FINAL DRAFT
TBL-NSP JULY 2021 – JUNE 2026
AUGUST 2020

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MINISTRY OF HEALTH-ETHIOPIA
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FOREWORD

Within the last decades, Ethiopia has exmperienced a significant decline in the burden of both TB and Leprosy. However, both TB and Leprosy remain public health problems with significant burden among affected and at-risk populations. It is estimated that annually Ethiopia misses a third of persons with TB. Increasing the TB treatment coverage is a national priority in reducing TB burden and as steppingstone to end the TB epidemic as a public health problem in Ethiopia. Though Ethiopia has achieved the goal of eliminating Leprosy nationally, it is still a public health issue in pockets of woredas across the country.

This national strategic plan is expected to address priority areas in TBL in the coming five years (July 2021 to June 2026). It recommends evidence-based and high-impact interventions that will bring our country closer to ending the TB epidemic and eliminating leprosy as public health problems. The planning process has used people-centred approach, that is informed by detailed epidemiological and health service data analysis, implementation experiences, external programme review of the just ending TBL strategic plan, cost-effectiveness analysis, and extensive stakeholder consultations. This national strategic plan identifies priority populations, service delivery models and key interventions to reduce treatment coverage gap, both in drug susceptible and resistance TB, and leprosy. It also highlights equitable access to quality TBL services; expanding public-private mix and laboratory services to improve access to essential TBL services; and strengthening availability of quality data and use as priority areas.

The Ministry of health appreciates the contribution of all partners and experts in the development of this TBL national strategic plan.

Dr. Dereje Duguma

State Minister of Health

ACKNOWLEDGEMENTS

The Federal Ministry of Health acknowledges the contribution of large number of in-country and global experts in the development of this Tuberculosis and Leprosy national strategic plan (TBL-NSP).

More than one hundred experts participated in the end term external programme review of the concluding TBL national strategic plan. The external review findings and recommendations were important input for this strategic planning. Ranges of stakeholders from government; non-governmental, civil society and groups from affected population; private sector; multilateral and bilateral agencies; development partners; regional health bureaus and healthcare providers at various levels participated in the national consultations and subsequent electronic review of earier drafts. The Federal Ministry of Health expresses gratitude to all experts and reviewers for their quality input at various stages of the national strategic planning.

The Federal Ministry of health is grateful of members of the core team that lead the development of the TBL-NSP: Andargachew Kumsa, MOH-NTLP; Anteneh Kassa, USAID-Ethiopia; Asfawossen Woldegiorgis, Abt Associate, USAID/PHSP; Beniam Feleke, CDC-Ethiopia; Challa Negeri, KNCV-Ethiopia; Dagim Damitew, EPSA; Demelash Assefa, KNCV-Ethiopia; Endalkachew Fekadu, VHS-Ethiopia; Eyerusalem Negussie, NTP; Feven Girmachew, EPHI;
Genet Getachew, MOH-HIV programme; Ismael Hassen Endris, WHO-Ethiopia; Kumera Terfa, EPHI; Leul Abate, MOH-HIV programme; Meseret Yenehun, CCM-Ethiopia; Muluwork Getahun, EPHI; Semaligne Samuel MOH-NTLP; Tadele Kebede, GLRA; Taye Letta, MOH-NTLP; and Yewulsew Kassie, USAID-Ethiopia.

The Ministry of health is thankful of the contributions of Degu Jerene, KNCV Hague, in data consolidation; Demelash Assefa, KNCV-Ethiopia in budgeting the NSP; Eyerusalem Negussie, NTP, overall technical cooridnation; Kitaw Teklemariam, OHC, FGD with persons on DR-TB treatment; and Nabila Shaikh and Rein Houben, London School of Hygiene and Tropical Medicine (LSHTM) in interventions impact modelling and cost effectiveness analysis.

The Federal Ministry of Health gratefully acknowledges the financial support of the United States Agency for International Development in this TBL national strategic planning. The ministry additionally acknowledges the technical support of all partners at various stages of the planning process.

Hiwot Solomon,
Director, disease prevention and control directorate, FMOH.

LIST OF ACRONYMS

ACF	Active (TB) Case Finding
aDSM	active Drug Safety Monitoring
AFB	Acid Fast Bacilli
AIDS	Acquired Immune Deficiency Syndrome
ARRA	Agency for Refugees and Returnees Affair (of Ethiopia)
CBHI	Community Based Health Insurance
CCRDA	Consortium of Christian Development Association
CDC	Centre for Disease Control and Prevention (USA)
CNR	Case Notification Rate
CSA	Central Statistics Authority (of Ethiopia)
CxR	Chest X-ray
DM	Diabetes Mellitus
DST	Drug Susceptibility Testing
DQA	Data Quality Audit
DRS	Drug Resistance Survey
DR-TB	Drug Resistant Tuberculosis
EFDA	Ethiopia Food and Drug Agency
ENAPAL	Ethiopian National Association of Persons Affected by Leprosy
EPHI	Ethiopia Public Health Institute
EPSA	Ethiopia Pharmaceutical Supplies Agency
EQA	External Quality Assurance
FBOs	Faith Based Organizations
FMOH	Federal Ministry of Health
GDP	Gross Domestic Product
GFATM	Global Fund for fight Against AIDS, TB and Malaria
GNI	Gross National Income
HAD	Health Development Army
HAPCO	HIV/AIDS Prevention and Control Office
HEP	Health Extension Program
HEWs	Health Extension Workers
HIV	Human Immunodeficiency Virus
HSTP	Health Sector Transformation Plan
ICF	Intensified (TB) Case Finding
IDPs	Internally Displaced Persons
IPC	Infection Prevention and Control
IPLS	Integrated Pharmaceutical Logistics System
KAPs	Key Affected Populations
LIC	Low Income Country
LPA	Line Probe Assay
LTFU	Lost to Follow Up
MAF	Multi- Sectoral Accountability Framework
MDR-TB	Multi- Drug Resistant TB
MDT	Multi Drug Therapy (of Leprosy)

NTP	National TB Programme
NGOs	Non-Governmental Organizations
NTLP	National TB and Leprosy Program
NTRL	National TB Reference Laboratory (at EPHI)
OOP	Out of Pocket (expenditure)
PHCU	Primary Health Care Units
PLHIV	People Living with HIV
PMDT	Programmatic Management of Drug Resistant TB
POC	Point of Care
PPM	Private Public Mix (for TB)
RHBs	Regional Health Bureaus
RR	Rifampicin Resistance
RRLs	Regional Reference Laboratories
SDGs	Sustainable Development Goals
SLDs	Second Line Drugs (for treatment of DR-TB)
SNRLs	Supra National Reference Laboratory
SOPs	Standard Operating Procedures
TBL-NSP	Tuberculosis and Leprosy National Strategic Plan
TB-UNHLM	TB-United Nations High Level Meeting
TFC	Treatment Follow up Centre (DR-TB)
TIC	Treatment Initiation Centre (DR-TB)
TLMI	The Leprosy Mission International
TPT	Tuberculosis Preventive Treatment
TRAC	TB Research Advisory Council
UHC	Universal Health Coverage
USAID	United States Agency for International Development
VHS	Voluntary Health Services
WB	World Bank
WHO	World Health Organization
WRD	WHO-recommended rapid diagnostic (for TB)

