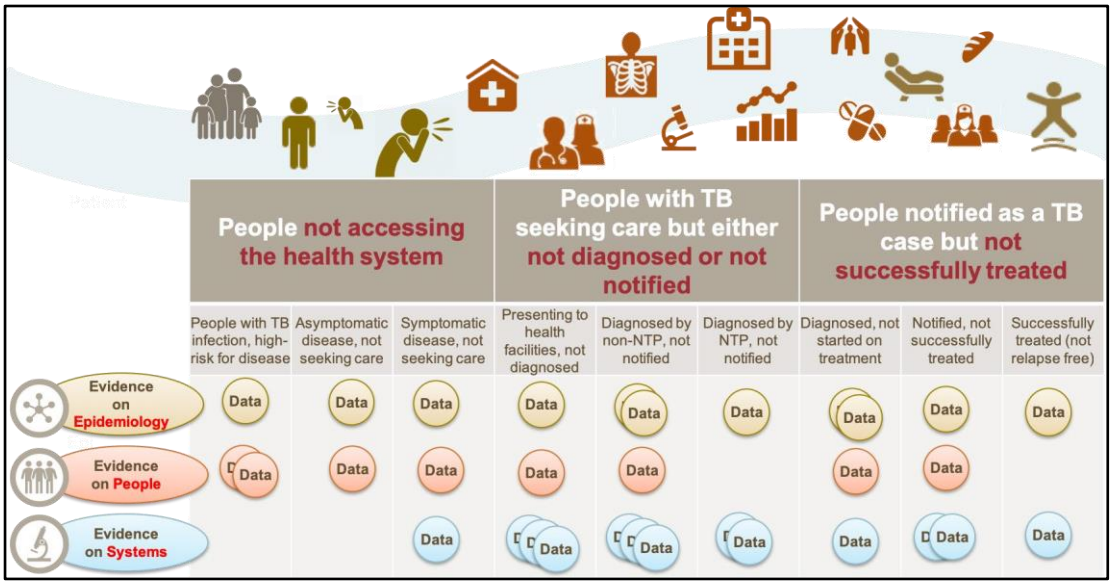
This meeting was used to review the draft strategic plan framework in terms of its alignment and responsiveness to the known and identified gaps as well as to further elucidate the implementers of the various activities. This meeting also served as a platform to develop the M&E framework and costing of the NSP in preparation for the Global Fund application to be submitted in March. The main output of the meeting was the NSP budget and the monitoring and evaluation plan.

TBL NSP Validation meeting: June 2023

The final stakeholder's meeting focused on validating the NSP epidemiological modelling, costing, strategic objectives, M&E Framework, TA Plan and Contingency Plan. The stakeholders reviewed the different investment case scenarios for strategic prioritization and optimal epidemiological impact.

Chapter 4: The Approach to identifying gaps along the continuum of care for TB and Leprosy

The TBL NSP consolidates the learning from the last few years and prioritizes approaches that will further accelerate progress to reaching and curing all people with TB. A systematic approach to the review of data and evidence was undertaken as the foundation for this TBL NSP using the WHO People-Centred Framework (PCF) for TB programme planning and prioritization. The PCF was adapted to guide planning and prioritization for Leprosy.



Data and findings from routine surveillance and studies were mapped to the patient care continuum. In a series of Stakeholder Consultation workshops, over seventy NTLP staff, patients/clients, international, national and local stakeholders reviewed and discussed the evidence applied to three unique planning steps: (1) Problem Prioritization, (2) Root Cause Analysis and (3) Strategic Intervention design. The process nurtured country-level planning that centred on asking the questions, (1) What are our biggest problems, (2) Why are they happening and (3) What should we do about them. The identified priorities are based on data, tracked gaps in the evidence, and consensus based.

4.1. People with TB seeking care, but not diagnosed and not notified

Presenting to health facilities, not diagnosed

Diagnosed by non-NTLP, not notified

Diagnosed by NTP, not notified

Outline of key programmatic gaps:

- Suboptimal screening at all entry points
- Suboptimal quality service provision for TB testing
- Suboptimal coverage of lab reagents, supplies and consumables
- Suboptimal case detection rate amongst 0-14yrs (53%)
- Lack of a PPM Framework

Summary of Strategic interventions that address these gaps along the Care continuum:

- Optimize TB/HIV and other co-morbidities collaboration for improved case detection, treatment and care
- Increase TB testing, access and coverage to test all presumptive TB people with WHO recommended molecular tests
- Strengthen access to DR-TB prevention, case finding and treatment
- Develop and implement the TB Public-Private Mix (PPM)

4.2. People not accessing the health system.

People with:

TB infection or with high risk for disease

Asymptomatic disease, not seeking care

Symptomatic disease, not seeking care

Outline of key programmatic gaps:

- Low accessibility to health care:
- Inadequate (targeted) active case finding:
- Inadequate community-based TB care:
- Inadequate TB services provided in congregate settings:

Summary of Strategic interventions that address these gaps along the Care continuum:

- Strengthen universal access to TB prevention, care and treatment
- Scale-up Active case finding strategies
- Optimize Community-based TB outreach and care services and strengthen the implementation of the ENGAGE-TB Approach
- Strengthen access to TB prevention, case finding, care and treatment for Children and Adolescents

4.2. People notified as a TB case but not successfully treated

Diagnosed, not started on treatment

Notified, not successfully treated

Successfully treated, not relapse free

Outline of key programmatic gaps:

- Interrupted supply of testing commodities including equipment
- Catastrophic cost among TB patients and their families
- Treatment interruption due to interruption of supplies of SLD
- Lack of child-friendly TB medicine formulations

Summary of Strategic interventions that address these gaps along the Care continuum:

- Establish integrated Post-TB patient care and follow-up
- Ensure an uninterrupted supply of first- and second-line TB medicines
- Strengthen patient support services to reduce TB -related catastrophic costs from 82% to 41% by 2028

The full cost of the TBL NSP is presented in Chapter 9. Epidemiological modelling of impact was applied in combination with cost models and a sub-set of interventions were selected to optimise the impact of available resources on the epidemic overall and for selected special populations.

Chapter 5: Vision, mission, goal, targets, and strategic objectives

Vision	Namibia free of TB and Leprosy - zero deaths, disease and suffering due to tuberculosis and leprosy
Mission	Deliver high quality TB and leprosy interventions with a focus on universal access, equity, gender sensitivity, key and vulnerable populations
Goal	Decrease the burden of TB and eliminate Grade 2 disabilities among new Leprosy cases by enhancing early case finding and providing universal access to timely and quality prevention, diagnosis, and treatment of all forms of TB and Leprosy
Impact	• 67% reduction in TB incidence rate by 2027 (compared to 2015) • 59% reduction in the number of TB deaths (compared to 2015) • 5% RR/MDR prevalence among new pulmonary TB cases by 2027 • 50% reduction of TB affected families facing Catastrophic costs due to TB by 2027 • 63% reduction in rate per million population of new cases with G2D by 2027 • 63% reduction in rate per million children of new child cases with leprosy by 2027
Outcome	**By 2027/28:** • Case notification rate of all forms (new and relapse cases) of TB 216 per 100,000 population • 146 confirmed RR-TB and/or MDR-TB notified • ≥90% treatment success rate among all new and relapse TB patients • RR/MDR-TB case detection rate of 90% • Childhood TB case detection rate of 90% • ≥80% treatment success rate for RR TB and/or MDR-TB • 90% TB treatment coverage • 50% reduction in annual number of new Leprosy cases detected

Strategic objective 1: Enhance Programme Management, HRH, and Leadership

Introduction:

Namibia has a well-structured National Tuberculosis and Leprosy (NTLP) with committed staff at national & subnational levels who have sustained program focus during the COVID-19 pandemic. However, the NTLP has operated without a substantive Chief Medical Officer (CMO) since the resignation of the previous CMO in 2018. Furthermore, the departure of the Chief Health Programmes Officer (CHPO) and the Deputy Director: Health Sector Response have further impacted operations of the programme. The programme has however been complemented by various partner funded positions and this support has helped the NTLP to continue implementing the previous MTP-III despite the significant gaps in the staffing of the programme at all levels.

Outline of key programmatic gaps:

- There are significant gaps in key programme positions at national and sub-national levels, which is affecting the stewardship and leadership of the programme, and alignment with the MOH strategic direction as well as the ability of the programme to access and benefit from government funding. This has been aggravated by the vacancy of the Deputy Director: Health Sector Response position as well as the long-term absence of the Director: DSP.
- The DTLC function is usually assigned to an entry-level nurse, with inadequate managerial capacity and authority, and no incentives, resulting in limited institutional capacity, high turnover, inadequate programme coordination, and suboptimal quality of care.
- Due to staff shortages and inadequate clarity on task shifting, community health workers (CHW's) in some facilities are mainly providing facility-based services, including performing duties that are normally performed by nurses. Furthermore, there are challenges with supervision of government employed CHWs in most regions where they are working.
- Precarious availability of funding for CHWs from the Global Fund and for other TB doctors recruited by partners working in different district hospitals

Sub-objective 1.1: Strengthen the governance structures and organizational capacity for optimal programme management.

Strategic Interventions:

1.1.1 Strengthen the organization of regular national Tuberculosis and Leprosy (TBL) stakeholders' forum meetings, and annual update sessions for senior MOHSS leadership and line ministries. The coordinating role of the National Tuberculosis and Leprosy National Steering Committee (TBL NSC) will be strengthened, with membership being expanded to include other key sectors especially the private sector which is crucial to the country's efforts to end TB and leprosy.

1.1.2 Enhance TB and Leprosy capacity building for clinical and programme staff at national, regional and district levels through the implementation of leadership and programme management trainings. To strengthen facility level coordination annual trainings on national TB and leprosy guidelines will be organised for health facility managers and regional health teams. Curricula for pre-service training for health workers will be updated in line with the national guidelines as well as the Standard operating

procedures for supervision at all levels.

1.1.3 Establish task-shifting for TBL prevention and care, and mobilize alternative resources for community TB care and prevention. The private sector will be engaged to co-finance community-based TB care (CTBC) interventions. A strategy for the sustainable implementation of community-based TB care will be developed that includes the private sector engagement for CTBC support.

1.1.4 Strengthen annual government funding for TBL care and prevention through the annual submission of funding motivations for increased allocation. Specific justification for increased funding will also be submitted for the recruitment of key positions at the National Level for TB and Leprosy Program. Motivations will also be submitted for the government registry establishment of the District TB & Leprosy Coordinator (DTLC) position.

1.1.5 Update national guidelines in line with WHO recommendations: National TB and Leprosy guidelines will be revised in line with WHO and other international recommendations and orientation sessions will be conducted for the various categories of health workers, including community health workers, and stakeholders.

Strategic objective 2: Strengthen universal access to TB prevention, care and treatment

Introduction:

Namibia has been experiencing an economic downturn in recent years which has resulted in the contraction of economic growth, a reduction in government revenues, necessitating government budget cuts. This is exacerbated by the declining external funding for health, particularly the funding for HIV programmes. The Government of the Republic of Namibia has made a commitment to achieve Universal Health Coverage (UHC), with an objective to ensure that the country's most vulnerable populations have access to essential health services, without suffering excessive financial burden. There is strong political will and commitment to address health issues as the government contributes a significant portion of the funding for health (75% of available funding for TB in 2021). Public finances for health, including TB have been predictable over the last few years, with small declines in the last 3 years mainly due to economic recession and the COVID19 pandemic.

There are significant investments from partners (Global Fund and USG) for TB and TB/HIV services, supporting key programme activities and human resources while the GRN provides highly subsidized free health services for all patients and for all services, and a minimal registration fee for public health facilities. Patients who are unable to pay are also assisted through a waiver system. The Households Out-of-pocket spending on health (OOP) (8%, NHA 2018) is low compared to the average in the region, but there is a high household catastrophic spending (82%) while accessing TB services.

There are commendable initiatives on national food fortification and supplementation for TB patients; and a transport reimbursement scheme for patients on DR-TB treatment which is implemented through CBOs. The National Social Protection Policy 2021-2030 and the National Pension Act-Amended in 1993, all provide the legal framework for social protection and grants in Namibia. In addition, the MOHSS is developing the UHC Policy Framework to guide efforts towards health coverage for all.

Key programmatic gaps:

- There is insufficient funding, with sustainability concerns due to shrinking in both public and donor funding compounded by limited institutional capacity to mobilize resources for TB and leprosy.
- In 2021, 62% of the estimated resource needs of the TB NSP (USD27M) remained unfunded while 29% were from domestic financing and 9.7% external. Funding for leprosy activities remains minimal.
- There is inadequate capacity to manage, coordinate and orient donor funding in line with the MOH agenda.
- There are inequities in the allocation of resources, with limited mechanisms for financial risk protection of TB patients, especially for the vulnerable.
- There is no clear link between resource allocation and results/outcomes, with little incentives for performance by the health service delivery and interventions management.
- A significant proportion of TB patients (82%) and their households incur catastrophic costs mainly due to non-medical costs (transport, nutrition, loss of income, etc).
- There is suboptimal programme coordination, impacting planning, prioritising, allocation, expending and monitoring of resources.
- No constant feeding program available for TB patients in most regions.
- Knowledge of the availability of social grants for TB patients is varied and the system for getting the grant is not clear.
- Previously provided nutritional support for TB patients has since stopped in some regions

TPT:

- TPT using the older regimen (6H or 9H in PLHIV and contacts below 5 yrs) was introduced in collaboration with the HIV Program in 2004 and Namibia introduced the 3HP regimen for PLHIV in 2021. In late 2022, the country began scaling up TPT for older contacts (non-PLHIV) with the inclusion of two shorter regimens, 3HR and 3HP.

IPC

- The National TB Infection Prevention and Control Guidelines (Third Edition) was issued in 2021 and through its implementation, patient health education is provided, staff are screened bi-annually and PPE is provided to healthcare workers. In addition, facilities have developed IPC plans to varying degrees with environmental and administrative controls being implemented better in larger facilities than in smaller facilities
- However, challenges remain, including that the Legal framework for classifying TB as an occupational disease is not yet in place, and although established with indicators in the TBL MTP III, TB screening among mineworkers or incarcerated population\correctional staff is not routinely reported and is limited in police holding cells.

Sub-Objective 2.1: Strengthen Universal health Coverage (UHC) and access to Social Protection

Strategic Interventions and priority activities:

2.1.1 Improve community access to TB services: Community-level people-centred services for TB will be developed including collaborative activities to address undernutrition, diabetes, tobacco use, substance use disorders including alcohol and drug use and post-TB disability. HCWs capacity on rehabilitation services for TB and leprosy patients will be strengthened.

2.1.2 Coordinate with other stakeholders on social insurance and social assistance: Community mobilization and patient education activities on social insurance and social assistance will be conducted following the development of IEC materials and dissemination through employers, local authorities and community leaders. Further, a Social Protection TWG will be established.

2.1.3 Establish a M&E system to monitor the implementation of UHC: Innovative domestic resource mobilization strategies for health and UHC reforms will be established, with special focus on TB and other diseases of the socially disadvantaged. Indicators will be developed and integrated into the M&E system to monitor resources allocation and ensure accountability.

2.1.4 Advocate for Health Financing and equitable distribution of resources: Access to GRN funding will be advocated for across all sectors to mitigate TB related catastrophic costs and support approaches to address these in line with national policies. This will include initiatives such as expansion of mechanisms for financial risk protection of TB & Leprosy patients and to ensure the availability of social protection services.

2.1.5 Strengthen TB Prevention (TPT) implementation, including operational guidance to improve TPT coverage within the context of contact investigation (for children, adolescents and adults) as well as for other key and vulnerable populations. TPT capacity building activities will be conducted among healthcare workers and CHWs to enhance community engagement initiatives e.g. DSD-TPT (MMD etc). Introduce robust M&E mechanisms for the analysis and use of TPT data to optimise management of TB contacts.

2.1.6 Strengthen Infection, Prevention & Control (IPC) Implementation: Facility specific standard operating procedures (SOPs) and job aids for TB infection control will be developed, and these will include maintenance of UVGIs and respirators. Training on TB infection control at pre- service and in-service level will be conducted, and IEC materials for TB infection control will be developed and disseminated. Comprehensive SOPs for health worker TB screening will be developed and operationalized through targeted training and program monitoring.

Sub-objective 2.2: Scale-up Active case finding strategies

Strategic Interventions and priority activities:

2.2.1 Strengthen systematic screening at community level: The scale-up of systematic screening for TB utilizing digital chest Xray will guide the operational plan to conduct mass TB chest Xray screening in high burden areas and active contact investigation for all TB cases. TPT provision with shorter regimens will be integrated into contact investigation as well as for eligible individuals in systematic screening for community and congregate settings. In addition, capacity building and monitoring the use of systematic screening SOPs and the algorithm will be implemented regularly.

2.2.2 Strengthen systematic screening for TB in health care facilities, including primary health care, outpatient settings and inpatient settings. This will include amending OPD registers and other recording tools, providing SOPs and capacity building.

2.2.3 Strengthen systematic screening at all congregate setting entry points: Capacity building of HCWs to conduct systematic TB screening in all congregate settings will be conducted with the development of guidelines on the completion of all TB data capturing tools. This is key to ensure the monitoring and evaluation of the yield of TB screening in congregate settings.

2.2.4 Strengthen and sustain Advocacy, Communication and Social Mobilization (ACSM): The ENGAGE-TB approach will be adopted to facilitate multisectoral stakeholder engagement and IEC materials will be contextualized to strengthen patients' education and counselling.

Sub-objective 2.3: Establish integrated Post-TB Lung Disease care and follow-up

Strategic Interventions and priority activities:

2.3.1 Develop and implement standard policy, guidelines, and M&E tools for PTLD in adults, adolescents and children: As this is a new component of TB care, the first step is to establish the burden of PTLD then develop policy, guidelines, and M&E tools to guide the capacity building for HCWs on PTLD, incl private sector. Paediatric PTLD interventions will be integrated into child and adolescent TB policy guidelines and capacity building.

2.3.2 Strengthen psychosocial support and rehabilitation for PTLD: To determine the catastrophic costs incurred by PTLD consumers, a Patient Cost Survey will be conducted to guide the development of systems for psychosocial support and rehabilitation of patients with PTLD.

Strategic objective 3: Strengthen access to DR-TB prevention, case finding and treatment

Introduction:

Drug-resistant TB remains one of the challenges being faced by Namibia despite the continued decline in DR-TB case notification over the years. The prevalence of RR/MDR-TB according to the anti-TB drug resistance survey (DRS) conducted in 2015/16 is 4.5% among new cases and 6.3% among previously treated. Namibia is missing a significant number of RR/MDR-TB cases with a case detection rate of 45%.

Key programmatic gaps:

- Suboptimal DR-TB case finding
    - DR-TB case detection rate is 45% according to WHO Global TB Report 2022.
    - DRTB case notification rate is at 74% against 90% NSP target (265/357)
    - Isoniazid mono resistance surveillance is not conducted routinely despite the last drug resistance survey showing high prevalence of Isoniazid in the country.
- Delayed receipt of SLDST results for new drugs thereby impacting patient management.
- Proportion of patients who die whilst taking drug resistant TB treatment is high at 15%
- Weak active monitoring of adverse events with under reporting of adverse drug reactions (ADRs) to pharmacovigilance centre (TIPC). Equipment for actively monitoring ADRs is not widely available in the DR-TB treatment initiating sites, eg ECGs and visual monitoring tools (Snellen and Ishihara).
- No second-line child friendly formulations despite 39 paediatric DR-TB cases in 2022

Sub-objective 3.1: Introduce DR-TB preventive treatment:

Strategic Interventions and priority activities:

3.1.1. Scale up of DR-TB preventive treatment in adult and paediatric populations, through evaluation of available models in adult and paediatric populations, assessing for feasibility and developing local guidance.

3.1.2. Introduce the provision of DR-TB preventive therapy to eligible contacts and clients. The experience will be used contribute to the scientific body of knowledge through implementation research.

Sub-objective 3.2: Strengthen access to DR-TB case finding:

3.2.1. Strengthen active surveillance and case finding for DR-TB, including integrating DR-TB in general case-finding initiatives as well as contact tracing and investigation. Routine drug susceptibility testing will be provided for first line drugs through mWRD and scaled up for second line drugs

3.2.2. Implement molecular surveillance by introducing the capacity to conduct sequencing through collaborating with capable laboratories as well as conducting a drug resistance survey.

Sub-objective 3.3: Strengthen access to high quality DR-TB treatment and care:

3.3.1. Optimize DR-TB care and treatment through updating and digitising guidelines for the management of drug-resistant TB which will be followed by capacity building. Updated guidelines will include use of newer shorter regimens in line with WHO recommendations. Training will be conducted for clinicians, pharmacy staff, CHWs, rehabilitation staff, and others on these guidelines, including active drug safety monitoring and management (aDSM) training.

3.3.2. Strengthen active drug safety monitoring and management through updating guidance and M&E tools, training in addition to procuring and maintaining equipment needed for aDSM

Strategic objective 4: Strengthen access to TB prevention, case finding, care and treatment for Children and Adolescents

Introduction:

In Namibia, the number of children notified increased from 644 in 2020 to 657 in 2021 but still has not reached the WHO benchmark of 15%. Only 9.7% of all notified TB cases in 2021 were children. The lack of effective diagnostic tests that can be performed on easily accessible samples could be hampering these efforts. Further, the lack of availability of quality TB diagnosis in primary care and private sector are impacting childhood TB case findings. The need to strengthen community-based case finding, HCWs training sessions and capacity building and mobilizations for childhood TB will help to find missing cases and proper management.

Key programmatic gaps:

- The national Paediatric TB TWG is not functional.
- Not all facilities are meeting on a regular basis for data review and specific meetings on childhood TB. There are no specific Paediatric TB guidelines and Training curricula.
- Limited involvement of paediatricians from public and private facilities in supervision and mentoring

sessions including capacity building and training.

- Sub-optimal childhood TB case finding as there are leakages/gaps in the contact management cascade and TB_LAM for HIV positive children is not routinely used.
- Malnutrition among children with limited nutritional support and no transport support for guardians
- Limited capacity in conducting gastric lavage/aspirates among nurses and the use of stool samples for Xpert testing is not yet adopted.
- Minimal supportive supervision visits for childhood TB from the region as well as the district level.

Sub-objective 4.1: Strengthen TB preventive treatment for children & adolescents:

Strategic Interventions and priority activities:

4.1.1 Strengthen the National TWG on paediatric TB and ensure a multi-sectoral collaborative approach to paediatric TB care through strengthening the public-private partnership with Paediatric and Adolescent health practitioners in the private sector.

4.1.2 Standardise the diagnosis, care and treatment of childhood and adolescent TB by involving other categories of HCWs and stakeholders (social welfare, environmental health practitioners, CSOs, Ministry of Gender, Disability prevention and rehabilitation division) and the community.

4.1.3 Develop patient and community education on child and adolescent TB: IEC materials targeting this vulnerable population will be developed through consultation with relevant key stakeholders in the private, academic, NGO and non-health sector (e.g. Ministry of Education/School Health)

Sub-objective 4.2: Strengthen active case finding among children and adolescents:

Strategic Interventions and priority activities:

4.2.1. Strengthen the implementation and monitoring of Contact Investigation: This will include intensive HCW and CHW capacity building, supervision and mentorship on contact tracing, reverse contact investigation and family mapping of all index case households.

4.2.2. Enhance active TB case finding strategies among children: Novel TB diagnostic techniques that embrace non-invasive collection of TB samples in children will be introduced with intensive HCW and CHW capacity building to increase case finding and diagnosis

Sub-objective 4.3: Enhance TB care and treatment for children and adolescents:

Strategic Interventions and priority activities:

4.3.1. Ensure an uninterrupted supply of paediatric friendly formulations for FLD and SLD: In addition to procuring child friendly TB medicines, paediatric specific patient support packages will be developed to introduce enablers for ensuring the best treatment outcomes for the children and adolescents. These enablers will be developed in consultation with the TWG and regional/global partners but will include nutritional support, transport reimbursements, chest x-ray vouchers etc.

4.3.2. Develop Paediatric TB treatment guidelines, SOPs, job aides, IEC and training curricula: Specific TB in

children and adolescents materials will be developed and disseminated to the lower levels of the health system (public and private) to ensure all healthcare providers are well capacitated

Strategic objective 5: Optimize TB/HIV and other co-morbidities collaboration for improved case detection, treatment and care

Introduction:

Namibia is among the countries with very high rates of TB/HIV coinfection; however, the TB/HIV co-infection rate has been declining from 59% in 2017 to 30% in 2021. HIV and undernutrition are the top drivers among other risk factors attributed to TB in Namibia which has resulted in the adoption of the latest WHO policy guidelines on TB & HIV prevention, treatment, and social support. National guidelines for HIV and TB are separate documents but both have the TB/HIV chapters covering main approaches and recommendations to prevention, testing, treatment and care and service delivery. Namibia has adopted the use of point of care tests and technologies for the diagnosis of TB: LF LAM, GeneXpert Ultra. SOPS for conducting mortality audits are largely in place and used in providing an opportunity to review the underlying circumstances surrounding unfavourable outcomes for quality improvement in care. Nationally, there is a multidisciplinary clinical team and mentor who review complex patients.

Key programmatic gaps:

- Finding incident TB cases among PLHIV remains the main challenge overall, with the system missing an estimated 45 % of the total incident TB patients among PLHIV.
- Screening PLHIV with the WHO-recommended four symptom screen has been demonstrated to have lower sensitivity and yield overall. Namibia is yet to include C-reactive protein in its screening algorithm for TB among PLHIV.
- Despite the declining trends in mortality at the population level over the years, high death rates continue to be observed among patients on care averaging at 12%.
- There is reduced capacity to address advanced HIV disease and high case fatality ratios in TB patients with HIV, ranging considerably from region to region due to late presentation, and delayed TB diagnosis.
- Financial resources towards supporting the activities remain scarce to fully meet the needs of a comprehensive national package of TB/HIV collaborative activities; many activities and positions held in the national TB programme are supported through external funding; domestic funding allocations remain scarce thus affecting implementation of TB/HIV collaborative activities.
- The cross-border collaborative engagement is sub-optimal resulting in loss to follow up among clients in neighbouring countries.
- There were reported stock-outs of opportunistic infection drugs (fluconazole) and TPT in some regions visited, limiting the full access to advanced packages of care for PLHIV.
- Although no patients went without the lifesaving medicines, the program was not in a position to fully implement DSD model (6 MMD) because of limited stocks of TB medicines during the COVID-19 pandemic.
- Integration of TB and HIV services was also noted as a gap and opportunity in the private sector.
- Parallel reporting and recording systems for TB and HIV data, resulting in challenges in following up co-

infected patients, high HCWs workload and compromised data quality for decision making.

- TB risk factors are collected in the facility registers but not reported at national level (diabetes, malnutrition, smoking, alcoholism etc).
- According to the Patient Cost Survey, approximately 82% of TB patient households face catastrophic costs due to the impact of TB disease on their livelihoods: The main cost drivers are non-medical expenditure such as travel, nutritional supplements, food and time/income loss.

Sub-objective 5.1: Optimize TB/HIV and other co-morbidities collaboration:

Strategic Interventions and priority activities:

5.1.1 Strengthen implementation of TBHIV collaborative activities including district and regional level continuous quality improvement: Develop TB-HIV coordination mechanism at regional and district level for multidisciplinary collaboration. WHO recommended new technologies will be introduced to improve TB screening in high HIV settings as well as capacity building at levels.

5.1.2 Strengthen case finding of TB/HIV co-infected patients: Develop an operational guide for TB/HIV case finding strategies at various levels including SOPs, job aids and screening algorithms incorporating the use of chest X-ray, CRP, mWRDs and computer-aided TB detection (CAD4TB). Health care workers will be oriented and mentored on these procedures, trainings and mentorship will be conducted for health workers on clinical and programmatic management of TB/HIV.

5.1.3 Strengthen implementation of Death audit interventions: Mortality audits will be institutionalized and reported on for all TB/HIV deaths. The Mortality audit review committees will be revived in the facilities to provide leadership on the conduct of regular mortality audits

5.1.4 Strengthen governance and accountability for collaborative action: The framework will be integrated into the existing TB/HIV platforms to strengthen the political commitment, coordination and accountability for collaborative action on TB and comorbidities. Support financing and legislation that promote people-centred care and ensure meaningful CSO; engagement and affected communities at all stages of planning, implementation and M&E

5.1.5 Conduct an analysis of access to quality services for TB and comorbidities: To guide the planning, priority setting and implementation, an assessment of the joint burden of TB and comorbidities will be done to determine access to services and the financial burden for people with TB and comorbidities. A mapping exercise of health service delivery for TB and comorbidities will be conducted to identify gaps in services and conduct root cause analysis.

5.1.6 Coordinate planning and resource mobilization for TB and comorbidities collaborative action: The data review, root cause analysis and prioritization will be conducted in close consultation with key stakeholders to identify priority comorbidities and interventions as well as align advocacy and communication across health programmes. The models of care for TB and comorbidities will be defined and reoriented towards people-centred services, primary health care and universal health coverage. Collaborative planning and budgeting will be conducted to scale up people-centred services for TB and comorbidities.

5.1.7 Implement and scale up people-centered services for TB and comorbidities: To mitigate the stigma and discrimination faced by people with TB and comorbidities, the policies, guidelines and procedures for collaborative action on TB and comorbidities will be jointly developed including a qualified

multidisciplinary workforce among private providers and non- health sectors. Access will be ensured to essential medicines, vaccines, diagnostics and health technologies while engaging civil society and communities affected by TB and comorbidities in refining and delivering people-centred services to optimize access to social protection to prevent related financial hardship. Uptake of digital technologies to deliver health and social protection services across programmes will be facilitated together with the phased scale-up of people-centred services for TB and comorbidities.

5.1.8 Strengthen monitoring, evaluation and research of TB and comorbidities: Indicators and set targets for collaborative action on TB and comorbidities will be developed to strengthen the surveillance for comorbidities among people with TB, and surveillance for TB among people with comorbidities and health-related risk factors. Monitoring and evaluation of TB and comorbidities collaborative action will be introduced and scaled-up at all levels. Regular joint reviews of quality and coverage of services will be conducted to inform programming, as well as operational and implementation research to inform policy, programming and service delivery

Strategic objective 6: Optimize Community-based TB outreach and care services and strengthen the implementation of the ENGAGE-TB Approach

Introduction:

Community-based TB care is the backbone of the national TB program. The Global Fund supports NTLP to implement community-based TB care (CBTBC) in 11 regions and the remaining 3 regions are being supported by Advanced Community Health Care Services Namibia (CoHeNa). There are a total of 280 TB field promoters in the whole country linked to more than 600 facilities, hence the coverage is very low. Some field promoters must cover two to four facilities. Their role includes case finding, sputum collection, contact tracing, Direct observed therapy, health education to patients and the community. There are possibilities of disruption of community-based TB care services due to unavailability of funding to support field promoters, their contracts end in March 2023 and there is no clear plan or roadmap on absorption/transition of their current activities.

Key programmatic gaps:

- There is no framework for the collaboration with traditional and religious leaders.
- TB field promoters experience transport challenges which make it difficult for sputum collected to reach NIP timely as well as deliver medications to patients in the community.
- No airtime to communicate to patients or facility staff
- CoHeNa grant is ending in 2023 and there is no clear plan for the continuation of community-based TB services.
- IEC materials (posters, flyers) in local languages are not available for educating clients on TB.
- Community-based TB care and control is at risk of collapsing due to unreliable short contracts of field promoters.
- Missed opportunity for HTC at community DOT as patients are referred to a health facility.

Sub-objective 6.1: Optimize Community-based TB outreach and care services for key and vulnerable populations:

Strategic Interventions:

6.1.1 Strengthen case finding, social support and TB service delivery in key and vulnerable populations: differentiated models of care and differentiated social support strategies will be developed for all the key & vulnerable populations (cross-border, migrants, inmates, warders, correctional facility staff, school health programs, mineworkers and ex-miners, as well as residents of informal urban settlements)

6.1.2 Strengthen access to social support networks for key and vulnerable populations: This will be implemented through the conduct of targeted activities to address TB in nomadic and semi-nomadic populations, including various indigenous populations in Otjozondjupa, Omaheke and Kunene regions. These activies will include outreach, advocacy, prevention, case-finding and tailored care models for TB and HIV in these groups, in line with the Strategic Plan to Address TB in Nomadic and Semi-nomadic Communities in Namibia. Advocacy with line ministries (e.g. OPM, MOGEPESW, MHAISS, and MOF) will be prioritized to support increased access to social support networks by key and vulnerable populations

6.1.3 Increase TB cases detected in correctional facilities and holding cells: Advocacy will be conducted with different levels of Ministry of Safety and Security for TB screening and uninterrupted access to TB services in correctional facilities and police holding cells. Staff in correctional facilities and police holding cells in all regions will be sensitized on TB screening, infection risk awareness, and early case finding among staff and inmates. Inmates will also be sensitized on symptoms of TB and the availability of treatment support services.

Sub-objective 6.2: Enhance Community systems strengthening (CSS):

Community systems strengthening initiatives aim to achieve improved outcomes for health interventions dealing with major health challenges, including HIV, TB and malaria, among many others. An improvement in health outcomes can be greatly enhanced through mobilization of key affected populations and community networks and emphasizing strengthening community-based and community-led systems for prevention, treatment, care and support; advocacy; and the development of an enabling and responsive environment.

To have a real impact on health outcomes, however, community organizations and actors must have effective and sustainable systems in place to support their activities and services. This includes a strong focus on capacity building of human and financial resources, with the aim of enabling community actors to play a full and effective role alongside the health, social welfare, legal and political systems. CSS is a means to prioritize adequate and sustainable funding for specific operational activities and services and, most importantly, core funding to ensure organizational stability as a platform for operations and for networking, partnership and coordination with others.

Strategic Interventions and priority activities:

The TBL NSP has adopted The Global Fund Community Systems Strengthening (CSS) framework which

takes a systematic approach to CSS, for enabling community organizations and actors to fulfil their role of contributing to health outcomes through the following core interventions:

6.2.1 Optimize enabling environments and advocacy: Community engagement and advocacy will be conducted to improve the policy, legal and governance environments. Organizational and leadership strengthening activities will be implemented for all relevant staff and stakeholders including management, accountability and leadership for organizations and community systems.

6.2.2 Strengthen Community networks, linkages, partnerships and coordination: Resource mobilization will be among key private and public sector partners will be key to enable effective activities, service delivery and advocacy, maximizing resources and impacts, and coordinated, collaborative working relationships. Community activities and service delivery will be strengthened and made accessible to all who need them, evidence-informed and based on community assessment of resources and needs.

6.2.3 Optimize resources and capacity building: To ensure impactful CSS, the following resources will be prioritized; *human resources* with appropriate personal, technical and organizational capacities, *financing* (including operational and core funding) and *material resources* (infrastructure, information and essential medical and other commodities and technologies). M&E systems, situation assessment, evidence-building and research, learning, planning and knowledge management will be strengthened.

Sub-objective 6.3: Strengthen the implementation of ACSM activities and MAF-TB:

The WHO End TB Strategy as well as the TBL NSP emphasize the engagement of all stakeholders as well as empowerment of people with TB and affected communities through advocacy, communication, and social mobilization (ACSM), including the use of the TB Patient Charter to guide the patient and health workers in rights and responsibilities in TB care. ACSM is thus a package of strategies aimed at developing people-centered responses to the TB epidemic. The intended outcomes are:

- Patient centered quality services provided by public and private health facilities as well as through community-based organizations (CBOs).
- Engaged communities who are able to find local and appropriate solutions to the TB related challenges in their respective communities, including ways to enhance early case finding, reduce stigma and improved adherence to treatment.
- Effective communication strategies for individual behavior change and social change to support the process of community engagement and improve the quality of services.
- Active partnerships at different levels (national, regional, district) and in different settings (community, hospitals, correctional facilities) for effective planning and implementation; building ownership and self-efficacy through advocacy activities and striving for sustainable people-centered TB control.

The ACSM strategic results towards the achievement of this goal are:

- Improved health seeking behaviour by people with symptoms of TB and decreased stigma on TB in community.

- Increased awareness of TB-related issues in correctional facilities and police holding cells by staff and inmates.
- Increased awareness and active involvement of communities in the identification and tracing of contacts of TB patients.
- Increased awareness among health care workers of the importance of early case detection of TB within health facilities.
- Improved adherence to treatment for patients on treatment for TB, including those with DR-TB.

Strategic Interventions and priority activities:

6.3.1 Improved health seeking behaviour by people with symptoms of TB and decreased stigma on TB in the community: A comprehensive behaviour change communication (BCC) plan focusing on individual and social behaviour will be implemented that facilitates meaningful engagement and empowerment of community and church leaders, schools and traditional healers in early TB case detection in their respective community. Advocacy will be done for increased outreach activities to raise awareness and engagement of communities in early detection.

6.3.2 Increased awareness and involvement of patients, family members and communities in contact tracing for TB patients: Volunteers and community health workers will be mobilized and trained to support home visits for contact tracing. Networks with other stakeholders will be established for implementation of contact tracing.

6.3.3 Reduce time-to-TB diagnosis and optimize linkages-to-TB care among patients presenting to health facilities: Communication skills training for health facility managers and health care workers will be conducted following the development and dissemination of TB IEC materials focused on the identification and separation of presumptive TB patients in waiting areas within health facilities (FAST Strategy). Health care workers and communities will be empowered on early case detection in health facilities.

6.3.4 Improved treatment adherence among patients on treatment for TB: BCC activities focused on barriers to treatment adherence will be implemented with the active engagement of TB patients, community leaders and commercial sector/institutions/churches to support TB patients.

Strategic objective 7: Develop and implement the TB Public-Private Mix (PPM)

Introduction:

An estimated 19% of the Namibian population receive health care services in the private sector, 31% of the total health expenditure is from the private sector (2017/18) which include private hospitals, doctors, laboratories, and pharmacies. The corporate sector or companies in mining, fishing, agriculture, and other industries also provide health services to their employees. Traditional healers also provide services to a variable extent in different communities. Regulations and guidance exist to encourage collaboration with the private sector. The Public Health Act makes TB case notification mandatory by all care providers including the private sector. Information on new guidelines is provided to the private sector and public sector trainings are open for participation by the private sector. Regional and district TB coordinators are mandated to reach out

to private providers. However, no PPM Framework has been established as yet.

Key programmatic gaps:

- Inadequate involvement and participation of (linkage with) private health care providers and alternative (traditional) healers in TB care and prevention.
- Information on new guidelines is NOT routinely provided to the private sector
- Training and reviews especially at sub-national level DO NOT routinely include the private sector.
- Knowledge and confidence of private practitioners in TB services is sub-optimal
- The DTLC guidelines are silent on engagement with the private sector – regional and district engagement of the private sector hence minimal.
- Poor notification from private facilities, labs, and other PPM (~ 222 / 6599 in 2021)
- No system of ensuring that the patient referred from a private facility reaches the hospital and to ensure contact tracing – referral form for referring clients from private facilities not available at district level.
- Opportunities to engage private sector (e.g. farming sector, mines) to fund and support Community-Based TB services has not been explored
- Systematic screening of miners for TB is not yet fully implemented and monitored
- Almost no other TB in mines activity beyond TB in Mines in Southern Africa (TIMS) project

Sub-objective 7.1: Develop and implement the TB Public-Private Mix (PPM):

Strategic Interventions and priority activities:

7.1.1 Develop a PPM Framework and incorporate PPM in the TB Technical Working group (TWG committee, PPM working groups): Establish a PPM framework for improved collaboration and participation of non-NTLP sector to TB service delivery based on WHO guidelines. Appoint a focal person for PPM at the national level, empower RTLCs and DTLCs to ensure PPM implementation at regional and district levels

7.1.2 Strengthen private sector stakeholder engagement through PPM: Engaging the private sector to co-finance community-based TB care interventions will be done as well as the mobilization of funding from corporate/ private sector to bridge key human resources gaps and support activities implementation. Regulation (certification and accreditation) will be established through either government, intermediate firm or a professional association to facilitate this on behalf of the government through performance-based contract.

7.1.3 Strengthen collaboration and participation of non-NTLP sector: Engage Stakeholders and develop a PPM action plan for improved collaboration and participation of non-NTLP sector to TB service delivery based on the WHO guidelines Guide to develop a national action plan on public-private mix for tuberculosis prevention and care. There is a need to develop and implement a comprehensive and integrated TB in mines strategy beyond the TIMS Project.

7.1.4 Adopt the SADC Operational Plan for TB in the Mining Sector: Strengthening the accountability, coordination and collaboration for TB, HIV, Silicosis and other occupational respiratory diseases control in the mining sector is key to ending TB in Namibia. This initiative will focus on the following areas: (1) Promote a supportive policy and legislative environment for TB, HIV, Silicosis and other occupational Respiratory Diseases Control in the Mining Sector; (2) Improve programmatic interventions for TB, HIV, Silicosis and other occupational respiratory Diseases Control in the mining sector; (3) Strengthening Programme Monitoring and Evaluation and (4) Develop standard approach for the management of cross border TB and Leprosy patients.

Strategic objective 8: Increase TB testing, access and coverage to test all presumptive TB people with WHO recommended molecular tests

Introduction:

Namibia Institute of Pathology is mandated to provide laboratory diagnostic services to the MOHSS. There is a link between the NIP and MOHSS through the directorate of clinical, tertiary, and primary health care. The executive director of MoHSS is a board member of NIP, and the board chair of NIP reports to the Minister of MOHSS. This management structure ensures that the strategic interest for laboratory services for the country is catered for. The Laboratory network begins at the national level with the National TB Reference Laboratory, 6 regional laboratories, and 32 District laboratories, with each providing different scopes of tests. The country uses GeneXpert as the primary test for TB diagnosis and TB microscopy for monitoring patients on TB treatment. There are 34 GeneXpert testing sites in the network and no additional GeneXpert machines have been added procured in the last 5 years as the focus is on maximizing the utilization of the existing machines. All RR samples are referred to the reference laboratory in Windhoek for culture and drug susceptibility testing (DST). Namibia has developed a testing algorithm which has been distributed to all laboratories and health facilities to guide in diagnosis of TB. There is an efficient system of moving samples in the laboratory network.