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EXECUTIVE SUMMARY

This TB and Leprosy national strategic plan (TBL-NSP) covers the period from July 2021 to June 2026. The plan is developed through an inclusive consultative process using people-centred framework for data consolidation: epidemiologic, health system and service-related data. It builds on the TB and Leprosy (TBL) end term external programme review findings, gap analysis and recommendations, which was held in 2019[1]. Two national stakeholder consultations were held, where consolidated data were presented and discussed; policy and implementation gaps were identified and prioritized; and key interventions identified. A third stakeholder consultation was done through electronic review of the draft TBL-NSP. TIME model is used for cost modelling and cost models to consider incremental cost-effectiveness.

Within the last decades Ethiopia has steadily progressed in reducing the burdens of Tuberculosis (TB) and Leprosy in the country. The TB incidence has declined at an annual rate of 8-9%, from 268 per 100,000 in 2010 to 151 per 100,000 in 2018. Similarly, the burden of Leprosy has declined from 0.7 to <0.2 per 10,000 population. Ethiopia has indeed achieved the global Leprosy elimination targets nationally, though with higher prevalence concentrations in selected Woredas. Such progress were possible through political commitments, expansion of laboratory, clinical and community level services, and significant in-country and global efforts. During the implementation period of the just ending TBL-NSP, services have expanded effectively allowing decentralized access to diagnostics, including for TB culture and DST, and treatment of Drug resistance TB (DR-TB) in peripheral settings. Within the same TBL-NSP period, 838,017 and 32,912 persons with TB and Leprosy, respectively, were notified to the national TB and Leprosy programme (NTLP).

In formulating this TBL-NSP, addressing the gap between the estimated incidence and notified cases is necessary to end the TB epidemic in Ethiopia. In 2018, the TB treatment coverage was estimated at 69% with a declining annual case notification trend, and 31% of estimated incident cases were detected. The country continues reporting 3000-4000 persons with Leprosy annually, with unacceptably high level of Grade 2 disability among newly notified persons. Closing these gaps is critical in ending both TBL, averting avoidable deaths and disabilities, and breaking the chains of transmission.

Addressing priority implementation gaps also calls for responding to emerging challenges presented by the global corona virus disease-19 (COVID-19) pandemic. More than at any time before, public health emergencies highlight the need for resilient health systems, universal

[1] Ethiopia TB and leprosy program national strategic plan 2013/14-2020/21, End Term Review Report. Nov 18-30, 2019.

health coverage (UHC) and social protection. Like all public health emergencies, the COVID-19 pandemic will not be immune from geographic and population variations in vulnerability, risks, impact, recovery and resilience. TB and Leprosy are both highly prevalent where household resources are already extremely scarce; and risks and impacts of over-crowding, poor housing, stigma and discrimination, population mobility and displacement, and barriers in accessing health services are already realities for persons and communities affected by TB.

Addressing key priority gaps is essential in the coming years for Ethiopia to achieve global and national targets.

TB diagnostics access gap: Nationally, close to 20% of public facilities don't have any form of TB diagnostic capacity. While, around 70% of public health facilities have potential access to GeneXpert test, either onsite (19%) or through sample referral network (51%) there are multiple service interruptions due to supply stockouts, machine failures, and insufficient sample referral systems. Across the country, only three private-for-profit hospitals provide an onsite GeneXpert test.

Gap in the initial screening for presumptive TB: The current TB diagnostic algorithm recommends clinical criteria for initial TB screening and diagnosis of presumptive TB. Furthermore, screening is not routinely integrated and reported in all healthcare settings, including in general outpatient departments (OPD), Diabetic (DM), mental, maternal and child health services.

Gap in engaging all care providers: Only 3% of private facilities are currently engaged in TB, though around 20% of TB patients' initial visits are to private care settings.

This TBL-NSP prioritizes the following interventions to address these gaps:

1) Provide quality TB and Leprosy services to people who are in contact with the healthcare system.

Narrow the TB screening gap:

- Enable the use of digital X-ray technologies, for TB screening purposes, with artificial intelligence (AI) to offset the human resource gaps in radiology.
- Integrate routine TB screening in OPD with focus on high-volume facilities.
- Monitor across the screening-care cascade, starting from the initial TB screening (Figure 32), and prevent pre-treatment lost to follow ups including through the use of digital technologies.

Reduce the TB diagnostics access gap:

- Increase the number of health facilities with sensitive an onsite WHO approved rapid diagnostics (WRD) testing capacity by five hundred. Enhance diagnostic capacity of primary care facilities, including through specimen referral.
- Increase frequency of specimen collection in high volume facilities; include public-private mix (PPM-TB) sites in specimen referral network; use locally feasible specimen transport in Woredas without postal infrastructure.
- Contract out TB laboratory machine maintenance to private sector, including through service contract with suppliers.
- Narrow the funding gap for diagnostic supplies, through resource mobilization.

Address the gap in engaging all care providers.

- Expand the laboratory sample referral and EQA network to include all PPM-TB sites.
- Engage 550 additional private facilities in PPM -TB.
- Scale up a feasible performance-based PPM model of engaging private providers.

Prioritize locations and population groups at implementation level

- Continue using mobile services for pastoralist communities and document experience.
- In high burden Woredas, implement community-based sample referral to diagnostic sites.
- Integrate outreach screening, diagnosis and linkage model of TB service delivery for IDPs, refugees, prisoners, miners, residents of urban slums, pastoralist communities, and schools and communities in high TB burden Woredas.
- Implement intensive case finding starting from high volume health facilities,

Mitigate the burden of cost of TB care on patients and their household.

- Further decentralize Drug Susceptible (DS) and Resistance (DR) -TB care and treatment to community settings, to bring services closer to home.
- Expand community insurance coverage to mitigate out of pocket (OOP) expenditure for TB medical services.
- Provide comprehensive patient support, including through use of digital technologies and peer managed interventions.

2) Prevent infection and active disease among those who are at increased risk:

- Increase contact screening coverage through integrated package of TBL services.
- Integrate TB preventive Treatment (TPT) in community-based services, and in all healthcare settings that serve populations at increased risk of active TB disease.

3) Mitigate TB and Leprosy related stigma in the community and healthcare settings and monitor progress through regular assessment. Build capacity of affected communities, civil societies, and the media for effective advocacy, public education and rights-based responses.

4) Proactively manage and mitigate potential impacts of COVID-19 on basic TBL services.

SECTION ONE: BACKGROUND

1. OVERVIEW

Globally, Tuberculosis (TB) is the leading cause of death from an infectious disease. In 2018, an estimated 10 million people have fallen ill from TB, and it has claimed the lives of 1.4 million people (1). Emergence of drug-resistant tuberculosis (DR-TB) brings major challenge to end the TB epidemic. In 2018, the World Health Organization (WHO) estimated 3.4% of new and 18% of previously treated persons with TB have Rifampicin Resistance/Multi-Drug Resistant TB (RR-/MDR-TB). Worldwide, DR-TB is a threat to global health security and is the leading cause of death from antimicrobial resistance (AMR)[2] .

The third goal of the Sustainable Development Goal (SDG) articulates ensuring healthy lives and promoting well-being at all ages within the framework of universal health coverage (UHC). Furthermore, multiple SDGs contribute to end the TB epidemic and achieving well-being. The WHO global End TB strategy aims substantial reduction in TB incidence and mortality, and zero affected households facing catastrophic costs due to TB. The political declaration of the United Nations General Assembly High-Level Meeting on TB (TB-UNHLM), in 2018, reaffirms the global commitment to end the TB epidemic by 2030[3]. Ethiopia has adopted the post-2015 SDGs, the WHO end TB targets and the goal of eliminating leprosy, which all highlight the need to accelerate equitable people-centred TB and Leprosy (TBL) screening, diagnosis, prevention, care and treatment services.

This TB and Leprosy strategic plan (TBL-NSP) articulates Ethiopia's priorities and milestones for the period between 2021/22 to 2025/26 and provides the technical and strategic priorities to End the TB epidemic and eliminate leprosy. It highlights the aspiration of the country, within the context of national progress to achieve the goals of UHC and SDGs. It is an evidence informed NSP that is enriched through extensive and inclusive consultations at all stages of its development. It used the people-centred framework to consolidate data, identify gaps and prioritize interventions across the patient pathway to TB and Leprosy services and the care continuum. This strategic plan is also developed at a time of global public health emergency due to the Corona Virus Disease 19 (COVID-19) pandemic. Such and other public health emergencies underscore the need for resilient health system and inventiveness, both to accelerate progress and protect achievements so far.

[2] WHO. 2019. Global TB report.

[3] WHO, 2015. The end TB Strategy: Global strategy and targets for tuberculosis prevention, care and control after 2015.

2. COUNTRY CONTEXT

Located in the horn of Africa, Ethiopia is the second most populous country in the region. Ethiopia borders six countries - Eritrea to the north; Djibouti to the east; Republic of the Sudan and South Sudan to the west; Kenya to the south; and Somalia to the Southeast. The country covers an area of 1.1 million square kilometres with altitude ranging from as high as 4,620m above sea level to 110m below in the Danakil depression in the northeast.

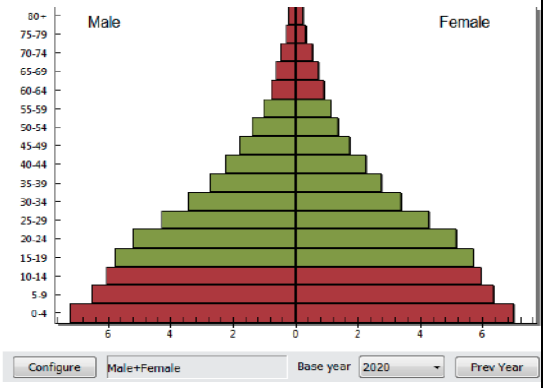
2.1 Governance and Leadership

Ethiopia is a Federal Parliamentary Republic, with the Prime Minister as head of Government. The Federal government structure is composed of ten Regional States of: Afar, Amhara, Benishangul-Gumuz, Gambella, Harari, Oromia, Sidama, Somali, Southern Nation Nationalities and Peoples (SNNP), and Tigray; and two City Administrations: Addis Ababa and Dire Dawa. The regional states and city administrations are further divided into woredas (districts) and kebeles (sub-districts). Woredas are the basic decentralized administrative unit governed by elected council. In some regions, Zonal administrations are above woredas as an extended arm of regional states. Kebeles are the smallest administration unit in the governance system.

2.2 Socio-Demography

With an estimated population of close to 102 million, Ethiopia is characterized by young population of 67% below 30 years of age, while only 3% are above 65 years (***Figure 1***; CSA, 2012). The annual population growth of the country is 2.5%, with total fertility rate of 3.5 with significant variation between rural (5.2) and urban (2.3) residents, and across regions (least in Addis Ababa (1.8) and highest in Somali region (7.2)). While the male to female ratio is almost one, women of reproductive age group constitute around 26% of the population. There is significant variation in population size and density, and geographic area among regions.

Figure 1. Population pyramid of Ethiopia, 2020.



2.3 Socio-economic status and development

Ethiopia is a low-income predominantly rural country that heavily relies on agriculture. The country has undergone major economic reforms to achieve annual economic growth average of 10.5% over the past 15 years. In 2017, the Gross Domestic Product (GDP) was US$ 862 per capita, much lower than the average for other sub-Saharan countries of US$1,553. The World Bank Poverty and Equity data indicates that 27% of the population remains below the poverty line of $1.90/ day[4]. The growth in the economy is predominantly driven by construction and service sectors, with lesser contribution of the agriculture and manufacturing sectors (World Bank, 2018)[5]. The observed economic improvements were associated with human and social sector development.[6] However, such progress is not equitable, with marked differences between urban and rural populations, across regions and socioeconomic strata.[7] The 2019 Human Development Index (HDI) of Ethiopia is 0.47, which is very low. Furthermore, several economic gains of the last two decades are also fragile at its best, particularly on the global economic downturn because of the COVID-19 pandemic.

2.4 Health and health system profile

2.4.1 Population health

In the past decades, Ethiopia has registered progress in a number of health, nutrition, and population indicators. The under-five mortality rate (U5MR) has declined from 123/1000 in 2005 to 55/1000 live births in 2019 (Ethiopian Demographic Health Survey, EDHS), with marked decline in infant mortality and maternal mortality ratio, with a lesser extent in neonatal mortality (***Figure 3***). Life expectancy at birth has also increased to 64.5 years (62.4 for men and 66.6 for women). This could be attributed to improved access to basic and maternal health services, besides improving socio-economic situation (Mini EDHS, 2019).