With support from the Uganda SRL, NIP is implementing a quality management system in the laboratory network. All laboratories have quality manuals, and SOPs for TB diagnostic procedures. Through this effort, 11/32 (32%) are accredited to ISO 15189 and several laboratories have good Star ratings, this is mainly supported by CDC under PEPFAR funding. Some laboratories in the private sector are performing TB diagnosis and those who become positive are referred to public facilities for treatment initiation. The NTLP has created a platform to bring on board private health providers and efforts are being made to capacitate them. This is expected to gradually extend to monitoring the quality of laboratory services.

Key programmatic gaps:

- The TB diagnostic network has reported frequent stock-outs of TB diagnostic reagents
- Stool-based Xpert MTB testing in children is not implemented at NIP and laboratories.
- TB laboratory registers are available but not kept up-to-date with recent WHO recommendations
- NIP has limited capacity for sample collection and diagnostic services for Leprosy. Laboratory personnel at various facilities are not knowledgeable on techniques for leprosy diagnosis.
- Lack of SOPs and no training records for staff performing Xpert testing in hard-to-reach areas.
- Results SMS Printer systems at the facilities do not cater for TB results. There is currently no technical support to operationalize these SMS printers to cater for other test results.

- Sputum Registers and specimen Registers are not utilized or updated in clinics and Health centers, and some registers at the laboratories are also not up to date

Sub-objective 8.1: Increase TB testing, access and coverage to test all presumptive TB people with WHO-recommended molecular tests:

Strategic Interventions and priority activities:

8.1.1 Strengthen the existing PSM system in order to ensure and maintain an uninterrupted supply chain of reagent and commodities throughout the network: Institutionalize demand forecasting methods for all TB diagnostic tests at all levels of the network. Mobilize partner support for uninterrupted supply of TB reagents and consumables at all testing levels. Engage NIP to ensure maintenance of equipment

8.1.2 Participate in the capacity building of laboratory staff on the revised national TB diagnostic algorithm: Improve the capacity of laboratory personnel on national TB treatment guidelines and the revised National TB diagnostic algorithm. Revise laboratory recording and reporting tools in line with the new TB diagnostic algorithm. Ensure capacity building of laboratory personnel on newly introduced diagnostic tests including stool-based testing. Collaborate with NIP on the introduction and use of newer WHO approved diagnostic tests

8.1.3 Strengthen Laboratory Quality Management System through the implementation of ISO 15189 standards in all TB testing laboratories: Expand EQA coverage for Xpert MTB/RIF at health facilities performing Xpert testing. Implement and ensure a functional quality management system for the TB diagnostic services provided outside the NIP laboratory network.

8.1.4 Optimize the integrated sample transportation and results delivery system: Strengthen and integrate TB sample referral system.

8.1.5 Engage NIP on upgrading of the TB laboratory surveillance system in conformance with national and international reporting requirements: Advocate for the integration of laboratory TB reports in the routine quarterly reporting system. Upgrade/modify the LMIS to include indicators on TB surveillance and timely reporting of data. Coordinate with NIP for the implementation of a results alert system. Develop and implement a unique identification system for presumptive and confirmed TB cases.

Strategic objective 9: Ensure an uninterrupted supply of first- and second-line TB medicines

Introduction:

The Directorate of Pharmaceutical services coordinates all pharmaceutical services in Namibia. These include the supply chain managed at the Central Medical Stores (CMS) and National Medicines Policy. Conversely, the Laboratory Councils, and the National Medicine Regulatory council (NMRC) are coordinated by the Directorate of Tertiary Health Care services. The Government of the Republic of Namibia (GRN) has continued to show commitment to ensuring commodity security for TB and Leprosy supplies by making the allocation of funds for procurement. The NTLP has key Partners who support the program in various ways. These include Global Health Supply Chain (GHSC) who supports supply chain activities and technical support in commodity management; CDC for capacity building and technical support in patient management; Global Fund for procurements of medicines and laboratory supplies; and WHO for procurement of Leprosy and technical support on program management.

Key programmatic gaps:

- Stock-outs of Levofloxacin, Paediatric Leprosy drugs, gastric tubes, Xpert cartridges & Lab reagents were reported in the last year.
- Due to small order quantities, the country is facing significant challenges with procuring paediatric Second Line anti-TB Drugs and TB LAM Kits
- Absence of Quality data for decision-making on Procurement and Supply Chain Management (PSM)
- No long-term contracts for the procurement of TB medicines
- There is understaffing of PSM officers at various levels
- Some Pharmacy staff are not trained in TB/Leprosy guidelines, PSM, and aDSM which is leading to ADRs not being reported.
- Using domestic resources for procurement is a challenge as very few manufacturers accept small quantity orders from the country

Sub-objective 9.1: Strengthen the PSCM of first- and second-line anti-TB medicines:

Strategic Interventions and priority activities:

9.1.1. Build capacity of staff at all levels (national, regional, district and facility): Conduct capacity building in inventory management and pharmacovigilance for relevant staff: Training and mentorship will be conducted for selected staff on inventory management and active drug safety monitoring for TB.

9.1.2. Adopt Early Warning Systems at all levels to address stock-related risks i.e., stock-outs and expiries: Implement batch tracking in the Stock management tools for TB

9.1.3. Motivate for the inclusion of new child friendly anti-TB medicine formulations and TB LAM test kits to the Nemlist

9.1.4. Fill vacant pharmacy positions at all levels

9.1.5. Cascade the Quantification TWG to the District level to build capacity and optimize the use of morbidity-based forecasting and ensure participation of facility pharmacists, TB nurses, clinicians & DTLCs in morbidity-based forecasting & quantification

9.1.6. Strengthen multidisciplinary teams at all levels engaging pharmacy/Lab staff to strengthen key supply chain management activities at all levels including mentoring and support supervision visits by the NTLP: Conduct quarterly facility data review meetings (on-site) to strengthen the quality of data used for quantification and supply planning with increased use of morbidity data through annual quantification meetings and DQAs

9.1.7. Maintain an uninterrupted supply of quality assured anti-TB/anti-Leprosy medicines by exploring the pooled procurement mechanisms with global or international supplies chain agencies and establishing long-term tendering contracts.

9.1.8. Engage Global Drug Facility (GDF) to provide technical assistance and capacity building to NTLP and CMS to ensure an uninterrupted supply chain of anti-TB medicines

Strategic objective 10: Ensure capacity for Leprosy case-finding (screening, diagnosis), care treatment and surveillance; integrated with primary health care services

Introduction:

Namibia's trend for Leprosy new case detection (NCD) shows a steady rise in reported leprosy cases from 2017 (11 new cases), 2018 (15), 2019 (22), and peaked in 2020 (27), then a slight drop in 2021 (20). While leprosy NCD was generally low across the country, the Kavango and Zambezi regions have consistently reported increasing leprosy cases over the years, and sporadic cases have recently been reported from Oshana. Recent active leprosy case-finding exercises in the Kavango region yielded an amazing number of new cases. Most of the cases, including those affecting children, were infectious Multibacillary (MB) leprosy. In Namibia, a high proportion of patients with disability grade 2 were reported implying late diagnosis of leprosy. The District TB and Leprosy Coordinator (DTLC) oversees implementation of Leprosy Control activities at the district level. The NTLP implements Leprosy Control in tandem with TB Control throughout the country, but there are no designated persons who coordinate Leprosy Control activities at all levels. There is a lack of clear government funding for leprosy control, as well as technical capacity for case detection, management, and rehabilitation. Leprosy should be given new impetus, as should the need for the institutionalization of strict surveillance to prevent its resurgence in the country.

Key programmatic gaps:

- Lack of leprosy knowledge and awareness at both the community and HF levels across the regions, which is delaying case detection and poor health-seeking behaviour as evidenced by high disability rates.
- Lack of understanding of leprosy management, which included issues with diagnosis, MDT monitoring, disability grading, and cohort analysis. This has resulted in delayed leprosy diagnosis and related disabilities, as well as inconsistent disability assessment.
- Inadequate attention paid to rehabilitative services, including those for patients with special needs, such as disability prevention and physical and social rehabilitation.
- Lack of IEC materials, Leprosy patient treatment cards, or identity cards in HFs across the regions, which could contribute to the HF's lack of knowledge and awareness, as well as poor documentation.
- There are no strategies or structures in place to support early case detection (active screening at the HF and community levels).
- Failure to assess leprosy patients during monthly visits for quality indicators is an issue that needs to be addressed in the next Strategic Plan.
- National and regional funding, as well as technical capacity, are insufficient for leprosy care and prevention, and partner support is limited. Non-governmental (NGOs) and community-based organisations (CBOs) that promote TB community engagement are not involved in leprosy care and prevention.

Sub-objective 10.1: Strengthen Leprosy Coordination and programmatic management

Strategic Interventions and priority activities:

10.1.1 Strengthen coordination and programmatic management of Leprosy: This will be achieved through advocacy for the establishment of a Leprosy Coordinator position at NTLP and mobilize resources through donor funding (WHO/TDR, EDCTP, USAID, BMGF, FIND etc) including clear funding dedicated for Leprosy interventions at the National and regional levels. A national partnership and stakeholder engagement for zero leprosy in Namibia will also be developed.

10.1.2 Improve capacity-building for health workers including private sector: External technical assistance to support capacity building on leprosy will be engaged through partners and include a review the current outdated guideline and development of a training curriculum to support capacity building initiatives for health workers including private sector. The procurement/availability of Multi-drug therapy (MDT) for all category of leprosy patients including drugs for the management of leprosy reactions will also be prioritized.

Sub-objective 10.2: Strengthen social support and rehabilitation.

Strategic Interventions and priority activities:

10.2.1 Improve access of Leprosy patients to rehabilitation services, social support, occupational and physiotherapist networks: This will include the conduct of a needs and capacity assessment for leprosy rehabilitative services in Namibia to identify gaps to strengthen capacity for leprosy rehabilitative services. Addressing these gaps aims to ensure disability assessment for all leprosy patients are conducted and reported as part of routine quarterly reports, effective linkage of Leprosy Patients to Rehabilitation Services is established and access to social support for indigent persons affected by leprosy (PAL) is prioritised by the health care system to promote stigma reduction and respect for human rights.

Sub-objective 10.3: Enhance patients follow up and clinical monitoring.

Strategic Interventions and priority activities:

10.3.1 Strengthen supportive supervision and on-the-job training at all levels: This includes enhancing linkages and referral system for Leprosy patients for improved care and treatment. Introduction and scale-up Leprosy preventive therapy and FDC (R/Clofazimine/Dapsone) is also a priority.

10.3.2 Strengthen the integration into existing community structures: This initiative identifies key role played by TB CSOs who will be engaged and sensitized to integrate leprosy activities in their agenda. Community based organizations operating in areas where patients with leprosy are found will be trained and capacitated to support these patients. Social mobilization initiatives at key/targeted geographical areas will be strengthened and health education materials on leprosy will be provided to facility staff and community workers to sensitize the community on leprosy.

Sub-objective 10.4: Strengthen active surveillance/ Case finding

Strategic Interventions and priority activities:

10.4.1 Conduct geospatial mapping of all leprosy cases diagnosed in the past five years to identify hot spots

of transmission and scale-up contact tracing for all new leprosy cases (esp in endemic regions): Increasing coverage and availability of diagnostic testing kits for Leprosy in all peripheral laboratories is key for outbreak monitoring and real-time response. This includes the conduct integrated active case finding in targeted (endemic) region.

10.4.2 Institutionalize a functional M&E system (esp side effects of MDTs and treatment outcomes reporting) for leprosy and develop a leprosy research agenda with focus on operational research on leprosy related KAP in endemic areas to determine the health seeking behaviour and on quality of care for leprosy (with patient perspective in view).

Strategic objective 11: Strengthen patient support services to reduce TB -related catastrophic costs from 82% to 41% by 2028

Introduction:
TB treatment is integrated and available in the 472 public health facilities (48 hospitals, 52 health centres and 370 primary health care clinics) thereby increasing access to TB related care. Similarly, in the period under review, there is improved access to WHO recommended diagnostics (Xpert MTB/RIF assay, both first- and second-line probe assays and Urine LF LAM). Xpert MTB/RIF diagnostics services are available in 34 laboratories, while direct microscopy is available in 33 laboratories and used mainly for follow up sputum examination of patients. A Patient centered approach is therefore established for both diagnosis and treatment.

Models of care: Ambulatory model of care was being used for most patients with three DOT strategies that are facility DOT, Community DOT and Workplace DOT. Field promoters who are community health care workers are responsible for DOT at both facility and community.

Community DOT: Community-based TB care is the backbone of the national TB program where patients are given treatment for 1-2 weeks or more and they take at home through the supervision of a family treatment supporter. Other services provided by the field promoters include:

- Health education, Case finding, DOT for TB patients
- Community based HTS counselling and referral for HIV testing at facility,
- Sputum collection from people with presumptive TB
- Collection of results and documentation on treatment card and also files at the TB clinic.
- Contact tracing-if a child refers to facility for TPT after excluding TB
- Recommend changing patients to the continuation phase if the sputum is negative. If it is positive, they refer to the nurse at the health facility for further management. They also collect sputum sample for culture and DST as required
- On completion of treatment, they update treatment outcome on DOT card and refer to facility for assigning treatment outcome. After completion of TB treatment there is no follow up.

Key programmatic gaps:

- Inadequate engagement and participation of the private health sector providers; Namibia has 733 private providers which is a great opportunity for collaboration with NTLP to find TB cases.
- Inadequate systematic screening for TB in both the health facilities and community.
- No systematic tracking of the TB cascade to address any weakness(es) in the value chain.
- Contact tracing and investigation, including reverse contact tracing for children is inadequate resulting in low case finding among children and adolescents.
- The death rate among TB cases has remained at 7% among notified TB cases between 2017 and 2021. This is mainly attributed to poor health seeking behaviour, late presentation/diagnosis.
- Human resource challenges include, understaffing and overburdened TB nurses in some facilities; no TB nurses and TB field promoters in some facilities and uncertainty of the continuing Global Fund support for retaining the TB field promoters at community level.
- Approximately 82% of households face financial burden due to associated cost of TB care: main drivers are non-medical expenditure such as travel, nutritional supplements, food and time/income loss
- Inadequate transport support for TB outreach activities such as monitoring, contact tracing and visits to patients' homes.

Sub-objective 11.1: Strengthen patient support services.

Strategic Interventions and priority activities:

11.1.1 Establish people-centered models of care esp for HTR areas eg DSD or MMD: Implement models of care as outlined in Nomadic/semi-nomadic strategy and appoint 2 CHWs per village in hard-to-reach areas with high DR-TB transmission

11.1.2 Establish food and nutritional support for DS and DR-TB patients through the identification of key stakeholders and possible nutritional projects including the involvement of the private sector

11.1.3 Establish support for mental and substance use disorders among TB patients, including capacity building for HCWs, screening of patients, referrals and substance use cessation interventions.

11.1.4 Expand patient support initiatives to all high burden regions esp hard-to-reach areas: This will include advocating for vehicles/transport to facilitate the monitoring and supportive supervision of community activities. Some regions have established soup kitchen to other regions

11.1.5 Strengthen advocacy, communication and social mobilization on TB and Leprosy issues in Namibia: There is a need to develop TB IEC materials to guide and improve TB and Leprosy advocacy communication, community engagement and social mobilization. Additionally, due to a lack of health education materials, stigma and discrimination against Leprosy patients is high so a Strategic Plan with different CSOs is needed to address and reduce these barriers to access.

11.1.6 Strengthen TB engagement with the Ministry of Education and integrate TB in life skills training through the development and operationalization of health education and IEC guideline which will be used to conduct TB training for School counselors and life skill teachers

11.1.7 Strengthen access to social disability grants in all regions for all eligible patients: Implementation and expansion of social disability grant to all Leprosy and TB patients that are facing catastrophic costs in all the regions

11.1.8 Undertake health expenditure/Patient Cost surveys: Surveys and ongoing monitoring of catastrophic costs incurred by TB and Leprosy patients will be conducted to guide the development and implementation of a comprehensive patient support system (guidelines; income generating projects; SOPs, indicators; nutritional support, support to obtain ID documents etc)

Sub-objective 11.2: Address human rights and gender barriers to TB services access

Strategic Interventions and priority activities:

11.2.1 Elimination/Reduction of TB-related stigma and discrimination. To guide the development of an action plan to reduce stigma and discrimination, Namibia has prioritized the conduct of the country's first Community rights and Gender assessment to understand human rights and gender associated barriers to accessing TB services

11.2.2. Address human rights-related barriers (TB-related stigma and discrimination, harmful laws, policies and practices, gender inequality and gender-based violence) that keep people in need from gaining access to vital TB health services. This will be achieved by granting non-discriminatory access to services for all, including people in detention and use stigma reduction measurement tools, training programs and other gender-responsive resources that have been developed for health care workers, community health workers, communities, employers, journalists, social and religious leaders.

11.2.3. Develop policy/guideline for patient work protection/compensation which engages all relevant stakeholders, collaborate with mini of education, NACOP, Global Fund sub-recipients and PEPFAR.

11.2.4 Establish a policy to assess eligibility on social grant for DS- and DR-TB cases and leprosy patients: Ensure the assessment and refer of all qualified patients for disability grant.

11.2.5 Enhance the monitoring and reforming of policies, regulations, and laws, including the advocacy to reform health regulations, policies and laws which hinder access to TB services, including but not limited to policies on involuntary isolation.

11.2.6 Strengthen the monitoring and evaluation of CRG activities through the implementation of community-led monitoring to track TB-related discrimination and stigma, with priority settings guided by TB key and affected populations.

Strategic objective 12: Establish Continuous Quality Improvement of TB services

Introduction:

Health care quality is defined as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge". The WHO recommends that the health systems should seek to make improvements in the following six dimensions of quality: effectiveness, efficiency, accessibility, patient centeredness, equity and safety.

The Namibia MoHSS is committed to promoting the delivery of health care services of acceptable quality across the country which is mandated by the National Quality Management Program (NQMP). The overarching goal is to improve the quality of health care delivery services nationally by engaging Policy

makers, Health service providers, Partners, NGOs and Communities. The NQMP continues to emphasize the following components: development of standards used in clinical practice guidelines, performance measurement of clinical care, continuous quality improvement (CQI), capacity building for all providers for quality improvement, and dynamic collaboration with clinical experts, stakeholders, implementing partners and the private sector.

CQI has been well embedded within the National HIV/AIDS Program (NAP) and the National TB and Leprosy Program (NTLP) has now engaged a CQI National Coordinator. Therefore, CQI for TB will be strengthened throughout this TBL NSP implementation. This will facilitate the routine collection of performance data and use these findings to improve quality of TB care and treatment services across the country and ensure the development of local and regional quality improvement infrastructures, as well as create opportunities for providers to share best practices and successful improvement strategies.

Sub-objective 12.1: Establish continuous quality improvement (CQI) of TB services

Strategic Interventions and priority activities:

12.1.1. Establish Quality improvement infrastructure at NTLP through the identification of key stakeholders for CQI as collaboration is an essential component of a quality programme. The NTLP and partners will identify leaders who can formally and informally influence and inspire others to provide a vision and direction for the quality programme.

12.1.2. Develop and plan a quality improvement Programme: To build momentum for quality improvement activities, a multidisciplinary CQI-TB committee will be established with terms of reference including the main areas of responsibilities . Once the CQI infrastructure is established at national level, it will be cascaded to lower levels of the health system where TB services are provided. The major task of the Committee will be to establish the Quality Management Plan (statement, infrastructure, M&E, goals)and to plan and oversee all quality improvement activities at the Districts and facilities levels.

12.1.3. Conduct capacity building initiatives on CQI-TB at all levels: This will be done in collaboration with the MoHSS Quality Assurance unit, including the development of a quality toolkit to facilitate the initiation of improvement activities and the capacity building of quality improvement champions from various stakeholders, including NTLP, partners, private facilities and CBOs to take on key roles when rolling out the National TB Quality Improvement Programme (CQI-TB)

12.1.4. Strengthen the implementation of priority TB QOC activities with special focus on monitoring mortality audits for all TB-related deaths and cascade analysis (diagnostic, paediatric, TPT, etc).

12.1.5. trengthening the development and the implementation of standards guidelines used in clinical practice at all levels including congregated settings, mining and Private sectors. Establish standard performance measurement of clinical care in collaboration with the quality assurance unit.

12.1.6. Strengthening the development and the implementation of standards guidelines used in clinical practice at all levels including congregated settings, mining and Private sectors. Establish standard performance measurement of clinical care in collaboration with the quality assurance unit.

12.1.7. Promote QI-TB in PPM and non-NTLP: The inclusion of private healthcare facilities and non NTLP in QI activities is key to ensure high quality provision of TB services

Strategic objective 13: Monitoring, evaluation, research, and surveillance systems strengthening

Introduction:

The NTLP has a dynamic M&E team that oversees data management, tracking the program indicators, preparation of reports, system support and rollout for data collection. Despite the absence of an M&E technical working group, the team established a TB research network which guides both internal and external reviews of the program. Generally, cascading knowledge on operations research has been a challenge in the life of the current strategic plan. Nonetheless, the program was able to carry out 18 studies in the last five years that include the patient cost survey, INH resistance study and the prevalence survey. Significant achievements include that the incidence rate has dropped from 892/100,000 in 2010 to 460/100,000 in 2020 and mortality rates dropped from 216/100,000 in 2011 to 111/100,000 in 2022.

Outline of key programmatic gaps:

- At the facility, roles for oversight of TB data management and reporting are often ill-defined, especially in the smaller sites visited.
- Datasets of interest are fragmented into different systems at national level making analysis difficult.
- NTLP does not have access to lab testing data in a user-friendly format which makes it difficult to assess scale up of diagnostic tools that are the most recommended and sensitive to diagnoses of DRTB and DSTB among the different populations.
- Presently, data use within the program is limited to recording and reporting purposes with minimal interrogation into successes or challenges in performance. Integration of M&E at all phases of planning will be critical to the success of other programs and collaboration for data use should be encouraged
- An estimated 42% of incident TB cases are missed each year in Namibia and the available data cannot disentangle under detection vs underreporting.
- The high proportion of missed cases is a critical gap in the overall program performance and needs to be further interrogated. An inventory study is recommended to better understand the true cases that are missed (i.e. never diagnosed or treated) vs not reported (i.e. patients were reached, but not entered into the reporting systems).

Sub-objective 13.1: Strengthen data driven decision-making for policy, clinical and programmatic management

Strategic Interventions and priority activities:

13.1.1. Unification of one NTLP central system (DHS2 TB Tracker) through completion of the DHIS2 Tracker for full-scale implementation by 2027

13.1.2. Strengthen the NTLP Monitoring and Evaluation system through recruitment of TB M&E focal person at all levels or integration of TB M&E with existing MoH or partner supported strategic information structures. Although the TB M&E technical working group (TWG) is functional, it is key to optimize it to

support the TBL M&E needs at all levels of the health system. This includes strengthening the review and availability of Recording & Reporting tools. In addition, the development of quarterly and annual reports is key for optimal program performance together with conducting TB and leprosy M&E capacity building activities at all levels.

13.1.3 Strengthen the monitoring and evaluation of key patient support activities through the development of a monitoring and evaluation system for the collaborative action on TB and comorbidities at all levels.

13.1.4 Enhancing the ICT infrastructure to support the M&E system strengthening through the procurement of software and IT equipment (laptops, tablets, routers, power banks, external hard drives). This will also include the development of a Digital Health Strategy to provide guide the adoption of digital tools for TB screening, diagnosis and treatment.

13.1.5 Improve data quality in Vital Registration System: Establish linkage between the NTLP electronic systems TB mortality data and the QI mortality survey with the Vital Registry

13.1.6 Strengthen the conducts of priority TB research activities: Priority operational research studies have been identified for each thematic area however, a comprehensive research agenda for TB and leprosy will be developed by the TB Research Network to implement these research priorities. Given the suboptimal case finding and high proportion of missing TB cases, it is important to conduct an Inventory Study to assess the level of under reporting and a TB Patient Pathway Analysis to identify leakages.

13.1.7 Advance duplicate checker options for regional and national level system through accelerating the implementation of national Unique health ID.

Chapter 6: TBL NSP Monitoring and Evaluation framework

Proper program monitoring and evaluation is crucial for the successful implementation of the Namibia TBL NSP. To ensure the achievement of the targets and enable effective adjustment of activities, a set of indicators was developed to monitor the implementation progress. The indicators, means, and sources of data, are illustrated in Chapter 8.

During the implementation of the TBL NSP, the programme will be monitored against 7 impact, 8 outcome and 22 output indicators. The overall responsibility for monitoring and evaluation lies with the M&E Unit of the NTLP under the direction of the Program Manager and will include regular reviews of:

- Programme goals and objectives.
- Coverage of interventions in comparison to targets;
- Track status of achieving indicator targets;
- Monitor activities and assess how well they are being implemented.

The relevant M&E resources will be used to:

- Ensure good quality of data and strengthen routine data analysis and use
- Roll-out TB electronic information system for Leprosy, drug-susceptible and drug-resistant TB
- Improve platforms for reporting lab data
- Strength data and reporting from the private sector, CSOs and congregate settings
- Conduct supportive supervision and mentorship at all levels
- Conduct capacity building activities
- Conduct programme reviews and implement recommendations on performance improvement
- Develop indicators protocols and guidelines
- Engage communities through various channels including community-led monitoring (CLM) platforms
- Develop and implement operational research

DATA MANAGEMENT

Effective governance, program management, and coordination between stakeholders and implementers are essential to the success of TB control interventions. NTLP will carry the primary responsibility to ensure clear division of responsibilities for monitoring, evaluation and operational research.

Data collected on service provision will be used to track progress towards achievement of program indicators, goals and targets, and as well to inform decision making. Routine reporting component will be designed to track the achievements of the program by key interventions and reflect the process and outputs of its implementation against the results framework. Both paper and electronic data collection tools will be used to document and report on TB/Leprosy.

Strengthening M&E approaches at the service provider/facility and national levels will be a part of overall strategy to scale up and strengthen TB prevention in Namibia. In this context, the role of NTLP will be critical

in contributing to the development and implementation of the National M&E system in accordance with international and national standards & priorities and build on lessons learned from the previous program implementation.

NTLP, Health service providers, Partners, NGOs and Communities are key partners in implementing the project activities on the ground, by providing prevention and treatment services, but also serve as the source of valid and reliable data to help measure progress with the project activities.

Standard quarterly reporting forms will be used to report to the NTLP M&E unit. Information collected by TB facilities and other agencies involved in the TB control from primary sources (registration logs and record-keeping books) will feed monthly and quarterly reports which will in turn provide information on the implementation of the interventions.

National M&E system includes the following datasets, reporting systems and tools:

- Facility based reporting which consists of following datasets:
    - Health Management Information System (HMIS): This sub-system gathers data on TB prevention, care and treatment services at all facility levels.
    - National TB and Leprosy program reporting
    - Procurement and Supply Logistics Management Information System (LMIS) to track and report on stock levels as well as any stock outs of essential commodities.
- District based reporting
    - Health Management Information System (HMIS)
    - National TB and Leprosy program reporting
    - PMIS/LMIS dashboard
- Regional based reporting:
    - Health Management Information System (HMIS)
    - National TB Leprosy program reporting
    - PMIS/LMIS dashboard
- National reporting
    - Preparation and submission of NTLP, SADC, Global Fund, MoHSS/DSP, PEPFAR, and WHO country reports.
    - Procurement and Supply Logistics Management Information System (LMIS) data to produce PMIS/LMIS dashboard

Data collection system at different levels

TB and Leprosy data is obtained from patient treatment cards and registers that are completed at health facilities for TB and MDT centers for Leprosy at facility level (Figure 35).

Through the electronic web-based database, the District Health Information System (DHIS2) data is entered at

district level to generate quarterly reports to the national level. This database can be accessed at district, regional and national levels for data review and analysis and feedback. The NTLP M&E unit compiles the data to generate annual reports and other reports for specified periods as requested by various funding agencies in and outside the country.

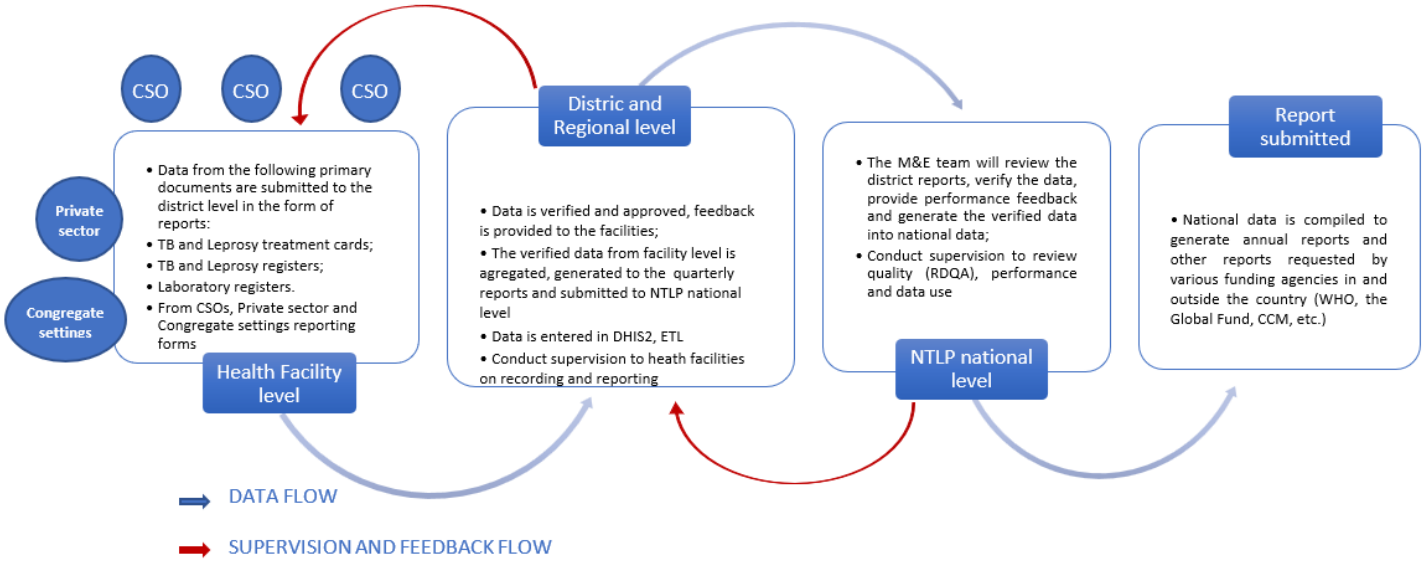


Figure 35: Data flow diagram

At the national level NTLP M&E unit will conduct data verification on a quarterly basis to:

- review received quarter reports for availability, timeliness and completeness for the given reported period;
- compare the verified counts to the submitted numbers;
- identify reasons for any differences.

At the regional level data for the given period will be verified by:

- reviewing received monthly reports for their availability, timeliness and completeness for the given reported period;
- re-aggregating the numbers from the reports submitted by district aggregation sites
- comparing the verified counts to the submitted numbers;
- identifying reasons for any differences.

At the district level data for the given period will be verified by:

- reviewing source documentation to check their availability and completeness for the selected reporting period;
- recounting the reported numbers from available source documents;
- comparing the verified counts to the site reported number;
- identifying reasons for the difference
- cross checking reported results with other data sources.

The implementation of a case-based surveillance system for TB using the DHIS2 platform will be a major achievement for the program. The system will increase aggregate reporting efficiency and improve data quality at national, regional and district levels.

Guidance and decision making.

- The MoHSS/NTLP are responsible for the decision making on fundamental tasks of NSP management, including the approval of national, local and sectoral implementation, mobilization and distribution of funding.

- Implementers of the key strategy interventions provide data on the inputs and the process of programme implementation by key directions and assure routine programmatic/project reporting; administration of datasets; conducting monitoring site visits, participation in research.

- Mechanisms are in place for reporting of data at the district, regional and national levels on a quarterly basis. Formal data and performance review meetings are held quarterly at the district and regional level resulting in high internal consistency; the same approach will be employed at the national level on quarterly and annual basis.

- Although the TB M&E technical working group (TWG committee) is functional, it is key to optimize it to support the TBL M&E needs at all levels of the health system.

- A PPM working group will be established to develop the PPM framework for improved collaboration and participation of non-NTLP sector to TB service delivery.

- Stakeholders' forum meetings, and annual update sessions for senior MoHSS leadership and line ministries are also planned to strengthen governance structures and organizational capacity for optimal program management.

DATA QUALITY ASSURANCE MECHANISMS AND RELATED SUPPORTIVE SUPERVISION

Data quality assurance is crucial in each stage of this process. For effective allocation of available M&E resources and in order to evaluate progress towards the established goals, the NTLP will assess all components of data quality: data accuracy, reliability, preciseness, completeness and timeliness.

This will be ensured through the following:

- Clearly documented data collection, aggregation and reporting guidelines and tools that are developed in accordance with WHO recommendations;
- Data verification and data analysis on each data aggregation level. The reports will be reviewed for inaccuracies and completeness and remedial action will be taken if necessary, in line with documented data management procedures. Data analysis will be conducted comparing planned targets versus actual achievements monthly, quarterly, semi-annually, as well as a detailed review of underlying reasons for observed variances.
- Supervisory visits at all service delivery areas using standard checklist with qualitative and quantitative measurement of data quality, including cross-check between source documents and reports.
- Regular performance review meetings, during which the analysed data will be presented and discussed to identify gaps and interventions for better performance.

A routine data quality assessment tool will be used to define the following data quality dimensions: accuracy, completeness, reliability, timeliness, confidentiality, precision, and integrity. To assure these aspects of M&E data quality, the following will be used:

- Data quality control and verification field visits will be conducted to ensure quality and comprehensiveness of the data provided by the service delivery sites;
- Regional level managers conduct supportive supervision on a quarterly basis. Likewise, district managers conduct monthly and quarterly supportive supervision to facility levels respectively after submission of monthly/quarterly reports;
- The National level conduct quarterly supportive supervision to the regions;
- During the supervisory visits a standard checklist will be used containing qualitative and quantitative measurement of data quality, including cross-checking between source documents (both paper and HMIS) and submitted reports;
- Mechanisms to providing the feedback and follow-up the implementation of the recommendations will be established;
- The complex human capacity building interventions on M&E will be developed and introduced.

PROGRAM REVIEW, EVALUATION, AND SURVEYS

TB Epi-review will be conducted before the preparation of the next TBL NSP feeding into the joint external review. The main objectives of the TB Epidemiological Review are to assess the level and trends of the TB burden using available data. Independent international consultants, local experts and NTLP staff will be involved in the epi-review. The review will include desk reviews, interviews, consultative meetings and field visits. The programme will conduct a mid-term evaluation and end-term evaluation at the end of implementation of the TBL NSP.

A comprehensive mid-term review of the implementation of the strategic plan will be implemented to:

- determine whether the country is on track to achieve the strategic plan targets;
- identify implementation bottlenecks to be addressed to accelerate progress towards targets;
- identify good practices to be scaled up;
- identify emerging challenges, threats and opportunities;
- and, if necessary, update the strategic plan accordingly.

During the final year of implementation of the strategic plan, the end-term review of this NSP will be conducted to assess the above areas and inform a successor strategic plan.

A comprehensive research agenda for TB will also be developed and implemented as a living document. The following is a list of TB research studies and surveys that are expected to be carried out during the implementation of the TBL NSP:

- Inventory studies to assess the contribution of under reporting to the missing cases
- DR-TB

- TB/HIV
- Childhood TB
- Infection control & prevention
- Study on case finding yield
- Studies on the implementation of occupational health programs for HCWs
- QI projects-data quality assurance
- PPM
- Leprosy
- Comorbidities
- Patient pathway survey
- KAP related to TB and Leprosy
- SUBsET
- TST survey among HCWs
- LTBI prevalence survey

More details on Operational Research priorities are described under section 13.7 of the operational plan.