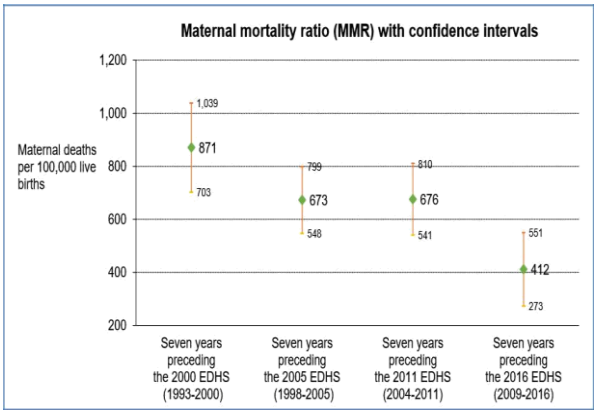
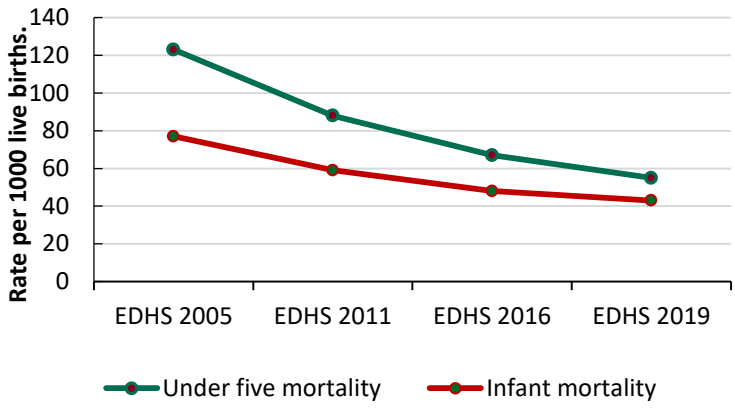


Figure 2. Trend in maternal mortality ratio.

[4] World Bank Poverty and Equity Data Portal 2015.
[5] World Bank: https://www.worldbank.org/en/country/ethiopia/overview.
[6] UNDP. 2018. Ethiopia's progress towards eradicating poverty, FMOH, WHO, World Bank; EDHS, 2016.
[7] Assefa Y, Damme WV, Williams OD, et al. Successes and challenges of the millennium development goals in Ethiopia: lessons for the sustainable development goals. BMJ Glob Health 2017; 2: e000318. doi:10.1136/ bmjgh-2017-000318.

Figure 3. Under-five and infant deaths per 1000 live births in the five years period preceding the survey.



Communicable and non-communicable diseases and injuries are major public health burden in Ethiopia. Both in 2007 and 2017, Tuberculosis (TB) is among the top five causes of death in the country. While in 2017, non-communicable diseases, such as ischemic heart disease and stroke, were among the top ten causes of mortality[8].

Ethiopia's progress is by no means even across geographic areas and population. For instance, in 2016, U5MR ranges from 39 in Addis Ababa to 125 in Afar (EDHS). The 2019 mini-EDHS shows that coverage of RMNCH services is consistently lower in rural areas and smaller regions compared to urban areas and bigger regions, with the widest urban-rural disparity being in health facility delivery. The use of modern family planning methods also varies significantly across regions; with contraceptive prevalence rate (CPR) from 3.4% in Somali to 49.5% in Amhara region. Routine child immunization coverage varies from 18.2% in Somali region to 73% in Tigray and 83% in Addis Ababa.

There is also disparity in healthcare access and utilization by place of residence, level of education and wealth quantile. In some areas, there is significant inequality in health resources and intervention outcomes. Socio-economic, geographic and demographic heterogeneity are major determinants of health seeking behaviour, service utilization patterns and intervention outcomes (FMOH, 2015). Additional sources of geographic disparity in health are related to differences in human resource, programme management and leadership capacity across geographic settings. More experienced and qualified health workers tend to concentrate in urban areas. While, rural facilities face the challenges of frequent staff turnover and limited skill mix.

In Ethiopia, in 2018/19, the national average outpatient department (OPD) visit per capita per year was only 0.9, though up by 21% from the previous year[9]. Regional OPD visit ranges from two in Tigray to 0.2 in the Somali region; and the performance in Afar, Benshangul-Gumuz, Gambella, Oromia, and Somali regions is below the national average for the year (***Figure 4***).

[8] Source: Institute for Health Metrics and Evaluation (IHME).
[9] The WHO recommends 2.5 visit per capita and year.

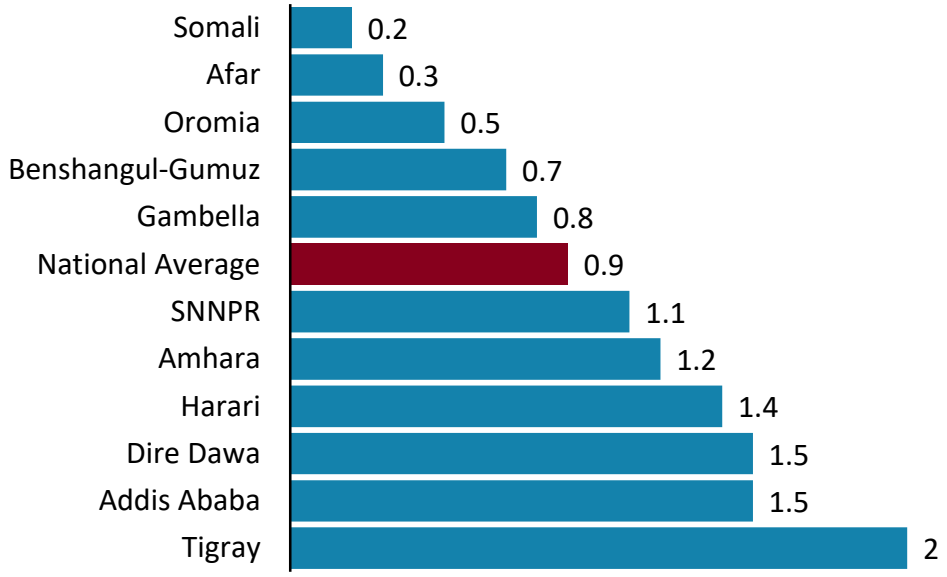


Figure 4. National and Regional OPD visit per capita and year, 2010 EC.

Similarly, the national average admission rate is 13 per 1,000 population, with the highest (108) in Harari and the lowest in Afar (8) regions. Admission rates reflect the interaction between demand for and supply of inpatient care, and is affected by barriers, such as physical (distance), socio-economic (e.g. patient cost), health seeking behaviour and quality of care.

Ethiopia is vulnerable to natural and human-made socio-economic shocks that impact households, communities, social services and systems. In 2020, for the health sector specifically, 5.9 million people are estimated to have humanitarian needs. Among these, Internally Displaced People (IDP) are more vulnerable and require comprehensive health services for pre-existing and new conditions, physical and mental trauma, and sexual and gender-based violence. Besides, conflict and large population movement put additional demand on local health workers, systems, and essential supplies. Lessons from earlier implementation is that integrating TB services in an emergency response is a need, feasible and appropriate.

2.4.2 Health sector policy and strategies

A. National health sector policy and strategic plan

Ethiopia's health sector policy prioritizes health promotion and disease prevention, and delivery of packages of essential health services using a primary health approach. The national Essential Health Service Package (EHSP) provides guidance on priority areas to achieving the goals of UHC. The health policy is implemented through a series of five years health sector transformation plan (HSTP). The first HSTP has been implemented from 2016-2020; and the country is currently in the final stage of developing the second HSTP (HSTP II).

B. Health governance

In Ethiopia, health service delivery is governed by the Federal Ministry of Health (FMOH) and regional health bureaus (RHBs). The governance structure follows the political administrative structure and extends to woreda level. It includes administrative decentralization to RHBs and woreda health offices and comprises of consultation forums and joint decision-making processes. RHBs are autonomous and accountable to their respective regional council. The FMOH is mandated to formulate national policies, strategies and standards in consultation with RHBs. The governance consists of an institutional framework that coordinates various levels and provides stewardship in health sector programs and initiatives.

Autonomous agencies report to the ministry of health and are mandated for specific technical tasks. These are the Ethiopian Food and Drug Authority (EFDA) for health regulation; Ethiopian Pharmaceuticals Supply Agency (EPSA) for pharmaceuticals procurement and distribution; the Ethiopian Public Health Institute (EPHI) for public health preparedness and responses and laboratory services; and Ethiopian Health Insurance Agency (EHIA) for health insurance. Some of the agencies have their structures extending to regions. The Federal Vital Event Registration Agency (VERA) is responsible for birth and death registration. Regulating, licensing and re-licensing healthcare services and health professionals are mandated to the ministry of health.

The NTLP is under the Disease Prevention and Control Directorate (DPCD) of the FMOH, with similar structure at RHBs with focal persons down to woreda health offices. The End TB Strategy recommends a multi-sectoral accountability framework (MAF) for collaboration and accountability beyond the health sector, involving Government and non-governmental stakeholders within the SDG framework.

C. Human resources for health

Within the last two decades, Ethiopia has significantly accelerated development of human resources for health (HRH). The country has increased both the number of health workers and its own training capacities. However, when ranked globally, Ethiopia is one of the countries with a critical shortage of HRH. By 2019, the country had only 0.95 healthcare workers (nurses, physicians and mid-wives) per 1,000 population, against the target of 2.3/1,000 population.

Ethiopia has major HRH challenges including shortages, urban/rural and regional disparities, poor motivation, retention, and less optimal performance (HSTP I, 2018 external review report). The shortage of laboratory professionals, particularly in rural health facilities, is a challenge. Furthermore, the number of radiologists is small (

Table 1).

Staffed by one or two HEWs, health posts are the lowest level community service delivery points, and are generally tasked with health promotion, preventive, and limited curative services in priority public health areas. The health development army (HDA) are volunteers, predominantly women from the community, who assist HEWs in community adoption of promotive health interventions in their village. Stationed at the community level, HEWs are involved in the TBL programme: refer those with presumptive TB, support treatment adherence, trace lost to follow ups (LTFU), and conduct social mobilization, community education, and contact investigation.

Table 1. Numbers and categories of health workers, 2019[10].

Selected category of health workforce	Number
Physicians	10,194
Nurses	59,469
Midwives	16,087
Pharmacy professionals	10,626
Medical laboratory professionals	9,468
Health Officers	10,953
Health Extension workers	37,255
Biomedical Engineers	1157
Radiologists	878
Public health professionals	3,000

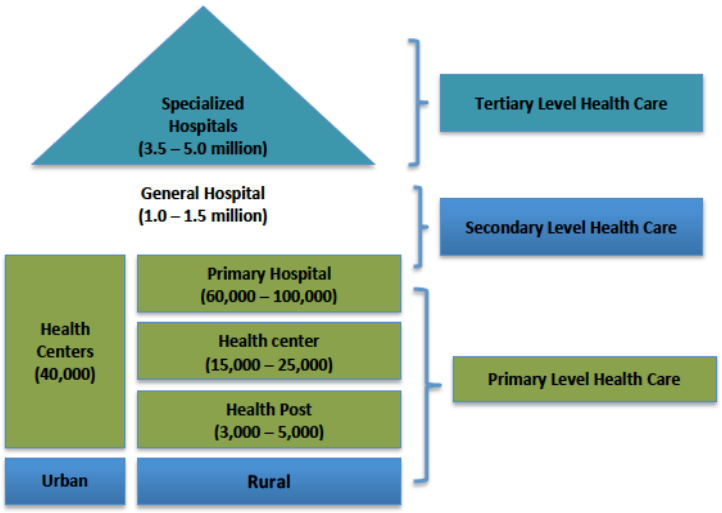
For the national TB programme, shortage of laboratory and radiology professionals is a challenge, particularly in rural primary facilities. The country has experience of successfully shifting some tasks (slide fixing) from laboratory professionals to both nurses and HEWs. However, increasing the number of laboratory professionals is a more sustainable strategy with long-term positive impact.

D. Health service delivery system

[10] FMOH. 2019. National health workforce update: Human Resource Development Directorate Bulletin, 2nd Edition, January 2019.

Managing around 73% of health facilities in the country, the public sector is the major health service provider in Ethiopia. Private providers, both private not for profit and private for profit, manage the remaining 27% of the facilities. The public health service delivery system is organized in three tiers: Primary, Secondary, and Tertiary levels (***Figure 5***). The primary care unit, the smallest in the health system, comprises five satellite health posts, a health centre and primary hospital in rural areas; and a health centre in urban settings. A primary hospital, with 25-50 admission beds, provides inpatient and ambulatory care to around 100,000 population.

Figure 5. Ethiopia's public health service delivery system



General hospitals serve as referral centre for primary hospitals (rural areas) and health centres (in urban settings) and is expected to serve around 1.5 million people. Some general hospitals are also training centres for health officers and nurses. A specialized tertiary referral and teaching hospitals have a catchment population of 3-5 million.