Chapter 7: Operational Plan

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 1: Programme Management, HRH and Leadership														
Sub-objective 1.1: Strengthen the governance structures and organizational capacity for optimal programme management.														
1.1.1	Strengthen conducting of regular national TBL stakeholders' forum meetings, and annual update sessions for senior MoHSS leadership and line ministries	1.1.1.1	Sensitize and engage relevant stakeholders on TB and Leprosy	1.1.1.1.1	Conduct a regular national stakeholders forum on TB and Leprosy	1.1.1.1.1.1	Conduct biannual national stakeholders forum meeting on TB and Leprosy	Number of forum meetings conducted	0	1	2	2	2	7
				1.1.1.1.2	Organize regular TBL update meetings for MOH senior leadership and line ministries	1.1.1.1.2.1	Conduct biannual update meetings on TBL for MOH senior leadership and line ministries	Number of update meetings conducted	1	1	2	2	2	8
				1.1.1.1.3	Strengthen the coordination role of the National TB and Leprosy Steering Committee	1.1.1.1.3.1	Conduct quarterly TBL NSC meetings	Number of TBL NSC meetings held	4	4	4	4	4	20
1.1.2	Enhance TB and Leprosy capacity of clinical and program staff through the implementation of leadership and programme management trainings for TB and leprosy programme staff at national, regional and district levels	1.1.2.1	Conduct TB and leprosy capacity-building initiatives for clinical and programme staff	1.1.2.1.1	Organize leadership, management and clinical trainings for TBL programme management staff at national, regional and district levels	1.1.2.1.1.1	Organize leadership, management and clinical trainings for TBL programme management staff at national, regional and district levels	Number of national-level staff trained in leadership and management	0	20	20	20	0	60
						1.1.2.1.1.2		Number of regional-level staff trained in leadership and management	10	15	20	20	25	90
						1.2.1.1.1.3		Number of district-level staff trained in leadership and management	10	20	30	40	50	150
				1.1.2.1.2	Collaborate with training institutions to incorporate TB and leprosy in curriculum	1.1.2.1.2.1	Conduct biannual consultative meetings with tertiary training institutions on TB and leprosy curriculum	Number of consultative meetings held	1	2	2	2	2	9
				1.1.2.1.3	Conduct supportive supervision and mentorship.	1.1.2.1.3.1	Conduct supportive supervision and mentorship visits at all levels	Number of supervisory and mentorship visits conducted	7	14	14	14	14	63
1.1.3	Establish task-shifting for TBL prevention and care, and mobilize alternative resources for community TB care and prevention	1.1.3.1	Formalize task-shifting for TBL prevention and care	1.1.3.1.1	Develop and implement a task-shifting plan for TBL prevention and care.	1.1.3.1.1.1	Conduct consultative meetings on task-shifting for TB and Leprosy through the engagement of the external technical assistance	Number of consultative meetings conducted on task shifting	0	2	1	0	0	3
						1.1.3.1.1.2	Print and disseminate task-shifting guidance for TB and leprosy	Task shifting guidance printed	No	Yes	Yes	Yes	Yes	Yes
		1.1.3.2	Develop a sustainability strategy for CBTBC	1.1.3.2.1	Develop and implement a sustainability strategy for community-based TB care (CBTBC)	1.1.3.2.1.1	Develop a sustainable strategy for CBTBC	Sustainable strategy for CBTBC printed and available	No	Yes	Yes	Yes	Yes	Yes
		1.1.3.3	Advocate with private sector to co-finance community-based TB care interventions	1.1.3.3.1	Engage private sector to co-finance CBTBC	1.1.3.3.1.1	Conduct advocacy meetings with private sector	Number of CBTBC advocacy meetings held with corporate sectors.	0	2	2	2	2	8
1.1.4	Strengthen programme management capacity by ensuring adequate staffing levels at national and district level as per staffing norms	1.1.4.1	Maintain current staffing and ensure optimal staffing at national level	1.1.4.1.1	Monitor the activity changes within the program and assess the need for additional staffing	1.1.4.1.1.1	Submit request for additional staffing as need arises	Additional request for staffing submitted	No	Yes	Yes	Yes	Yes	Yes
		1.1.4.2	Advocate for additional government funding for TBL prevention and care	1.1.4.2.1	Submit annual motivation for increased GRN funding	1.1.4.2.1.1	Submit annual motivation for increased GRN funding for TBL care and prevention	Number of annual motivations for GRN MOH TBL funding submitted	1	1	1	1	1	5
		1.1.4.3	Advocate for additional resources for the establishment of the substantive position of the District TB and Leprosy Coordinator (DTLC)	1.1.4.3.1	Submit motivational letter for establishment of DTLC position	1.1.4.3.1.1	Submit motivational letter to secure placement of the additional position of the DTLC	Substantive DTLC position created	No	Yes	Yes	Yes	Yes	Yes
1.1.5	Update national treatment guidelines in line with WHO recommendations and train healthcare workers on revised national TB treatment guidelines	1.1.5.1	Revise the National TB and Leprosy guidelines in line with WHO and other international recommendations	1.1.5.1.1	Revise the National TB and Leprosy guidelines in line with WHO and other international recommendations	1.1.5.1.1.1	Conduct consultative meetings for national TB treatment guidelines development	Number of consultative meetings for the development of national TB guidelines held	3	3	0	0	0	6
						1.1.5.1.1.2	Print and disseminate revised national TB treatment guidelines	Revised national TB treatment guidelines available	No	Yes	Yes	Yes	Yes	Yes
		1.1.5.2	Conduct trainings for health care workers on the national TB guidelines	1.1.5.2.1	Conduct training and orientation sessions for the various categories of health workers on national TB guidelines	1.1.5.2.1.1	Conduct trainings for doctors and pharmacist on the national TB guidelines	Number of doctors and pharmacists trained on national TB guidelines	25	50	50	50	50	225
						1.1.5.2.1.2	Conduct trainings for nurses, pharmacist assistants and other healthcare staff on national TB guidelines	Conduct trainings for nurses, pharmacist assistants and other healthcare staff on national TB guidelines	200	250	250	250	250	1200
						1.1.5.2.1.3	Conduct orientation on the national TB guidelines for stakeholders	Orientation of stakeholders on the national TB guidelines	25	25	25	25	25	125
1.1.6	Develop and operationalize initiatives for nurse-led DRTB treatment initiation	1.1.6.1	Introduce nurse-led DRTB treatment initiation for further decentralization	1.1.6.1.1	Conduct capacity building of nurses on the revised National DR-TB guideline	1.1.6.1.1.1	Train nurses on updated DR-TB guidelines to facilitate nurse-led DRTB treatment initiation	Number of districts with DRTB trained nurses initiating DRTB treatment	10	15	25	34	34	118
1.1.7	Coordinate and strengthen the Multi Accountability Framework (MAF) meetings	1.1.7.1	Sensitize and engage MAF on their roles and responsibilities	1.1.7.1.1	Coordinate regular MAF meetings	1.1.7.1.1.1	Conduct quarterly MAF meetings	Number of MAF meetings conducted	0	4	4	4	4	16

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 2: Strengthen universal access to TB prevention, care and treatment														
Sub-objective 2.1 Strengthen Universal health Coverage (UHC) and access to Social Protection														
2.1.1	Improve community access to TB services	2.1.1.1	Develop community-level people-centred services for TB including collaborative activities to address undernutrition, diabetes, tobacco use,	2.1.1.1.1	Design and implement collaborative activities to address undernutrition, diabetes, tobacco use, substance use disorders including alcohol and drug use and	2.1.1.1.1.1	Conduct stakeholder consultation meetings for improved collaboration and to address risk factors for TB (undernutrition, diabetes, tobacco use, substance use disorders including alcohol	Stakeholder consultation meetings conducted	2	4	4	4	4	18
		2.1.1.2	Strengthen HCW capacity to provide rehabilitation services for TB and Leprosy patients	2.1.1.2.1	Coordinate training in rehabilitation services for TB and leprosy patients	2.1.1.2.1.1	Organize training courses for rehabilitation staff for TB and leprosy	Number of staff trained on rehabilitation services for TB and Leprosy patients	35	35	35	35	35	175
2.1.2	Develop strategies to reduce catastrophic costs experienced by TB and leprosy patients	2.1.2.1	Develop and implement a comprehensive patient support system (guidelines, indicators, service package)	2.1.2.1.1	Develop guidance for the provision of comprehensive patient support	2.1.2.1.1.1	Define and provide guidance for comprehensive patient support	Guidance for patient support is available	Yes	Yes	Yes	Yes	Yes	Yes
							Patients are routinely assessed for social support	Patient support reported on quarterly	Yes	Yes	Yes	Yes	Yes	Yes
		2.1.2.2	Facilitate access for eligible TB and Leprosy patients to social insurance and social assistance	2.1.2.2.1	Establish and maintain a social protection Technical Working Group (TWG)	2.1.2.2.1.1	Organize quarterly meetings for the social protection TWG	Number of social protection TWG meetings held	2	4	4	4	4	18
				2.1.2.2.2	Assess TB and Leprosy patients for eligibility to social insurance or social assistance	2.1.2.2.2.1	Refer eligible TB and Leprosy patients for social insurance and social assistance	Eligible TB and Leprosy patients referred for social insurance and social assistance	Yes	Yes	Yes	Yes	Yes	Yes
2.1.3	Strengthen capacity of HCWs and CHWs in TB case detection	2.1.3.1	Improve capacity for TB screening through the use of SOPs/algorithms, supportive supervision, and mentoring	2.1.3.1.1	Conduct training of HCWs and CHWs on TB case detection	2.1.3.1.1.1	Train HCWs and CHWs on revised SOPs, guidelines, algorithms, and curriculum to	Number of trainings conducted	0	14	0	14	0	28
				2.1.3.1.2	Conduct mentorship and supervisory visits to support TB case detection	2.1.3.1.2.1	Carry out periodic mentorship and supportive supervisory visits	Number of support visits conducted	4	4	4	4	4	20
		2.1.3.2	Maintain community-based health worker positions to support TB case finding	2.1.3.2.1	Advocate for GRN or partner funding to maintain the community health worker cadre	2.1.3.2.1.1	Ensure that CHW positions are maintained	Number of CHW positions filled	310	310	310	310	310	1550
		2.1.3.3	Strengthen and sustain innovative ACSM activities	2.1.3.3.1	Raise awareness amongst political leaders, religious leaders, traditional leaders and the community through platforms such as	2.1.3.3.1.1	Conduct social mobilization and awareness among community leaders and gatekeepers	Number of consultative meetings held with community leaders and gatekeepers	4	4	4	4	4	20
2.1.4	Coordinate health surveys	2.1.4.1	Conduct surveys and ongoing monitoring of catastrophic costs incurred by TB patients	2.1.4.1.1	Conduct a patient cost survey	2.1.4.1.1.1	Conduct a patient cost survey to assess catastrophic costs experienced by TB patients	Patient cost survey conducted	No	No	Yes	No	No	Yes
2.1.5	Advocate for Health Financing	2.1.5.1	Advocate with key GRN Offices for improved access to social protection schemes for TB and Leprosy patients	2.1.5.1.1	Engage key GRN OMA on social protection policies and grants for TB and Leprosy patients	2.1.5.1.1.1	Hold bi-annual meetings with OMA concerned with social protection policies for TB and Leprosy patients	Number of meetings with GRN OMA held on social protection schemes for TB and Leprosy patients	2	2	2	2	2	10
		2.1.5.2	Advocate for increased resources for TB and Leprosy activities	2.1.5.2.1	Mobilize for financial support for Leprosy and TB from business community	2.1.5.2.1.1	Engage business entities and stakeholders to provide financial support towards TB and Leprosy activities	Business entities and stakeholders engaged to support TB and Leprosy activities	Yes	Yes	Yes	Yes	Yes	Yes
		2.1.5.3	Advocate for the inclusion of TB and Leprosy activities in social contracting	2.1.5.3.1	Engage stakeholders for the inclusion of TB and Leprosy activities in social contracting	2.1.5.3.1.1	Accelerate the implementation of social contracting to enhance the sustainability of TB and Leprosy activities	Inclusion of TB and Leprosy activities in contracting	No	Yes	Yes	Yes	Yes	Yes

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 2: Strengthen universal access to TB prevention, care and treatment														
Sub-objective 2.1 Strengthen Universal health Coverage (UHC) and access to Social Protection														
2.1.6	Strengthen TPT implementation	2.1.6.1	Improve TB diagnosis among PLHIV	2.1.6.1.1	Improve the yield of TB from screening in PLHIV	2.1.6.1.1.1	Conduct biannual meetings with mentors and ART nurses for improved TB screening amongst PLHIV	Number of biannual meetings conducted	1	2	2	2	2	9
		2.1.6.2	Improve HCW capacity for the provision of TPT	2.1.6.2.1	Conduct training of HCWs on TPT	2.1.6.2.1.1	Conduct TOT for selected regional and district officers on TPT	Number of regions with participants trained as trainers on TPT	14	14	14	14	14	70
						2.8.2.2.1	Coordinate training of facility staff on TPT provision	Number of HCWs trained on the provision of TPT	0	100	100	100	100	400
				2.1.6.2.2	Provide support to regions on the provision of TPT through support and mentorship visits	2.1.6.2.2.1	Conduct support visits to the regions on TPT	Number of regions visited	14	14	14	14	14	70
				2.1.6.2.3	Monitor the provision of TPT	2.1.6.2.3.2	Include the monitoring and reporting of TPT provision in quarterly data review meetings	Number of quarterly meetings conducted	4	4	4	4	4	20
		2.1.6.3	Improve the provision of TPT to eligible clients and contacts	2.1.6.3.1	Introduce newer WHO-recommended TPT regimens	2.1.6.3.1.1	Revise national TB treatment guidelines for the inclusion of newer WHO recommend TPT	National TB treatment guidelines updated with newly WHO-recommended TPT	No	Yes	Yes	Yes	Yes	Yes
				2.1.6.3.2	Strengthen the provision of TPT amongst eligible clients including immune-compromised individuals	2.1.6.3.2.1	Conduct TB screening of patients diagnosed with immune-compromising conditions TB and initiate TPT where applicable	Proportion of patients diagnosed with immune-compromising conditions initiated on TPT	20%	50%	65%	75%	90%	90%
				2.1.6.3.3	Integrate TPT in the Differentiated Services Delivery model	2.1.6.3.3.1	Collaborate with DSD program to for the integration, provision, and monitoring of TPT in the community-level	TPT provided at community-level through DSD model	Yes	Yes	Yes	Yes	Yes	Yes
2.1.7	Strengthen implementation of TB IPC in healthcare and community settings	2.1.7.1	Strengthen TB IPC implementation	2.1.7.1.1	Train HCWs on the national TB IPC guidelines	2.1.7.1.1.1	Conduct training of HCWs on national TB IPC guidelines	Number of healthcare workers trained on TB IPC guidelines	50	100	100	100	100	450
				2.1.7.1.1	Transition training on national TB IPC guidelines to online version	2.1.7.1.1.1	Coordinate with NHTC to package and transition TB IPC training to online platform	National TB IPC guideline training provided on online platform	No	Yes	Yes	Yes	Yes	Yes
				2.1.7.1.3	Strengthen compliance to TB screening for HCWs	2.1.7.1.3.1	Conduct consultative meetings to orient HCWs on TB screening SOPs and requirements	Number of consultative meetings held on HCW TB screening	2	7	7	7	7	37
				2.1.7.1.4	Support the reactivation of IPC committees at all levels in the country	2.1.7.1.4.1	Advocate for the functioning of IPC committees at national, regional and district levels	IPC committees revived and functioning at all levels	Yes	Yes	Yes	Yes	Yes	Yes
				2.1.7.1.5	Review IEC material on TB IPC	2.1.7.1.5.1	Revise and print TB IPC IEC material	IEC material on TB IPC printed and disseminated	Yes	Yes	Yes	Yes	Yes	Yes
				2.1.7.1.6	Revise national TB IPC guidelines in line with WHO guidance	2.1.7.1.6.1	Conduct consultative meetings for the revision of TB IPC guidelines	Number of consultative meetings conducted	0	0	0	4	0	4
						2.1.7.1.6.2	Print and disseminate national TB IPC guidelines	Revised national TB IPC guidelines disseminated	No	No	No	Yes	Yes	Yes
		2.1.7.2	Upgrade health facilities to improve airborne infection control	2.1.7.2.1	Assess health facilities for need for structural modification	2.1.7.2.1.1	Conduct quarterly assessment of health facilities to identify facilities requiring infrastructural modifications	Quarterly facility assessments conducted	4	4	4	4	4	20
				2.1.7.2.2	Effect structural modification including construction of outside waiting areas at selected health facilities	2.1.7.2.2.1	Upgrade health facility infrastructure to enhance TB infection control	Number of health facilities upgraded to enhance TB IC	3	4	5	5	6	23
		2.1.7.3	Integrate TB IPC into the general IPC program	2.1.7.3.1	Conduct consultative meetings with Quality Assurance Division on integration of TB IPC in general IPC program	2.1.7.3.1.1	Consultative meetings with Quality Assurance Division	Meetings with QA Division conducted	0	4	4	4	4	16

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 2: Strengthen universal access to TB prevention, care and treatment														
Sub-objective 2.2 Scale-up active case-finding strategies including in congregate settings														
2.2.1	Strengthen active case finding at community-level	2.2.1.1	Develop and formalize SOP for active case finding at the community level	2.2.1.1.1	Strengthen HCW capacity on active case finding at the community level	2.2.1.1.1.1	Train HCWs on SOPs for active case finding at the community level	Number of HCWs trained on SOPs for active case finding at the community level	50	100	100	100	100	450
		2.2.1.2	Conduct active case finding for TB at the community level	2.2.1.2.1	Procure X-ray machines and Gene Xpert cartridges	2.2.1.2.1.1	Procure digital chest X-ray with licensing	Number of digital chest X-rays and licensing procured	5	5	4	0	0	14
						2.2.1.2.1.2	Procure Gene Xpert cartridges	Number of Gene Xpert cartridges procured	XX	XX	XX	XX	XX	XX
				2.2.1.2.2	Conduct mass screening in high burdened areas	2.2.1.2.2.1	Conduct active case finding for TB at community level	Number of active case finding campaigns conducted in selected communities	3	6	6	6	6	27
2.2.2	Strengthen systematic screening for TB in health care facilities	2.2.2.1	Develop IEC materials in different languages on systematic TB screening	2.2.2.1.1	Develop IEC materials in different languages on systematic TB screening	2.2.2.1.1.1	Develop and print IEC materials in different languages	IEC printed and disseminated	Yes	Yes	Yes	Yes	Yes	Yes
2.2.3	Strengthen systematic screening at all congregate setting entry points	2.2.3.1	Conduct capacity building of HCWs to conduct systematic TB screening in all congregate settings	2.2.3.1.1	Strengthen capacity of health workers in congregate settings on the guidelines for systematic TB screenng and the completion of all TB data capturing tools	2.2.3.1.1.1	Train health workers in congregate settings on the guidelines for systematic TB screenng and the completion of all TB data capturing tools	Proportion of health workers in congrgate settings trained on systematic TB screenng and the completion of all TB data capturing tools	50%	75%	100%	100%	100%	100%
2.2.4	Strengthen and sustain Advocacy, Communication and Social Mobilization (ACSM) using the ENGAGE-TB approach	2.2.2.1	Adopt the ENGAGE-TB approach to facilitate multisectoral stakeholder engagement and scale-up active case finding	2.2.2.1.1	Develop ACSM Strategy using the ENGAGE-TB approach	2.2.2.1.1.1	Develop and print ENGAGE-TB/ACSM Strategy for dissemination	ENGAGE-TB/ACSM Strategy printed and disseminated	No	Yes	Yes	Yes	Yes	Yes
Sub-objective 2.3 Establish integrated Post-TB Lung Disease patient care and follow-up														
2.3.1	Develop and implement standard guidance, and M&E tools for PTLD	2.3.1.1	Establish the burden of PTLD for the country	2.3.1.1.1	Conduct a survey to determine the burden of PTLD	2.3.1.1.1.1	Engage consultancy to assess the burden of PTLD	Survey report on the burden on PTLD available	No	Yes	No	No	No	Yes
		2.3.1.2	Develop guidance on PTLD	2.3.1.2.1	Develop guidance for the surveillance, diagnosis, and management of PTLD	2.3.1.2.1.1	Conduct consultative meetings to develop a guide and SOPs on PTLD	Number of consultative meetings conducted	0	2	2	1	1	6
						2.3.1.2.1.2	Engage consultancy to develop guidance and surveillance tools for PTLD	Guidance documents and surveillance tools on PTLD are available	No	Yes	No	No	No	Yes
		2.3.1.3	Strengthen HCW capacity for the diagnosis, management, and surveillance of PTLD	2.3.1.3.1	Train HCWs on the diagnosis, management, and surveillance of PTLD	2.3.1.3.1.1	Conduct trainings for HCWs on PTLD	Training for PTLD integrated in TB guidelines curriculum	No	No	Yes	Yes	Yes	Yes
2.3.2	Strengthen psychosocial support and rehabilitation as part of PTLD	2.3.2.1	Conduct training of HCWs on psychosocial support for PTLD	2.3.2.1.1	Facilitate trainings on PTLD psychosocial support	2.3.2.1.1.1	Conduct quarterly trainings on PTLD psychosocial support	Number of quarterly trainings conducted	0	0	2	6	10	18
		2.3.2.2	Strengthen access to social/disability grants for patients with PTLD	2.3.2.2.1	Conduct assessment of patients with PTLD for social/disability grant access	2.3.2.2.1.1	Patients diagnosed with PTLD are assessed for eligibility to social/disability grants	Guidance for assessing and linking PTLD patients with social/disability grants developed	No	No	No	Yes	Yes	Yes

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Sub-objective 3: Strengthen access to DR-TB prevention, case finding, treatment and care														
3.1 Introduce DR-TB preventative treatment														
3.1.1	Evaluate models of DR-TB prophylaxis in adult and paediatric populations	3.1.1.1	Assess the feasibility and potential service delivery models on the provision of DR-TB prophylaxis amongst adults and paediatric	3.1.1.1.1	Conduct an assessment on the provision and feasibility of DR-TB preventive therapy	3.1.1.1.1.1	Engage consultancy to assess the provision and feasibility of DR-TB preventative therapy	Assessment report on provision and feasibility of DR-TB preventative therapy available	No	Yes	Yes	Yes	Yes	Yes
3.1.2	Introduce and strengthen the provision of DR-TB prophylaxis to eligible contacts and clients	3.1.2.1	Introduce DR-TB prophylaxis to eligible adult and paediatric contacts and clients	3.1.2.1.1	Standardize the provision of DR-TB prophylaxis for eligible adult and paediatric contacts and clients	3.1.2.1.1.1	Update guidance on the provision of DR-TB prophylaxis	Guidance on the provision of DR-TB preventive therapy available	No	No	Yes	Yes	Yes	Yes
						3.1.2.1.1.2	Train HCW on the provision of DR-TB prophylaxis	DR-TB preventive therapy updated guidance integrated into DR-TB training curriculum	No	No	No	Yes	Yes	Yes
						3.1.2.1.1.3	Provide DR-TB prophylaxis to eligible contacts and clients	Proportion of eligible DR-TB contacts and clients who received prophylaxis	0	0	25%	75%	85%	85%
3.2 Strengthen DR-TB case finding														
3.2.1	Strengthen DR-TB case finding and surveillance	3.2.1.1	Intensify DR-TB case finding in high-burden areas	3.2.1.1.1	Integrate DR-TB and DST in active case-finding and community screening campaigns	3.2.1.1.1.1	Develop, print, and disseminate SOPs on the inclusion of DR-TB and DST in active case-finding and community screening campaigns	DR-TB and DST screening SOPs developed, printed, and disseminated	No	Yes	Yes	Yes	Yes	Yes
		3.2.1.2	Determine the prevalence of TB Drug Resistance	3.2.1.2.1	Conduct a TB drug resistance survey	3.2.1.2.1.1	Conduct a TB drug resistance survey	Report available on the TB DRS	No	No	Yes	No	Yes	Yes
				3.2.1.2.2	Implement routine surveillance for Rifampicin resistance	3.2.1.2.2.1	Facilitate the implementation of routine DST for Bedaquiline and Linezolid for all RR-TB cases by laboratories	Routine DST for Bedaquiline and Linezolid for all RR-TB cases available and performed	No	No	Yes	Yes	Yes	Yes
						3.2.1.2.2.2	Train HCWs on routine surveillance DST for Bedaquiline, Delamanid and Linezolid for all RR-TB cases	Number of HCWs trained on sentinel surveillance	0	50	100	150	200	500
		3.2.1.3	Scale up the availability of DR-TB diagnostics	3.2.1.3.1	Upgrade GeneXpert equipment to 10-colour instruments in all districts	3.2.1.3.1.1	Procure, roll out and maintain 10-colour Gene Xpert instruments to all high-burden DR-TB regions	Number 10- colour Gene Xpert instruments available and distributed at all high DR-TB burden regions	2	4	6	10	14	14
				3.2.1.3.2	Develop a framework for collaborating with laboratories that have the capacity for DR-TB sequencing technologies	3.2.1.3.2.1	Establish a framework for collaborating with laboratories with the capacity for DR-TB sequencing technology	Framework for collaborating on DR-TB sequencing available	No	Yes	Yes	Yes	Yes	Yes
				3.2.1.3.3	Establish a workflow for use of sequencing technologies in routine DR-TB management	3.2.1.3.3.1	Establish a workflow for use of sequencing technologies in routine DR-TB management	DR-TB sequencing workflow established	No	Yes	Yes	Yes	Yes	Yes
Sub-objective 3.3: Strengthen access to DR-TB treatment and care														
3.3.1	Optimize the provision of DR-TB care and treatment	3.3.1.1	Update DR-TB guideline as per WHO recommendations	3.3.1.1.1	Review and update the DR-TB treatment guidelines according to the latest WHO recommendations	3.3.1.1.1.1	Engage TA for revision of DR-TB guidelines	Revised DR-TB guideline printed and disseminated	No	Yes	Yes	Yes	Yes	Yes
						3.3.1.1.1.2	Conduct consultative meetings for the revision of the DR-TB guidelines	Number of consultative meetings held for the revision of the DR-TB guidelines	1	2	0	2	0	5
		3.3.2.1	Strengthen HCW capacity on the management of DR-TB	3.3.2.1.1	Train HCWs on national DR-TB guidelines	3.3.2.1.1.1	Conduct training of doctors and pharmacists on the updated national DR-TB guideline.	Number of doctors and pharmacists trained on the updated national DR-TB guideline	50	50	100	100	150	450
						3.3.2.1.1.2	Conduct training of nurses and pharmacist assistants and other health care staff on the updated national DR-TB guideline.	Number of nurses and pharmacist assistants trained on the updated national DR-TB guideline	80	150	150	200	200	780
						3.3.2.1.1.3	Conduct training of CHWs on the updated national DR-TB guideline.	Number of CHWs trained on the updated national DR-TB guideline	100	150	150	150	150	700

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 4: Strengthen access to TB prevention, case finding, care and treatment for children and adolescents														
Sub-objective 4.1 Strengthen TB preventative treatment for children and adolescents														
4.1.1	Strengthen coordination and collaboration on childhood and adolescent TB	4.1.1.1	Revitalise the National TWG on childhood and adolescent TB	4.1.1.1.1	Conduct child and adolescent TB TWG meetings	4.1.1.1.1.1	Conduct quarterly TWG meetings on childhood and adolescent TB	Number of quarterly childhood and adolescent TB TWG meetings conducted	4	4	4	4	4	20
4.1.2	Standardise the diagnosis, care and treatment of childhood and adolescent TB	4.1.2.1	Revise national guidance in line with WHO recommendations on the diagnosis, care and management of childhood and adolescent TB	4.1.2.1.1	Update national guidance on diagnosis, care and management of childhood and adolescent TB	4.1.2.1.1.1	Conduct consultative meetings to develop guidance for the diagnosis, care and management of childhood and adolescent TB	Number of consultative meetings conducted	4	2	0	0	0	6
						4.1.2.1.1.2	Print and disseminate the national guidance on the diagnosis, care and management of childhood and adolescent TB	National guidance on diagnosis, care and management of childhood and adolescent TB is available	Yes	Yes	Yes	Yes	Yes	Yes
		4.1.2.2		4.1.2.2.1	Adopt the WHO recommendations on the use of stool samples for diagnosis of childhood and adolescent TB	4.1.2.2.1.1	Update national TB guidelines to incorporate new recommendations by WHO	National TB guidelines ls for TB diagnosis incorporated in reviewed TB guidelines	Yes	Yes	Yes	Yes	Yes	Yes
		4.1.2.3	Improve HCW capacity in the management of childhood and adolescent TB	4.1.2.3.1	Conduct national TOT on the national guidelines for diagnosis, care and management of childhood and adolescent TB	4.1.2.3.1.1	Conduct national TOT for selected HCW on diagnosis, care and management of childhood and adolescent TB	Number of HCWs trained as TOT	45	45	0	0	0	90
				4.1.2.3.2	Conduct training for HCW on the national guidelines for diagnosis, care and management of childhood and adolescent TB	4.1.2.3.2.1	Train HCW on diagnosis, care and management of childhood and adolescent TB	Number of HCWs trained	50	100	100	100	100	450
4.1.3	Promote the use of TB LAM in HIV-positive children, especially <5 years	4.1.3.1	Conduct training on use of LF TB-LAM for HCWs	4.1.3.1.1	Train HCWS on LF TB LAM to improve case finding among in HIV-positive children	4.1.3.1.1.1	Train HCW on the use of LF TB-LAM	Number of HCWs trained on the use of TB-LAM	50	100	100	100	100	450
4.2 Strengthening case finding amongst children and adolescents														
4.2.1	Improve TB case finding amongst children and adolescents through contact investigation	4.2.1.1	Develop SOP and job aids for reverse contact tracing and family mapping of all index case households	4.2.1.1.1	Develop SOP to guide HCWs including CHW to conduct reverse contact tracing	4.2.1.1.1.1	Develop SOP on reverse contact tracing (RCT)	SOPs on RCT implemented, printed and disseminated	No	Yes	Yes	Yes	Yes	Yes
				4.2.1.1.2	Orient HCWs on SOP for RCT	4.2.1.1.2.1	Orient HCWs including CHWs on conducting reverse contact tracing	Number of HCWs oriented on SOP for RCT	No	500	500	600	670	2270
				4.2.1.1.3	Revise and update CBTBC data collection tools to incorporate RCT	4.2.1.1.3.1	Revise CBTBC tools to incorporate reverse contact tracing	CBTBC data collection tools revised	No	Yes	Yes	Yes	Yes	Yes
				4.2.1.1.4	Incorporate RCT in the DSD model	4.2.1.1.4.1	Collaborate with the DSD program to incorporate reverse contact tracing in the DSD models	RCT incorporated in DSD model	No	Yes	Yes	Yes	Yes	Yes
		4.2.1.2	Incorporate the diagnosis, care and management of childhood and adolescent TB in the IMNCI guidelines	4.2.1.2.1	Advocate for the inclusion of the diagnosis, care and management of childhood and adolescent TB in IMNCI guidelines	4.2.1.2.1.1	Conduct consultative meetings to include diagnosis, care and management of childhood and adolescent TB in IMNCI guidelines	Consultative meetings with IMNCI program conducted	0	2	2	2	2	8
		4.2.1.3	Conduct contact investigation in school health programs	4.2.1.3.1	Develop SOP for TB screening grade 1-2 during health screening	4.2.1.3.1.1	Collaborate with PHC directorate to develop an SOP on TB screening during school visits activities	SOPs for TB screening for children developed	No	No	Yes	Yes	Yes	Yes
				4.2.1.3.2	Collaborate with Ministry of Education to capacitate life skill teachers	4.2.1.3.2.1	Conduct consultative meetings with the Ministry of Education to train life skill teachers on TB	Number of consultative meetings conducted	0	3	2	2	2	9
				4.2.1.3.3	Conduct TBL trainings for schools (school counsellors and life skill teachers)	4.2.1.3.3.1	Conduct TBL trainings for schools (school counsellors and life skill teachers)	Number of school counsellors and life skill teachers trained on TBL	0	100	200	300	500	1100
4.2.2	Enhance active TB case finding strategies among children	4.2.2.1	Introduce novel TB diagnostic techniques that embrace non-invasive collection of TB samples in children with intensive HCW and CHW capacity building to increase case finding and diagnosis	4.2.2.1.1	Engage national Childhood and Adolescent TB TWG to identify novel TB diagnostic techniques that embrace non-invasive collection of TB samples in children	4.2.2.1.1.1	Engage national Childhood and Adolescent TB TWG to identify Engage national Childhood and Adolescent TB TWG to identify novel TB diagnostic techniques that embrace non-invasive collection of TB samples in children	Annual TWG report/Minutes on identification and feasibility of novel TB diagnostic techniques that embrace non-invasive collection of TB samples in children	Yes	Yes	Yes	Yes	Yes	Yes
Sub-objective 4.3: Enhance TB care and treatment for children and adolescents														
4.3.1	Ensure an uninterrupted supply of child-friendly formulations of FLD and SLD	4..3.1.1	Advocate for the uninterrupted supply of child-friendly formulations for the prevention and management of DS-TB and DR TB	4..3.1.1.1	Introduce child-friendly formulation for the prevention of TB	4..3.1.1.1.1	Revise the DS-TB guidelines to include child friendly formulation for TPT	Susceptible TB guidelines revised to include child friendly formulation for TPT	No	Yes	Yes	Yes	Yes	Yes
				4..3.1.1.2	Introduce child friendly formulation for the management of Susceptible TB	4..3.1.1.2.1	Revise the DS-TB guidelines to include child friendly formulation	Susceptible TB guidelines revised to include child friendly formulation	No	Yes	Yes	Yes	Yes	Yes
				4..3.1.1.3	Introduce child friendly formulation for the management of DR TB	4..3.1.1.3.1	Revise the DR-TB guidelines to include child-friendly formulation	DR-TB guidelines revised to include child-friendly formulation	No	Yes	Yes	Yes	Yes	Yes
4.3.2	Develop Paediatric TB treatment guidelines, SOPs, job aides, IEC and training curricula	4.3.2.1	Develop TB in children and adolescents materials and disseminate to the lower levels of the health system (public and private) to ensure all healthcare providers are well capacitated	4.3.2.1.1	Develop TB in children and adolescents materials and disseminate to the lower levels of the health system (public and private) to ensure all healthcare providers are well capacitated	5.1.6.1.1.1	Engage consultancy to develop specific TB in children and adolescents treatment guidelines, SOPs, job aides, IEC and training curricula	Childhood and adolescent TB materials developed including treatment guidelines, SOPs, job aides, IEC and training curricula	No	No	Yes	Yes	Yes	Yes

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 5: Optimize TB/HIV and other co-morbidities collaboration for improved case detection, treatment and care														
Sub-objective 5.1 Optimize TB/HIV and other co-morbidities collaboration for improved case detection, treatment and care through the implementation of the WHO Framework on TB and other comorbidities														
5.1.1	Strengthen collaboration and coordination of TBHIV activities	5.1.1.1	Strengthen coordinating mechanisms for TB-HIV activities at national and sub-national levels	5.1.1.1.1	Strengthen the coordination of national TB-HIV activities	5.1.1.1.1.1	Conduct quarterly national TB-HIV TWG meeting	Quarterly national TB-HIV TWG meetings conducted	4	4	4	4	4	20
				5.1.1.1.2	Revitalize TB-HIV technical working committees at the district level	5.1.1.1.2.1	Conduct regular district TWG meetings	Number of districts with functional TB-HIV TWG	35	35	35	35	35	175
		5.1.1.2	Advocate for the inclusion of TB case finding in other service delivery points including DSD	5.1.1.2.1	Incorporate TB screening services within community-based interventions including DSD model	5.1.1.2.1.1	Integrate TB screening in other service-providing units e.g DSD model, DM clinics	TB screening is integrated in other service-providing units e.g DSD model, DM clinics	No	Yes	Yes	Yes	Yes	Yes
				5.1.1.2.2	Strengthen the use of bi-directional referral tools	5.1.1.2.2.1	Provide guidance on bi-directional referral to line ministries and stakeholders providing TB care service	Guidance provided to line ministries and stakeholders on bi-directional referral for TB care service	No	Yes	Yes	Yes	Yes	Yes
5.1.2	Strengthen case finding of TB/HIV co-infected patients	5.1.2.1	Adopt WHO-recommended technologies to improve TB screening amongst PLHIV	5.1.2.1.1	Revise screening algorithm to include WHO recommendations on TB screening amongst PLHIV	5.1.2.1.1.1	Update screening algorithm to include WHO recommendations on TB screening among PLHIV	TB screening for PLHIV updated	Yes	Yes	Yes	Yes	Yes	Yes
				5.1.2.1.2	Introduce the use of digital Chest X-ray for TB screening amongst PLHIV	5.1.2.1.2.1	Procure digital CXR and CAD4TB for TB screening among PLHIV	Number of digital CXR and CAD4TB procured	1	2	3	2	2	10
5.1.3	Strengthen implementation of death audits	5.1.3.1	Encourage the conducting of mortality audits	5.1.3.1.1	Conduct TB mortality audits	5.1.3.1.1.1	Conduct mortality audits at district level	Number of districts conducting TB	35	35	35	35	35	175
				5.1.3.1.2	Include TB mortality audits in quarterly data review meetings	5.1.3.1.2.1	Districts to include TB mortality audits in quarterly review meetings	Number of districts reporting on TB mortality audits	35	35	35	35	35	175
5.1.4	Strengthen cross-border collaboration	5.1.4.1	Strengthen cross-border engagement and collaboration	5.1.4.1.1	Advocate for cross-border collaboration	5.1.4.1.1.1	Conduct quarterly cross-border meetings	Number of cross-border meetings	4	4	4	4	4	20
5.1.5	Strengthen governance and accountability for collaborative action.	5.1.5.1	Assess the joint burden of TB and comorbidities	5.1.5.1.1	Conduct baseline assessment of the joint burden of TB and comorbidities	5.1.5.1.1.1	Assess the joint burden of TB and comorbidities	Assessment conducted on the joint burden of TB and comorbidities	No	Yes	Yes	Yes	Yes	Yes
		5.1.5.2	Strengthen coordination and implementation of collaborative activities on TB and comorbidities	5.1.5.2.1	Jointly develop policies for collaborative activities on TB and comorbidities	5.1.5.2.1.1	Conduct stakeholder consultation meetings on the development of policies for collaborative	Stakeholder consultation meetings conducted	No	Yes	Yes	Yes	Yes	Yes
				5.1.5.2.2	Support the phased scale-up of collaborative activities for TB and comorbidities.	5.1.5.2.2.1	Develop and disseminate guidance including SOPs on collaborative activities for TB and comorbidities	Guidance including SOPs on collaborative activities for TB and comorbidities available	No	Yes	Yes	Yes	Yes	Yes
						5.1.5.2.2.2	Train HCWs on coordination and implementation of collaborative activities on TB and comorbidities	HCWs trained on coordination and implementation of collaborative activities on TB and comorbidities	0	50	50	50	50	200
5.1.6	Strengthen monitoring, evaluation and research of TB and comorbidities	5.1.6.1	Monitor the implementation of collaborative activities on TB and comorbidities	5.1.6.1.1	Incorporate recording and reporting on collaborative activities of TB and comorbidities in routine M&E system	5.1.6.1.1.1	Districts to report on the implementation of collaborative activities of TB and comorbidities	Number of districts reporting on collaborative activities of TB and comorbidities	0	36	36	36	36	144

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 6: Optimize Community-based TB outreach and care services and strengthen the implementation of the ENGAGE-TB Approach														
Sub-objective 6.1 Optimize Community-based TB outreach and care services for key and vulnerable populations														
6.1.1	Strengthen strategies for TB case detection and management among key and vulnerable populations	6.1.1.1	Develop and operationalize targeted strategies for TB service delivery for key and vulnerable populations	6.1.1.1.1	Operationalize the strategic plan for nomadic and semi-nomadic populations	6.1.1.1.1.1	Implement strategic interventions as per the national strategic plan for nomadic and semi-nomadic populations	Strategic interventions implemented as per the national strategic plan for nomadic and semi-nomadic populations	No	Yes	Yes	Yes	Yes	Yes
				6.1.1.1.2	Targeted strategies for TB service delivery for key and vulnerable populations are developed	6.1.1.1.2.1	Targeted strategies for TB service delivery for specific key and vulnerable populations are developed	Strategies for key population and vulnerable populations operationalised	Yes	Yes	Yes	Yes	Yes	Yes
		6.1.1.2	Develop differentiated models of care for all key and vulnerable populations	6.1.1.2.1	Develop and implement differentiated models of TB and Leprosy care for all key and vulnerable populations	6.1.1.2.1.1	Implement differentiated models of care that are patient-centred for key and vulnerable populations	TB services are provided through patient-centred models of care to key and vulnerable populations	Yes	Yes	Yes	Yes	Yes	Yes
				6.1.1.2.2	Sensitize and train HCWs on cultural diversity and sensitivity when providing TB and Leprosy services	6.1.1.2.2.1	Develop a training curriculum on cultural diversity and sensitivity for HCWs	Training curriculum available on cultural diversity and sensitivity	No	Yes	Yes	Yes	Yes	Yes
						6.1.1.2.2.2	Train HCW on cultural diversity and sensitivity when providing TB and Leprosy care	HCW trained on cultural diversity and sensitivity when providing TB and Leprosy care	0	50	50	50	50	200
		6.1.1.3	Conduct health promotion activities and awareness among nomadic and semi-nomadic communities.	6.1.1.3.1	Conduct community awareness-raising campaigns on TB and Leprosy diseases and services provision	6.1.1.3.1.1	Plan and conduct community awareness-raising campaigns on TB and Leprosy disease and service delivery among key and vulnerable population	Number of community awareness campaigns conducted in nomadic and semi-nomadic populations	5	10	10	10	10	45
				6.1.1.3.2	Develop tailored IEC materials for nomadic and semi-nomadic communities	6.1.1.3.2.1	Design, translate, print, and disseminate IEC material for nomadic and semi-nomadic populations	IEC material for nomadic and semi-nomadic populations printed and disseminated	No	Yes	Yes	Yes	Yes	Yes
				6.1.1.3.3	Conduct active case finding among key and vulnerable populations	6.1.1.3.3.1	Conduct community mass TB screening in key and vulnerable communities	[illegible] conducted in key and vulnerable communities	4	5	5	5	5	24
6.1.2	Strengthen access to social support networks for key and vulnerable populations	6.1.2.1	Advocate with line ministries (e.g. OPM, MOGEPESW, MHAISS, and MOF) for increased access to social support networks by key and vulnerable populations	6.1.2.1.1	Improve screening and access to social support networks and grants by key and vulnerable populations	6.1.2.1.1.1	Sensitize HCW to screen and refer eligible key and vulnerable populations for social support and grants	Increased and timely access by eligible key and vulnerable populations to social support and grants	Yes	Yes	Yes	Yes	Yes	Yes
6.1.3	Increase TB case detection and management in congregate settings including prisons and police holding cells	6.3.1.1	Sensitize MoD and MoSS officers, wardens and inmates on TB transmission, screening, case finding and care and treatment	6.3.1.1.1	Conduct sensitization meetings for officers, wardens, and inmates on TB screening on TB screening, care and treatment	6.3.1.1.1.1	Conduct annual meetings with officers, wardens, and inmates on TB screening on TB screening, care and treatment	Annual meetings on TB TB screening, care and treatment	1	1	1	1	1	5
						6.3.1.1.1.2	Train officers, wardens and inmates on TB screening, care and treatment	Trainings conducted for officers and wardens on TB screening, care and treatment	Yes	Yes	Yes	Yes	Yes	Yes

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 6: Optimize Community-based TB outreach and care services and strengthen the implementation of the ENGAGE-TB Approach														
Sub-objective 6.1 Optimize Community-based TB outreach and care services for key and vulnerable populations														
6.1.4	Adopt the SADC Operational Plan for TB in the Mining Sector and develop guidance on the management of TB and Leprosy among cross-border patients	6.1.4.1	Strengthen accountability, coordination and collaboration for TB, HIV, Silicosis and other occupational respiratory diseases control in the mining sector	6.1.4.1.1	Develop a National Framework for coordination of communicable diseases and occupational health and safety issues in the mining sector	6.1.4.1.1.1	Conduct stakeholder consultations for the development of a National Framework for coordination	National Framework for coordination of communicable diseases and occupational health and safety issues in the mining sector developed and available	Yes	Yes	Yes	Yes	Yes	Yes
				6.1.4.1.2	Strengthen a National Task Force on Communicable diseases, Occupational Health and Mobile Populations	6.1.4.1.2.1	Conduct quarterly meetings with the national task force	National Task Forces on Communicable diseases, Occupational Health and Mobile Populations established and functional	Yes	Yes	Yes	Yes	Yes	Yes
						6.1.4.1.2.2	Advocate for additional GRN funding for TB, HIV, Silicosis and other occupational respiratory diseases.	Increase in GRN funding for TB, HIV, Silicosis and other occupational respiratory diseases.	Yes	Yes	Yes	Yes	Yes	Yes
				6.1.4.1.3	Conduct an assessment of the prevalence of TB and Silicosis in the mining sector	6.1.4.1.3.1	Conduct bi-annual screening campaigns for TB and Silica exposure amongst miners, small-scale miners and ex-miners	Screening campaigns for TB and Silica exposure amongst miners, small-scale miners and ex-miners conducted	Yes	Yes	Yes	Yes	Yes	Yes
				6.1.4.1.4		6.1.4.1.4.1	Strengthen and standardize routine monitoring and evaluation to obtain disaggregated data on TB, Silicosis and other occupational respiratory diseases in mining and small-scale mining sector	Data on TB and Silica exposure in mining and small-scale mining sector available	Yes	Yes	Yes	Yes	Yes	Yes
		6.1.4.2	Promote a supportive policy and legislative environment for TB, HIV, Silicosis and other occupational Respiratory Diseases Control in the Mining Sector	6.1.4.2.1	Roll out the newly revised list of occupation diseases provided for under the Employee Compensation Act XXXX	6.1.4.2.1.1	Roll out the newly revised list of occupation diseases made under Employee Compensation Act XXXX	Newly revised list of occupation diseases provided disseminated and available	Yes	Yes	Yes	Yes	Yes	Yes
				6.1.4.2.2	Strengthen National Legislation on compulsory reporting of TB, Silicosis and other occupational respiratory diseases	6.1.4.2.2.1	Support the strengthening and operationalizing of National Legislation on compulsory reporting of TB, Silicosis and other occupational respiratory diseases	Improved compliance to compulsory reporting of TB, Silicosis and other occupational respiratory diseases	Yes	Yes	Yes	Yes	Yes	Yes
				6.1.4.2.3	Enact/strengthen legislation that supports compensation of mineworkers and ex-mineworkers	6.1.4.2.3.1	Support the enactment/strengthening of legislation that supports compensation of mineworkers and ex-mineworkers	Improved compensation of mineworkers and ex-mineworkers	Yes	Yes	Yes	Yes	Yes	Yes
				6.1.4.2.4	Incorporate occupational health in the National Health Framework	6.1.4.2.4.1	Advocate for the inclusion of occupational health in the National Health Framework	Occupational health incorporated in the National Health Framework	No	Yes	Yes	Yes	Yes	Yes
		6.1.4.3	Strengthen programmatic interventions for TB, HIV, Silicosis and other occupational respiratory Diseases Control in the mining sector	6.1.4.3.1	Develop national minimum standards and packages for TB, HIV, Silicosis and other occupational respiratory diseases prevention, treatment, care and support	6.1.4.3.1.1	Conduct stakeholder consultation meeting	National minimum standards and packages for are in place	No	Yes	Yes	Yes	Yes	Yes
				6.1.4.3.2	Include research on TB, HIV, Silicosis and other occupational respiratory diseases interventions in National Research and Development Agenda	6.1.4.3.2.1	Incorporate research focusing on TB, HIV, Silicosis and other occupational respiratory diseases interventions in the National Research and Development Agenda	National Research and Development Agenda includes research on TB, HIV, Silicosis and other occupational respiratory diseases interventions	Yes	Yes	Yes	Yes	Yes	Yes
						6.1.4.3.2.2	Conduct operations research on TB, HIV and OLDs Silicosis and other occupational respiratory diseases	Published Operations research on TB. HIV, Silicosis and other occupational respiratory diseases	No	No	Yes	Yes	Yes	Yes
				6.1.4.3.3	Develop national guidelines to ensure a safe working environment that minimizes exposure to silica dust	6.1.4.3.3.1	Conduct stakeholder consultation meeting	National guidelines are in place	No	Yes	Yes	Yes	Yes	Yes
		6.1.4.4	Strengthening Programme Monitoring and Evaluation	6.1.4.4.1	Enforce compliance with national regulations for monitoring of prescribed diseases and control of dust exposure	6.1.4.4.1.1	Conduct consultative meetings with partners and stakeholders	National regulations for monitoring compliance with control of prescribed diseases and dust exposure in place	0	75%	85%	95%	100%	100%
						6.1.4.4.1.2	Develop SOPs, and M&E tools for monitoring compliance with control of prescribed diseases and dust exposure	SOPs and M&E tools for compliance monitoring developed and disseminated	No	Yes	Yes	Yes	Yes	Yes
						6.1.4.4.1.3	Strengthen the sensitization of occupational industrial sectors on Public and Environmental Health Act	Sensitization on Public and Environmental Health Act conducted	No	Yes	Yes	Yes	Yes	Yes
				6.1.4.4.2	Advocate for the passing of national regulations for monitoring compliance with control of prescribed diseases and dust exposure	6.1.4.4.2.1	Advocate for the enactment of the National Occupational Health Bill	National regulations for monitoring compliance in place	No	No	Yes	Yes	Yes	Yes
				6.1.4.4.3	Develop and strengthen national tool for monitoring and evaluating TB, HIV and other occupational respiratory diseases	6.1.4.4.3.1	Conduct consultative meetings with partners and stakeholders	National tool for monitoring and evaluating tool developed and in place	0	85%	95%	100%	100%	100%
						6.1.4.4.3.2	Review national SOPs and M&E tools for TB, HIV and other occupational respiratory diseases	Review of national SOPs and M&E tools conducted	No	Yes	Yes	Yes	Yes	Yes
				6.1.4.4.4	Standardize system for reporting on TB and other occupational respiratory diseases;	6.1.4.4.4.1	Include other occupational respiratory disease indicators on the DHIS2 TB Tracker system	Indicators on other occupational respiratory diseases included in the DHIS2 TB Tracker system	0	85%	95%	100%	100%	100%
		6.1.4.5	Develop standard approach for the management of cross border TB and Leprosy patients	6.1.4.5.1	Develop and operationalize guidance for the management of TB and Leprosy among cross-border patients	6.1.4.5.1.1	Conduct consultative meetings to develop guidance for the management of TB and Leprosy among cross-border patients	Consultative meetings on TB and Leprosy among cross-border patients conducted	Yes	Yes	Yes	Yes	Yes	Yes