The public healthcare referral system can be vertical, horizontal or diagonal. The vertical system follows the hierarchical arrangement of facilities, from lower to the next higher level. Referrals can also be horizontal between similar levels, which is often driven by patient preference factors, such as cost, location, and other conveniences. Referrals can also happen from lower level directly to specialized health facilities, without necessarily passing through the hierarchical system. Ethiopia's guidelines for patient referral instructs referrals across public, private, community, traditional and alternative practitioners, and from other social service providers. The national mid-term review of HSTP I highlights the challenges of limited patient referral coordination at various levels and suboptimal public-private partnership across health facilities.

There are more than 12,000 private healthcare settings that include primary, medium, and specialty clinics and centres; hospitals, laboratories, and drug outlets across all levels of the healthcare delivery system. Private providers are involved in outpatient, inpatient, laboratory and imaging services, and pharmacies and reach significant population size. Private facilities are involved in ranges of TB services depending on the type and capacity of individual facility.

Private- for-profit healthcare facilities tend to concentrate in urban areas. There are few facilities managed by private not for profit, predominantly faith-based, entities in the country.

E. Regulatory system

EFDA is the regulatory body responsible to ensure quality, safety and efficacy of pharmaceuticals and medical equipment. EFDA is also the national centre for pharmacovigilance/active drug safety monitoring (PV/aDSM). Strengthening the regulatory system is one of the main strategic objectives of the HSTP, which includes pharmacovigilance and post marketing surveillance. The national TB programme implements aDSM for DR-TB medicines in collaboration with EFDA. Inadequate human resource capacity at EFDA, and challenges related to regular communication of reported events; effective management of database with regular analysis and information dissemination; and national coordination.

F. Laboratory service delivery system

EPHI is the lead agency of the MOH to ensure availability of quality-assured laboratory services in Ethiopia. The health system relies on a tiered network of laboratories that include national and regional referral and hospital/health centre laboratories with an increasing degree of specialized testing capacity towards the apex (**Error! Reference source not found.**). This variation in testing capacity across different tiers necessitates reliable specimen referral linkage within the network in order to ensure access. Additionally, there are arrangements for inter-laboratory backup testing support to mitigate potential service interruption due to operational issues, such as equipment failure, human resource and supply shortages. One national and nine regional laboratories serve as referral and backup testing sites, supporting facility laboratories.

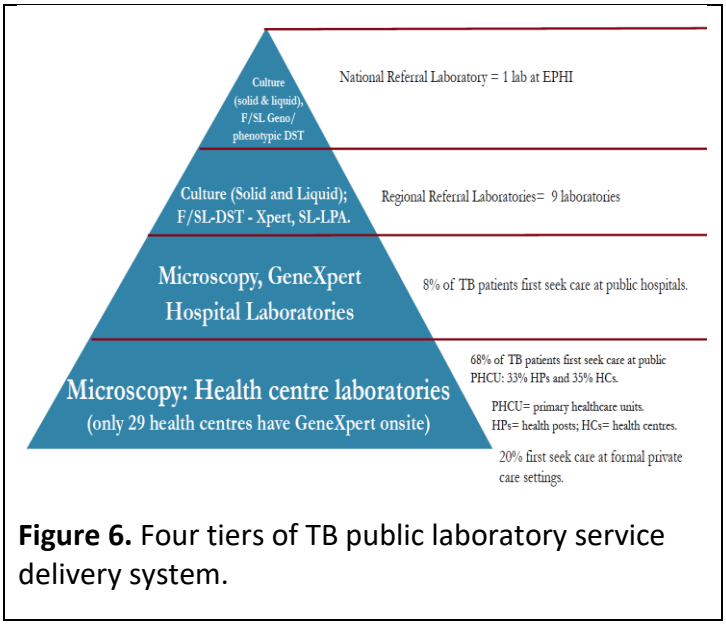


Figure 6. Four tiers of TB public laboratory service delivery system.

In Ethiopia, around 80% of public health facilities have TB microscopy services, while this is much lower in private care settings. Three hundred and fourteen GeneXpert MTB/RIF machines are installed at 285 sites, including at national and regional referral laboratories (***Figure 7***). Most GeneXpert machines are in public hospitals (92%), which also provide testing

services to networked health facilities, including some PPM-TB sites, through system of postal-service based TB/HIV integrated sample referral and result delivery.

The TB/HIV integrated postal-based sample referral network is key to access TB laboratory services for most health facilities, including private providers, in Ethiopia. It potentially connects 3,843 health facilities (out of which 85% of health facilities already provide TB services) with laboratories that have capacity for an onsite GeneXpert test (i.e. Labs in other health facilities, and regional and national referral laboratories). Thirty percent of networked facilities (all are high volume ART and TB diagnosis sites) have twice weekly scheduled visits for specimen collection and result delivery. Whereas, the remaining (70%) have phone call-based sample pickups. Linking rural health facilities in woredas beyond the reach of the postal system is a challenge.

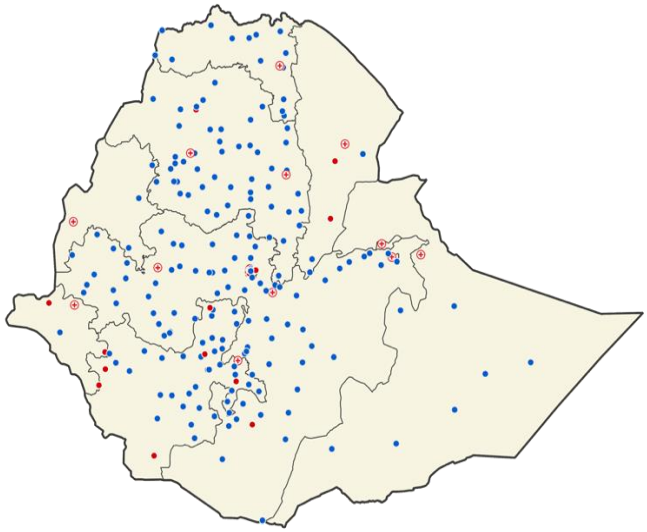


Figure 7. National distribution of GeneXpert machines, 2019[11].

KEY: Blue dots = Hospitals; Red dots = health centres; Red dot with cross = regional referral labs.

A recent national TB service quality assessment of 185 health facilities that are already providing TB treatment, indicates only 19% of surveyed facilities has GeneXpert machine onsite, while 65% are potentially connected through specimen referral and the remining (16%) don't have access to GeneXpert tests at all. Only three private-for-profit hospitals, in Addis Ababa (2) and Bahirdar, have GeneXpert machine in their facility. Two of the private hospitals received it through PPM-TB initiative of the United States Agency for International Development/Private Health Sector Programme (USAID/ PHSP), while one hospital got it through private initiative. An additional three private-not-for profit hospitals have GeneXpert machines in their facility. One hundred and nineteen GeneXpert machines are used for Early Infant Diagnosis (EID) and viral load testing, in additional to for TB.