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 6: Optimize Community-based TB outreach and care services and strengthen the implementation of the ENGAGE-TB Approach														
Sub-objective 6.2 Enhance Community Systems Strengthening														
6.2.1	Strengthen community networks, linkages, partnerships, and coordination	6.2.1.1	Engage and educate community leaders, local authorities,, church leaders, school management and traditional healers in early TB case detection and management	6.2.1.1.1	Conduct advocacy initiatives to increase awareness of TB and Leprosy amongst community leaders (traditional leaders, local authorities), church leaders, school management and traditional healers	6.2.1.1.1.1	Strengthen linkages between local community leadership (e.g. traditional leaders, local authorities), civil society organisations and local health facilities	Number of districts engaging community leaders and gatekeepers in TB and Leprosy care and treatment	0	36	36	36	36	144
						6.2.1.1.1.2	Conduct community level awareness-raising meetings/sessions on TB and Leprosy	Awareness-raising meetings and sessions conducted on TB and Leprosy	Yes	Yes	Yes	Yes	Yes	Yes
						6.2.1.1.1.3	Utilize print and electronic media platforms for awareness raising on TB and Leprosy	Print and electronic media platforms utilized for awareness raising on TB and	Yes	Yes	Yes	Yes	Yes	Yes
Sub-objective 6.3 Strengthen the implementation of the ENGAGE-TB Approach/ACSM (MAF-TB)														
6.3.1	Improve health-seeking behaviour of people with symptoms of TB and address stigma associated with TB in the community	6.3.1.1	Develop and implement an ENGAGE-TB plan focusing on individual and social behaviour	6.3.1.1.1	Engage stakeholders on the development, dissemination, and operationalization of the ENGAGE-TB plan	6.3.1.1.1.1	Conduct stakeholders consultation for the development of an ENGAGE-TB plan	Number of stakeholders consultation meetings conducted	0	3	3	0	0	6
						6.3.1.1.1.2	Conduct sensitization and awareness meetings for operationalizing the ENGAGE-TB plan	Sensitization meetings conducted for operationalizing the ENGAGE-TB plan	No	Yes	Yes	Yes	Yes	Yes
				6.3.1.1.2	Enhance awareness and consumption of the TB Patient Charter	6.3.1.1.2.1	Ensure the inclusion and awareness raising on the TB Patient Charter	Ensure the inclusion and awareness raising on the TB Patient Charter	No	Yes	Yes	Yes	Yes	Yes
				6.3.1.1.3	Commemorate World TB Day	6.3.1.1.3.1	Develop and implement concept note on TB awareness at various levels	World TB Day Commemorated	Yes	Yes	Yes	Yes	Yes	Yes
				6.3.1.1.4	Commemorate TB Awareness week	6.3.1.1.4.1	Conduct a TB Mass media campaign including road show with TB advocates and TB ambassador to create awareness on TB	TB Awareness week Commemorated	Yes	Yes	Yes	Yes	Yes	Yes
				6.3.1.1.5	Commemorate World Leprosy Day	6.3.1.1.5.1	Develop and implement concept note on Leprosy awareness at various levels	World Leprosy Day commemorated	Yes	Yes	Yes	Yes	Yes	Yes
6.3.2	Improve TB case detection in health care facilities	6.3.2.1	Strengthen provider-initiated screening of TB in health care facilities	6.3.2.1.1	Implement approaches and collaborative activities to improve TB case finding in	6.3.2.1.1.1	Strengthen TB case finding in health care facilities	TB case finding strategies implemented in health care facilities	Yes	Yes	Yes	Yes	Yes	Yes
Objective 7: Develop and implement the TB Public-Private Mix (PPM)														
Sub-objective 7.1 Develop and implement the TB Public-Private Mix (PPM)														
7.1.1	Develop a PPM framework for improved collaboration and participation of the non-NTLP sector in TB care and control	7.1.1.1	Engage stakeholders in the development of the PPP and PPM framework	7.1.1.1.1	Identify a relevant TWG that will guide and coordinate the implementation of TB and leprosy PPP and PPM	7.1.1.1.1.1	Review and update TORs of existing TB Technical Working Group to include PPP and PPM activities	PPP and PPM activities incorporated in TORs of existing TWG	No	Yes	Yes	Yes	Yes	Yes
				7.1.1.1.2	Solicit Technical Assistance for the development of the PPM framework	7.1.1.1.2.1	Engage TA for the development of the PPM framework	Technical Assistance engaged	No	Yes	Yes	Yes	Yes	Yes
				7.1.1.1.3	Consult with stakeholders for the development of the PPP and PPM framework including situational analysis	7.1.1.1.3.1	Conduct stakeholders consultations for PPP and PPM framework development	PPP and PPM framework developed and disseminated	No	Yes	Yes	Yes	Yes	Yes
7.1.2	Strengthen the engagement of private and non-NTLP sectors stakeholders through PPM framework	7.1.2.1	Engage private and non-NTLP sectors in TB and Leprosy care and treatment	7.1.2.1.2	Foster participatory and inclusive involvement with key PPP and PPM stakeholders	7.1.2.1.2.1	Build high-level commitment at the national level to build or strengthen linkages with the private sector including through representative organizations and councils	High-level commitment fostered for strengthening linkages with the private sector	No	Yes	Yes	Yes	Yes	Yes
						7.1.2.1.2.2	Conduct quarterly advocacy and awareness-raising meetings with private for-profit entities	Quarterly advocacy and awareness-raising meetings held with private for-profit entities	No	Yes	Yes	Yes	Yes	Yes
						7.1.2.1.2.3	Actively engage with private for-profit entities for increased financing towards TB and Leprosy care and treatment services	Private for-profit entities engaged for increased financing towards TB and Leprosy care and treatment services	No	Yes	Yes	Yes	Yes	Yes
						7.1.2.1.2.4	Conduct quarterly advocacy and awareness-raising meetings with non-NTLP (health) entities	Quarterly advocacy and awareness-raising meetings held with non-NTLP entities	No	Yes	Yes	Yes	Yes	Yes
7.1.3	Improve case finding, management and reporting of TB and Leprosy cases by the private and non-NTLP sectors	7.1.3.1	Engage health care providers in private and non-NTLP sectors for improved TB and Leprosy case finding, diagnosis, management and reporting to NTLP	7.1.3.1.1	Conduct training of private clinicians, nurses and pharmacists on TB and Leprosy care and management	7.1.3.1.1.1	Train private clinicians, nurses and pharmacists in TB and Leprosy care and management	Number of private clinicians, nurses and pharmacists trained in TB and Leprosy care and management	100	200	300	400	500	500
				7.1.3.1.2	Conduct training of non-NTLP (public sector) health services providers in TB and Leprosy care and management	7.1.3.1.2.2	Train non-NTLP (public sector) health services providers in TB and Leprosy care and management	Number (public sector) health services providers trained in TB and Leprosy care and management	100	200	300	400	500	500
				7.1.3.1.3	Engage specific facilities and providers to explore various models to provide TB and Leprosy care to private and non-NTLP-sector patients	7.1.3.1.3.1	Explore and operationalize various models for comprehensive TB and Leprosy care for private and non-NTLP sector patients	Key facilities and providers engage, and various models of TB and Leprosy care operationalized in private and non-NTLP sectors	No	Yes	Yes	Yes	Yes	Yes
				7.1.3.1.4	Engage private care providers and the non-NTLP sector to optimize referral, diagnosis and treatment of presumptive TB/Leprosy and TB/Leprosy patients	7.1.3.1.4.1	Engage with private care providers and the non-NTLP sector to refer presumptive or confirmed TB and Leprosy cases for diagnosis, care and treatment	Fostered engagement for referral of presumptive cases for diagnosis, care and treatment	Yes	Yes	Yes	Yes	Yes	Yes
		7.1.3.2	Strengthen efforts to comply to the regulatory framework governing notification of infectious diseases	7.1.3.2.1	Engage private care providers and non-NTLP sector on mandatory notification of TB and Leprosy cases	7.1.3.2.1.1	Familiarize private and non-NTLP sectors on mandatory notification of TB and Leprosy cases	Private and non-NTLP sectors informed on mandatory notification of TB and Leprosy cases	Yes	Yes	Yes	Yes	Yes	Yes

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 8: Increase TB testing, access and coverage to test all presumptive TB people with WHO-recommended molecular tests														
Sub-objective 8.1 Increase TB testing, access and coverage to test all presumptive TB people with WHO-recommended molecular tests														
8.1.1	Strengthen the existing PSM system in order to ensure and maintain an uninterrupted supply chain of reagent and commodities throughout the network	8.1.1.1	Institutionalize demand forecasting methods for all TB diagnostic tests at all levels of the network.	8.1.1.1.1	Facilitate improved forecasting and quantification of testing demand with current tests volumes/ demands	8.1.1.1.1.1	Conduct quarterly meetings with relevant TWG for pipeline reviews to improve/reconcile forecasting and quantification of testing demand	Quarterly TWG meetings conducted on the stock status of TB laboratory testing and pipeline	4	4	4	4	4	20
		8.1.1.2	Mobilize partner support for uninterrupted supply of TB reagents and consumables at all testing levels	8.1.1.2.1	Advocate for increased resources and efficient and effective use of available TB testing supplies and commodities	8.1.1.2.1.1	Mobilize additional partner support for continuous and uninterrupted supply of TB diagnostics and consumables	Partner and external support mobilized for continuous and uninterrupted supply for TB diagnostics and consumables	Yes	Yes	Yes	Yes	Yes	Yes
					Engage development partners and stakeholders on funding of priority gaps ie. logistics, human resources	8.1.1.2.1.2	Conduct bi-annual advocacy meetings	Advocacy meetings conducted	2	2	2	2	2	10
		8.1.1.3	Engage NIP to ensure maintenance of equipment functionality	8.1.1.3.1	Engage NIP on maintenance, servicing and calibration of all TB testing equipment across the network	8.1.1.3.1.1	Advocate with NIP to ensure that major equipment is serviced as scheduled across the network e.g. MGIT, Xpert, Sequencers, LPA equipment, BSCs	Percentage of major equipment serviced as per schedule across TB laboratory network	60%	70%	80%	100%	100%	100%
8.1.2	Participate in the capacity building of laboratory staff on the revised national TB diagnostic algorithm	8.1.2.1	Improve the capacity of laboratory personnel on national TB treatment guidelines and the revised National TB diagnostic algorithm	8.1.2.1.1	Update laboratory diagnostic algorithm as per revised national TB treatment guidelines	8.1.2.1.1.1	Revise and disseminate laboratory diagnostic algorithm as per national TB treatment guidelines	Revised diagnostic algorithm available and disseminated to laboratories	Yes	Yes	Yes	Yes	Yes	Yes
				8.1.2.1.2	Train laboratory personnel on the national TB treatment guidelines and revised national TB diagnostic algorithm	8.1.2.1.2.1	Conduct training of laboratory personnel on TB treatment guidelines and diagnostic algorithm	Number of laboratories with personnel trained on national TB treatment guidelines and revised TB diagnostic algorithm	34	34	34	34	34	34
		8.1.2.2	Revise laboratory recording and reporting tools in line with the new TB diagnostic algorithm	8.1.2.2.1	Update laboratory TB recording and reporting tools aligning it with revised diagnostic algorithm	8.1.2.2.1.1	Print and disseminate revised TB laboratory recording and reporting tools to all laboratories	Revised TB laboratory recording and reporting tools available and used by all laboratories	Yes	Yes	Yes	Yes	Yes	Yes
		8.1.2.3	Ensure capacity building of laboratory personnel on newly introduced diagnostic tests including stool-based testing	8.1.2.3.1	Participate in capacity building of laboratory personnel in newly introduced TB diagnostic tests	8.1.2.3.1.1	Train laboratory personnel at TB testing laboratories on newly introduced TB diagnostic tests	Number of laboratories with personnel trained on newly introduced TB diagnostic tests	34	34	34	34	34	34
		8.1.2.4	Collaborate with NIP on the introduction and use of newer WHO approved diagnostic tests	8.1.2.4.1	Engage NIP for the introduction and use (verification and procurement)of newer WHO-approved TB diagnostic tests	8.1.2.4.1.1	Conduct consultative meetings with relevant NIP technical officers on the introduction and use of newer WHO-approved TB diagnostic tests	Consultative meetings conducted with relevant NIP technical officers	Yes	Yes	Yes	Yes	Yes	Yes
						8.1.2.4.1.2	Develop and disseminate SOPs on newly introduced WHO-approved TB diagnostic tests	SOPs on newly introduced WHO-approved TB diagnostic tests developed and disseminated	Yes	Yes	Yes	Yes	Yes	Yes
						8.1.2.4.1.3	Engage NIP to support quality control of rapid diagnostics tests	NIP engaged and supporting quality control of rapid diagnostic test	Yes	Yes	Yes	Yes	Yes	Yes

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 8: Increase TB testing, access and coverage to test all presumptive TB people with WHO-recommended molecular tests														
Sub-objective 8.1 Increase TB testing, access and coverage to test all presumptive TB people with WHO-recommended molecular tests														
8.1.3	Strengthen Laboratory Quality Management System through the implementation of ISO 15189 standards in all TB testing laboratories	8.1.3.1	Expand EQA coverage for Xpert MTB/RIF at health facilities performing Xpert testing.	8.1.3.1.1	Engage NIP to ensure training of laboratory personnel on EQA for Gene Xpert MTB/Rif	8.1.3.1.1.1	Train laboratory personnel on EQA for Gene Xpert MTB/RIF	Number of laboratories with personnel trained on EQA for Xpert MTB/RIF	34	34	34	34	34	170
				8.1.3.1.2	Roll out quality assurance programme to all laboratories providing TB services	8.1.3.1.2.1	Implement quality assurance programme to all laboratories providing TB services	Number of TB laboratories providing routine quality assurance reports	34	34	34	34	34	170
		8.1.3.2	Implement and ensure a functional quality management system for the TB diagnostic services provided outside the NIP laboratory network	8.1.3.2.1	Develop and implement workplan for EQA for TB testing sites outside NIP testing network	8.1.3.2.1.1	Operationalize the EQA framework/work plan at testing sites outside NIP testing network	EQA framework/work plan implemented at testing outside NIP network	Yes	Yes	Yes	Yes	Yes	Yes
8.1.4	Optimize the integrated sample transportation and results delivery system	8.1.4.1	Strengthen and integrate TB sample referral system	8.1.4.1.1	Conduct site assessments on specimen transport and results return methods and report on diagnostic network optimisation	8.1.4.1.1.1	Conduct assessments on specimen transport and results return methods	The diagnostic network optimization assessment report finalized and shared with partners and stakeholders	Yes	Yes	Yes	Yes	Yes	Yes
8.1.5	Engage NIP on upgrading of the TB laboratory surveillance system in conformance with national and international reporting requirements	8.1.5.1	Advocate for the integration of laboratory TB reports in the routine quarterly reporting system	8.1.5.1.1	NIP to integrateTB laboratory reports in the routine quarterly reporting system	8.1.5.1.1.1	Advocate with NIP to integrate TB reports in the routine reporting system	TB laboratory reports integrated into the routine lab quarterly reporting system	No	Yes	Yes	Yes	Yes	Yes
		8.1.5.2	Upgrade/modify the LMIS to include indicators on TB surveillance and timely reporting of data	8.1.5.2.1	Engage NIP to upgrade/modify the LMIS to include indicators on TB surveillance and provide timely reports	8.1.5.2.1.1	Upgrade LMIS to include indicators on TB surveillance and provide timely reports	LMIS upgraded to report on TB indicators and provide timely automated reports	No	No	Yes	Yes	Yes	Yes
		8.1.5.3	Coordinate with NIP for the implementation of a results alert system	8.1.5.3.1	Timely reporting of TB positive results	8.1.5.3.1.1	Facilitate the linking of laboratory notification system with facility system using SMS and/or WhatsApp	Proportion of positive TB results reported timely	95%	100%	100%	100%	100%	100%
		8.1.5.4	Develop and implement a unique identification system for presumptive and confirmed TB cases	8.1.5.4.1	Develop a unique identification system for presumptive and confirmed TB patients	8.1.5.4.1.1	Implement a unique identification system for TB presumptive and confirmed patients	Unique identification system implemented	No	Yes	Yes	Yes	Yes	Yes
				8.1.5.4.2	Orient laboratory and clinical staff on unique identification system	8.1.5.4.2.1	Conduct orientation sessions for laboratory and clinical staff on the unique identification system	Number of clinical and laboratory staff oriented on the unique identification system	0	50	50	50	50	200

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 9: Ensure an uninterrupted supply of first- and second-line anti-TB medicines														
Sub-objective 9.1 Ensure an uninterrupted supply of first- and second-line anti-TB medicines														
9.1.1	Build capacity of staff at all levels (national, regional, district and facility)	9.1.1.1	Conduct capacity building in inventory management, treatment guidelines and pharmacovigilance for relevant staff	9.1.1.1.1	Train staff on TB/Leprosy guidelines, PSM, and aDSM	9.1.1.1.1.1	Train pharmacy staff on TB/Leprosy guidelines and SCM for national and district level	Number of pharmacy staff trained on TB/Leprosy guidelines and SCM for national and district level	30	30	30	30	30	150
				9.1.1.1.2	Train staff on aDSM; optimize reporting channels and tools	9.1.1.1.2.1	Train Pharmacy staff on aDSM	Number of facility staff trained on aDSM	40	40	40	40	40	200
				9.1.1.1.3	Optimize communication with NMRC divisions (QSL, Inspection, registration, TIPC)	9.1.1.1.3.1	Conduct quarterly stakeholders meeting	Number of stakeholders meetings conducted	4	4	4	4	4	20
				9.1.1.1.4	Procure the South African Medicines Formulary (SAMF)	9.1.1.1.4.1	Procure the South African Medicine Formulary (SAMF)	Number of SAMF procured	70	70	0	0	0	140
				9.1.1.1.5	To make FESC a user-friendly tool for tracking and capturing expiry dates	9.1.1.1.5.1	Modify the design of FESC to enable capturing of expiry dates	% of completion of the redesigning of FESC	80%	100%	100%	100%	100%	100%
				9.1.1.1.6	Train pharmacy staff on the updates	9.1.1.1.6.1	Train Pharmacy staff on the FESC updates	Number of pharmacy staff trained on the FESC updates	0	80	0	0	0	80
				9.1.1.1.7	Conduct regular supportive supervision	9.1.1.1.7	Conduct quarterly support supervisory visit	Number of facilities visited quarterly	28	30	26	28	28	140
9.1.2	Adopt Early Warning Systems at all levels to address stock-related risks	9.1.2.1	Implement batch tracking in the stock management tools for TB commodities	9.1.2.1.1	Train HCWs on stock management (FESC and other tools)	9.1.2.1.1.1	Train HCWs on inventory management (FESC and other tools)	Number of HCWs trained in inventory management	40	40	40	40	40	200
		9.1.2.2	Advocate for the adoption of long-term contracts to minimize procurement delays	9.1.2.2.1	Motivate for and implement a long-term contract	9.1.2.2.1.1	Submit a motivation for long-term supply contract	Motivational letter for long-term supply contract submitted	1	1	1	1	1	1
9.1.3	Facilitate the registration and the procurement of new drug formulations and commodities	9.1.3.1	Submit motivations to EMLC and Nemlist to advocate for the registration and procurement of new formulations of anti-TB medicines and TB-LAM (commodities) through government fund with CMS	9.1.3.1.1	Advocate for the procurement of child friendly formulations of anti-TB medicines	9.1.3.1.1.1	Facilitate placement of orders for child-friendly formulations	Child-friendly formulations procured and available of prescription	Yes	Yes	Yes	Yes	Yes	Yes
		9.1.3.2		9.1.3.2.1	Evidence-based submission for the inclusion of TB_LAM kits into the GRN procurement	9.1.3.2.1.1	Introduce and sustain TB-LAM procurement through government funding with CMS	TB-LAM procurement done through GRN funding with CMS	Yes	Yes	Yes	Yes	Yes	Yes
9.1.4	Maintain an uninterrupted supply of quality-assured TB medicines	9.1.4.1	Advocate for the country to be listed on and access Global Drug Facility for pooled procurement and technical assistance	9.1.4.1.1	Advocate for listing on GDF and the use pooled procurement	9.1.4.1.1.1	Write a motivation for the procurement of new drug formulations through pooled procurement mechanism	% new products procured through pooled procurement	0%	50%	60%	80%	90%	90%
		9.1.4.2	Conduct data-driven forecasting and quantification, optimize the use of morbidity-based forecasting at all levels	9.1.4.2.1	Conduct quarterly facility review meetings (on-site)	9.1.4.2.1.1	Convene a quarterly supply chain TWG meeting	Number of districts that conduct quarterly Supply Chain TWG meetings	4	8	12	16	20	20
		9.1.4.3	Prioritize and fast-track the procurement process	9.1.4.3.1	Reassess the order trigger point and increase stock holding	9.1.4.3.1.1	Facilitate placement of orders for items that have reached the minimum stock level	% of items ordered when reaching minimum stock level	80%	85%	90%	95%	100%	100%
		9.1.4.4	Review and update pharmaceutical standard operating procedures	9.1.4.4.1	Conduct quarterly facility data review meetings (on site).	9.1.4.4.1.1	Train HCWs staff on pharmaceutical SOP (on-site training)	Number of staff trained on SOP	50	50	50	50	50	250

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 10: Ensure capacity for Leprosy case-finding (screening, diagnosis), treatment and surveillance														
Sub-objective 10.1: Strengthen coordination and programmatic management of the Leprosy Unit														
10.1.1	Strengthen coordination and programmatic management of Leprosy	10.1.1.1	Advocate for increased funding and resources for Leprosy	10.1.1.1.1	Submit motivation for increased funding and resources for Leprosy	10.1.1.1.1.1	Submit annual motivation for increased resources for Leprosy	The advocate meeting on fundraising held	Yes	Yes	Yes	Yes	Yes	Yes
		10.1.1.2	Establish a national Leprosy TWG	10.1.1.2.1	Establish a functional national Leprosy TWG	10.1.1.2.1.1	Leprosy TWG to meet quarterly	TWG meetings conducted quarterly	0	4	4	4	4	16
10.1.2	Improve capacity-building for health workers including private sector	10.1.2.1	Improve HCW capacity for Leprosy diagnosis, care and management	10.1.2.1.1	Update national guidelines in line with WHO recommendations	10.1.2.1.1.1	Update the national Leprosy treatment and management guidelines in line with the latest WHO guidance	Updated Leprosy guidelines printed and disseminated	No	Yes	Yes	Yes	Yes	Yes
				10.1.2.1.2	Develop a comprehensive training curriculum on Leprosy	10.1.2.1.2.1	Training curriculum developed for training HCWS	The training curriculum developed, printed and available	No	Yes	Yes	Yes	Yes	Yes
				10.1.2.1.3	Train HCWs on updated guideline	10.1.2.1.3.1	Conduct TOT on the national Leprosy guidelines	TOT conducted on national Leprosy guidelines	No	Yes	Yes	Yes	Yes	Yes
						10.1.2.1.3.2	Train HCW on updated national guideline	Number of HCWs trained on updated Leprosy guidelines	0	100	200	300	400	400
		10.1.2.2	Incorporate leprosy in Standard Treatment Guidelines (STG) amongst other skin conditions	10.1.2.2.1	Incorporate diagnosis, care, and management of Leprosy in STG	10.1.2.2.1.1	Update STG to include Leprosy	Leprosy included the STG	No	No	Yes	Yes	Yes	Yes
Sub-objective 10.2: Strengthen social support and rehabilitation														
10.2.1	Improve access of Leprosy patients to rehabilitation services, occupational, physiotherapist social support networks	10.2.1.1	Link Leprosy patients to rehabilitation services, occupational, physiotherapist and promote self-care	10.2.1.1.1	Advocate social grant and nutritional support for clients with permanent disabilities.	10.2.1.1.1.1	Newly revised list of occupation diseases disseminated and available	Multisectoral meeting conducted	Yes	Yes	Yes	Yes	Yes	Yes
				10.2.1.1.2	Establish the referral system for GD2 patient	10.2.1.1.2.1	Establish the referral system of G2D clients to social welfares services	The referral system established	No	No	Yes	Yes	Yes	Yes
			Improve linkages and access to social support networks for Leprosy patients	10.2.1.1.3	Improve access to social support networks for Leprosy patients	10.2.1.1.3.1	Facilitate access to social support for Leprosy patients	Improved access to social support by Leprosy patients	Yes	Yes	Yes	Yes	Yes	Yes
Sub-objective 10.3: Enhance patient follow up and clinical monitoring														
10.3.1	Strengthen supportive supervision and on-the-job training at all levels	10.3.1.1	Strengthen supportive supervision and on-the-job training at all levels	10.3.1.1.1	Develop assessment tool for patient follow up monitoring	10.3.1.1.1.1	Develop monitoring, recording, and reporting tools for leprosy management and reporting	Availability of monitoring, recording, and reporting tools for leprosy management and reporting	No	Yes	Yes	Yes	Yes	Yes
				10.3.1.1.2	Conduct support supervision visit and on-site training	10.3.1.1.2.1	Conduct supportive supervision visits to regions and districts and conduct on-site training	Support supervision reports available	No	Yes	Yes	Yes	Yes	Yes
								Number of on-site trainings conducted	0	14	14	14	14	56
						10.3.1.1.2.2	Conduct leprosy-specific mentorship and technical assistance to the regions reporting leprosy cases	Number of mentorship and support visits conducted	3	3	3	3	3	15
		10.3.1.2	Introduce Leprosy preventive therapy	10.3.1.2.1	Include the provision of Leprosy preventative therapy in national treatment guidelines	10.3.1.2.1.1	Conduct meetings with CMS to ensure the availability of Leprosy preventative therapy	Number of meetings conducted with CMS	0	4	4	4	4	16
						10.3.1.2.1.2	Ensure provision of Leprosy preventive therapy to eligible contacts	Contacts of Leprosy patients receiving preventative therapy	No	No	Yes	Yes	Yes	Yes
		10.3.1.3	Enhance linkages and referral system for Leprosy patients for improve care and treatment	10.3.1.3.1	Introduce a referral system for Leprosy patients	10.3.1.3.1.1	Introduce the referral systems to access facilities that can manage reactions, offer wound care, deal with other complications, and offer reconstructive surgery with associated	Referral system established and utilized	No	Yes	Yes	Yes	Yes	Yes
				10.3.1.3.2	Integrate active case finding	10.3.1.3.2.1	Conduct routine intensive case finding (using an initial clinical screening criteria)	Routine intensive case finding conducted	Yes	Yes	Yes	Yes	Yes	Yes
10.3.2	Strengthen the integration of Leprosy care into existing community structures	10.3.2.1	Engage and sensitize CSOs implementing TB activities to integrate Leprosy activities in their scope of work	10.3.2.1.1	Identify CSO to train on Leprosy, to advocate for resources and sensitize communities and general population	10.3.2.1.1.1	Community based organizations operating in areas where patients with leprosy are found will be trained and capacitated to support these	Number of multisectoral meetings conducted	3	3	3	3	3	15
						10.3.2.1.1.2	Conduct training to CSO on leprosy case management	Number of CSO trained on leprosy case management	2	2	2	2	2	10
		10.3.2.2	Strengthen social mobilization initiatives at key/targeted geographical areas	10.3.2.2.1	Implement community mobilization and sensitization sessions	10.3.2.2.1.1	Conduct community meetings	Number of community mobilization and sensitization sessions conducted	28	28	28	28	28	140
						10.3.2.2.1.2	Develop health education materials on leprosy for HCW staff and community sensitization/patient education on leprosy	Availability of educational material for leprosy in different languages developed	No	Yes	Yes	Yes	Yes	Yes
						10.3.2.2.1.3	Print and disseminate community IEC material	Availability of IEC material printed and disseminated	No	Yes	Yes	Yes	Yes	Yes
Sub-objective 10.4: Strengthen active surveillance and case finding														
10.4.1	Conduct geospatial mapping of all leprosy cases diagnosed in the past two years to identify hot spots of transmission and conduct contact tracing particularly in endemic region.	10.4.1.1	Integrated active case-finding in targeted populations	10.4.1.1.1	Develop case finding and contact tracing strategy	10.4.1.1.1.1	Develop case finding strategy with contact tracing tool, including mapping, protocol, and screening questionnaire	Case finding and contact tracing strategy developed and available at relevant entities	Yes	Yes	Yes	Yes	Yes	Yes
				10.4.1.1.2	Utilize mapping tools to ensure detection of sporadic and hidden cases	10.4.1.1.2.2	Conduct geospatial mapping of all leprosy cases diagnosed in the past two years to identify hot spots of transmission and to conduct contact tracing especially at endemic region	Geospatial mapping conducted	No	Yes	Yes	Yes	Yes	Yes
10.4.2	Institutionalize a functional M&E system for leprosy	10.4.2.1	Institutionalized functional M&E system for leprosy	10.4.2.1.1	Update and disseminate Leprosy data tools	10.4.2.1.1.1	Update, print and disseminate Leprosy data tools	Updated and disseminated Leprosy data tools available	No	Yes	Yes	Yes	Yes	Yes
				10.4.2.1.2	Develop indicators for Leprosy	10.4.2.1.2.1	Develop indicators for leprosy and integrate into recording and reporting system	Updated Leprosy indicators incorporated in DHIS2 TB tracker system	No	Yes	Yes	Yes	Yes	Yes
				10.4.2.1.3	Incorporate Leprosy indicators in DHIS2 TB tracker	10.4.2.1.3.1	Update and include Leprosy indicators in DHIS2 TB tracker system							

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 11: Strengthen patient support services to reduce TB-related catastrophic costs from 82% to 30% by 2028														
Sub-objective 11.1 Strengthen patient support services														
11.1.1	Strengthen the advocacy, communication and social mobilization on TB and Leprosy	11.1.1.1	Improve community engagement, particularly at hard to reach and high TB-burden areas	11.1.1.1.1	Community engagement and sensitization meetings with leaders in hard-to-reach and high-burden areas	11.1.1.1.1.1	Conduct community engagement and sensitization meetings with leaders in hard-to-reach high-burden areas	Number of meetings held with community leaders	5	10	15	20	25	25
		11.1.1.2	Strengthen community awareness of TB and Leprosy to address delays in health-seeking	11.1.1.2.1	Improve community awareness of TB and Leprosy diagnosis, care, and treatment with targeted messages to improve health-seeking behavior	11.1.1.2.1	Develop tailored messages to improve community awareness of TB and Leprosy diagnosis, care and treatment	Tailored messages developed and disseminated/ broadcasted	Yes	Yes	Yes	Yes	Yes	Yes
11.1.2	Advocate for and improve access to nutritional support for TB and Leprosy patients	11.1.2.1	Strengthen access to nutritional support for TB and Leprosy patients	11.1.2.1.1	Conduct nutritional assessment for TB and Leprosy patients	11.1.2.1.1.1	Improve access to nutritional support for eligible TB and Leprosy patients	TB and Leprosy patients receiving nutritional support	No	Yes	Yes	Yes	Yes	Yes
				11.1.2.1.2	Collaborate/engage with partners to support income-generating and food security projects	11.1.2.1.2.1	Implementation of identified nutritional support projects	Nutrition support projects supported/implemented	No	Yes	Yes	Yes	Yes	Yes
11.1.3	Strengthen access to social disability grants for all eligible TB and Leprosy patients	11.1.3.1	Implementation and expansion of social disability grants to all eligible TB and Leprosy patients	11.1.3.1.1	Advocate for and participate in the development of standardized guidance for assessing TB and Leprosy patients for eligibility for social grants	11.1.3.1.1.1	Develop standardized guidance for assessing TB and Leprosy patients for eligibility for social grants	Standardized assessment is available and used	No	Yes	Yes	Yes	Yes	Yes
				11.1.3.1.2	Conduct awareness meetings with social workers	11.1.3.1.2.1	To identify and register all eligible clients for social grant	Proportion of eligible patients accessing disability grant	50%	70%	80%	100%	100%	100%
Sub-objective 11.2 Address human rights and gender barriers to accessing TB services														
11.2.1	Eliminate/reduce TB and Leprosy-related stigma and discrimination	11.2.1.1	Conduct/participate in Community Rights and Gender assessment to understand human rights associated barriers to access and develop an action plan to reduce stigma and discrimination	11.2.1.1.1	Conduct Community rights and Gender assessment	11.2.1.1.1.1	Engage TA for protocol development, data analysis and report writing on Community rights and Gender assessment	TA engaged and protocol developed	No	Yes	Yes	Yes	Yes	Yes
						11.2.1.1.1.2	Conduct stakeholder consultation on the protocol development, data analysis and report writing	Stakeholder consultation meetings	0	4	2	0	0	6
						11.2.1.1.1.3	Conduct Community Rights and Gender assessment	Community Rights and Gender assessment report available and disseminated	No	Yes	Yes	Yes	Yes	Yes
11.2.2	Address human rights-related barriers to accessing TB and Leprosy services	11.2.2.1	Advocate for non-discriminatory access to services for all, including people in detention	11.2.2.1.1	Sensitize the community and health workers on patient charter, reduction of stigma and discrimination	11.2.2.1.1.1	Incorporate awareness raising on access to health services in community awareness sessions	Community awareness-raising sessions to include messaging on the right to access TB and Leprosy services	No	Yes	Yes	Yes	Yes	Yes
						11.2.2.1.1.2	Incorporate stigma reduction measurement tools and other related resources in TB and Leprosy training curriculum	Stigma reduction tools and messaging on patient rights incorporated in health care worker training curriculum	No	Yes	Yes	Yes	Yes	Yes
				11.2.2.1.2	Engage social workers in stigma reduction efforts including the provision of mental health support	11.2.2.1.2.1	Increase social worker involvement in mental health support services	Proportion of patients assessed by a social worker for mental health issues	30%	50%	70%	90%	100%	100%
11.2.3	Strengthen the monitoring and evaluation of CRG activities	11.2.3.1	Implement community-led monitoring to track TB-related discrimination and stigma, with priority settings guided by TB key and affected populations	11.2.3.1.1	Develop a monitoring and evaluation plan for CRG activities	11.2.3.1.1.1	Collaborate with M&E units to establish CRG M&E plan	CRG M&E plan developed	No	No	Yes	Yes	Yes	Yes

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 12: Establish Continuous Quality Improvement of TB services														
Sub-objective 12.1: Establish Continuous Quality Improvement of TB and Leprosy services at all levels														
12.1.1	Establish Quality Improvement infrastructure at NTLP	12.1.1.1	Identify leaders and key stakeholders for to lead and coordinate TB and Leprosy QI	12.1.1.1.1	Capacity building of relevant stakeholders	12.1.1.1.1.1	QI training for the key stakeholders	QI training conducted for key stakeholders	Yes	Yes	Yes	Yes	Yes	Yes
				12.1.1.1.2	Develop TORs for leaders and key stakeholders for TB and Leprosy QI	12.1.1.1.2.1	Develop descriptive TORs for each role assigned	TORs developed and utilized	Yes	Yes	Yes	Yes	Yes	Yes
12.1.2	Plan and implement quality improvement initiatives	12.1.2.1	Establish/incorporate TB and Leprosy QI at all levels	12.1.2.1.1	Incorporate TB and Leprosy QI in existing QI structures	12.1.2.1.1.1	Conduct consultative meetings on TB and Leprosy QI	Consultative meetings conducted	Yes	Yes	Yes	Yes	Yes	Yes
			Develop a Quality Management Plan for TB and Leprosy	12.1.2.1.2	Conduct a needs assessment to inform the development of the QI Plan	12.1.2.1.2.1	Quarterly meetings with stakeholders for the implementation of the quality improvement plan	Quality plan implemented	No	Yes	Yes	Yes	Yes	Yes
12.1.3	Cascade QI programme to all levels	12.1.3.1	Establish a comprehensive QI system at all levels	12.1.3.1.1	Collaborate with stakeholders to develop, implement, monitor and evaluate TB and Leprosy QI plans at facility level	12.1.3.1.1.1	Develop QIPs	QIP developed and implemented	No	Yes	Yes	Yes	Yes	Yes
						12.1.3.1.1.2	Monitor and evaluate the results of the TB QI interventions	QI M&E reports are available	No	Yes	Yes	Yes	Yes	Yes
12.1.4	Conduct capacity-building initiatives on QI	12.1.4.1	Conduct generic quality improvement training in collaboration with Quality Assurance unit within the MoH	12.1.4.1.1	Conduct a workshop on QI for NTLP staff at national, regional and district level	12.1.4.1.1.1	Train NTLP staff at national, regional and district level on Quality Improvement	Quality Improvement workshops conducted	Yes	Yes	Yes	Yes	Yes	Yes
			Conduct QI training for facility staff	12.1.4.1.2	Conduct QI trainings for selected facility staff	12.1.4.1.2.1	Cascade capacity building to all facilities through workshops and in-service training	Workshops/in-service training for staff facilities conducted	No	Yes	Yes	Yes	Yes	Yes
12.1.5	Collaborate with non-NTLP entities to enhance TB-QI through PPP and PPM	12.1.5.1	Include private healthcare facilities and non-NTLP entities in QI activities	12.1.5.1.1	Collaborate with private and non-NTLP entities to implement TB-QI	12.1.5.1.1.1	Conduct multi-sectoral consultative meetings with private sector and non-NTLP entities to implement and track TB-QI	TB-QI initiatives developed and implemented by private and non-NTLP entities	No	No	Yes	Yes	Yes	Yes
Objective 13: Monitoring, evaluation, research, and surveillance systems strengthening														
Sub-objective 13.1: Strengthen data decision-making for policy, clinical and programmatic management														
13.1.1	Unification of one NTLP central system through completion of the DHIS2 Tracker for full-scale implementation	13.1.1.1	Completion of DHIS2 Tracker for full-scale implementation	13.1.1.1.1	Replace the ETR with DHIS2 tracker by developing modules for the new variables and data integration	13.1.1.1.1.1	Develop modules for contact management, and Tuberculosis (TB) preventive treatment (TPT) in DHIS2 tracker	Contact management and TPT modules incorporated in DHIS2 and tracker completed	No	Yes	Yes	Yes	Yes	Yes
						13.1.1.1.1.2	Develop module for leprosy reporting in DHIS2 tracker	Leprosy module incorporated in DHIS2 tracker	No	No	Yes	Yes	Yes	Yes
						13.1.1.1..3	Develop a module for Adverse Drug Reaction (ADR) reporting in the DHIS2 tracker	Adverse Drug Reaction (ADR) module incorporated into the DHIS2 tracker	No	No	Yes	Yes	Yes	Yes
						13.1.1.1..4	Develop a module for referrals from the private sector and community	Referral module in DHIS2 tracker completed	No	No	Yes	Yes	Yes	Yes
						13.1.1.1.1.5	Integrating lab data in the DHIS2 case-based data system	Percentage of lab data integrated in the DHIS2 case-based data system	45%	55%	65%	75%	95%	95%
						13.1.1.1.1.6	Completion of DHIS2-tracker with new variables (TB risk factors, nutritional data, Tobacco and alcohol use, and X-Ray data)	Percentage of new variables included in the DHIS2 TB Tracker	0%	40%	60%	80%	95%	95%
						13.1.1.1.1.7	Engage TA for the completion of DHIS2 TB	TA engaged	Yes	Yes	Yes	Yes	Yes	Yes
						13.1.1.1.1.8	Provide formal DHIS2 training	Number of DHIS2 TB Tracker users trained	100	200	300	400	500	1500

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 13: Monitoring, evaluation, research, and surveillance systems strengthening														
Sub-objective 13.1: Strengthen data decision-making for policy, clinical and programmatic management														
13.2.1	Strengthen the NTLP Monitoring and Evaluation system through recruitment of TB M&E focal person at all levels	13.2.1.1	Formalize staff hiring of M&E staff	13.2.1.1.1	Conduct advocacy meetings	13.2.1.1.1.1	Advocate for the establishment of substantive DTLC position in the MoHSS staff establishment	DTLC position included in MoHSS staff establishment	No	Yes	Yes	Yes	Yes	Yes
						13.2.1.1.1.2	Advocate for the establishment and recruitment TB focus M&E officers and TB data clerks at the district level	TB focus M&E officers and TB data clerk's positions included in MoHSS staff establishment	No	Yes	Yes	Yes	Yes	Yes
						13.2.1.1.1.3	Advocate for recruitment of NTLP IT and M&E personnel	NTLP IT and M&E positions included in MoHSS staff establishment	No	Yes	Yes	Yes	Yes	Yes
		13.2.1.2	Strengthen TB M&E technical working group	13.2.1.2.1	Conduct consultative meetings with partners and stakeholders	13.2.1.2.1.1	Conduct consultative meetings for the development of TOR for TB/HIV M&E TWG	TOR for TB/HIV TWG developed	No	Yes	Yes	Yes	Yes	Yes
						13.2.1.2.1.2	Conduct routine M&E technical working group meetings	Number of quarterly meetings held	4	4	4	4	4	20
		13.2.1.3	Strengthen the review and availability of Recording and Reporting tools	13.2.1.3.1	Conduct consultative meetings with TB and Leprosy management at the national, regional, and district level	13.2.1.3.1.1	Organize consultative meetings with TB and leprosy management at the national, regional, and district level	Number of consultative meetings held with TB and leprosy management at the national, regional, and district level	0	3	3	0	0	6
						13.2.1.3.1.2	Updated recording and reporting tools and SOP	Updated recording and reporting tools and SOP printed and disseminated	No	Yes	Yes	Yes	Yes	Yes
				13.2.1.3.2	Conduct data analysis and report writing workshops to develop quarterly and annual reports	13.2.1.3.2.1	Conduct quarterly data review (regional & national) meetings	Number of quarterly data review meetings conducted	56	56	56	56	56	280
						13.2.1.3.2.2	Develop NTLP annual report	NTLP annual report developed and disseminated	Yes	Yes	Yes	Yes	Yes	Yes
		13.2.1.4	Conduct TB and leprosy M&E capacity-building activities at all levels	13.2.1.4.1	Conduct semi-annual M&E training for TB and leprosy programme staff at national, regional, and district levels	13.2.1.4.1.1	Organize M&E trainings for TB and leprosy programme staff at national, regional, and district levels	Number of NTLP staff trained on M&E	50	100	150	200	250	750
13.3.1	Strengthen the monitoring and evaluation of key patient support activities	13.3.1.1	Scale up a monitoring and evaluation collaborative action on TB and comorbidities at all levels	13.3.1.1.1	Include nutritional indicators in the facility registers	13.3.1.1.1.1	Include indicators of nutritional assessment and interventions in facility registers (Include height and BMI in all tools to objectively evaluate malnutrition status (mild, moderate, or severe)	Nutritional indicators included in the facility register	No	No	Yes	Yes	Yes	Yes
13.4.1	Enhancing the ICT infrastructure to support the M&E system strengthening	13.4.1.1	Upgrade the TB and leprosy IT equipment and software	13.4.1.1.1	Procurement of software and IT equipment (laptops, tablets, routers, power banks, external hard drives)	13.4.1.1.1.1	Procure SSD hard drive to improve the efficiency of NTLP laptops at all levels	Number of SSD hard drives procured and distributed	0	100	100	100	100	100
		13.4.1.2	Participate/contribute to the development of a Digital Health Strategy guiding the adoption of digital tools for TB screening, diagnosis, and treatment	13.4.1.2.1	Facilitate the implementation of digital technologies to support tuberculosis medication adherence	13.4.1.2.1.1	Develop Digital Tools Guide	Digital tools guide developed	No	No	Yes	Yes	Yes	Yes
						13.4.1.2.1.2	Conduct trainings on use of digital health technologies according to the digital tools guide	Number of trainings conducted on digital technologies to support tuberculosis medication adherence	0	0	2	2	2	6
13.5.1	Collaborate on improving data quality in Vital Registration System	13.5.1.1	Establish linkages between the NTLP electronic systems TB mortality data and the QI mortality survey with the Vital Registry	13.5.1.1.1	Conduct routine causes of death analysis to improve data quality in the vital registration systems	13.5.1.1.1.1	Continuous collaboration with key stakeholders (consultative meetings)	Number of consultative meetings on vital registration system held	1	1	1	1	1	5
						13.5.1.1.1.2	Conduct facility-based TB reviews that seek to generate information on mortality Quality Improvement	Number of routine facility-level mortality reviews conducted (quarterly)	4	4	4	4	4	20
						13.5.1.1.1.3	Quarterly data analysis on causes of death to improve data quality in the Vital Registration systems	Number of quarterly TB mortality data analyses conducted	4	4	4	4	4	20

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 13: Monitoring, evaluation, research, and surveillance systems strengthening														
Sub-objective 13.1: Strengthen data decision-making for policy, clinical and programmatic management														
13.6.1	Strengthen the conduct of priority TB research activities	13.6.1.1	Develop a comprehensive research agenda for TB and leprosy	13.6.1.1.1	Develop a comprehensive research agenda for TB and leprosy	13.6.1.1.1.1	Conduct consultative meetings with relevant stakeholders for the development of a comprehensive research agenda	Consultative meetings conducted	1	1	1	1	1	5
		13.6.1.2	Build capacity for NTLP staff on operational research at all levels	13.6.1.2.1	Conduct capacity-building initiatives on research methodology and implementation	13.6.1.2.1.1	Organize training on research methodology for identified TB and leprosy staff at national, regional and district levels	Number of TB and leprosy staff at national, and regional levels trained on research methodology	0	35	35	35	35	140
						13.6.1.2.1.2	Develop standard operating procedures (SOPs) for operational research at all levels	SOPs for operational research developed and disseminated	No	Yes	Yes	Yes	Yes	Yes
		13.6.1.3	Preparation for research studies and surveys	13.6.1.3.1	Preparation for research studies and surveys:	13.6.1.3.1.1	Conduct protocols development workshops per each thematic group	Protocol development workshop conducted	Yes	Yes	Yes	Yes	Yes	Yes
						13.6.1.3.1.2	Engage technical assistance for protocol development, data analysis, and report writing	TA engaged	Yes	Yes	Yes	Yes	Yes	Yes
						13.6.1.3.1.3	Obtain ethics approval per thematic research	Request for ethical approval submitted and clearance obtained	Yes	Yes	Yes	Yes	Yes	Yes
		13.6.1.4	Conduct operational research on TB and leprosy at the national and regional level	13.6.1.4.1	Conduct TB Inventory Study to assess the under-reporting of patients diagnosed with TB	13.6.1.4.1.1	Carry out an inventory study to assess the contribution of under-reporting to the missing cases	Inventory studies conducted to assess the under-reporting of patients diagnosed with TB	No	Yes	No	Yes	No	Yes
				13.6.1.4.2	Conduct DR-TB research studies and surveys	13.6.1.4.2.1	Conduct a pilot project on DR-TB TPT for children less than 5 years in high-burden areas and marginalized communities	Number of DR-TB research studies and surveys conducted	0	1	1	0	1	3
				13.6.1.4.3	Conduct sentinel surveillance for drug resistance in selected regions/districts.	13.6.1.4.3.1	Conduct sentinel surveillance	Sentinel surveillance conducted	Yes	Yes	Yes	Yes	Yes	Yes
				13.6.1.4.4	Conduct TB/HIV research studies and survey	13.6.1.4.4.1	Conduct a PLHIV TPT completion monitoring for 2018-2022 cohorts	Number of TB/HIV research studies and surveys conducted	0	1	0	0	1	2
				13.6.1.4.5	Conduct Childhood TB research studies and survey	13.6.1.4.5.1	Conduct a pilot on feasibility and acceptability of stool-based pediatric TB diagnosis (compare across districts)	Number of Childhood TB research studies and surveys conducted	0	0	1	0	1	2
				13.6.1.4.6	Conduct TB infection prevention and control research studies and surveys	13.6.1.4.6.1	Conduct a study on changes in practices at 6 month/12 month from staff that have been trained on IPC	Number of studies on changes in practices conducted	0	1	0	1	0	2
				13.6.1.4.7	Conduct a study on case finding yield from introduction of systematic screening of outpatients upon entry to clinical care in health facilities	13.6.1.4.7.1	Conduct a study on case finding yield from introduction of systematic screening of outpatients upon entry to clinical care in health facilities	Number of studies on case finding yield conducted	0	1	0	0	0	0
				13.6.1.4.8	Conduct a study on the implementation of occupational health programs for HCWs including annual mandatory TB screening and testing with TST or IGRAs for diagnosis of TBI and provision of TPT	13.6.1.4.8.1	Conduct a study on the implementation of occupational health programs for HCWs including annual mandatory TB screening and testing with TST or IGRAs for diagnosis of TBI and provision of TPT	Number of studies on the implementation of occupational health programs for HCWs conducted	0	1	0	0	0	0
				13.6.1.4.9	Conduct QI projects-data quality assurance (e.g. HCW TB screening/testing registries)	13.6.1.4.9.1	Conduct QI projects-data quality assurance (e.g. HCW TB screening/testing registries)	Number of QI projects-data quality assurance conducted	1	1	1	1	1	5
				13.6.1.4.10	Conduct PPM research studies and surveys	13.6.1.4.10.1	Conduct an operational study on the impact of the public-private mix on case notification and treatment outcomes for tuberculosis	Number of PPM research study conducted	0	1	0	1	0	2
						13.6.1.4.10.2	Conduct a study on the prevalence of TB in Mines and the impact of TB screening in mines through the TIMS Phase III project	Number of studies on the prevalence of TB in Mines and the impact of TB screening conducted	0	1	0	1	0	2
				13.6.1.4.11	Conduct Leprosy research studies and surveys	13.6.1.4.11.1	Conduct a Leprosy study to assess knowledge, attitude and practices (KAP) in endemic communities	Number of KAP study conducted	0	1	0	1	0	2
						13.6.1.4.11.2	Conduct a study to assess the quality of care for leprosy patients, including the patient perspective.	Number of studies conducted	0	0	1	0	1	2
				13.6.1.4.12	Assess the joint burden of TB and comorbidities.	13.6.1.4.12.1	Carry out a baseline assessment of the joint burden of TB and key comorbidities	Number of assessments conducted	-	-	1	-	-	1
				13.6.1.4.13	Conduct a patient pathway analysis	13.6.1.4.13.1	Conduct a patient pathway analysis	Number of patient pathways analyses done	1	0	0	0	0	1
				13.6.1.4.14	Conduct KAP survey for better understanding of community-level knowledge, attitude and practices (KAP) related to TB and Leprosy to help the NTLP design and implement evidence-driven ACSM activities	13.6.1.4.14.1	Conduct KAP survey for better understanding of community-level knowledge, attitude, and practices (KAP) related to TB and Leprosy inform the design and implementation of evidence-driven ACSM activities	Number of KAP studies conducted	0	0	1	0	0	1
				13.6.1.4.15	Conduct SUBsET to estimate the subnational TB incidence	13.6.1.4.15.1	Conduct SUBsET to estimate the subnational TB incidence	SUBsET conducted	0	1	0	0	0	1
				13.6.1.4.16	Conduct TST survey among HCWs	13.6.1.4.16.1	Conduct TST survey among HCWs	TST survey among HCWs conducted	0	0	1	0	0	1
				13.6.1.4.17	Conduct LTBI prevalence survey	13.6.1.4.17.1	Conduct LTBI prevalence survey	LTBI prevalence survey conducted	0	0	0	1	0	1

	Interventions	Main Activity No.	Main Activities	Sub-Activity No.	Sub-activities	Detailed Activity No.	Detailed Activities	Process indicator	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Objective 13: Monitoring, evaluation, research, and surveillance systems strengthening														
Sub-objective 13.1: Strengthen data decision-making for policy, clinical and programmatic management														
13.7.1	Advance duplicate checker options for regional and national level system	13.7.1.1	Participate in the design and implementation of national Unique Health ID	13.7.1.1.1	Implement relevant infrastructure allowing cross-sector information exchanges using Unique Health ID	13.7.1.1.1.1	Conduct collaborative meetings with relevant stakeholders to strengthen the system rules and validation checks	National Unique health ID implemented	No	No	No	Yes	Yes	Yes
Cont. Plan	Strengthen NTLP collaboration with the Disease Preparedness Unit	CP	Sensitize and engage relevant stakeholders on TBL Contingency Plan	CP	Organize a regular bi-annual bilateral update meetings to ensure inclusion of TBL activities	CP	Conduct bi-annual update meeting with DPU and relevant stakeholders	Number of meetings conducted	2	2	2	2	2	10
Cont Plan	Strengthen NTLP collaboration with the Epi Response Directorate	CP	Sensitize and engage relevant stakeholders on TBL Contingency Plan	CP	Organize a regular bi-annual bilateral update meetings to ensure inclusion of TBL activities	CP	Conduct bi-annual update meeting with ERD and relevant stakeholders	Number of meetings conducted	2	2	2	2	2	10
Cont Plan	Operationalize the TBL Contingency Plan (develop ToRs & SOPs, checklist, M&E tools, align with national documents,	CP	Establish a TBL Disaster Management Response team or integrate into existing National TWG	CP	Engage stakeholders to establish a TBL Disaster Management Response Team	CP	Conduct Quarterly TBL Disaster Management Response team meetings or integrate into quarterly National TBL meeting forum	Number of meetings conducted	3	4	4	4	4	23

Chapter 8: Indicator matrix

Indicator level	No	Indicator name	Indicator definition	Baseline 2015 is used to align to End TB strategy.	Baseline	Target 2023	Target 2024	Target 2025	Target 2026	Target 2027	Data source	Frequency of data collection	Alignment with regional/global indicators and targets
Impact	TB I1	TB incidence rate per 100,000 population	**Numerator:** Estimated number of new and relapse TB cases **Denominator:** Total number of population/100 000	639	457 (2021)	417	363	303	250	209	WHO Global TB report	Annual	Time model projection
Impact	TB I2	Number of TB deaths	**Numerator:** Estimated number of deaths from TB (all forms)	3000	2800 (2021)	2589	2290	1926	1549	1219	WHO Global TB report	Annual	Time model projection
Impact	TB I3	RR/MDR prevalence among new pulmonary TB cases	**Numerator**: Number of new TB cases with RR-TB and/or MDR-TB x 100 **Denominator:** Total number of new TB cases with DST results/ Xpert results* *EPTB resistant cases are not included.	5%	8%	7.4%	6.8%	6.2%	5.6%	<5%	Drug Resistance Sentinel Surveillance	Annual	Target: Decrease
Impact	TB I4	Percentage of TB-affected households that experience catastrophic costs due to TB	**Numerator:** Number of people treated for TB (and their households) who incur catastrophic costs* **Denominator:** Total number of people treated for TB ** Catastrophic cost (direct plus indirect) is considered if the total cost of TB treatment exceeds 20% of the household's annual income.*		82.2% (2017)	74%	66%	57%	49%	41%	TB patient cost survey	Periodic	End TB Strategy global indicator Target: 0%
Impact	LEP I1	Rate of grade 2 disabilities in newly detected cases/million	**Numerator:** Number of leprosy cases with grade 2 disability x 1000,000 population **Denominator:** Total number of leprosy cases notified in a specified period		N/A (2020)	27% reduction	36% reduction	45% reduction	54% reduction	63% reduction	NTLP Annual Report	Annual	WHO Global leprosy strategy 2021–2030 Target for 2030: 90% reduction in rate per million population of new cases with G2D (from 2020 baseline)
Impact	LEP I2	Leprosy notification Rate, children (< 15 years age) per 1,000,000 population	**Numerator:** Number of Leprosy cases on children <15 x 1000,000 population **Denominator**: Total number of leprosy cases		N/A (2020)	27% reduction	36% reduction	45% reduction	54% reduction	63% reduction	NTLP Annual Report	Annual	The Global Leprosy Strategy 2021–2030 Target for 2030: 90% reduction in rate per million children of new child cases with leprosy (from 2020 baseline)

Indicator level	No	Indicator name	Indicator definition	Baseline 2015 is used to align to End TB strategy.	Baseline	Target 2023	Target 2024	Target 2025	Target 2026	Target 2027	Data source	Frequency of data collection	Alignment with regional/global indicators and targets
Outcome	TB O1	Case notification rate of all forms (new and relapse cases) of TB per 100,000 population	**Numerator:** Total number of new and relapse TB patients notified (all forms i.e. bacteriologically confirmed + clinically diagnosed) **Denominator:** Total number of population/100 000	421	265	329	319	288	250	216	NTLP Annual Report	Annual	Time model projection
Outcome	TB O2	Number of people with confirmed RR-TB and/or MDR-TB notified.	**Numerator:** Number of people with bacteriologically confirmed RR-TB and/or MDR-TB notified		256	178	182	177	164	146	NTLP Annual Report	Annual	Time model projection
Outcome	TB O3	Treatment success rate (%) among all new and relapse TB patients	**Numerator:** New and relapse TB patients notified in a specified period who were successfully treated (cured plus treatment completed) **Denominator:** Total number of new and relapse TB patients notified in the same period (bacteriologically confirmed plus clinically diagnosed)		88.3%	88.5%	89.0%	89.5%	90.0%	≥90%	NTLP Annual Report	Annual	Global Top-10 indicator. Target: ≥90%
Outcome	TB O4	Percentage of notified cases of bacteriologically confirmed, drug resistant RR-TB and/or MDR-TB as a proportion of all estimated RR-TB and/or MDR-TB cases (**RR/MDR detection rate**)	**Numerator:** Number of bacteriologically confirmed drug resistant RR-TB and/or MDR-TB cases detected **Denominator:** Estimated number of RR-TB and/or MDR-TB cases		57%	68%	72%	79%	85%	90%	Numerator: NTLP Annual Report Denominator: WHO Global TB report	Annual	Target: ≥90%
Outcome	TB O5	Childhood TB detection rate	**Numerator**: Number of new and relapse childhood (ages 0-14 years) TB cases notified in the reporting period **Denominator:** Estimated number of incident TB cases among 0-14-year-old children (all forms) during the reporting period		53%	60%	67%	76%	85%	90%	Numerator: NTLP Annual Report Denominator: WHO Global TB report	Annual	Target: ≥90%
Outcome	TB O6	Treatment success rate for RR TB and/or MDR-TB: Percentage of diagnosed cases with RR and/or MDR-TB successfully treated	**Numerator:** Number of bacteriologically confirmed RR/MDR TB patients during the specified period that were successfully treated **Denominator:** Total number of people with bacteriologically-confirmed RR TB and/or MDR-TB notified during the same reporting period		72%	73%	74%	76%	78%	≥80%	NTLP Annual Report	Annual	Global Top-10 indicator. Target: ≥80%
Outcome	TB O7	TB treatment coverage: Percentage of new and relapse cases that were notified and treated among the estimated number of incident TB cases in the same year	**Numerator:** Number of new and relapse cases that were notified and treated **Denominator:** Estimated number of incident TB cases in the same year (all form of TB - bacteriologically confirmed plus clinically diagnosed)		56%	66%	72%	78%	84%	≥ 90%	Numerator: NTLP Annual Report Denominator: WHO Global TB report	Annual	Global Top-10 indicator. Target: ≥90%
Outcome	LEP O1	Leprosy notification rate per 1,000,000 population	Number of new leprosy cases reported in a given period in a year expressed as rate per 1 000 000 population		10.8 (2020)	8.1	7.2	6.4	5.6	4.7	NTLP Annual Report	Annual	The Global Leprosy Strategy 2021–2030 Target for 2030: 70% reduction in annual number of new cases detected (from 2020 baseline)

Indicator level	No	Indicator name	Indicator definition	Baseline 2015 is used to align to End TB strategy.	Baseline	Target 2023	Target 2024	Target 2025	Target 2026	Target 2027	Data source	Frequency of data collection	Alignment with regional/global indicators and targets
Output	TB C201	Number of notified new and relapse cases of TB (i.e. bacteriologically confirmed + clinically diagnosed)	**Numerator:** Number of all forms of TB cases (bacteriologically confirmed plus clinically diagnosed) notified to the national health authority during the reporting period **Includes only new and relapse cases*		6,703	6,809	6,817	6,704	6,458	6,072	NTLP Quarterly / Annual reports	Quarterly / Annual	Target: Decrease Detect at least 90% of incident TB cases (all forms) by 2027
Output	TB C202	Percentage of new and relapse TB patients tested using WHO recommended rapid tests at the time of diagnosis	**Numerator:** Number of new and relapse patients tested using a WHO-recommended rapid diagnostic (for example Xpert MTB/RIF) as the initial diagnostic test *(regardless of test result)* **Denominator**: Total number of new and relapse TB patients *(excluding other retreatment cases)*		82%	83%	85%	87%	89%	≥ 90%	NIP Quarterly / Annual reports	Quarterly / Annual	Global Top-10 indicator Target: ≥ 90%
Output	TB C203	First line DST coverage (%) among all pulmonary TB patients	**Numerator:** Number of patients with drug susceptibility test results for at least rifampicin among pulmonary TB patients* **Denominator:** Total number of bacteriologically confirmed pulmonary TB patients ** DST coverage includes results from molecular tests (e.g. WHO recommended rapid diagnostic test) as well as conventional phenotypic DST results*		98.6%	99%	≥99%	≥99%	≥99%	≥99%	NIP Quarterly / Annual reports	Quarterly / Annual	Global Top-10 indicator Target: 100%
Output	TB C204	Confirmed RR/MDR-TB cases tested for susceptibility to any Fluoroquinolone (FQ)	**Numerator:** Number of confirmed pulmonary RR/MDR-TB cases tested for susceptibility to FQ **Denominator:** Number of confirmed pulmonary RR/MDR-TB cases during the period of assessment.		46% 2021 ETR programme report and EPI review	50%	60%	70%	80%	≥95%	NIP Quarterly / Annual reports	Quarterly / Annual	WHO Global TB report Target: >95%
Output	TB C205	Number of people with confirmed RR-TB and/or MDR-TB notified.	**Numerator**: Number of people with bacteriologically confirmed RR-TB and/or MDR-TB notified		256	207	198	194	183	168	NTLP Quarterly / Annual reports	Quarterly / Annual	Target: Decrease Detect at least 90% of incident RR/MDR-TB cases
Output	TB C206	Percentage of people with RR-TB/MDR-TB who did not start treatment and/or started on treatment for MDR-TB who were lost to follow up during the first six months of treatment.	**Numerator:** Number of people with confirmed RR-TB/MDR-TB notified in the specified reporting period not started on treatment and/or started on prescribed second-line treatment regimen who were lost to follow-up by the end of month 6 of their treatment **Denominator:** Number of people with confirmed RR-TB and/or MDR-TB during the same reporting period		8% only among those who started treatment (2019 cohort)	TBD	TBD	TBD	TBD	<10%	NTLP Quarterly / Annual reports	Quarterly / Annual	Global Fund TB mandatory Target: Decrease
Output	TB C207	Treatment coverage with modified Shorter all-oral Treatment Regimens (mSTR)	**Numerator:** Number of TB patients treated with modified Shorter all-oral Treatment Regimens (mSTR) **Denominator:** Number of notified patients eligible for treatment with modified Shorter all-oral Treatment Regimens (mSTR)		88%	89%	90%	≥90%	≥90%	≥90%	NTLP Quarterly / Annual reports	Quarterly / Annual	Target: Increase Involve at least 90% of eligible patients in shorter regimens

Indicator level	No	Indicator name	Indicator definition	Baseline 2015 is used to align to End TB strategy.	Baseline	Target 2023	Target 2024	Target 2025	Target 2026	Target 2027	Data source	Frequency of data collection	Alignment with regional/global indicators and targets
Output	TB C208	HIV testing coverage (%)	**Numerator**: total number of notified new and relapse patients in a specific period with reported HIV status (whether positive or negative), including those previously documented to be HIV-positive (for example, documented evidence of enrolment in HIV care)). **Denominator:** Total number of notified new and relapse TB patients in the specified period		99%	≥99%	≥99%	≥99%	≥99%	Close to 100%	NTLP Quarterly / Annual reports	Quarterly / Annual	Global Top-10 indicator Target: Close to 100%
Output	TB C209	ART coverage (%) among TB/HIV patients	**Numerator:** Total number of notified new and relapse TB/HIV patients in a specified period who are enrolled in antiretroviral therapy (ART)* **Denominator:** Total number of notified new and relapse TB patients in the specified period who are HIV positive * Within 8 weeks of starting TB treatment		99%	≥99%	≥99%	≥99%	≥99%	Close to 100%	NTLP Quarterly / Annual reports	Quarterly / Annual	Global Fund TB mandatory Target: Close to 100%
Output	TB C210	Coverage of contacts with systematic screening for active TB	**Numerator:** Number of contacts of TB patients identified in the reporting year who were screened for TB* **Denominator:** Number of contacts of active TB patients identified in the reporting year **According to the national guidelines*		85%	88%	89%	90%	90%	90%	NTLP Quarterly / Annual reports	Quarterly / Annual	WHO Global TB Report
Output	TB C211	TB preventive treatment coverage (%) in childhood TB contacts aged under 5 years	**Numerator:** Total number of child TB contacts age <5 years enrolled in TB preventive treatment in the specified period **Denominator:** number of child TB contacts eligible for TB preventive treatment in the specified period		73%	80%	85%	90%	≥ 90%	≥ 90%	NTLP Quarterly / Annual reports	Quarterly / Annual	Global Top-10 indicator Target: ≥ 90%
Output	TB C212	TB preventive treatment (TPT) coverage (%) among PLHIV	**Numerator:** Total number of new HIV patients enrolled in TPT in the specified period **Denominator:** Total number of new HIV patients eligible for TPT in the specified period		92%	94%	95%	97%	98%	99%	NTLP Quarterly / Annual reports	Quarterly / Annual	WHO Global TB Report Target: ≥99%
Output	TB C213	Percentage of people who completed TPT out of those who initiated TB preventive treatment	**Numerator:** Total number of people who completed a course of TB preventive treatment (TPT) during the specified reporting period **Denominator:** Total number of people who initiated a course of TPT during the same reporting period		89% (2020)	91%	93%	95%	97%	>99%	NTLP Quarterly / Annual reports	Quarterly / Annual	WHO Global TB Report Target: >99%

Indicator level	No	Indicator name	Indicator definition	Baseline 2015 is used to align to End TB strategy.	Baseline	Target 2023	Target 2024	Target 2025	Target 2026	Target 2027	Data source	Frequency of data collection	Alignment with regional/global indicators and targets
Output	TB C214	Number of notified TB cases (all forms) contributed by non-national TB program providers – private/non-governmental facilities	Number of TB cases (all forms) referred and/or diagnosed by non-NTP providers- private/non-governmental facilities		222	340	954	1542	2067	2429	NTLP/quarterly Annual reports	Quarterly / Annual	WHO Global TB Report Target: 40% from all notified cases by 2027
Output	TB C215	Proportion of people with TB found through active case-finding activities implemented through CSOs	**Numerator:** Number of people with TB from key affected population referred by community volunteers/NGOs for TB diagnosis and treatment **Denominator:** Total number of people with TB notified during the same period		N/A (2021)	N/A	10%	20%	30%	40%	NTLP/quarterly Annual reports	Quarterly / Annual	WHO Global TB Report Target: ≥40%
Output	TB C216	Proportion of people with TB who started TB treatment and who received any form of treatment adherence support from CSO (including psycho-social support)	**Numerator:** number of people with TB who started TB treatment and who received any form of treatment adherence support from CSO (including psycho-social support) **Denominator:** Total number of people with TB started treatment during the same period		47.5% (2021)	50%	55%	≥60%	65%	70%	NTLP/quarterly Annual reports	Quarterly / Annual	WHO Global TB Report Target: ≥60% by 2025
Output	TB C217	Screening of TB patients for mental and substance use disorders	**Numerator:** Number of new and relapse TB patients screened for mental disorders (using WHO-recommended assessment tools) **Denominator:** Total number of notified new and relapse TB patients in the specified period		N/A (2021)	N/A	10%	25%	35%	55%	NTLP/quarterly Annual reports	Quarterly / Annual	WHO Global TB Report Target: increase
Output	TB C218	Proportion of individuals who received TB treatment and care using digital adherence technologies (e.g. video-supported treatment of TB)	**Numerator:** Number of patients using digital adherence technologies (e.g. video-supported treatment) during the period of outpatient treatment and care **Denominator:** Total number of patients in outpatient care who completed treatment		N/A (2021)	N/A	5%	10%	15%	25%	NTLP/quarterly Annual reports	Quarterly / Annual	WHO Global TB Report Target: increase

Indicator level	No	Indicator name	Indicator definition	Baseline 2015 is used to align to End TB strategy.	Baseline	Target 2023	Target 2024	Target 2025	Target 2026	Target 2027	Data source	Frequency of data collection	Alignment with regional/global indicators and targets
Output	LEP C1	Number of leprosy patients notified	**Numerator:** Total number of leprosy cases notified in a specified period		20	21	19	18	16	14	NTLP/quarterly Annual reports	Quarterly / Annual	WHO Global leprosy strategy 2021–2030 Target for 2030: 70% reduction in annual number of new cases detected (from 2020 baseline)
Output	LEP C2	Coverage of leprosy patients close contacts with systematic screening	**Numerator:** Number of contacts identified in the reporting year who were screened **Denominator**: Number of contacts of leprosy patients identified in the reporting year		N/A (2021)	50%	60%	70%	80%	90%	NTLP/quarterly Annual reports	Quarterly / Annual	Target increase
Output	LEP C3	Proportion of screened contacts who received preventive chemotherapy	**Numerator:** screened contacts who received preventive chemotherapy **Denominator**: Number of contacts identified in the reporting year who were screened		N/A (2021)	N/A	40%	45%	55%	65%	NTLP/quarterly Annual reports	Quarterly / Annual	Target increase
Output	LEP C4	Proportion of patients placed on MDT completing treatment	**Numerator:** Number of patients placed on MDT completing treatment **Denominator:** Number of new cases detected during the reporting year		100%	100%	100%	100%	100%	100%	NTLP/quarterly Annual reports	Quarterly / Annual	Target increase

Chapter 9: TBL NSP costing and epidemiological modelling

9.1. Costing

Objectives of costing

To estimate the amount of funds needed during the implementation period of the TBL NSP summarised by thematic area and strategic objectives.

Methods for estimating the costs of the NSP

This costing process passed a series of steps from establishing a costing team, systematically collecting service unit costs, projected resource envelope, epidemiological projections and targets that will serve as input to the costing of the TBL NSP. The data collection and costing were done through multiple approaches from bottom up to detailed measurement of all resources used in the provision of a specific health service or intervention, top down to estimating the cost of delivering a TB service by using a national average figure or expenditure account for a facility, and expert opinion to complement or validate the above costing methods.

One Health Tool software with pre-arranged excel sheet and costing template compatible with the software were used for the costing. Each costing element was organized under different thematic areas and strategic objectives. The major thematic areas the cost is classified are Program and health services/intervention areas in Table 1:

Table 1: list of Thematic areas

Program areas	
Programme-Specific Human Resources	Active case finding in high-risk groups
Training	Infection Control
Supervision	Childhood TB (excluding treatment)
Monitoring and Evaluation	PPM / ISTC
Infrastructure and Equipment	Community Involvement
Transport	Partnership initiatives
Communication, Media & Outreach	TB prevention
Advocacy	TB research
General Programme Management	Other
Collaborative TB/HIV activities	
Health service (Intervention) areas	
TB diagnosis with microscopy	TB patient support
TB diagnosis with culture	Collaborative TB-HIV interventions
TB diagnosis: Culture for DST	Screening for active TB
TB diagnosis with Xpert/TrueNAT (molecular)	Other diagnosis
TB diagnosis: LPA (molecular)	Latent and active TB evaluation
TB screening with X-rays	LTBI testing
First-line TB treatment	TB preventive therapy (TPT)
Second-line TB treatment	

Methods for health system/ programmatic cost

Each thematic area includes a series of activities and sub-activities needed to achieve the goals of

the program. These items were costed using an activity based costing approach, identifying the number of items needed for each activity, and multiplying that by the cost per item, e.g., a one-day training for 30 people includes venue hire, facilitator fees, lunch, refreshments and transport for 30 persons (Detailed cost estimation table is annexed).

Methods for service delivery costing

For the service delivery elements, the commodity costs were estimated using the One Health Tool, linking the populations in need of services to the TIME model estimates. This ensures consistency between the cost and impact analysis and captures the downstream effects of interventions at different stages of the cascade of care (for example, as notifications increase or decrease, numbers of people needing treatment will increase or decrease accordingly).

The health service cost was calculated as:

*Population in need * coverage = Total number of services*

*Total number of services * unit cost = cost per intervention*

9.1.1. Data sources

Unit costs

Unit costs for drugs and supplies were collected from the Ministry of Health and Social Service (MoHSS) Pharmaceutical Directorate, and the laboratory service unit prices were obtained from the National Institute of Pathology (NIP). The drug cost is calculated based on the available first- and second-line regimen currently used in Namibia and planned to be introduced in the TBL NSP implementation period.

Unit costs for program costing were used from the MoHSS unit cost list (Excel sheet) and the current price list of The Global Fund. Epidemiological data is imported from TIME spectrum to use as a target population.

Activity costs

Sub activities were defined in coordination with the thematic areas. Unit costs for different elements of the activities were drawn from the MoHSS unit cost list and Global Fund proposal budgets, as well as information provided by the thematic area leads.

9.1.2. Estimated costs of the TBL NSP, 2023-2027

Cost summary by health service and program costing: Approximately 2.6 billion NAD (142 million USD) is needed for the successful implementation of this five-year strategic plan. The below table and figure show the annual estimation and share among health service and health program categories.

Table 2: Total cost estimated by the health service and health system/program cost.

Cost category	2023	2024	2025	2026	2027	Total (NAD)	Total (USD)
Health service costs	175,908,210.22	197,218,028.99	217,054,835.08	239,092,883.74	262,979,368.62	**$1,092,253,326.66**	**$59,329,349.63**
Programme costs	206,978,691.04	279,723,124.61	298,410,143.43	320,404,506.07	354,242,397.40	**$1,459,758,862.56**	**$79,291,627.52**

Leprosy	10,284,854.67	12,729,991.52	13,665,672.20	14,982,613.93	15,354,112.31	**$67,017,244.63**	**$3,640,263.15**
Total costs	**$393,171,755.93**	**$489,671,145.13**	**$529,130,650.71**	**$574,480,003.75**	**$632,575,878.33**	**$2,619,029,433.85**	**$142,261,240.30**

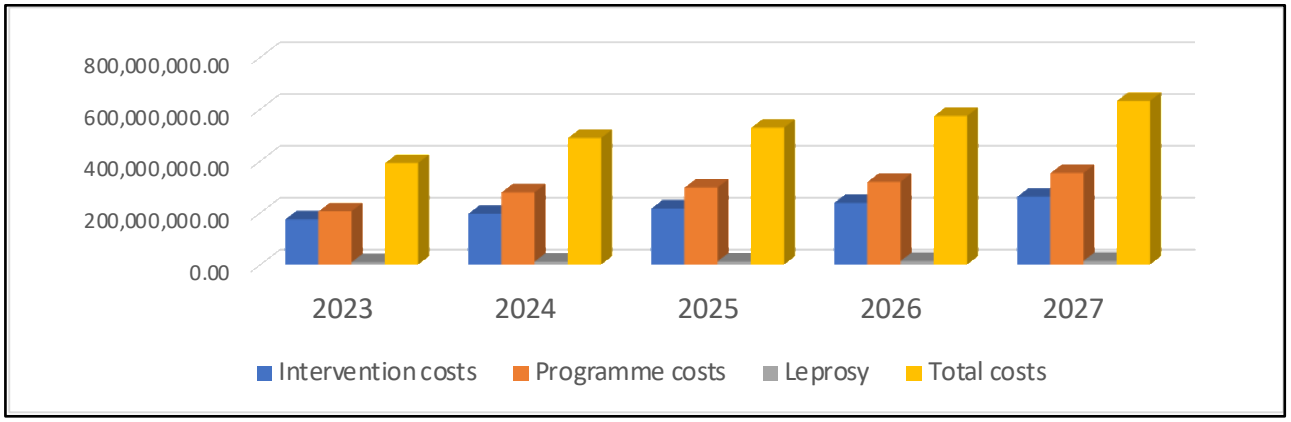


Figure 1: Annual estimated cost by budget category (Health service and health program cost) (NAD)

Total Costs and Costs by Strategic Objective summarised by year:

The current strategic plan has 13 strategic objectives. Hence, the estimated cost is summarised under these strategic objectives having the highest share for strategic objective 2: universal access for DS-TB prevention, diagnosis treatment and care services (24%) followed by Community TB care (19%). Program management (Strategic Objective 1) and M&E (Strategic objective 13) are the next major cost driver objectives with 14% and 9% respectively. Those top two strategic objectives are mainly set to address the major gap and are considered as high impact intervention areas of the TB program in the country which is improving TB case finding and treatment activities.

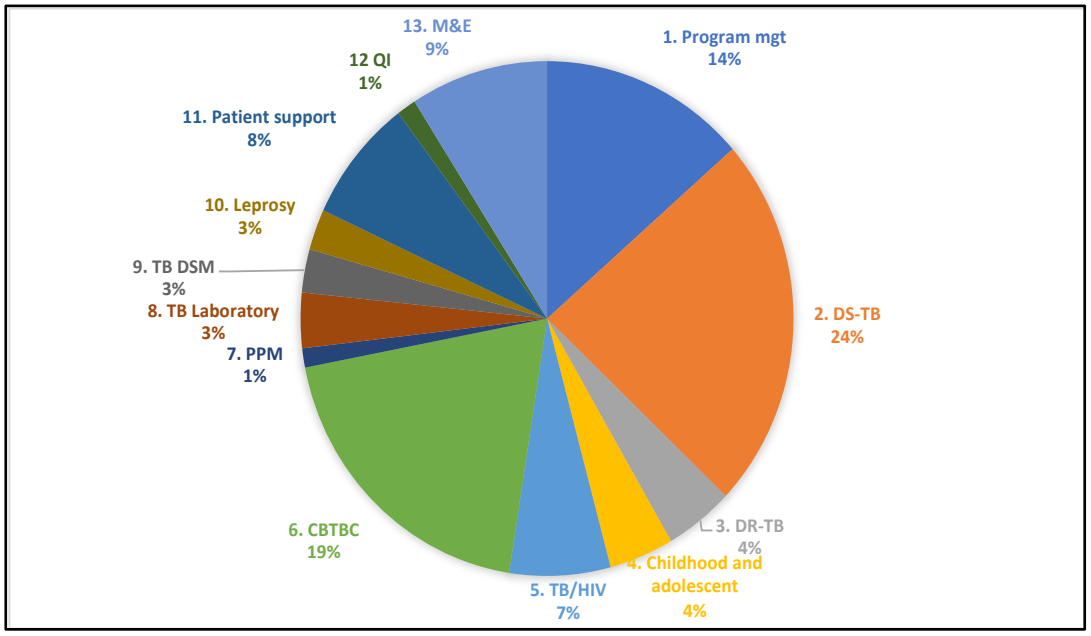


Figure 2: distribution of cost estimates by strategic objectives

Table 3: Annual total estimated cost categorized by strategic objectives.