[11] Dots represent location of GeneXpert machines in the country, both at hospitals and health centres.

Ninety two percent of the GeneXpert machines are connected using GxAlert software platform, which is accessible through password protected login, though internet connectivity is not always optimal. GeneXpert test, solid and liquid culture, and Second line-line probe assay (SL-LPA) tests are available at nine regional and one national referral laboratories. The national referral laboratory at EPHI, additionally, has capacity for molecular and phenotypic DST. The national referral laboratory is linked with the Milan based supranational TB laboratory.

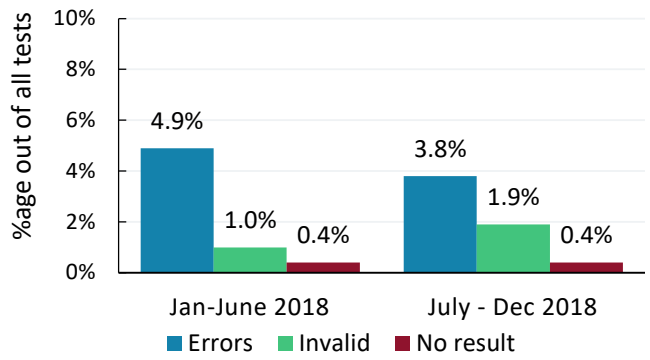


Figure 8. Proportion of unsuccessful GeneXpert test results, 2018.

In 2018, a total of 252,751 GeneXpert tests were done, 10.6% were positive for MTB out of which 3.5% of the tests were RR/MTB positive. During the same period, 43% of all forms of TB notified to the national programme (i.e. 62% of all notified with PTB) are bacteriologically confirmed; up from 36% in 2016. Around 2.1% of GeneXpert tests were reported unsuccessful in 2018 (**Error! Reference source not found.**).

G. Pharmaceuticals supply management system

EPSA is a government entity, which is mandated to establish system of pharmaceuticals procurement and distribution; storage management; essential pharmaceuticals supply of quality, safety, and efficacy; and delivery of pharmaceuticals to health facilities via transport network. Likewise, the mandate of EPSA includes procurement and distribution of pharmaceuticals, medical supplies, laboratory reagents, and equipment. The agency uses an Integrated Pharmaceuticals Logistic System (IPLS) that connects thousands of service delivery points to a central warehouse through its nineteen branches, grouped into seven clusters (or hubs), across the country (Annex 18.3, ***Figure 59***). The head office, in Addis Ababa, coordinates the hubs, which are outposts to distribute pharmaceuticals, chemical reagents, medical supplies and equipment. The hubs also receive requests for pharmaceuticals within their catchment area and communicate with the head office that produces nationally aggregated demand. Ethiopia follows pooled procurement approach at national level.

H. Health information system

Information generation and use is one of the transformation agendas of the health sector in Ethiopia. The country has fully transitioned to DHIS2 system. The TBL routine recording and reporting system is a hybrid of paper (facility patient record) and electronic system. The MOH implemented the Electronic Health Management Information System (eHMIS), since 2010, with the objective of capturing, processing and presenting health data on national core indicators to monitor provision of health services and population health. A more specific description of the TBL programme M&E is available in section 12, under strategic information and research.

I. Health financing

Ethiopia's per capita spending on health shows an annual average increment of 5.3%, from US$28.5 in 2013/14 to US$33.2 in 2016/17. The main sources of health sector financing in Ethiopia are government budget, international assistance, and out of pocket payments (OOP). The contribution of pooled funding, such as, insurance is still small, albeit increasing, in the country. The most recent, seventh-round, national health account (NHA, 2016/17) of Ethiopia indicates total health expenditure (THE) of US$3.1billion, which accounted for 4.2% of the country's GDP. Though increasing, this is lower than the expected average of 5% for low-income countries, and well below the global average of 9.2% (WHO, Global Health Expenditure Data Base, 2016). Ethiopia's health spending is still far below the US$86 per capita that is generally estimated to be required to make essential health services available in low-income countries (***Figure 9***).

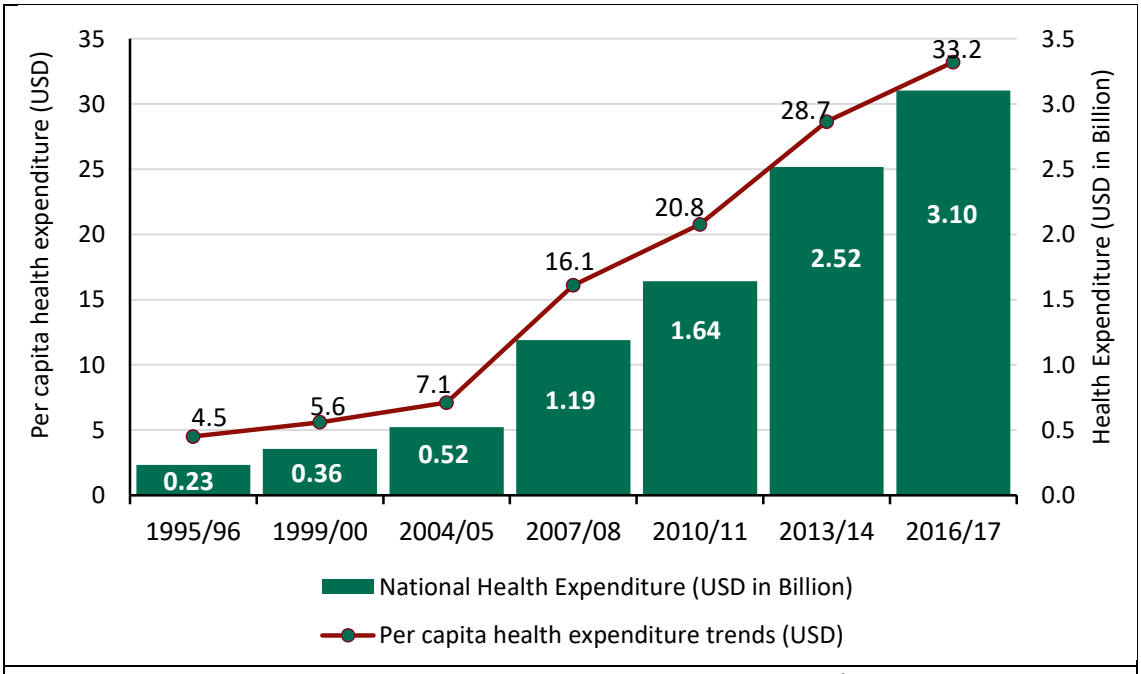
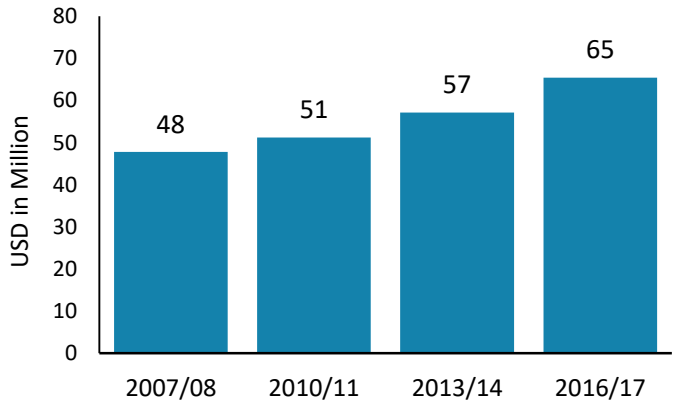