	Strategic Objectives	2023	2024	2025	2026	2027	Total (NAD)	Total (USD)
1	Program mgt	55,052,541.67	59,525,341.72	76,407,744.78	73,082,245.78	91,110,296.66	**$355,178,170.60**	**$19,292,676.30**
2	2. DS-TB	100,851,428.02	113,492,880.10	123,353,514.41	133,580,353.20	144,971,566.83	**$616,249,742.56**	**$33,473,641.64**
3	3. DR-TB	16,936,614.40	21,353,515.90	24,009,236.52	26,690,848.47	29,548,573.69	**$118,538,788.98**	**$6,438,826.13**
4	4. Childhood and adolescent	18,767,809.50	20,630,617.86	22,470,981.09	22,766,568.66	26,103,639.18	**$110,739,616.29**	**$6,015,188.28**
5	5. TB/HIV	35,328,688.42	31,549,697.13	33,417,862.86	35,364,487.08	37,427,009.12	**$173,087,744.62**	**$9,401,832.95**
6	6. CBTBC	67,384,598.47	103,189,160.59	104,190,793.70	110,136,193.78	125,391,637.63	**$510,292,384.17**	**$27,718,217.50**
7	7. PPM	3,056,175.61	6,940,916.93	7,147,474.66	7,263,002.74	7,372,369.44	**$31,779,939.38**	**$1,726,232.45**
8	8. TB Laboratory	15,665,354.91	17,341,130.99	18,159,749.43	20,018,703.92	19,703,581.78	**$90,888,521.04**	**$4,936,910.43**
9	9. TB DSM	10,416,327.63	14,260,723.23	14,822,113.26	15,803,526.98	15,858,003.17	**$71,160,694.27**	**$3,865,328.31**
10	10. Leprosy	10,284,854.67	12,729,991.52	13,665,672.20	14,982,613.93	15,354,112.31	**$67,017,244.63**	**$3,640,263.15**
11	11. Patient support	34,110,377.88	37,121,772.00	40,966,010.52	44,050,299.87	47,973,154.74	**$204,221,615.00**	**$11,092,972.03**
12	12 QI	2,570,275.81	4,672,354.36	6,752,322.86	8,621,679.34	10,659,182.16	**$33,275,814.53**	**$1,807,485.85**
13	13. M&E	22,746,708.94	46,863,042.80	43,767,174.43	62,119,480.00	61,102,751.62	**$236,599,157.79**	**$12,851,665.28**
Total		**$393,171,755.93**	**$489,671,145.13**	**$529,130,650.71**	**$574,480,003.75**	**$632,575,878.33**	**$2,619,029,433.85**	**142,261,240.30**

Table 4: Annual total estimated cost categorised by Sub-objectives.

	2023	2024	2025	2026	2027	Total
SO1: Programme Management, HRH and Leadership	**2,990,360.76**	**3,233,315.68**	**4,150,339.21**	**3,969,703.74**	**4,948,956.91**	**19,292,676.30**
Sub-objective 1.1: Strengthen the governance structures and organizational capacity for optimal programme management	2,990,360.76	3,233,315.68	4,150,339.21	3,969,703.74	4,948,956.91	19,292,676.30
SO2: Strengthen universal access to TB prevention, care and treatment	**5,478,078.65**	**6,164,740.91**	**6,700,353.85**	**7,255,858.40**	**7,874,609.82**	**33,473,641.64**
Sub-Objective 2.1: Strengthen Universal health Coverage (UHC) and access to Social Protection	5,004,083.46	5,653,162.61	6,158,790.13	6,694,174.35	7,292,130.31	31,802,340.87
Sub-objective 2.2: Scale-up Active case finding strategies incl in congregate settings	436,997.60	465,789.15	491,281.86	512,367.03	534,341.01	2,440,776.64
Sub-objective 2.3: Establish integrated Post-TB Lung Disease care and follow-up	36,997.60	45,789.15	50,281.86	49,317.03	48,138.51	230,524.14
SO 3: Strengthen access to DR-TB prevention, case finding, treatment and care	**919,968.19**	**1,159,886.80**	**1,304,141.04**	**1,449,801.66**	**1,605,028.45**	**6,438,826.13**
Sub-objective 3.1: Introduce DR-TB preventative treatment:	36,982.53	145,553.86	149,869.72	149,070.28	147,669.43	629,145.82
Sub-objective 3.2: Strengthen access to DR-TB case finding:	130,740.89	143,282.97	151,965.03	156,270.36	160,229.50	742,488.75
Sub-objective 3.3: Strengthen access to DR-TB treatment and care:	752,244.77	871,049.97	1,002,306.28	1,144,461.01	1,297,129.51	5,067,191.55
SO4: Strengthen access to TB prevention, case finding, care and treatment for children and adolescents	**1,019,435.61**	**1,120,620.20**	**1,220,585.61**	**1,236,641.43**	**1,417,905.44**	**6,015,188.28**
Sub-objective 4.1: Strengthen TB preventative treatment for children & adolescents:	96,052.10	107,908.28	115,790.66	118,997.10	121,844.13	560,592.27
Sub-objective 4.2: Strengthen access to case finding among children and adolescents:	163,246.17	181,522.34	196,464.93	207,775.00	219,328.10	968,336.55
Sub-objective 4.3: Enhance TB care and treatment for children and adolescents:	760,137.34	831,189.57	908,330.02	909,869.33	1,076,733.21	4,486,259.47
SO5: Optimize TB/HIV and other co-morbidities collaboration for improved case detection, treatment and care	**1,918,994.48**	**1,713,726.08**	**1,815,201.68**	**1,920,939.00**	**2,032,971.71**	**9,401,832.95**
Sub-objective 5.1: Optimize TB/HIV and other co-morbidities collaboration:	1,918,994.48	1,713,726.08	1,815,201.68	1,920,939.00	2,032,971.71	9,401,832.95
SO6: Optimize Community-based TB outreach and care services and strengthen the implementation of the ENGAGE-TB Approach	**3,660,217.19**	**5,605,060.33**	**5,659,467.34**	**5,982,411.40**	**6,811,061.25**	**27,718,217.50**
Sub-objective 6.1: Optimize Community-based TB outreach and care services for key and vulnerable populations:	1,982,302.43	2,882,727.85	3,028,975.99	3,238,415.20	3,605,292.14	14,737,713.62
Sub-objective 6.2: Enhance Community systems strengthening (CSS):	789,864.53	723,415.74	686,401.13	747,445.48	955,907.85	3,903,034.73
Sub-objective 6.3: Strengthen the implementation of ACSM activities and MAF-TB:	888,050.23	1,998,916.73	1,944,090.21	1,996,550.71	2,249,861.26	9,077,469.14

SO7: Develop and implement the TB Public-Private Mix (PPM)	**166,006.28**	**377,018.84**	**388,238.71**	**394,514.00**	**400,454.61**	**1,726,232.45**
Sub-objective 7.1: Develop and implement the TB Public-Private Mix (PPM):	166,006.28	377,018.84	388,238.71	394,514.00	400,454.61	1,726,232.45
SO8: Increase TB testing, access and coverage to test all presumptive TB people with WHO-recommended molecular tests	**850,915.53**	**941,940.85**	**986,406.81**	**1,087,382.07**	**1,070,265.17**	**4,936,910.43**
Sub-objective 8.1: Increase TB testing, access and coverage to test all presumptive TB people with WHO-recommended molecular tests:	850,915.53	941,940.85	986,406.81	1,087,382.07	1,070,265.17	4,936,910.43
SO9: Ensure an uninterrupted supply of first- and second-line anti-TB medicines	**565,797.26**	**774,618.32**	**805,112.07**	**858,420.80**	**861,379.86**	**3,865,328.31**
Sub-objective 9.1: Strengthen the PSCM of first- and second-line anti-TB medicines:	565,797.26	774,618.32	805,112.07	858,420.80	861,379.86	3,865,328.31
SO10: Ensure capacity for Leprosy case-finding (screening, diagnosis), treatment and surveillance; integrate with primary health care	**558,655.88**	**691,471.57**	**742,296.15**	**813,830.20**	**834,009.36**	**3,640,263.15**
Sub-objective 10.1: Strengthen Leprosy Coordination and programmatic management	$50,902.64	$89,501.74	$121,517.02	$168,811.09	$184,179.37	614,911.87
Sub-objective 10.2: Strengthen active surveillance/ Case finding	$47,558.25	$55,944.71	$57,737.04	$58,797.04	$59,999.76	280,036.79
Sub-objective 10.3: Strengthen the integration into existing community structures.	38,568.25	56,955.03	68,747.36	79,807.36	81,010.08	325,088.07
Sub-objective 10.4: Strengthen social support and rehabilitation	258,490.25	276,955.03	278,747.36	279,807.36	281,010.08	1,375,010.07
Sub-objective 10.5: Enhance patients follow up and clinical monitoring	$103,368.25	$123,755.03	$125,547.36	$126,607.36	$127,810.08	607,088.07
Sub-objective 10.6: Promote Leprosy operational research	59,768.25	88,360.03	90,000.00	100,000.00	100,000.00	438,128.27
SO11: Strengthen patient support services to reduce TB -related catastrophic costs from 82% to 30% by 2028	**1,852,817.92**	**2,016,391.74**	**2,225,204.27**	**2,392,737.64**	**2,605,820.46**	**11,092,972.03**
Sub-objective 11.1: Strengthen patient support services	1,768,907.47	1,933,483.41	2,137,939.56	2,303,705.52	2,513,853.69	10,657,889.65
Sub-objective 11.2: Address human rights and gender barriers to TB services access	83,910.45	82,908.34	87,264.70	89,032.12	91,966.77	435,082.38
SO12: Establish Continuous Quality Improvement of TB services	**139,613.03**	**253,794.37**	**366,774.73**	**468,315.01**	**578,988.71**	**1,807,485.85**
Sub-objective 12.1: Establish continuous quality improvement (CQI) of TB services	139,613.03	253,794.37	366,774.73	468,315.01	578,988.71	1,807,485.85
SO13: Monitoring, evaluation, research and surveillance systems strengthening	**1,235,562.68**	**2,545,521.06**	**2,377,358.74**	**3,374,224.88**	**3,318,997.92**	**12,851,665.28**
Sub-objective 13.1: Strengthen data driven decision-making for policy, clinical and programmatic management	1,235,562.68	2,545,521.06	2,377,358.74	3,374,224.88	3,318,997.92	12,851,665.28
Total	**21,356,423.46**	**26,598,106.74**	**28,741,480.21**	**31,204,780.21**	**34,360,449.67**	**142,261,240.30**

Cost category based on detail program items: as the table below depicted, about 82 million USD including Leprosy is estimated to cover the program related cost Community involvement specially incentives for community health workers, active TB case finding activities, TB/HIV related activities, M&E including research and surveys and other program management interventions take the lion share of the cost.

Table 5: Detail Program costing categories

	2023	2024	2025	2026	2027	Total in NAD	Total in USD
Programme-Specific Human Resources	**$17,123,858.99**	**$17,980,051.94**	**$18,879,054.54**	**$19,823,007.26**	**$20,814,157.63**	**$94,620,130.36**	**$5,139,605.13**
National-Level Staff	14,605,370.99	15,335,639.54	16,102,421.52	16,907,542.59	17,752,919.72	$80,703,894.36	$4,336,587.55
District-Level Staff	2,518,488.00	2,644,412.40	2,776,633.02	2,915,464.67	3,061,237.90	$13,916,236.00	$747,782.70
Training	**$12,213,683.71**	**$18,252,409.31**	**$19,671,921.09**	**$19,327,977.86**	**$18,898,022.62**	**$88,364,014.57**	**$4,799,783.52**
In-service / Refresher Training	8,651,227.20	16,466,106.51	16,680,501.09	17,226,815.81	18,034,450.67	$77,059,101.28	$4,185,719.79
Training of Trainers	27,736.51	433,167.80	758,747.25	822,449.47	863,571.94	$2,905,672.97	$157,831.23
Development of Training Programmes and Material	3,534,720.00	1,353,135.00	2,232,672.75	1,278,712.58	0	$8,399,240.33	$456,232.50
Supervision	**$5,234,331.20**	**$5,496,047.76**	**$5,770,850.15**	**$6,059,392.66**	**$6,288,516.64**	**$28,849,138.40**	**$1,567,036.31**
Coordination Meetings	1,325,520.00	1,391,796.00	1,461,385.80	1,534,455.09	1,611,177.84	$7,324,334.73	$397,845.45
National Staff Visiting Local Staff	3,908,811.20	4,104,251.76	4,309,464.35	4,524,937.57	4,677,338.79	$21,524,803.67	$1,169,190.86
Monitoring and Evaluation	**$10,158,159.34**	**$32,451,540.81**	**$29,060,752.67**	**$45,474,727.43**	**$43,675,764.25**	**$160,820,944.51**	**$8,735,521.16**
Design of M and E Frameworks and Systems	5,460,332.36	17,331,648.98	18,198,231.43	21,239,330.62	20,063,550.15	$82,293,093.54	$4,470,021.38
Design of Quality Control and Assurance	1,752,226.98	1,839,838.33	1,931,830.25	2,028,421.76	2,129,842.85	$9,682,160.16	$525,918.53
Design/Review of Data Management Systems	0	1,488,448.50	0	255,742.52	0	$1,744,191.02	$94,741.50
Data Collection and Analysis	2,945,600.00	11,791,605.00	8,930,691.00	21,951,232.54	21,482,371.26	$67,101,499.80	$3,644,839.75
Infrastructure and Equipment	**$20,777,047.34**	**$20,389,579.43**	**$21,409,058.41**	**$24,052,029.43**	**$23,603,486.89**	**$110,231,201.50**	**$5,987,572.05**
Situational Assessment	$3,287,547.34	$2,025,604.43	$2,126,884.66	$3,805,746.99	$2,344,890.33	$13,590,673.75	$738,222.37
Equipment upgrades for lower tier facilities	$6,443,500.00	$6,765,675.00	$7,103,958.75	$7,459,156.69	$7,832,114.52	$35,604,404.96	$1,933,970.94
Equipment upgrades for hospitals	$11,046,000.00	$11,598,300.00	$12,178,215.00	$12,787,125.75	$13,426,482.04	$61,036,122.79	$3,315,378.75
Transport	**$4,206,685.00**	**$7,780,526.25**	**$6,789,354.86**	**$10,837,089.07**	**$9,857,275.56**	**$39,470,930.75**	**$2,143,994.07**
Situational Assessment	$340,585.00	$357,614.25	$375,494.96	$394,269.71	$413,983.20	$1,881,947.12	$102,224.18
New Vehicle Purchase (USD)	$3,866,100.00	$6,185,760.00	$4,262,375.25	$6,819,800.40	$4,699,268.71	$25,833,304.36	$1,403,221.31

Vehicle Operation and Maintenance	$0.00	$1,237,152.00	$2,151,484.65	$3,623,018.96	$4,744,023.65	$11,755,679.27	$638,548.58
Communication, Media & Outreach	**$44,880,965.78**	**$42,044,939.34**	**$40,173,028.81**	**$43,752,365.53**	**$49,878,418.54**	**$220,729,718.00**	**$11,989,664.20**
Development of Communication Strategy	$465,773.00	$489,061.65	$513,514.73	$539,190.47	$566,149.99	$2,573,689.84	$139,798.47
Mass media	$4,786,544.77	$4,926,513.24	$5,172,838.90	$5,431,480.85	$5,703,054.89	$26,020,432.64	$1,413,385.80
Printed Materials	$12,823,669.60	$8,484,156.45	$4,934,206.78	$6,751,602.40	$11,027,617.25	$44,021,252.47	$2,391,159.83
Social Outreach Activities	$26,804,978.41	$28,145,208.00	$29,552,468.40	$31,030,091.82	$32,581,596.41	$148,114,343.04	$8,045,320.10
Advocacy	**$4,499,330.36**	**$3,835,093.88**	**$4,026,848.57**	**$4,228,191.00**	**$4,439,600.55**	**$21,029,064.36**	**$1,142,263.14**
Planning an Advocacy Strategy	$1,169,035.00	$338,283.75	$355,197.94	$372,957.83	$391,605.73	$2,627,080.25	$142,698.55
Advocacy Activities	$3,330,295.36	$3,496,810.13	$3,671,650.63	$3,855,233.17	$4,047,994.82	$18,401,984.11	$999,564.59
Advocacy Materials	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
General Programme Management	**$14,238,294.00**	**$14,312,302.20**	**$30,961,081.94**	**$16,482,605.09**	**$34,134,592.83**	**$110,128,876.06**	**$5,982,013.91**
Design and Review of Country Strategy	$607,530.00	$0.00	$15,933,164.63	$703,291.92	$17,566,314.00	$34,810,300.54	$1,890,836.53
Development and Review of Annual Work Plan	$1,590,624.00	$1,670,155.20	$1,753,662.96	$1,841,346.11	$1,933,413.41	$8,789,201.68	$477,414.54
Programme Coordination Meetings	$7,364,000.00	$7,732,200.00	$8,118,810.00	$8,524,750.50	$8,950,988.03	$40,690,748.53	$2,210,252.50
Commodity Regulation and Policies	$4,307,940.00	$4,523,337.00	$4,749,503.85	$4,986,979.04	$5,236,327.99	$23,804,087.89	$1,292,997.71
Office equipment and supplies	$368,200.00	$386,610.00	$405,940.50	$426,237.53	$447,549.40	$2,034,537.43	$110,512.63
TB Specific policy related interventions	**$63,035,840.00**	**$105,670,178.25**	**$112,347,483.87**	**$120,958,292.23**	**$131,992,865.15**	**$534,004,659.51**	**$29,006,228.11**
Collaborative TB/HIV activities	29,750,560.00	25,438,938.00	26,710,884.90	28,046,429.15	29,448,750.60	$139,395,562.65	$7,571,730.73
Active case finding in high-risk groups	7,364,000.00	7,732,200.00	8,118,810.00	8,524,750.50	8,950,988.03	$40,690,748.53	$2,210,252.50
Infection Control	5,523,000.00	5,799,150.00	6,089,107.50	6,393,562.88	6,713,241.02	$30,518,061.39	$1,657,689.38
PPM / ISTC	1,104,600.00	1,159,830.00	1,217,821.50	1,278,712.58	1,342,648.20	$6,103,612.28	$331,537.88
Community Involvement	10,088,680.00	55,874,810.25	60,062,347.47	66,058,899.01	74,348,502.27	$266,433,239.01	$14,472,202.01
TB research	9,205,000.00	9,665,250.00	10,148,512.50	10,655,938.13	11,188,735.03	$50,863,435.66	$2,762,815.63
Other	**20,895,350.00**	**24,240,447.00**	**22,986,380.81**	**24,391,442.37**	**26,013,808.95**	**$118,527,429.13**	**$6,438,209.08**
Total	**217,263,545.72**	**292,453,116.17**	**312,075,815.71**	**335,387,119.93**	**369,596,509.61**	**1,526,776,107.14**	**$82,931,890.66**

Table 6: Detailed intervention cost analysis per annum

	2023	2024	2025	2026	2027	Total (NAD)	Total (USD)
TB diagnosis with microscopy	**$2,966,057.81**	**$2,696,029.36**	**$2,409,789.80**	**$2,110,455.96**	**$1,775,164.27**	**$11,957,497.19**	**$649,510.98**
Diagnosis with microscopy: Passive TB case finding, HIV-negative adults	$1,080,702.10	$844,853.18	$588,398.81	$308,909.38	$0.00	$2,822,863.46	**$153,333.16**
Diagnosis with microscopy: Passive TB case finding, child cases	$218,626.21	$170,913.93	$119,033.17	$62,492.42	$0.00	$571,065.73	**$31,019.32**
Diagnosis with microscopy: Passive TB case finding, HIV-positive cases	$483,812.85	$370,184.50	$253,244.12	$132,953.16	$0.00	$1,240,194.63	**$67,365.27**
Monitoring with microscopy: Test to monitor first-line drug treatment, new bacteriologically confirmed cases	$714,229.51	$791,007.70	$874,955.77	$969,742.65	$1,071,820.82	$4,421,756.46	**$240,182.32**
Monitoring with microscopy: Test to monitor first-line drug treatment, previously treated cases	$268,821.09	$297,718.80	$329,315.10	$364,990.90	$403,411.00	$1,664,256.88	**$90,399.61**
Monitoring with microscopy: Test to monitor second-line treatment for RR-/MDR TB	$199,866.06	$221,351.25	$244,842.81	$271,367.45	$299,932.45	$1,237,360.02	**$67,211.30**
TB diagnosis with culture	**$91,502.79**	**$76,302.42**	**$59,783.50**	**$41,848.45**	**$21,970.44**	**$291,407.59**	**$15,828.77**
Drugs susceptibility testing for second line TB drugs	$91,502.79	$76,302.42	$59,783.50	$41,848.45	$21,970.44	$291,407.59	**$15,828.77**
TB diagnosis with mWRDs (molecular)	**$30,778,582.37**	**$38,900,975.53**	**$44,248,615.86**	**$50,114,678.18**	**$56,605,845.25**	**$220,648,697.19**	**$11,985,263.29**
Initial diagnosis with mWRDs: Passive TB case finding, HIV-negative adults	$22,678,082.79	$29,226,786.97	$32,804,188.01	$36,642,514.48	$40,885,976.24	$162,237,548.48	**$8,812,468.68**
Initial diagnosis with mWRDs: Passive TB case finding, child cases	$1,941,085.30	$2,149,747.95	$2,377,896.42	$2,635,501.86	$2,912,923.11	$12,017,154.64	**$652,751.47**
Initial diagnosis with mWRDs: Passive TB case finding, HIV-positive cases	$1,315,463.25	$1,342,017.83	$1,377,116.52	$1,445,972.35	$1,518,270.97	$6,998,840.92	**$380,165.18**
Initial diagnosis with mWRDs: Active TB case finding, children	$1,011,959.24	$1,621,479.53	$2,309,313.19	$3,083,180.77	$3,951,565.29	$11,977,498.03	**$650,597.39**
Initial diagnosis with mWRDs: Active TB case finding, adults	$1,011,959.24	$1,621,479.53	$2,309,313.19	$3,083,180.77	$3,951,565.29	$11,977,498.03	**$650,597.39**
Initial diagnosis with mWRDs: Extra pulmonary	$249,688.98	$260,263.55	$271,891.21	$285,485.77	$299,760.05	$1,367,089.56	**$74,257.99**
Resistance testing with LPA: For second-line drugs	**$844,252.22**	**$880,007.14**	**$919,322.74**	**$965,288.88**	**$1,013,553.32**	**$4,622,424.31**	**$251,082.25**
TB screening with X-rays	**$4,927,806.23**	**$6,011,272.81**	**$7,222,985.11**	**$8,597,166.46**	**$10,121,049.81**	**$36,880,280.41**	**$2,003,274.33**
Screening with X-rays: Passive TB case finding, HIV-negative adults	$1,259,579.86	$1,374,467.65	$1,500,166.85	$1,642,682.70	$1,795,699.72	$7,572,596.79	**$411,330.62**
Diagnosis with X-rays: Passive TB case finding, child cases	$164,802.09	$182,517.98	$201,888.25	$223,759.47	$247,313.10	$1,020,280.90	**$55,419.93**

Diagnosis with X-rays: Passive TB case finding, HIV-positive cases	$676,500.14	$733,291.07	$796,732.23	$883,044.89	$975,996.98	$4,065,565.32	**$220,834.62**
Screening with X-rays: Smear negative	$124,098.29	$129,353.98	$135,133.05	$141,889.70	$148,984.19	$679,459.21	**$36,907.07**
Monitoring X-rays: Test to monitor treatment for MDR or RR-TB	$59,213.52	$61,721.27	$64,478.76	$67,702.70	$71,087.83	$324,204.07	**$17,610.22**
First-line TB treatment	**$9,070,117.84**	**$9,727,421.54**	**$10,439,776.31**	**$11,245,845.44**	**$12,098,869.93**	**$52,582,031.07**	**$2,856,166.82**
First-line TB treatment: Initial treatment for adults	$6,433,929.31	$6,900,190.68	$7,405,502.77	$7,977,291.58	$8,582,388.37	$37,299,302.71	**$2,026,034.91**
First-line TB treatment: Initial treatment for children	$1,206,392.80	$1,293,819.06	$1,388,567.52	$1,495,780.68	$1,609,239.25	$6,993,799.30	**$379,891.33**
First-line TB treatment: Previously treated for adults	$1,156,480.91	$1,240,290.10	$1,331,118.54	$1,433,895.99	$1,542,660.46	$6,704,445.99	**$364,174.14**
First-line TB treatment: Previously treated for children	$273,314.82	$293,121.71	$314,587.48	$338,877.20	$364,581.86	$1,584,483.06	**$86,066.43**
Second-line TB treatment	**$7,142,239.16**	**$8,922,696.15**	**$10,985,805.36**	**$13,296,805.76**	**$15,796,729.53**	**$56,144,275.94**	**$3,049,661.92**
MDR/XDR-TB treatment	$6,005,130.60	$7,638,657.72	$9,541,215.67	$11,671,642.36	$13,976,546.52	$48,833,192.86	**$2,652,536.28**
Ancillary drugs for adverse events treatment	$1,137,108.56	$1,284,038.43	$1,444,589.69	$1,625,163.40	$1,820,183.00	$7,311,083.08	**$397,125.64**
TB patient support	**$66,733,134.19**	**$72,642,652.03**	**$79,109,122.27**	**$86,446,685.47**	**$94,320,232.18**	**$399,251,826.13**	**$21,686,682.57**
Patient support for new cases	$48,599,058.71	$52,767,997.00	$57,330,503.19	$62,512,298.67	$68,068,947.44	$289,278,805.00	**$15,713,134.44**
Patient support for previously treated cases	$11,196,805.39	$12,643,584.66	$14,224,490.16	$16,002,551.43	$17,922,857.60	$71,990,289.23	**$3,910,390.51**
Patient support for MDR and XDR cases	$6,937,270.09	$7,231,070.37	$7,554,128.93	$7,931,835.37	$8,328,427.14	$37,982,731.90	**$2,063,157.63**
Screening for active TB	**$7,342,516.21**	**$7,835,072.97**	**$8,361,200.33**	**$8,924,168.93**	**$9,524,789.95**	**$41,987,748.39**	**$2,280,703.33**
Screening: Intensified case finding	2,891,450.97	3,088,680.75	3,299,177.27	3,523,804.37	3,763,576.24	16,566,689.61	**$899,874.50**
Active case finding for households	320,420.99	333,991.14	348,912.68	366,358.31	384,676.23	1,754,359.34	**$95,293.83**
Active case finding in high-risk groups	4,130,644.25	4,412,401.07	4,713,110.38	5,034,006.25	5,376,537.49	23,666,699.44	**$1,285,535.00**
LTBI testing	**42,424,146.19**	**45,317,954.57**	**48,406,416.05**	**51,702,205.34**	**55,220,202.66**	**243,070,924.82**	**$13,203,200.70**
Testing for LTBI among children in high-risk groups	17,494,493.28	18,687,816.32	19,961,408.68	21,320,497.05	22,771,217.59	100,235,432.92	**$5,444,618.84**
Testing for LTBI among adults in high-risk groups	24,929,652.92	26,630,138.25	28,445,007.37	30,381,708.29	32,448,985.07	142,835,491.90	**$7,758,581.85**
TB preventive therapy (TPT)	**4,432,107.44**	**5,087,651.64**	**5,811,340.49**	**6,613,023.75**	**7,494,514.60**	**29,438,637.92**	**$1,599,056.92**
TPT for HIV-negative child household contacts	731,992.33	768,218.91	807,999.66	854,132.07	902,857.73	4,065,200.71	**$220,814.81**
TPT for HIV-negative adult household contacts	105,042.18	167,657.82	235,913.87	311,513.54	394,083.40	1,214,210.82	**$65,953.87**
TPT for HIV-negative children in high-risk groups	355,478.38	379,726.05	405,604.73	433,220.66	462,698.49	2,036,728.31	**$110,631.63**
TPT for HIV-negative adults in high-risk groups	692,490.36	739,726.06	790,139.09	843,936.34	901,360.70	3,967,652.55	**$215,516.16**
TPT for new child ART patients	213,287.03	254,416.45	300,147.50	350,908.73	407,174.67	1,525,934.39	**$82,886.17**
TPT for new adult ART patients	2,286,035.32	2,726,865.25	3,217,016.03	3,761,080.79	4,364,145.73	16,355,143.12	**$888,383.66**
TPT for existing child ART patients	34,624.52	36,986.30	39,506.95	42,196.82	45,068.03	198,382.63	**$10,775.81**
TPT for existing adult ART patients	13,157.32	14,054.80	15,012.64	16,034.79	17,125.85	75,385.40	**$4,094.81**
Total	**175,908,210.22**	**197,218,028.99**	**217,054,835.08**	**239,092,883.75**	**262,979,368.62**	**1,092,253,326.66**	**$59,329,349.63**

Table 7: Leprosy cost estimates

Leprosy costing summary								
(1) Print materials for TB leprosy	**unit cost**	**2023**	**2024**	**2025**	**2026**	**2027**	**NAD**	**USD**
10,000 copies of leaflets/fact sheet per year	$5.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$25,000.00	$1,357.96
200 copies of Flipchart of 10 pages	$1,138.00	$227,600.00	$227,600.00	$227,600.00	$227,600.00	$227,600.00	$1,138,000.00	$61,814.23
01 audio taped messages for schools (mini media) in 500 copies	$629.00	$62,900.00	$62,900.00	$62,900.00	$62,900.00	$62,900.00	$314,500.00	$17,083.11
Dissemination/airtime cost for 05 languages each for 30 days per year (radio spot)		$37,500.00	$37,500.00	$37,500.00	$37,500.00	$37,500.00	$187,500.00	$10,184.68
sub total							$1,665,000.00	$90,439.98
Active case finding among high-risk and vulnerable groups in high endemic areas (outreach program) mass screening	$100,000.00	$200,000.00	$200,000.00	$200,000.00	$200,000.00	$200,000.00	$1,000,000.00	$54,318.31
Integrate leprosy screening into existing TB prevention and care services for disadvantaged population groups (IDP, Refugees,) sensitization workshop high risk refugee camp for 30 HF	$11,000.00	$44,000.00	$44,000.00	$44,000.00	$44,000.00	$44,000.00	$220,000.00	$11,950.03
Strengthen routine household contact screening for all index leprosy cases with HEW with cost 5866/kebele for sensitization	$26,400.00	$105,600.00	$105,600.00	$105,600.00	$105,600.00	$105,600.00	$528,000.00	$28,680.07
sub total							$1,748,000.00	$94,948.40
Leprosy treatment for MB adult	30NAD/blister	$7,200.00	$7,200.00	$7,200.00	$7,200.00	$7,200.00	$36,000.00	$1,955.46
Leprosy treatment for MB Child	30NAD/blister	$7,200.00	$7,200.00	$7,200.00	$7,200.00	$7,200.00	$36,000.00	$1,955.46
Leprosy treatment for PC adult	30NAD/blister	$7,200.00	$7,200.00	$7,200.00	$7,200.00	$7,200.00	$36,000.00	$1,955.46
Leprosy treatment for PC child	30NAD/blister	$7,200.00	$7,200.00	$7,200.00	$7,200.00	$7,200.00	$36,000.00	$1,955.46
sub total							$144,000.00	$7,821.84
prednisolone	300NAD/tin	$12,000.00	$12,000.00	$12,000.00	$12,000.00	$12,000.00	$60,000.00	$3,259.10
white petroleum (Vaseline)	150NAD/kg	$6,000.00	$6,000.00	$6,000.00	$6,000.00	$6,000.00	$30,000.00	$1,629.55
clofazimine	1000NAD/tin	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$40,000.00	$200,000.00	$10,863.66
sub total		$86,800.00	$86,800.00	$86,800.00	$86,800.00	$86,800.00	$290,000.00	$15,752.31
Other program cost integrated with TB activities		$9,515,454.67	$11,960,591.52	$12,896,272.20	$14,213,213.93	$14,584,712.31	$63,170,244.63	$3,431,300.63
G. Total		10,284,854.67	12,729,991.52	13,665,672.20	14,982,613.93	15,354,112.31	67,017,244.63	3640263.152

9.2. Epidemiological modelling

9.2.1. Overview:

The current TB modelling activity was the first for the country to be introduced as an intervention optimization strategy. TIME Impact is an epidemiological transmission model available within the open-source Spectrum suite of policy models. The TIME model reflects key aspects of the natural history of TB including primary and latent infection, reinfection, and reactivation of latent TB. Smear positivity, negativity, and smear conversion are explicitly handled in the model. Like all models implemented in Spectrum, TIME is demographically explicit and operates on the latest demographic estimates published by the UN Population Division (UNPD) as the World Population Prospects. TIME has additional structure for HIV/ART that mimics the structure of the Spectrum AIDS Impact Model (AIM) and directly uses its HIV programmatic data. The model also accounts for the characteristics of paediatric TB, treatment history, and drug resistance. TIME includes two generic strains by MDR status: susceptible and resistant to treatment. Resistance can be acquired during treatment or by direct transmission, at rates that distinguish it from the susceptible TB type. TB control interventions can be represented in TIME by changing model parameter values directly over time, or by making use of explicit intervention structure available for some TB interventions. For example, household contact investigation and preventive therapy for children <5, and >years and for adults 15+ by HIV/ART strata (HIV-, HIV+ not on ART, and HIV+ on ART).

9.2.2. Model calibration:

The calibration process involves collaboration and discussion with experts in the NTLP to gather and assess the reliability of all epidemiological and programmatic data, understand the history of the epidemic and the programme response. The final calibration represents a balance in which the model reproduces the features of the epidemiology and programme data that are most important for the modelling questions in support of NSP development. The ranges for inputs related to natural history are taken from literature, and data related to screening and treatment, linkage to care, active case finding, LTBI testing, and treatment and diagnostic algorithm coverage are obtained from the NTLP programmatic reports.

Demography and HIV Estimates

The TIME model populates demographic data from UN population division and HIV estimates from UNAIDs. The TIME model is based on the World Population Prospects 2022 demographical file for Namibia and country's national UNAIDS Spectrum AIM file for 2020.

Diagnostic algorithms

The diagnostic algorithm for TB in Namibia is modified using four pathways:

- Classical pathway: Firstly, patients screened by TB symptoms followed by sputum smear microscopy and then clinical diagnosis with use of x-ray (smear negatives). This pathway is intended to represent the bulk of diagnostic testing up to recent years. These algorithms are assumed to summarize the diagnostic algorithm beginning in 1970 (the start year of the model) with high coverage and declines in recent period.
- High risk suspects: similar with pathway1, plus GeneXpert test if the SSM is negative before going to clinical decision. Clinical diagnosis with use of X-ray will follow at the end. This algorithm is mainly introduced since 2010 to increase the yield.

- Transition to highly sensitive tests: where high risk presumptive TB cases are tested by GeneXpert as a primary test. The introduction of Xpert test starts since 2010 with gradual increase in coverage and target groups.
- Clinical diagnosis: there was a tendency to diagnose TB without and bacteriological examination though the coverage is low.

The model assumed a classical diagnostic algorithm up to 2010, after which Xpert was systematically introduced and accounts for more 80% coverage directly or indirectly in 2022. The coverage of each algorithm is estimated using the National Institutes of Pathology (NIP) database and expert consultation. The overall sensitivity and specificity of the key diagnostic pathways are calculated by combining the weighted average of each diagnostic algorithm values in the model. These four diagnostic pathways are intended to serve as a stylized representation of the more complicated reality of diagnosis in the country and doesn't represent every single-entry algorithm.

Active TB case finding

Two active case finding (ACF) programs are described with data available: Household contact tracing and mass screening among high-risk groups. Household contact screening is done at health facility level for bacteriological confirmed index cases since 2010. The algorithm used for household contact is symptom screening followed by GeneXpert testing. Those without active TB will be eligible for TPT and the TPT coverage also filled into the tool based on the routine TB program report. Another two diagnostic algorithm is being used for active TB case finding among other high-risk groups in the country. These two active-case-finding approaches are represented explicitly in the baseline model as well and implemented since 2021.

Preventive therapy

The performance of TB preventive therapy for household contacts (both under five and over five years contacts), PLHIV (for TPT for new and existing ART patients) is reviewed, and their respective TPT cascade coverage is included in the model. All TPT eligible persons are treated presumptively without any latent TB infection (LTBI) testing.

TB treatment outcomes

The last 15 years trend for DS-TB and 7 years for DR-TB treatment outcomes are reflected in the model.

Impact of Covid-19 on TB

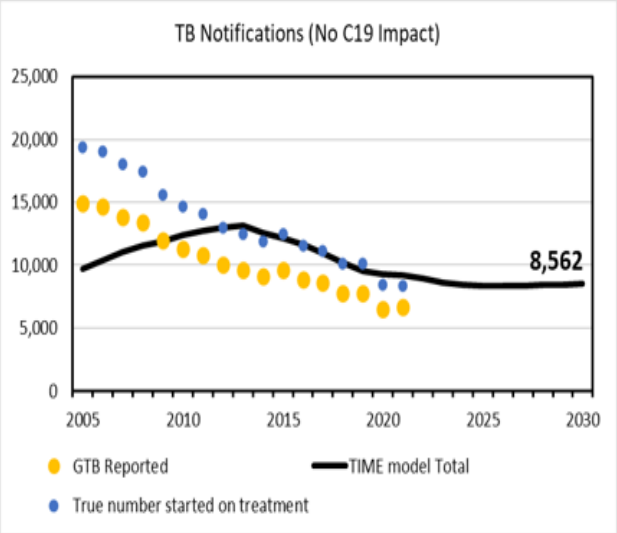
The COVID19 pandemic had a negative impact on the TB control effort of the country. Like other countries, Namibian's overall health services were affected including TB prevention, diagnosis, treatment and care services in most health facilities. Accordingly, Patients were not coming to health facilities for diagnosis, some Xpert machines were providing diagnostic services for COVID19, health facilities were not providing in full capacity and massive task-shifting of the health care providers to COVID19 response and resource shifting from other programs like TB to COVID until the global response is address those financial gaps. The case notification rate of TB in 2021 has declined by 18% compared with the 2020 notification showing an immediate outcome of increasing the incidence by 2% and Mortality by 6% within a single year. Therefore,

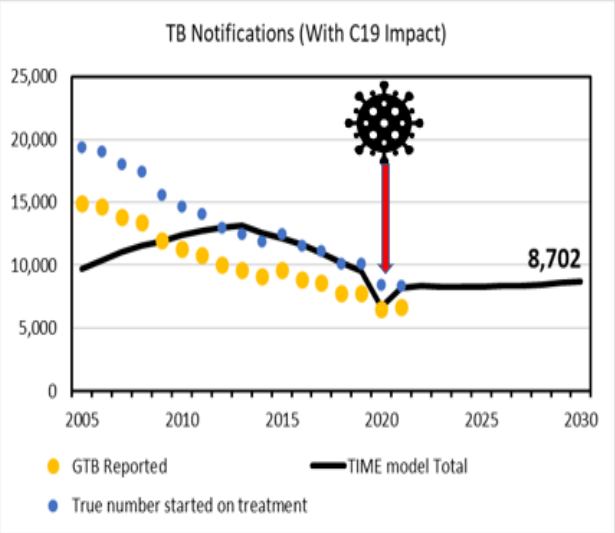
the model tried to see the effect of COVID19 on TB burden of the country. This is done on manipulating the screening rate.

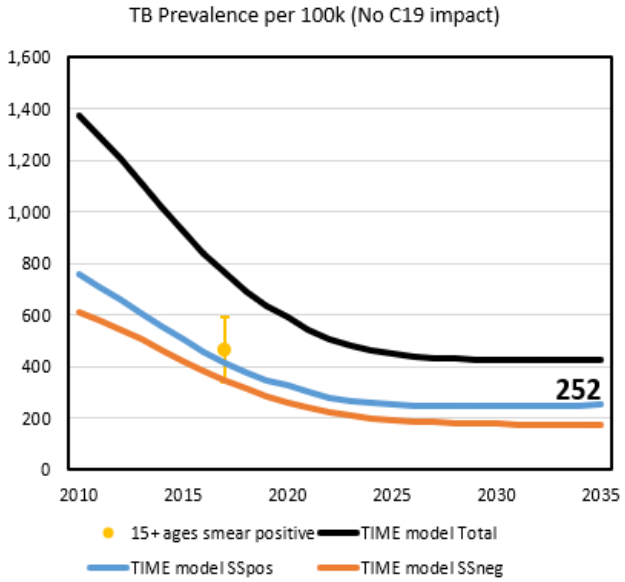
Baseline Calibration Model

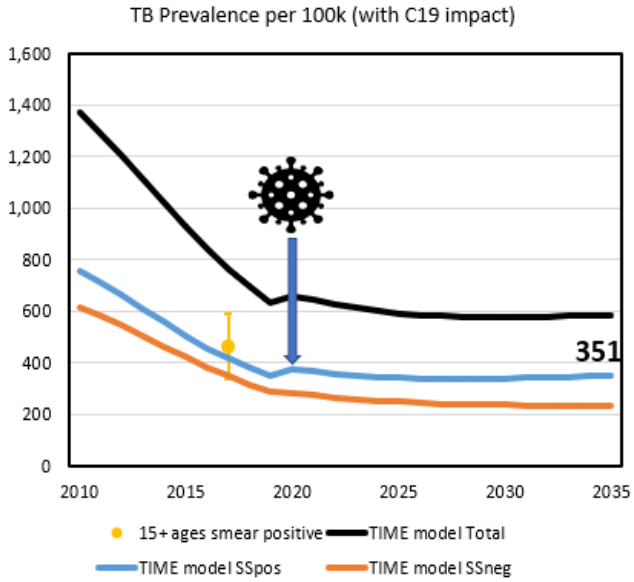
The baseline model is calibrated to the current 2022 and past trend of (2000-2021) TB burden in Namibia prior to intervention modelling on the projection (2023 onwards). The model calibration is conducted manually for several key parameters and adjustments are made to ensure a model fit to the target outputs including TB prevalence (2017 results), notifications (and or case notifications adjusted for under-reporting), incidence, and mortality (from WHO GTB and NTP data). The baseline calibration is done based on two scenarios to clearly differentiate the impact of COVID-19.

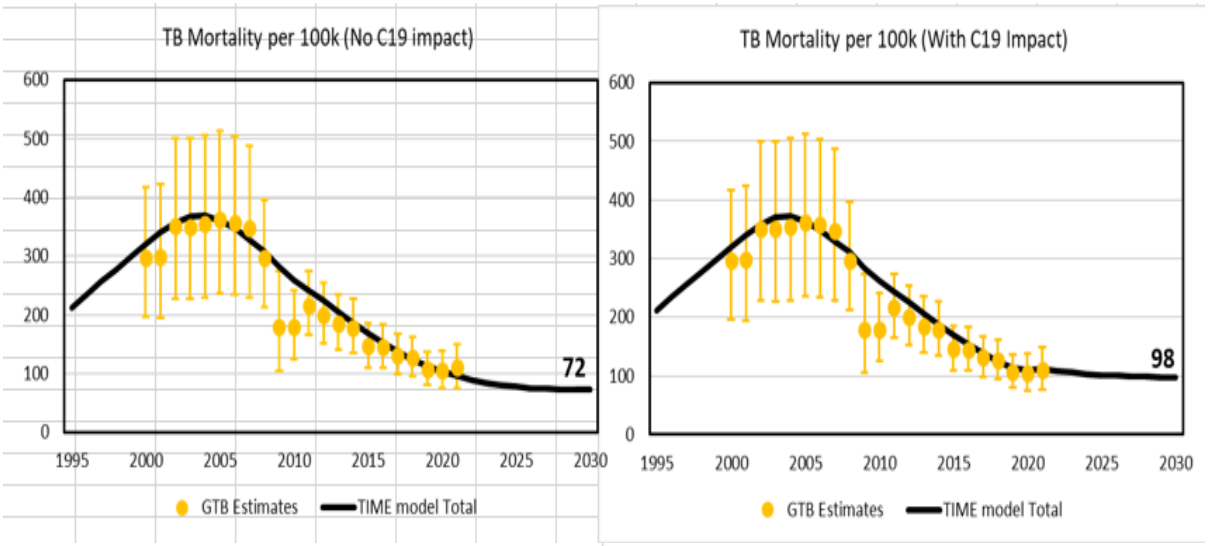
The figure below showed the baseline model fits to four key indicators: incidence, notifications, prevalence, mortality, MDR-TB notification, MDR-TB prevalence, TB/HIV co-infection Positive predictive values and true positive and false positive trends. The model fit to the observed trend of TB prevalence and incidence over time with/without C19 impact clearly show how the declining trend graph start to increase on 2021 onwards. This implies that the country needs more effort to return to declining trend to keep the track towards the end TB target. Model fitted to case notification adjusted in consultation with the NTP experts to estimate under-reporting of case notifications (blue dots). Yellow dots are from GTB report that collected from the country notification report, for comparison. Similarly, the impact of C19 is seen from 2019 notification data and its ongoing impact on the burden of TB in the country. The model was calibrated to match to smear positive prevalence from Namibia 2017 prevalence survey. The calibration to total mortality fits to the estimated mortality rate by WHO, except in 2009 and 10 which significant decline is reported by the GTR. The case notification of DR-TB cases and their prevalence among new and previously treatment cases were fit toward with the GTR and drug resistance prevalence survey result of 2015. TB incidence among PLHIV is fit since 2010 compared with the GTR. The positive predictive value of the overall diagnostic methods of the country shows a declining trend until 2012 and started to increase in-line with the rollout of GeneXpert in the country for TB diagnosis (Please review the figure below).


TB Notifications (No C19 Impact)
25,000
20,000
15,000
10,000
5,000
0
2005
2010
2015
2020
2025
2030
8,562
GTB Reported
TIME model Total
True number started on treatment

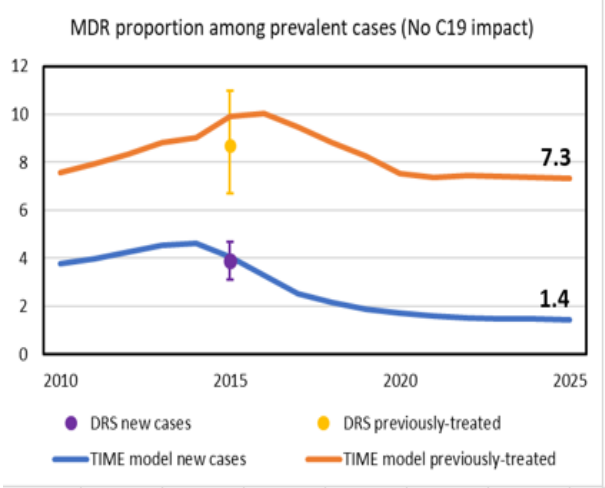

TB Notifications (With C19 Impact)
25,000
20,000
15,000
10,000
5,000
0
2005
2010
2015
2020
2025
2030
8,702
GTB Reported
TIME model Total
True number started on treatment

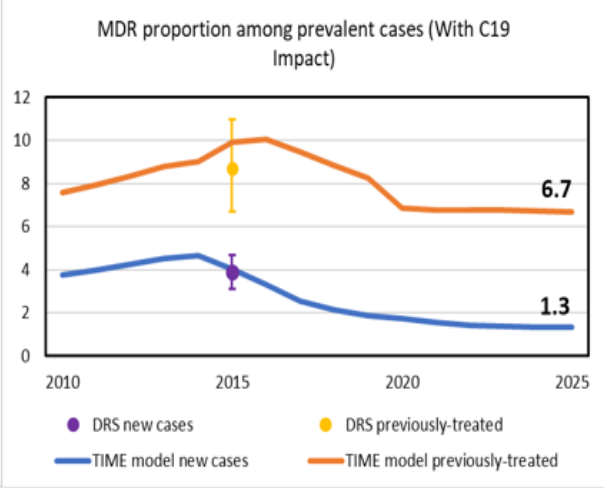

TB Prevalence per 100k (No C19 impact)
1,600
1,400
1,200
1,000
800
600
400
200
0
2010
2015
2020
2025
2030
2035
252
15+ ages smear positive
TIME model Total
TIME model SSpos
TIME model SSneg

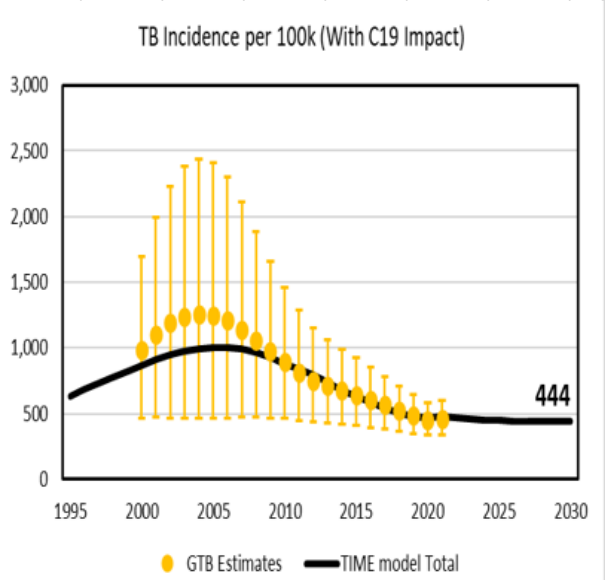

TB Prevalence per 100k (with C19 impact)
1,600
1,400
1,200
1,000
800
600
400
200
0
2010
2015
2020
2025
2030
2035
351
15+ ages smear positive
TIME model Total
TIME model SSpos
TIME model SSneg

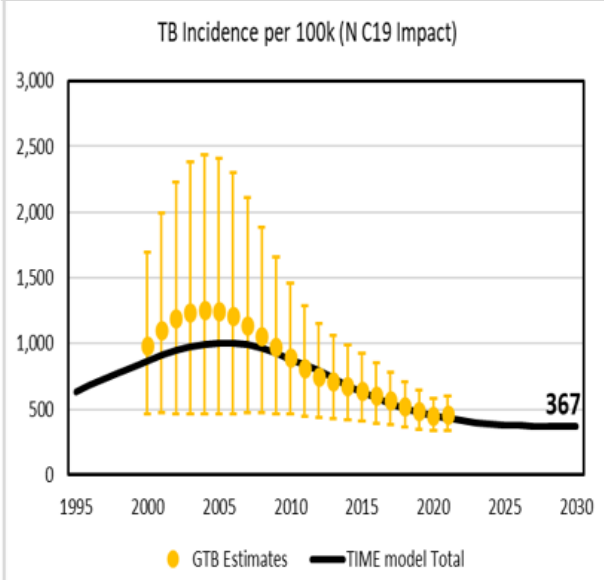

TB Mortality per 100k (No C19 impact)
600
500
400
300
200
100
0
72
1995
2000
2005
2010
2015
2020
2025
2030
GTB Estimates
TIME model Total

TB Mortality per 100k (With C19 Impact)
600
500
400
300
200
100
0
98
1995
2000
2005
2010
2015
2020
2025
2030
GTB Estimates
TIME model Total


MDR proportion among prevalent cases (No C19 impact)
12
10
8
6
4
2
0
7.3
1.4
2010
2015
2020
2025
DRS new cases
DRS previously-treated
TIME model new cases
TIME model previously-treated


MDR proportion among prevalent cases (With C19 Impact)
12
10
8
6
4
2
0
6.7
1.3
2010
2015
2020
2025
DRS new cases
DRS previously-treated
TIME model new cases
TIME model previously-treated


TB Incidence per 100k (With C19 Impact)
3,000
2,500
2,000
1,500
1,000
500
0
444
1995
2000
2005
2010
2015
2020
2025
2030
GTB Estimates
TIME model Total


TB Incidence per 100k (N C19 Impact)
3,000
2,500
2,000
1,500
1,000
500
0
367
1995
2000
2005
2010
2015
2020
2025
2030
GTB Estimates
TIME model Total

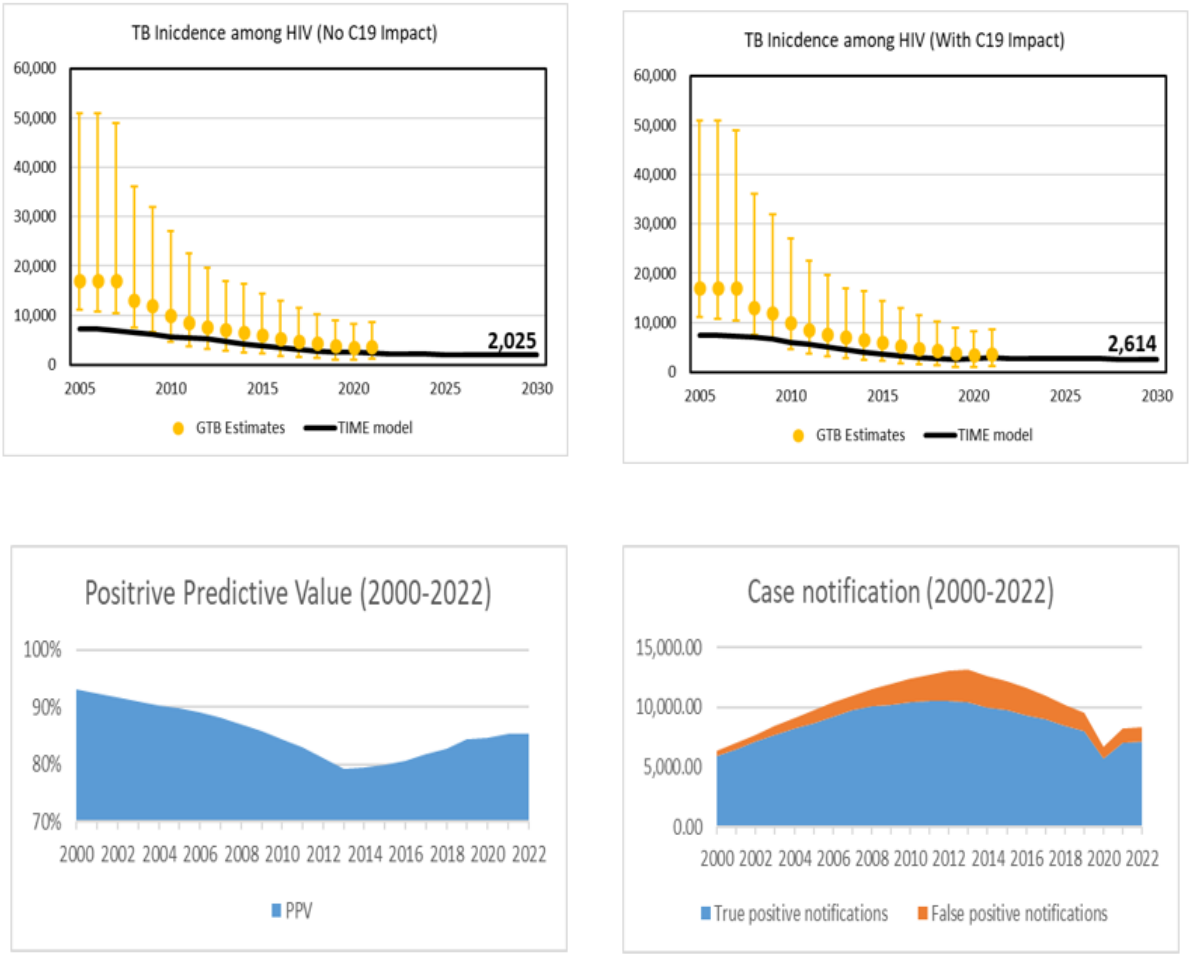


Figure 1. Key baseline calibration results.

MODELING OF THE IMPACT OF KEY NATIONAL STRATEGIC PLAN TB INITIATIVES

NSP TB burden reduction targets

The national TBL program is committing to reach the End TB target which is to achieve a 95 percent reduction in TB deaths and 90 percent reduction in TB incidence by 2030 from the baseline of 2015. The targets for ending TB in Namibia by 2035 are very ambitious, and the program anticipates that in the interim, innovations in TB diagnosis and treatment, intensified active case findings, and the adoption of new technologies, will contribute to achieving these substantial gains in TB controls.

Intervention impact modelling

The impact modelling for the key TB interventions was conducted on the projections from the baseline calibration with C19 shock (2023 onwards). The targets for the various interventions were inputted into the model and the outputs including changes in epidemiology and number of diagnostic tests were reviewed as results. The interventions were each run-in different combinations to assess the individual impact for some interventions and the combined impact for others. The scenarios for analysis and targets for interventions were designed in consultation of the NTP. Finally, those interventions with high impact and reasonable cost (cost-effective) were selected to prioritize for the NSP 2023-2027 and global fund funding request from 2024-2026.

Key NSP Interventions and TIME model specification

A total of 4 major intervention scenarios were tested and compared with the baseline. Finally, impact of full interventions (combination of scenarios) was modelled. The following table below shows the list of scenarios.

Table 1: list of intervention scenarios modelled with baseline and end year targets.

Scenarios	Interventions	Description	Baseline target (2022)	End year target 2027
1	Status quo	Continue as it is		
2	Improve passive TB case finding and expanding mWRDs	(1) Expansion of mWRDs test for all presumptive TB cases	80%	100%
3	Active TB case finding	Scale-up of ACF among high-risk groups using highly sensitive tools (Double X: X-ray screening and use of mWRDs for diagnostic test)	7,900	70,000
4	Scenario 3 plus TPT for selected high-risk groups	Scenario 3 plus introduction of TPT for selected high-risk groups	0	4,000
5	Household Contact Screening and provision of TPT	(1) Increasing household contact investigation and (2) TPT coverage (%)	(1): 8886(70%), (2): 2000(37%)	(1): 0955(95%), (2): 4500(90%)
6	Full package	All scenarios in one		

Scenario 1: Status quo (business as usual):

This Scenario is the baseline scenario which is used to compare with different interventions.

Scenario 2: Improve passive TB case finding and expansion of mWRDs

The transition to full implementation of mWRDs all over the country with enhanced passive TB case finding activities at health facility level is modelled under this scenario. Improving screening rate by 80% and 100% coverage of molecular rapid test for all presumptive TB cases at all health facilities of the country is modelled to be implemented in linear increment from the baseline 2022 to 2027. The summary of the output is below.

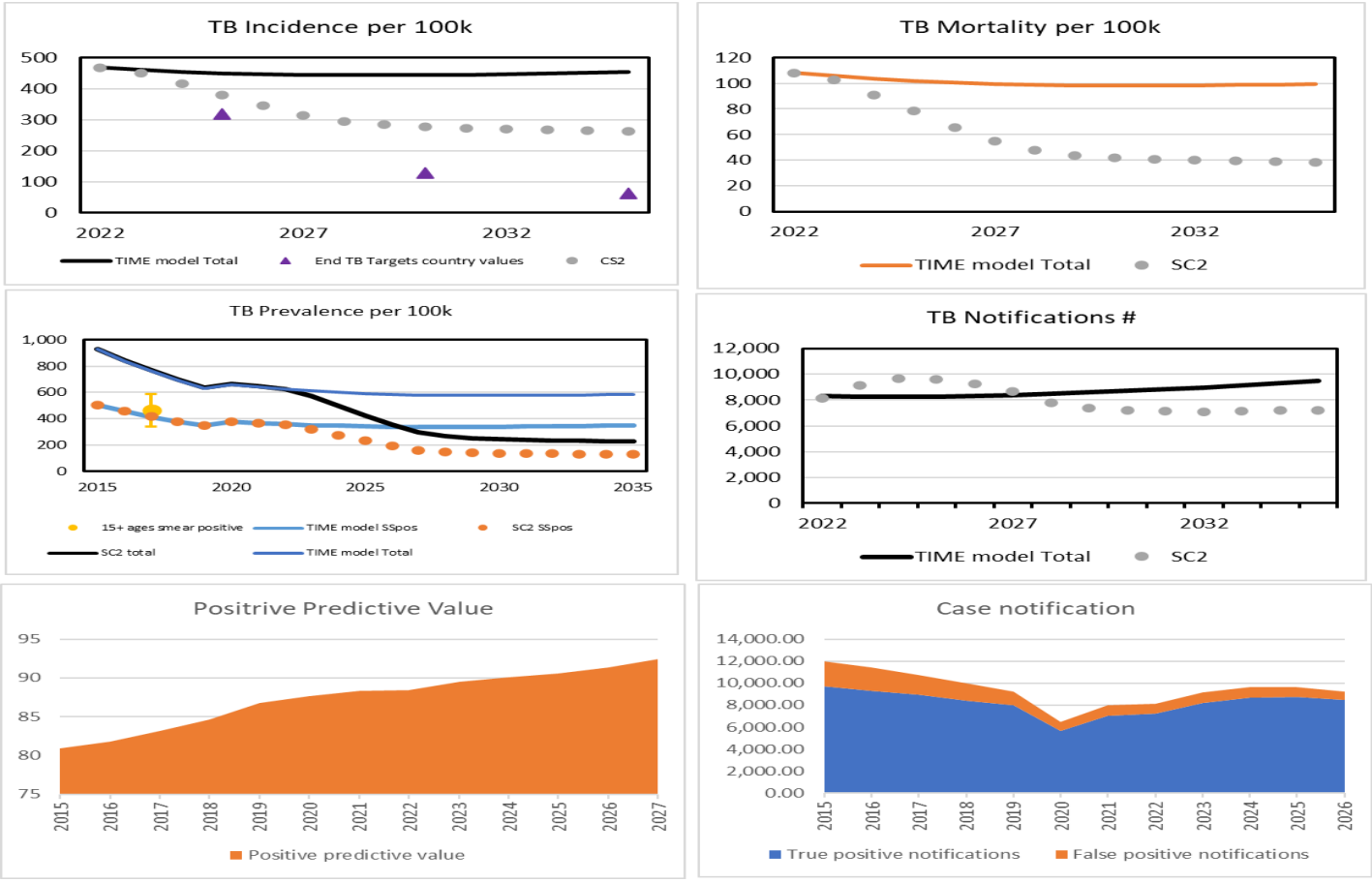


Figure 2: Key model output of Scenario 2 compared with baseline.

Scenario 3: Active TB case finding (ACF)

It's important to note that relying solely on passive case finding among self-reporting patients may not be effective in identifying all TB patients, as more than one third of the prevalent TB patients may not report symptoms as articulated in the last prevalence survey conducted in 2017. This means that there is a significant proportion of TB patients in the community who are not being captured by the current system. Additionally, most of the TB burden is concentrated in populations at high risk of developing TB disease, which constitutes a subset of the population that is not effectively captured by the TB program through passive case finding.

To address this, the TB program in Namibia has been conducted an active TB case finding campaign among selected high-risk groups in some regions since 2021. In 2022, about 8000 key and vulnerable population were screened for TB in and about 134 cases were diagnosed (1685/100,000) (4 times higher from the general population).

In the TIME model, a total of 350,000 (70,000 every year) were planned to be addressed through scale-up of active case finding. In the model, a prior prevalence of TB in high burden populations of 1.6 % were considered. Two diagnostic algorithms: parallel screening (Symptom plus chest X-ray imaging) followed by GeneXpert, and Symptom screening followed by Xpert were modelled for sharing 50% population each algorithm. The key outputs are depicted below comparing the impact output difference with that of baseline output.

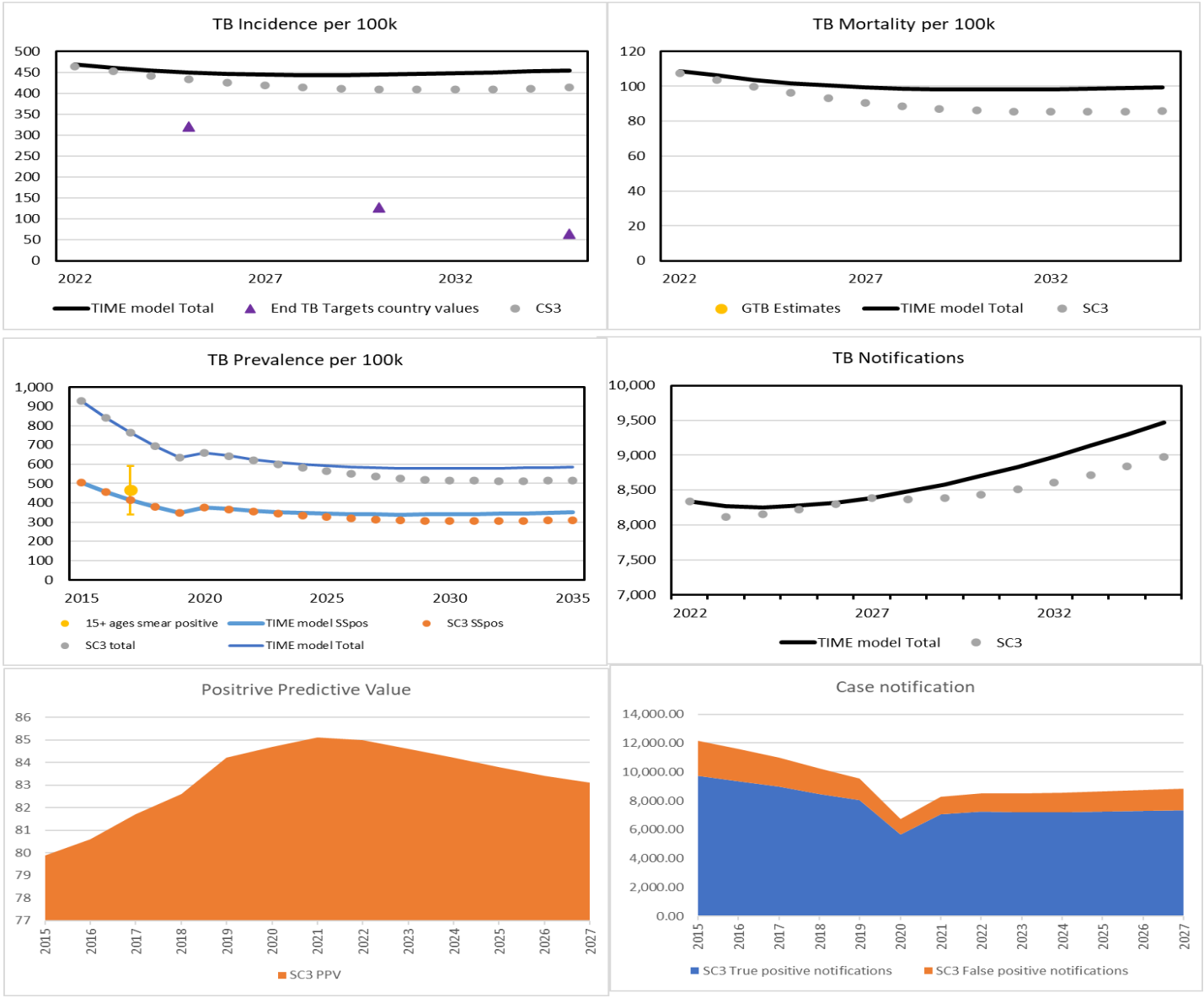


Figure 3: Key model output of Scenario 3 compared with baseline.

Scenario 4: Active TB case finding (ACF) plus LTBY testing and TPT.

LTBI testing and treatment is a crucial aspect of TB elimination strategies in high TB burden settings like Namibia. The rationale behind linking ACF with LTBI testing and treatment is that sustained TB transmission in high-risk populations is amplified by the reactivation of latent TB infection as it is clearly seen on the baseline model. While the burden of LTBI and its implications for sustained transmission in various risk groups in Namibia is not fully understood, preventing the progression of LTBI to active TB disease and transmission is a key component of any TB elimination strategy. In this model, about 4000 high risk groups are planned to be covered with TPT after LTBI test. This policy is new for the country and for which high risk group TPT recommended will be decided by the program. As the model has a limitation to model the impact of each high-risk group separately, we used similar prevalence estimates.

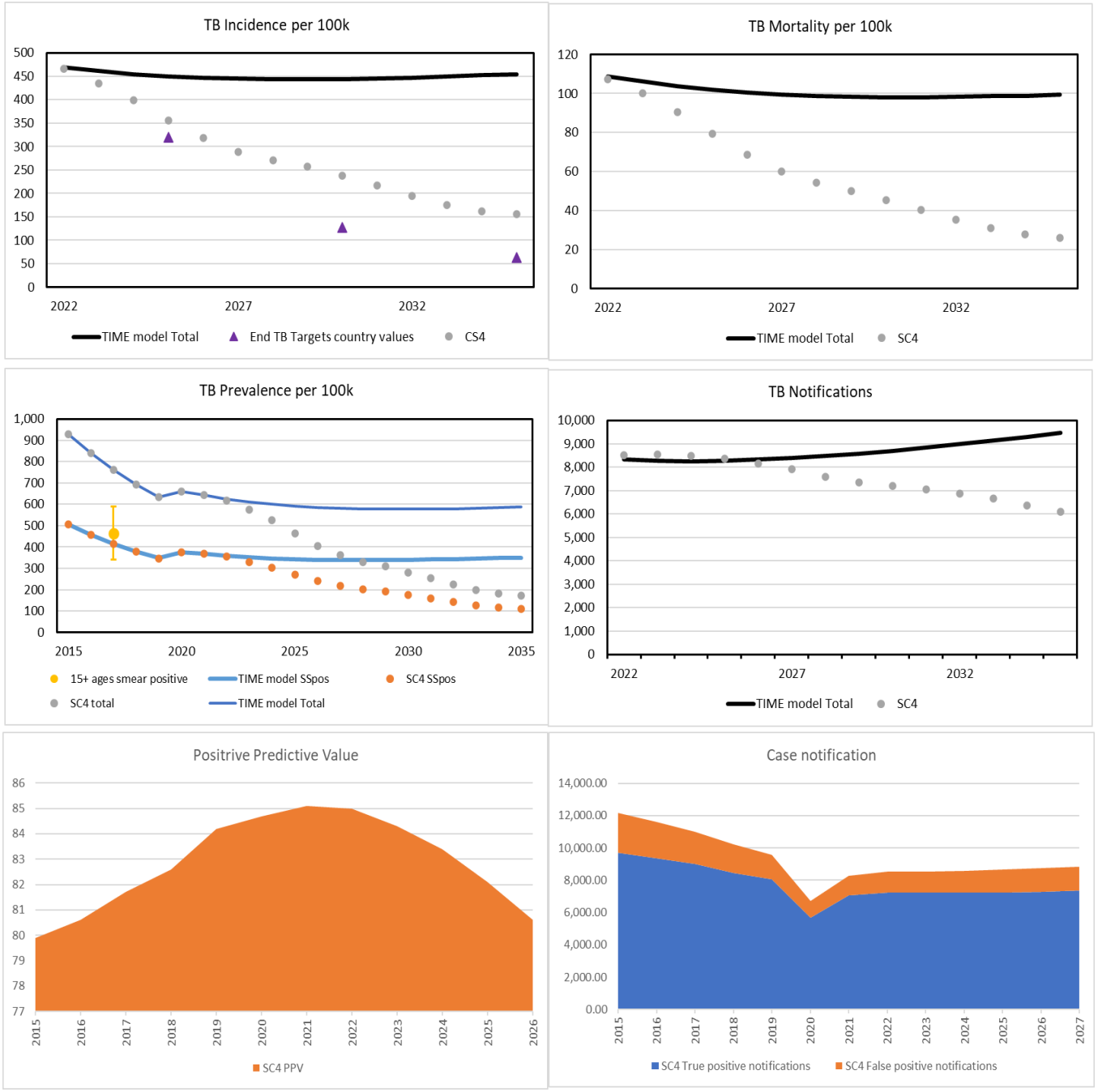


Figure 4: Key model output of Scenario 4 compared with baseline.

Scenario 5: Household contact screening and TPT

The proportion of household contact evaluated for TB screening is assumed to increase from 70% (2022) to 95% in 2027 and the TPT coverage among <15 years household contacts from 37% in 2022 to 90% in 2027.

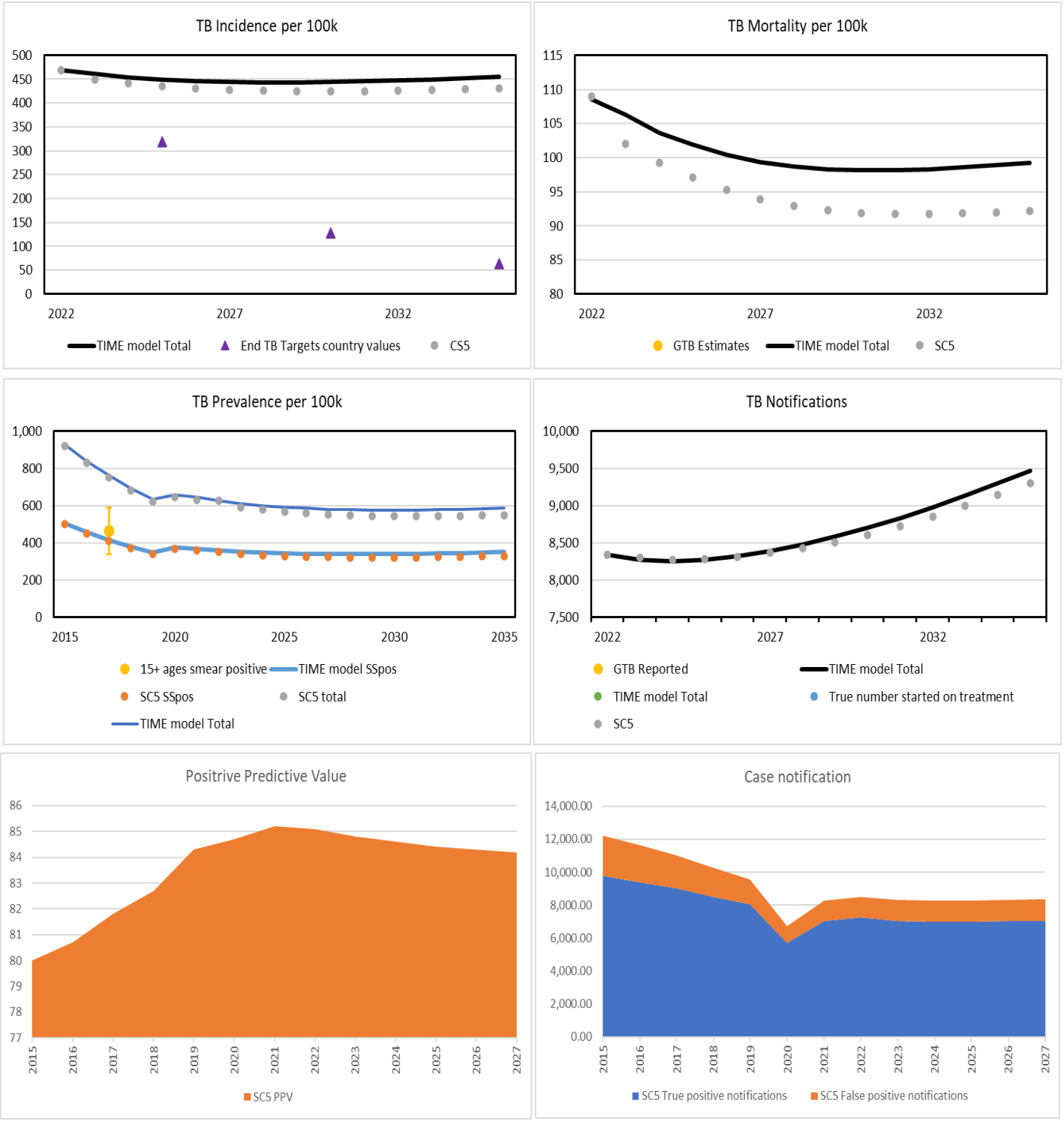


Figure 5: Key model output of Scenario 5 compared with baseline.

Scenario 6: Full intervention

This is the final scenario tested to measure the impact towards the end TB targets. All the above scenarios modelled in this scenario and their cumulative effect is assessed.

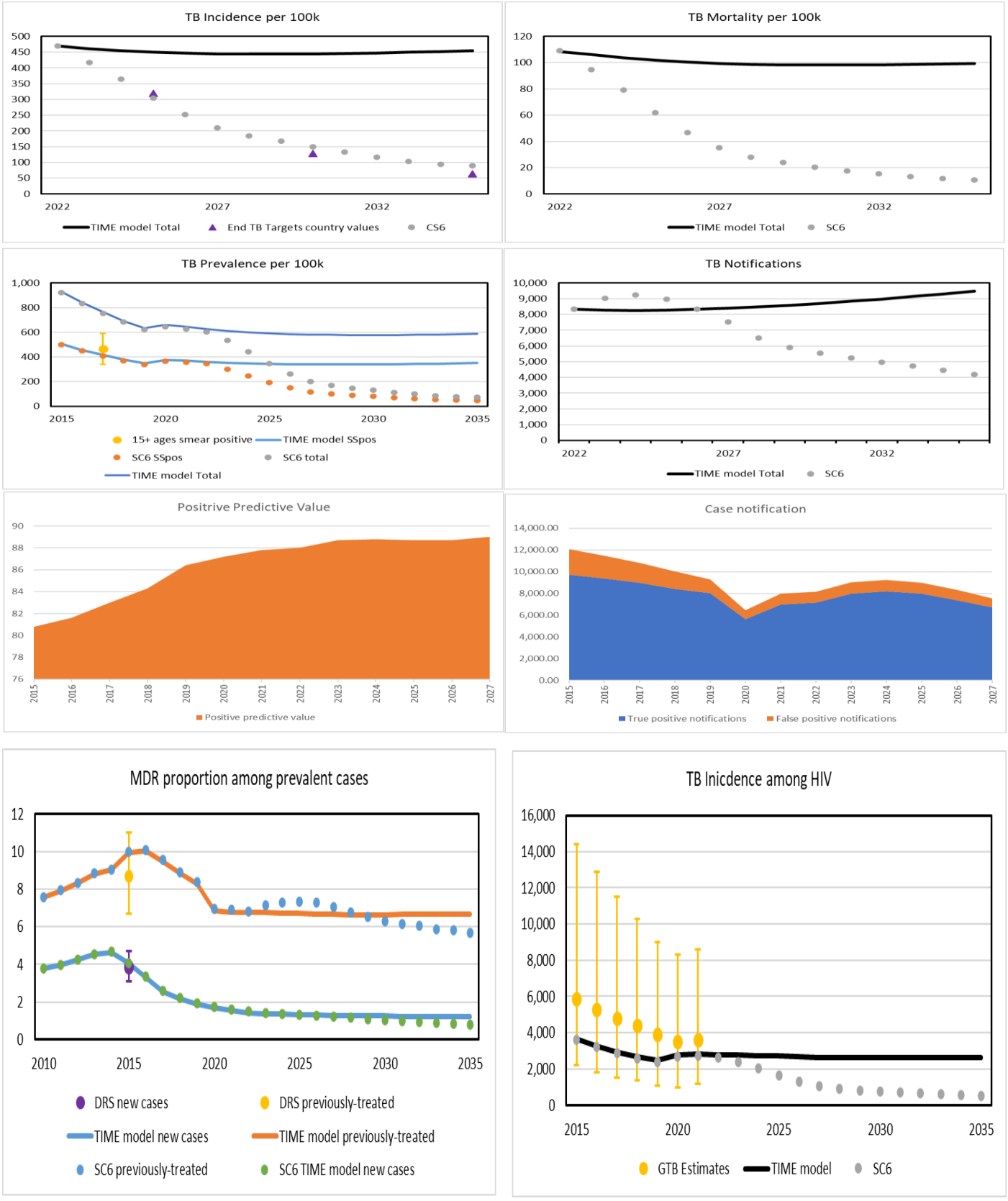


Figure 6: Key model output of Scenario 6 compared with baseline.

SUMMARY OUTPUT OF ALL SCENARIOS

The key model output of all scenarios was compared together to see the difference among each other and with the full package intervention scenario (SC6). Incidence, prevalence, and mortality of each scenario were evaluated to decide the best scenario to be selected for the NSP. In addition, the trend of case notification and incidence of scenario 6 shows how the gap narrowed from year to year (Figure 7).

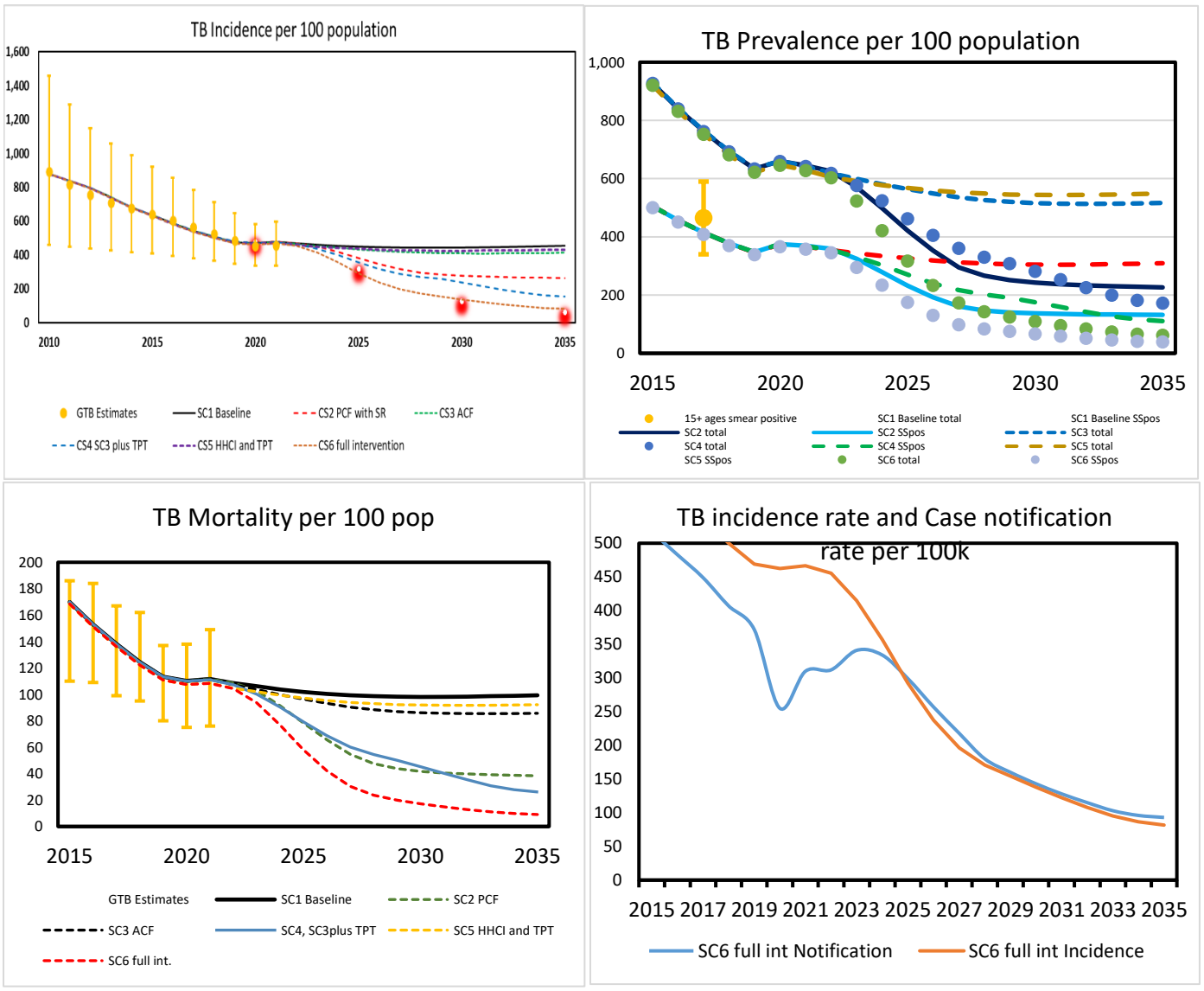


Figure 7: Summary of key model output of all scenarios

COST-EFFECTIVENESS ANALYSIS

Cost-effectiveness analysis of each scenario was calculated comparing with baseline per death averted. The result of incremental cost effectiveness ratio is considered for the selection of best intervention scenarios to incorporate in to the NSP as high impact interventions (Figure 8, 9, and table 2).

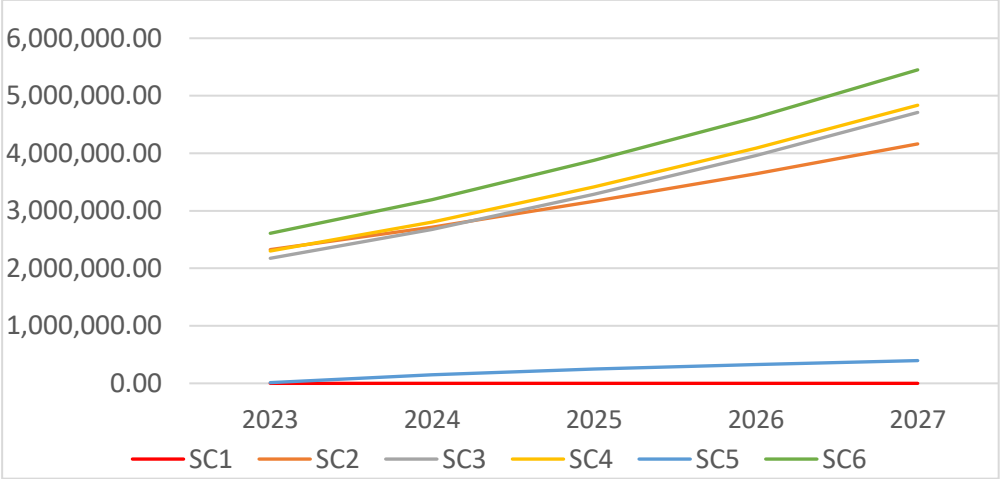


Figure 8: Incremental costs (scaleup scenario compared to status quo baseline)

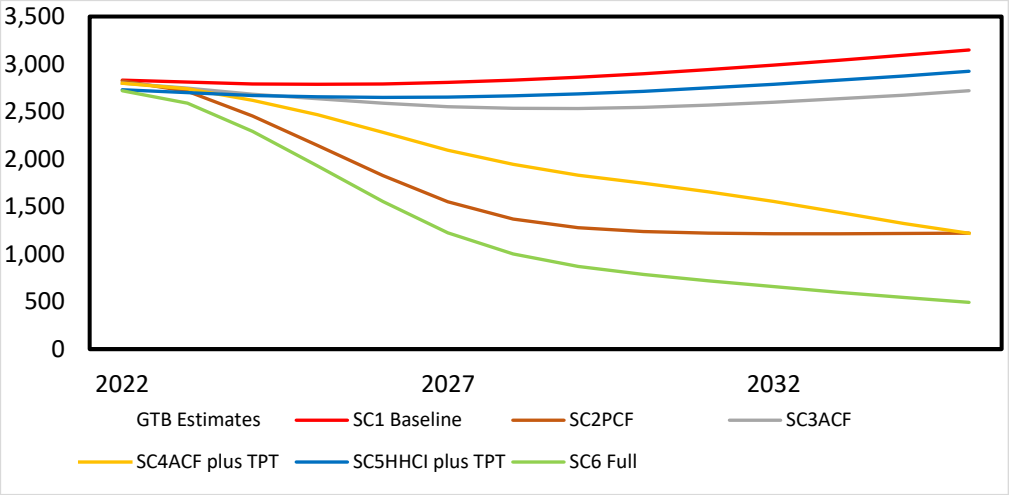


Figure 9: Trend of TB Mortality per 100k population by all scenarios

Table 2: Result of incremental cost effectiveness ration (ICER) per death averted.

CEA results	Incremental cost per death averted (US$)
SC2PCF	4858
SC3ACF	21548
SC4ACF plus TPT	9771
SC5HHCI plus TPT	1726
SC6 Full	4490

As the above table shows, scenario 6 is found to be incur lowest cost (4,490 USD) to avert a single death.

SELECTION OF BEST-CASE SCENARIO AND SUMMARY OF NSP TARGETS

Selection criteria and selected scenario

The best-case scenario is selected by the country team using the criteria those having high impact of the country TB program and least cost incurred per death averted. Therefore, the team has decided to go for the scenario 6 (full package) interventions as the combination of those interventions help to achieve the End TB target milestones and the incremental cost to avert one death by this scenario is found to be the least (cost-effective) next to Scenario 5 which has very minimum impact of prevention of death.

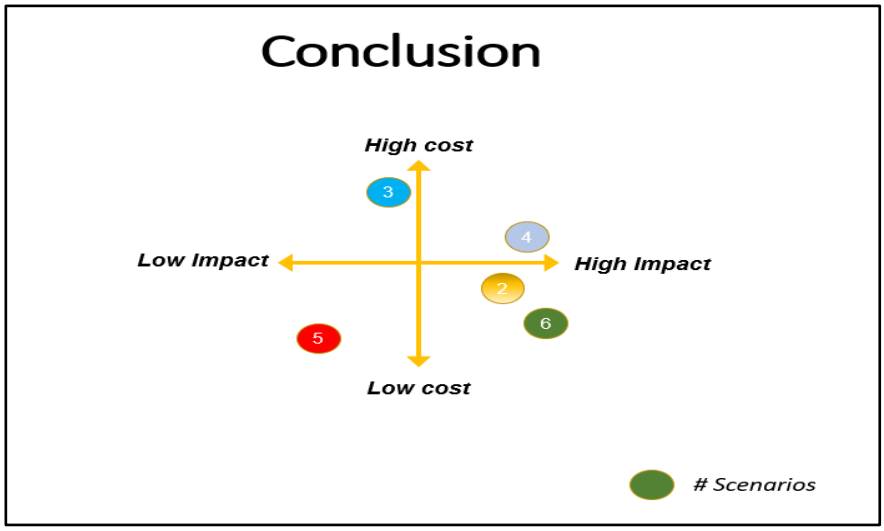


Figure 10: Selection of intervention based on their impact on death averted and ICER result.

Summary of key NSP target output based on the selected scenario.

The following tables provide a high-level summary of TIME model projections of TB burden indicators, as well as trends in notifications in the baseline year (2022) and for the full intervention package during the NSP implementation period (2023-2027) and End TB milestone (2030):

Table 3: Model projections of impact for all TB (Combined DSTB & DR-TB) interventions of the best-case scenario

Indicators	2023	2024	2025	2026	2027	2030
Incidence rate	417	363	303	250	209	148
Mortality #	2,589	2,290	1,926	1,549	1,219	780
Prevalence rate	532	441	344	262	200	128
Notification rate	329	319	288	250	216	143
Notification # - passive	8,286	8,330	7,882	7,073	6,135	4,253
Notification # - ACF	726	915	1,082	1,230	1,369	1,261
FP notification (all) (%)	11.3%	11.2%	11.3%	11.3%	11.1%	15.3%
Notification # - total	9,012	9,245	8,964	8,303	7,504	5,514

Table 4: Model projections for DR-TB only

Indicators	**2023**	**2024**	**2025**	**2026**	**2027**	**2030**
Prevalence #	433	387	331	269	212	125
Mortality #	70	62	52	42	32	17
Notification #	178	182	177	164	146	86

Estimates of bacteriological test volume

The following tables provide a breakdown of TIME model projections of bacteriological test and chest X-ray volume during the NSP implementation periods.

Table 5: Number of bacteriological and radiological tests for ACF only

	2023	2024	2025	2026	2027	2030
Xpert	9,092	12,365	15,573	18,724	21,847	21,518
CXR	12,990	17,461	21,887	26,273	30,638	30,405

Table 6: Number of bacteriological and radiological tests for passive + active case finding.

	2023	2024	2025	2026	2027	2030
SSM	5,729	4,769	3,453	1,761	0	0
Xpert	30,894	37,856	44,912	51,900	58,787	58,717
CXR	19,718	24,453	28,970	33,199	37,375	37,202

Table 7: # of LTBI test, put on TPT and TPT completion rate.

	2023	2024	2025	2026	2027
#s tested for LTBI	2,680	3,714	4,749	5,784	6,819
#s on PT	11,058	12,557	13,917	15,001	15,868
#s completing Rx	9,953	11,301	12,525	13,501	14,281

Chapter 10: TBL NSP Contingency plan

Complex emergencies are characterized by a breakdown of public services, including those for health, poor logistic networks, destruction of infrastructure and disruption of societal relations. In such an environment, the public and social services that cover essential needs, such as access to safe water, basic foods or sanitation, become inaccessible for a large part of the population. Even access to already prescribed medicines for long-term treatment of chronic communicable diseases, such as TB or Leprosy might be interrupted. In addition, the most affected populations often have malnutrition and an increased burden of communicable diseases. This is particularly pronounced among vulnerable population groups, such as children, women, elderly people and socio-economically disadvantaged individuals.

In these circumstances, the problem of TB and Leprosy (TBL) control is exacerbated, because of the increased number of vulnerable people and because of the collapse of health services in general, and thus of the specialized care and prevention services needed for TBL. The interruption of drug and laboratory supplies leads to an increase in missed cases/under detection, treatment defaulting, low cure rate, higher numbers of patients with relapse, and increased risk of developing DR-TB. In some complex emergency settings, it may not be possible to provide sound TB and Leprosy care and prevention services, due to lack of adherence to national or standard guidelines, suboptimal diagnostic procedures, inappropriate treatment regimens, poor adherence by patients to treatment, and inadequate measures to monitor and evaluate patients.

The Namibia NTLP contingency planning identifies, plans for and summarizes potential risks or events that may adversely affect access to and availability of TB and Leprosy care and prevention services along the continuum of care. Ensuring the continued provision of TB and Leprosy services during emergency situations is critical to minimize service disruption and reduced access to care, medicines, and diagnostics for people with life/limb-threatening conditions like TB and Leprosy can lead to an increase in mortality and/or morbidity from these underlying conditions. Such situations could include epidemic outbreaks, floods, civil unrest etc.

Specific risks for the NTLP response include:

- NTLP staff (national and sub-national level) being drafted into the emergency response, creating staff shortages or increased workloads.
- TB facilities (hospitals, dispensaries) repurposed and are being used for the emergency response.
- National laboratory/diagnostic services focusing on emergency response activities, such that TB and Leprosy laboratory tests like rapid molecular tests and cultures are delayed and there is limited access to chest X-rays.
- Disruptions in sputum transportation and the provision of treatment support.
- People avoid going to or have no possibilities to reach hospitals, clinics or DOT points due to lockdown, reduced transportation means and geographical access challenges.
- A decrease in the number of people presenting/accessing services for TB and/or Leprosy.
- Active TB Case Finding (ACF) and community activities in key and vulnerable populations stopped due to access

- Physical/social distancing measures and national quarantine measures will interrupt treatment support and TB contact tracing measures.
- Increased vulnerability of people with TB, DR-TB or TB/HIV to emerging (unknown) pathogens with anticipated higher TB mortality; there are significant concerns about the management of drug-resistant TB as hospitals are severely affected or moved to support the emergency response; lack of Personal Protective Equipment for health care providers, with increased workload;
- Drug stock-outs and procurement issues. As global transport networks are reduced and countries involved in the manufacturing of TB and Leprosy medications are affected, there may be delays in the procurement chain. If health systems are overwhelmed or there are staff shortages, stock management may be de-prioritized. Disrupted importation processes of goods, in-country transportation, distribution and warehousing limitations also will create delays.
- Domestic funding constraints for TB and Leprosy commodities procurement while allocating all available resources to the emergency response.

10.1 Lessons learned from the COVID-19 pandemic response

The lessons learned by the NTLP from the implementation of TB control during the recent COVID-19 pandemic, highlight significant strengths and weaknesses:

Strengths

- TB and Leprosy care and prevention programmes can be successfully implemented even in complex emergency settings.
- Appropriate coordination among the various stakeholders involved in TB and Leprosy control programmes is paramount and contributes significantly to the success of TB and Leprosy control implementation.
- Retention of TB and Leprosy control services during a pandemic requires a well-structured programme with a central unit, an intermediate level, and integration of TB and Leprosy services at primary health care levels.

Weaknesses and challenges

- There is no global policy document on the organization of TB control services in complex emergencies.
- TB is not systematically included in the agenda for health sector coordination during the response to complex emergencies.
- There is a high risk during the acute phase that the existing TB and Leprosy services will be disrupted, and consequently, TBL patients will not receive proper diagnosis and treatment due to laboratory and drug stock-outs and/or difficulty in accessing treatment services.
- Delayed identification of patients with TB or Leprosy and those who have interrupted their treatment poses a major risk to the success of the NTLP during an emergency and beyond.

10.2 NTLP responsibilities during complex emergencies

The NTLP will:

- Establish a task force for TB and Leprosy control that will identify and define the roles and responsibilities of stakeholders, develop standard operating procedures and training materials, and define national guidelines on minimum services packages.
- Working together with the Disaster Preparedness Unit, conduct the required assessments of the TB and Leprosy control situation;
- ensure adequate linkages with the health facilities;
- identify priority areas of intervention related to the NTLP, in line with the findings of the assessment;
- take appropriate action to ensure the continuity of diagnostic and treatment services during the acute phase of a complex emergency event;
- refer to the national contingency plan for TB and Leprosy control
- develop an action plan during the acute phase, in line with the national disaster preparedness unit contingency plan, and provide input to the strategic response plan;
- adapt relevant guidelines and develop standard operating procedures adapted to the context of the complex emergency;
- ensure functioning of TB and Leprosy laboratory activities;
- establish a structure to carry out and follow all the functions and activities of TB and Leprosy control during the complex emergency;
- organize rapid training of the health staff involved in provision of care and prevention services;
- ensure medicines and laboratory supplies procurement and management;
- supervise implementation of TB and Leprosy care and prevention activities;
- ensure implementation of a monitoring and evaluation system
- establish appropriate mechanisms to coordinate the related activities with various stakeholders involved in TB and Leprosy control efforts;
- develop in collaboration with the main stakeholders an adapted emergency action plan for maintenance of TB and Leprosy services;
- ensure funding for TB and Leprosy control by domestic resource mobilization and through development of proposals to be submitted to donors for financial support;
- include TB and Leprosy control in the national and international initiatives undertaken to rehabilitate health services in areas affected by the complex emergency; and
- ensure populations affected by complex emergencies (displaced, refugees etc) are integrated into the national plan.

10.3 Key interventions

Acute phase (first 3 months)

During the first few days of the acute phase of an emergency, including natural disasters, an initial rapid assessment is performed; TB and Leprosy should be included in this assessment. Based on this assessment, the following interventions should be carried out.

- Conduct a situation analysis to i) assess the estimated number of patients already on treatment by geographic area, district, catchment area of affected families, and ii) map health facilities where TB and Leprosy diagnosis and treatment are still functional in addition to trained human resources.
- Establish a mechanism to ensure continuity of treatment in the health facilities and community care points providing TB and Leprosy treatment services.
- Secure an uninterrupted supply of TB drugs and pre-positioning drugs where there is a high risk of supply disruption.
- Ensure that TB guidelines are available in all health facilities; additional specific standard operating procedures might be developed and distributed.
- Ensure linkages with other health programmes for collaborative efforts, such as with the vaccination, nutrition, HIV/AIDS and other communicable diseases and NCD programmes.
- Ensure that health workers are fully informed about the antibiotics that must be exclusively used in TB treatment and not for any other indication.
- Ensure coordination with all present partners and stakeholders dealing with health-related issues in the affected area.
- Inclusion of TB in the district health management team response, as well as in the initial/subsequent health-assessment activities.
- Ensure that funds needed for TB control during the acute phase are included in the emergency response plans.
- Mobilize experts to assist with the evaluation of the TB and Leprosy control situation and drafting of proposals depicting the specific response activities to be implemented.

Post-acute/recovery (after 3 months)

The following interventions are necessary in the post-acute phase of an emergency.

- Restore the services of the NTLP, including laboratory and medicines supply and management.
- Make available trained TB and Leprosy staff for affected locations (e.g. laboratory techs).
- Organize supervision wherever and whenever possible.
- Establish (or re-establish) a tracking mechanism to retrieve the data of registered TB and Leprosy patients.
- Rehabilitate TB and Leprosy control infrastructure/services in the areas affected by the disaster/crisis.
- Address drug-resistant TB (M/XDR-TB) in order to trace patients with interrupted treatment and to ensure appropriate infection control measures.
- Disseminate key messages to partners and communities about where to access TB and Leprosy diagnosis and treatment.

- Involve the existing network of community health workers in TB and Leprosy care and control efforts.
- Include the TB and Leprosy situation in the post-disaster needs assessment.
- Inform the district, regional and national management about the availability of human resources, diagnostic capacity and the drug procurement system.
- Actively pursue involvement of the affected community (leaders and health workers) in TB and Leprosy control efforts.
- Establish regular communication and support with the regional and district NTLP structures.
- Adapt the national plan and budget for TB and Leprosy control activities to strengthen services at all levels (national, regional, district, community).
- Ensure that funds needed for TB and Leprosy control during the post-acute phase are included in donor proposals.

Protracted crises/protracted emergencies

The following interventions are necessary in protracted emergencies.

- Maintain NTLP leadership structures at national, regional and district levels.
- Include TB and Leprosy in the rapid assessment or any other situation analysis (e.g. mapping and identification of local partners).
- Strengthen NTLP capacities at all levels.
- Evaluate resource availability and identify funding gaps
- Integrate TB and Leprosy care and prevention services in primary health care and in community initiatives to reach affected populations.
- Integrate TB and Leprosy care and prevention into the package that will be developed for the provision of basic health services in primary health care settings.
- Ensure uninterrupted supply of TB and Leprosy medicines and laboratory commodities.
- Mobilize resources, including funds, at national, regional and global levels.
- Prepare a contingency plan (specific to protracted emergencies).
- Improve case finding through different means, such as moving beyond households in camps for internally displaced persons (IDPs) or use of mobile clinics in areas without fixed health facilities.
- Develop/update strategic planning for TB and Leprosy control.

10.4 TB and Leprosy Control functions

Laboratory component

Evaluation and mapping of the laboratory facilities that are still functioning in the area/s should be part of the initial TB and Leprosy control assessment. If possible, NIP and laboratory specialists from the SRL should be involved in the situation assessment. During the early stage of the acute phase, all efforts should be made to avoid interruption of treatment for those already diagnosed with TB and Leprosy. However, later on, and whenever it is possible, diagnostic services should be resumed, by using any available mWRD or smear microscopy as a last resort.

The NTLP, NIP and SRL should work with the partners and stakeholders in securing the availability of:

- human resources
- laboratory supplies and equipment
- laboratory equipment management
- referral mechanisms for laboratory testing
- sputum and blood samples collection, packaging and shipment
- results issuance and delivery to the referral health facility
- external and internal quality control
- linkages with technical support from the non-affected regions
- appropriate funding for the level of laboratory support needed to sustain the TB and Leprosy control

It is assumed that by the end of the acute phase and the beginning of the post-acute phase, all diagnostic procedures for new cases, whether susceptible or resistant, should be resumed. In addition, internal and external laboratory quality control and quality assurance programmes should be in place. Linkages with the SRL should be maintained to support the quality assurance of laboratory diagnosis in the affected areas.

Management of DR-TB cases in post-acute phase

In regions with pre-existing M/XDR-TB activities, the following actions need to be undertaken.

- Re-establish TB culture and drug-susceptibility testing (DST) capacities and the sample referral system as soon as possible
- Establish laboratory capacities to use mWRDs eg GeneXpert, Truenat etc
- Re-establish TB Infection Control measures in the laboratories and in all health facilities providing M/XDR-TB management services
- Establish tracing systems for patients with treatment interruption.
- Choose the most appropriate treatment modality for the given set-up (hospital or ambulatory).
- Ensure appropriate procurement of second-line TB medicines.

Contact investigation

In high HIV prevalence settings, such as Namibia, TB contact investigation is an opportunity for both TB and HIV case finding. The strong collaboration should be maintained with the HIV programme and the following activities are recommended for inclusion in the HIV programme contingency plan:

- systematic counselling and HIV screening for TB patients (except during the acute phase of the emergency, when HIV screening is discouraged);
- voluntary counselling and testing of TB patients, and if positive, provision of appropriate HIV prevention, treatment and care services, including ART;
- cotrimoxazole prophylaxis for eligible PLHIV who have active TB and TPT for PLHIV in whom TB has been ruled out.

Addressing prevention

TB and Leprosy prevention activities should include basic elements of communication and social mobilization.

- Members of affected communities should be informed of TB and Leprosy symptoms and of the availability of free diagnosis and treatment through the distribution of printed material, such as leaflets and banners, at public gathering places as well as health facilities.
- Community members (and activities) must be identified and equipped with basic information about availability of, and facilities for, TB and Leprosy diagnosis and care

Infection control

Infection control should be implemented at both facility and household levels. To ensure effectiveness, the NTLP and partners should develop guiding notes on infection control for health facilities and households. Training for health staff and care workers should include infection control components. Community-level infection control should include raising the awareness of patients through intensive information, education and communication, administrative control in health facilities and camps related to keeping people with cough separate (until TB is confirmed and, if confirmed, until sputum conversion from positive to negative), and observing cough hygiene. Environmental measures to ensure better ventilation at the facility and household levels should be implemented. If needed, provision of protective measures and supplies for care providers and volunteers, particularly related to MDR TB/HIV coinfection, e.g. N95 respirators.

Supply of anti-TB medicines during emergencies

Shortages of TB and Leprosy medicines can occur and may be more frequent and more serious in complex emergency settings. The patient TB treatment kit is being piloted§ and is calculated to meet the needs for one patient for 6 months. To facilitate simpler drug procurement and management in an early phase of a crisis, it is advisable to use the patient kit. The following principles should be strengthened routinely to ensure appropriate drug procurement and supply chain management in an emergency:

- policy and legal framework (national medicine laws including registration);
- selection (includes products used and treatment regimens);
- procurement (includes quantification of needs);
- distribution (includes receipt of shipment into Namibia);
- use (includes compliance/adherence by prescriber and patient); and
- management support (includes management information system, quality assurance, human resource needs, basic and in-service training and monitoring and supervision).

10.5 Monitoring and evaluation of TB and Leprosy services in complex emergencies

All efforts should be made to keep the existing registers and records up to date, including patient treatment cards.

Additional or adapted tools in each setting of a complex emergency

A short checklist for risk assessment and mapping is used for situation analysis that will be integrated into

the tool for rapid assessment of communicable diseases in emergencies and incorporated into the national contingency plan.

The checklist incorporates minimum data as follows:

- number and location of displaced populations (mapping and tracking of IDPs/ refugees);
- number and location of TB and Leprosy patients within displaced populations;
- number of cases of Leprosy, TB and MDR-TB at risk of treatment interruption when the emergency occurred;
- amount of human resources, supplies, equipment and infrastructure expected to be affected;
- pre-crisis TB and Leprosy epidemiological and programme data from the displaced populations, if cross-border movements happen
- crisis data (e.g. type, duration, mortality rate, nutritional status, population movement, demographics, overcrowding and security).

This information will provide the baseline data to plan and monitor activities and document the progress of TB and Leprosy control activities during the emergency response.

Minimum core variables and other characteristics of the surveillance system in each setting

The NTLP should make every effort to maintain the existing surveillance system, while focusing on aggregated data during the emergency. The following core variables are proposed for use during the emergency situation in different settings:

- number of cases by treatment category including M/XDR-TB, the proportion of patients kept on treatment, and the proportion of patients who interrupted treatment;
- report completeness; and
- number and identification of centres that have reported drug stock-out.

Patients who interrupted their treatment should continue the treatment as soon as possible.

Data flow across levels and frequency of reporting

Under stable conditions, the same characteristics of the existing surveillance system will be maintained in terms of frequency, data flow, electronic or paper-based records, and individual patient or aggregated data. As part of preparedness, supporting NGOs/CBOs and other partners should be trained in M&E.

In natural disasters and acute emergencies, the following are recommended for data flow and frequency of reporting.

- Change the frequency of reporting to weekly until the situation stabilizes.
- Focus on a reduced number of indicators.
- Conduct rapid TB and Leprosy assessment.
- Shortcut the routine flow of reporting (e.g. go straight to the TB/Leprosy treatment centre, coordinate directly with NGOs/CBOs and partners, private sector).

- Ensure the RTLCs and DTLCs alert the regional or district health teams about TB and Leprosy cases that need to be kept on treatment.

Human and financial resources for monitoring and evaluation/ surveillance

- Use the mapping and situation analysis results to identify human resource gaps and needs.
- Follow an integrated approach to use, whenever possible, existing human resources, such as from NGOs/CBOs, partners and other stakeholders
- Train staff of nongovernmental organizations and other human resources engaged in affected areas according to the training agenda established by the National Disaster Management Unit
- Conduct resource mobilization at national and international levels during the acute and post-acute phases.
- Ensure NTLP alerts the Senior Health Management Team/MoH Directorate to include TB and Leprosy in the flash appeal and other resource mobilization options by providing information on 'Number of TB and Leprosy patients on treatment in this area' and 'Number of TB and Leprosy patients at risk of treatment interruption', particularly for outreach/ response to acute events.
- Early in the initial rapid assessment (<72 h) develop an action plan that includes funding for monitoring and evaluation to be incorporated into the health sector resource mobilization plan.

Modifications in the M&E processes in a complex emergency

In natural disasters and the acute phase of complex emergencies, the following will be organized and carried out by the NTLP:

- Focus on priorities: i) retrieving information on TB and Leprosy patient data, drugs and reagents, functional status of TB and Leprosy management units and human resources situation; and ii) ensuring engagement of all care providers including key governmental stakeholders, nongovernmental organizations and the private health sector. The global mission for rapid assessment during the acute phase of an emergency will take place within the context of the work of the UN health cluster/WHO-AFRO
- Supervision: Conduct more frequent supervision of facilities and laboratories (e.g. every 2 weeks); use the standard checklist and apply the same data quality assurance mechanisms as under normal circumstances; disseminate and emphasize what to do for different periods of treatment interruption (e.g. 1 week, 1 month); and emphasize the use of the patient TB and Leprosy identification card.
- Review meetings and missions: Hold more frequent meetings on the TB and Leprosy situation than under normal circumstances and as part of the health cluster activities.
- Data analysis and reporting: Focus on the number of TB and Leprosy cases on treatment, stratified by category of TB and stage of Leprosy.

Additional or adapted indicators in the monitoring and evaluation framework

The following indicators should be reported on:

Input indicators

- Presence of updated preparedness plan (once in the beginning)
- Presence of adapted strategic plan (including contingency plan, once in the beginning and whenever there is a change in the strategic plan)

Process indicators

- Number of functioning diagnostic centres in the areas affected by the complex emergency (once in the beginning and whenever the emergency situation is changed)
- Number of health centres providing TBL treatment in the areas affected by the complex emergency (once in the beginning and whenever the emergency situation is changed)
- Number of community health workers involved in TBL treatment support in the affected areas (once in the beginning and whenever the emergency situation is changed)
- Number of laboratories diagnosing TBL and their capacities (once in the beginning and whenever the emergency situation is changed)

Output indicators

- Cases notified in the affected areas in absolute number (weekly in acute phase and quarterly in post-acute phase)
- Cases kept on treatment out of those detected before the occurrence of the complex emergency event in the affected areas (number, %) (once in the beginning)
- Cases lost to follow-up (monthly reporting)
- Number of presumptive TB and Leprosy cases tested among IDPs/refugees in the affected areas (number) (monthly however in some situations this indicator is reported weekly)
- Number and percentage of units without stock-out of TB and Leprosy drugs (number, %) (weekly)

Outcome indicators

The usual outcome indicators (case detection, case notification rates and treatment outcome) will be used. In case of difficulty in having an accurate denominator, due to the situation and constant population movement, absolute numbers can be used instead of rates. Comparison of all indicators before and during the emergency situation should be performed regularly. Results of comparison should be used as a rough indicator of the impact of the emergency on TB and Leprosy control.

Monitoring and evaluation: key elements

For optimal functioning of the NTLP, the minimum data collected should include the following:

- number and location of people affected
- number and location of TB and Leprosy patients among affected population
- number of TB and Leprosy cases at risk of treatment interruption
- information on human resources, supplies, equipment and infrastructure in the affected area
- pre-crisis TB and Leprosy epidemiological and programme data from displaced and host populations (e.g. prevalence, incidence, DOTS population coverage, treatment success rate)

- crisis data (e.g. type, duration, mortality rate, nutritional status, population movement, demographics, overcrowding, security).

Additional indicators, compared to the standard programme, include:

- contingency plan available; adapted strategic plan containing preparedness plan
- number of functioning diagnostic centres in the affected areas
- number of health centres offering TB and Leprosy treatment in the affected areas
- number of patients receiving TB and Leprosy treatment by community support in the affected areas
- cases notified in the affected areas, by type, and by form – pulmonary smear- positive or negative, extra-pulmonary, new and retreatment cases, number and percentage of children affected
- number of units without drugs in the affected areas.

The same outcome definitions should be reported as in the standard monitoring and evaluation plan; forms should be in accordance with the WHO definitions and reporting framework for Tuberculosis and Leprosy.

Chapter 11: Technical Assistance Plan

The NTLP 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 NTLP will include the following;

Sub-Objective (SO) number	Main activity	Deliverable	Timeline	Expertise		
				Type	Duration	TA
Objective 2: Strengthen universal access to TB prevention, care and treatment						
SO 2.1.4: Coordinate health surveys to understand Out-of-pocket expenditure						
2.1.4.1	Conduct surveys and ongoing monitoring of catastrophic costs incurred by TB patients.	Provide TA for: study design, protocol development, data collection & analysis, report writing	March 2026	International	9-12 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA
SO 2.3: Establish integrated Post-TB Lung Disease care and follow-up						
2.3.1	Conduct a survey to determine the burden of PTLD and associated catastrophic costs in Namibia	Provide TA for: study design, protocol development, data collection & analysis, report writing	March 2025	International	6-9 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA
2.3.1	Develop and implement standard policy, guidelines and M&E tools for PTLD	Develop policy and guidance for the surveillance, diagnosis and management of PTLD, including referral framework and SOPs and M&E tools	March 2026	International	3-6 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA
Objective 3: Strengthen access to DR-TB prevention, case finding, treatment and care						
SO 3.2: Strengthen access to DR-TB active case finding and surveillance						
3.2.1	Conduct a TB Drug Resistance Survey	Provide TA for: study design, protocol development, data collection & analysis, report writing	March 2026	International	12-18 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA
SO 3.3: Strengthen access to DR-TB treatment and care						
3.3.1	Update DR-TB guideline every four (4) years in line with WHO recommendations	Develop a digitalized guideline for DR-TB clinical managements.	March 2025	International	3-6 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA
Objective 4: Strengthen access to TB prevention, case finding, care and treatment for children and adolescents						
SO 4.1: Strengthen education on child and adolescent TB						
4.1.3	Develop and disseminate algorithms on child and adolescent TB	Develop training materials for online courses for childhood and adolescent TB	March 2025	International	3-6 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA
Objective 7: Develop and implement the TB Public-Private Mix (PPM)						
SO 7.1: Develop and implement the TB Public-Private Mix (PPM):						
7.1.1	Develop PPM framework for improved collaboration and participation of non-	PPM framework developed and costed	March 2025	International	3-6 months with remote support and occasional in-country missions to	STTA

Sub-Objective (SO) number	Main activity	Deliverable	Timeline	Expertise		
				Type	Duration	TA
	NTLP sector to TB service delivery based on WHO guidelines				provide TA and QA throughout	
Objective 11: Strengthen patient support services to reduce TB-related catastrophic costs from 82% to 30% by 2028						
SO 11.1: Strengthen patient support services.						
11.1	Develop an ACSM/ENGAGE-TB Strategic plan	ENGAGE- TB strategic and action plan finalized and approved	March 2024	International	3-6 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA
SO 11.2: Address human rights and gender barriers to TB services access						
11.2.1	Conduct Community rights and Gender assessment to understand human rights associated barriers to access and develop an action plan to reduce stigma and discrimination	Provide TA for: study design, protocol development, data collection & analysis, report writing	March 2025	International	3-6 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA
Objective 12: Establish Continuous Quality Improvement of TB services						
SO 12.1: Establish continuous quality improvement (CQI) of TB services						
12.1.1	Establish Quality improvement infrastructure at NTLP	Develop a QI-TB Plan (statement, M&E, goals, infrastructure, stakeholders).	March 2024	International	3-6 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA
Objective 13: Monitoring, evaluation, research, and surveillance systems strengthening						
SO 13.1: Strengthen data driven decision-making for policy, clinical and programmatic management						
13.6.1	Conduct an inventory study to assess the level of under reporting within the TB surveillance system	Provide TA for: study design, protocol development, data collection & analysis, report writing	March 2025	International	6-9 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA
13.7.3	Build capacity for NTLP staff on operational research to conduct priority OR/IR studies	NTLP staff trained on OR/IR with protocols developed by them for priority studies	March 2024	International	18-24 months with remote support and occasional in-country missions to provide TA and QA throughout	LTTA
13.8	Accelerate the implementation of national Unique health ID	eHealth initiative and interoperability of various systems (DHIS2 TB Tracker, LIMS, HIV data, etc.)	March 2025	International	12-18 months with remote support and occasional in-country missions to provide TA and QA throughout	LTTA
13.9	TA for the completion of DHIS2 TB Tracker	DHIS TB Tracker completed	March 2024	International	9-12 months with remote support and occasional in-country missions to provide TA and QA throughout	STTA

Annexes

Annex 1: Roles and responsibilities of the different levels of the National TB and Leprosy Programme

1. National level

Overall responsibility

Planning, resource mobilisation, supervision, monitoring and evaluation of TB and leprosy care and prevention at all levels.

Functions and tasks

- Advising the MoHSS leadership and regional management teams on all matters pertaining to TB and leprosy care and prevention.
- Formulation of national strategic plans for TB and leprosy care and prevention.
- Publication of annual reports on TB and leprosy, focussing on annual and long-term NTLP targets.
- Technical supervision of TB and leprosy staff at regional level through the surveillance system, review meetings, and supervisory visits.
- Monitoring adherence by clinicians to technical guidelines for TB and leprosy diagnosis and treatment.
- Supporting the Division: Pharmaceutical Services in monitoring the procurement and rational distribution of anti-TB and anti-leprosy medicine supplies in all health facilities.
- Participating in training of staff on TB and leprosy care and prevention at all levels of the health system
- Maintaining active contact, coordination and cooperation with other partners and departments within the ministry, as well as institutions or sectors relevant to TB and leprosy care and prevention outside the MoHSS.
- Initiating and coordinating operational research on TB and leprosy.
- Advising and assisting Namibia Institute of Pathology (NIP) on all aspects related to the functioning of a well-accessible quality assured laboratory network for laboratory diagnosis and monitoring of TB.
- Planning, coordination and implementation of a community engagement strategy on TB and leprosy, in collaboration with relevant stakeholders.
- Developing and disseminating effective patient education materials on TB and leprosy.
- Participating in resource mobilisation initiatives and preparing an annual budget for national level activities.

2. Regional level

Overall responsibility

Planning, implementation and monitoring and evaluation of TB and leprosy care and prevention in the region. The C/SHPO responsible for TB and leprosy care and prevention is functionally the Regional TB and Leprosy Coordinator (RTLC).

Functions and tasks

- Advising the district coordinating committees (DCCs) on all aspects of TB and leprosy care and prevention.
- Advising the DTLCs and DCCs on implementation of the strategic plan for TB and leprosy.
- Conducting regular (at least quarterly) supportive supervisory visits to districts.
- Collecting, analysing and presenting data for the region to the RMT on a quarterly basis. Once verified by the Regional Director.
- Organising quarterly review meetings for performance monitoring and continuing education on TB and leprosy care and prevention.
- Organising and participating in training of staff on TB and leprosy care and prevention.
- Developing a budgeted annual work plan based on the national strategic plan.
- Monitoring the rational distribution of anti-TB and anti-leprosy medicines in each district.
- Initiating and coordinating the implementation of operational research on TB and leprosy in the region.
- Initiating and coordinating advocacy, communication and social mobilisation activities within the region.

3. District level

Overall responsibility

Planning, implementation, and monitoring and evaluation of TB and leprosy care and prevention in the district. The nurse responsible for TB and leprosy care and prevention in the district is functionally referred to as the District TB and Leprosy Coordinator (DTLC).

Functions and tasks

- Advising the District Coordinating Committee (DCC) on all matters related to TB and leprosy care and prevention.
- Advising general health staff involved in TB and leprosy care in peripheral health units on all aspects of TB and leprosy care and prevention in line with NTLP technical guidelines and strategic plan.
- Monitoring the implementation and performance of TB treatment clinics and community-based TB care providers through monthly visits to each unit.
- Formulation of budgeted annual work plans.
- Monitoring the rational distribution of anti-TB and anti-leprosy medicines in all clinics and community treatment facilities.
- Timely collecting, aggregating, analysing and submission TB and leprosy data from each clinic, to the DCC on a quarterly basis. Once signed off by the Senior Medical Officer, the data should be forwarded to the RTLC
- Organising and participating in training of staff on TB and leprosy care and prevention to address identified needs.
- Initiating and coordinating health education activities to the community, through various fora such as agricultural shows, public meetings, visits to schools, etc.

4. Health facility level

The health facility caters for the day-to-day execution of TB and leprosy care and prevention activities. At least one (preferably two) member(s) of staff per health unit should be properly trained and have proven competence in TB and leprosy patient management.

Professional education and rank should not be major selection criteria for becoming a dedicated TB nurse. Instead, interest, attitude, motivation and communication skills are important attributes. Frequent rotation of nurses in TB clinics must be avoided as this disrupts continuity of care, resulting in poor case management and record keeping, as well as poor treatment outcomes.

Overall responsibility

The main responsibility of the health facility is implementation of diagnosis and treatment of TB, maintaining up-to-date records, as well as coordination and supervision of community-based TB care providers in line with NTLP technical guidelines.

Functions and tasks

- Diagnosis of TB and leprosy according to national guidelines.
- Maintaining all records for people being investigated for TB and leprosy, as well as TB and leprosy patients. This also includes results of contact tracing.
- Providing patient education and treatment support, ensuring that each patient understands all aspects of treatment.
- Providing health education to the public on the signs and symptoms of TB and leprosy.
- Issuing 2- or 4-weekly supplies of anti-TB and Leprosy medicines to treatment supporters and ensuring that the patients are receiving their treatment under supervision.
- Maintaining adequate stocks of anti-TB and Leprosy medicines at all times
- Recording patient attendance and medicine collection on the appropriate forms.
- Identifying patients who need urgent referral according to national guidelines.
- Tracing patients who interrupt treatment in close collaboration with community health workers.
- Training and supervising community health workers serving the catchment area of the clinic.

5. Community Health Workers (CHWs)

All supportive staff providing education and support for communities and patients on TB and leprosy within the community. All CHWs must be knowledgeable on signs and symptoms of TB and Leprosy to assist in TB/Leprosy care and prevention through identification and referral of people with signs and symptoms of TB and Leprosy, community education on TB and Leprosy disease and, screening contacts of TB and Leprosy patients. CHWs can play an important role as treatment supporters.

Annex 2: Roles and responsibilities for monitoring and evaluation

Programme Manager

The NTLP Programme Manager (or equivalent) provides overall leadership in the execution of TB and leprosy care and prevention. Specifically, on M&E, the manager's responsibilities include:

- Supervision of the overall implementation of the TB and leprosy monitoring and evaluation activities, including staff and data collection mechanisms.
- Ensure cohesion and adherence to the monitoring and evaluation system, including reporting by all TB and leprosy implementing partners.
- Review reports and share with relevant partners in government, development partners, and implementing partners.
- Source relevant technical support for implementing and troubleshooting on TB and leprosy monitoring and evaluation.
- Conducts advocacy for M&E among all TB and leprosy stakeholders.

Monitoring and Evaluation Officer

The M&E Officer is responsibility include:

- Overall coordination of M&E interventions, including those supported with funding from the different funding agencies.
- Ensure integration and linkage of TB and leprosy M&E system to other MoHSS M&E systems.
- Conduct regular review of M&E intervention and ensure efficient implementation of planned M&E activities.
- Ensure high standard of data collection, timeliness and quality, and perform frequent data review and analysis.
- Provide tools to support management and use of generated data to guide programmatic decision making.
- Provide relevant data to NTLP management and program officers, for program planning and evaluation.
- Produces routine quarterly and annual reports on TB and leprosy.

Data clerk

The NTLP Data Clerk reports for M&E officer and their roles include:

- Receive routine data from all regions in the country.
- Follow up on all regions to ensure timely submission of data.
- Perform initial data review and communicate with regions to address any inconsistency.
- Submit routine data to the M&E officer for further verification and collation.
- Maintain updated databases of all programme data.
- Monitor the development of a sustainable national M&E system.

Annex 3: NTLP M&E Reports and Products Use and Dissemination

Type of Report	Content of the Report	Mechanism of dissemination
Annual TB Report	Reports on progress on implementation of TB and Leprosy. Annual data summaries	Publication and distribution of hard copies MoHSS website (http://www.mhss.gov.na/national-directorates/Special-Programs/51/) Email distribution
Quarterly Bulletin	Quarterly progress reports and quarterly case finding and cohort reports	MoHSS website (http://www.mhss.gov.na/national-directorates/Special-Programs/51/) Email distribution
Survey Reports	Study reports and related briefs	Local/international publication, local and international conferences and uploads to MoHSS website (http://www.mhss.gov.na/national-directorates/Special-Programs/51/) Email distribution
Operation Research Reports	Operation reports and related dissemination briefs	Local/international publication, local and international conferences and uploads to MoHSS website (http://www.mhss.gov.na/national-directorates/Special-Programs/51/) Email distribution
WHO Global TB Report	Estimated TB prevalence, incidence and mortality	WHO website (http://www.who.int/publications/en/)
Data of TB financing	Publication and distribution	
Global Fund TB Report	Progress Updated (PUD)	https://www.theglobalfund.org/
PEPFAR TB/HIV Report	TB/HIV Data	https://www.cdc.gov/globalhivtb/where-we-work/namibia/namibia.html
SADC TB Report	SADC Regional Assessment Report of Policies and Programmes for TB	https://www.sadc.int/resources
National Health Account	Data on Health Care Expenditure, Out-of-Pocket spending	Publication and distribution of hard copies