Figure 9. The total and per capita health expenditure trend, US$, 1995/96-2016/17.

The NHA reports from Ethiopia shows progressive increase in TB expenditure from 2007/8 to 2016/17 (***Figure 10***). In 2016/17 the total TB expenditure was US$65 million, comprising contributions by the rest of the world or external funding (44.7%), households (43.7%) and Government (11.7%).

In Ethiopia, households contribute significant amount of money in accessing health services. High out of pocket payment (OOP) for TB health services creates household financial hardship. Small studies, though may not be nationally representative, indicate high proportion of households face catastrophic TB costs.[12 , 13]

Figure 10. Trend in TB health sector spending, 2007/08 to 2016/17.



scale

[12] Assebe LF, Negussie EK, Jbaily A et al. Financial burden of HIV and TB among patients in Ethiopia: a cross- sectional survey. BMJ Open 2020;10:e036892. doi:10.1136/ bmjopen-2020-036892.

[13] Abyot Asres, Degu Jerene and Wakgari Deressa. Pre- and post-diagnosis costs of tuberculosis to patients on Directly Observed Treatment Short course in districts of southwestern Ethiopia: a longitudinal study. Journal of Health, Population and Nutrition (2018) 37:15 https://doi.org/10.1186/s41043-018-0146-0.

SECTION TWO: TB AND LEPROSY EPIDEMIOLOGY IN ETHIOPIA

1. TUBERCULOSIS EPIDEMIOLOGY AND BURDEN

Globally, Ethiopia is among the 30 high TB, TB/Human Immunodeficiency Virus (TB/HIV) and Multi-Drug Resistant TB (MDR-TB) burden countries, with an estimated 165,000 persons (151/100,000 population) with all forms of TB; 1600 MDR-TB incident cases; and 24,000 (22/100,000 population) TB deaths in 2018. During the same period, HIV positive TB incidence was estimated to be 7 per 100,000 population (WHO, 2019). In all scenarios (i.e. TB, TB/HIV, and MDR-TB), finding the missing persons with TB is the highest programmatic gap in ending the TB epidemic in the country.

1.1 Drug Susceptible TB

TB is a major public health burden in Ethiopia, despite significant progress within the last decades. TB Incidence has declined with annual average of 8-9%, from 421 per 100,000 in 2000 to 151 per 100,000 population in 2018 (***Figure 11***).

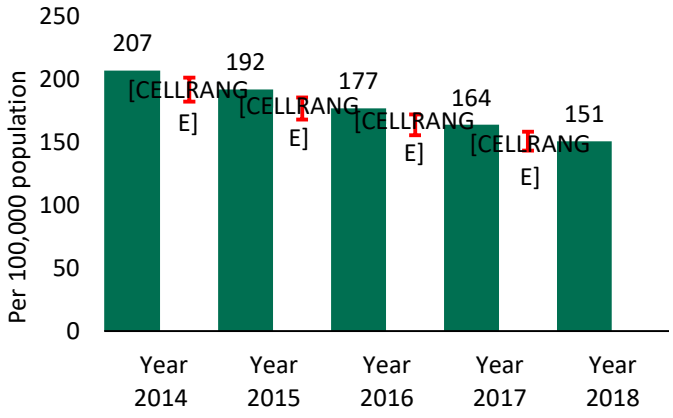


Figure 11. Trend in TB incidence estimate, 2014-2018.

The 2010-11 national population-based prevalence survey in Ethiopia indicates smear positive pulmonary TB (PTB) prevalence of 108 (95% CI 73-143) and bacteriologically confirmed TB of 277 per 100,000 population (95% CI 208-347) among adults. Extrapolating for all age groups, the estimated TB prevalence during survey period was 240 per 100,000 population. The same survey shows geographic variation in TB burden with higher prevalence among pastoralist communities and lowest in Addis Ababa and Dire Dawa city administrations.[14] Other small-scale studies in the country show highly variable TB burden, ranging between 80-174 and 76-259 per 100,000 population, smear and culture positive PTB, respectively.

[14] AH. Kebede et al. The first population-based national tuberculosis prevalence survey in Ethiopia, 2010-2011. INT J TUBERC LUNG DIS 18(6):635–639. http://dx.doi.org/10.5588/ijtld.13.0417.

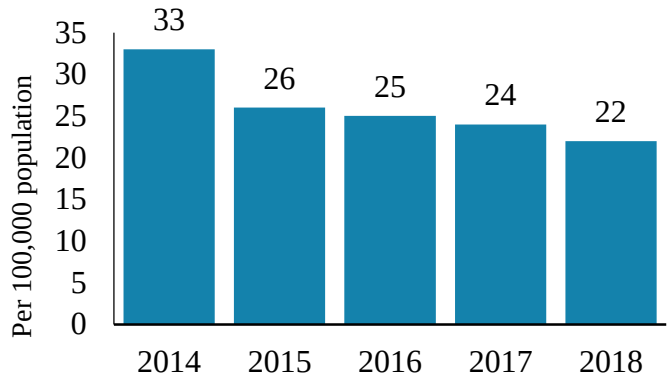


Figure 12. Trend in estimated TB mortality.

Ethiopia has also experienced a decline in TB mortality in the last decades, though in slower trend compared to the incidence decline (***Figure 12***).[15] In 2018, an estimated 24,000 (15-36) persons have lost their lives to TB (22 per 100,000 population (14-33)).

The case notification rate has also been declining by 3-8% annually, along with the decrease in TB incidence (***Figure 13***). In 2018, nationally, 114,233 persons with all forms of TB were notified to the national programme, which indicates an estimated TB treatment coverage of 69%.

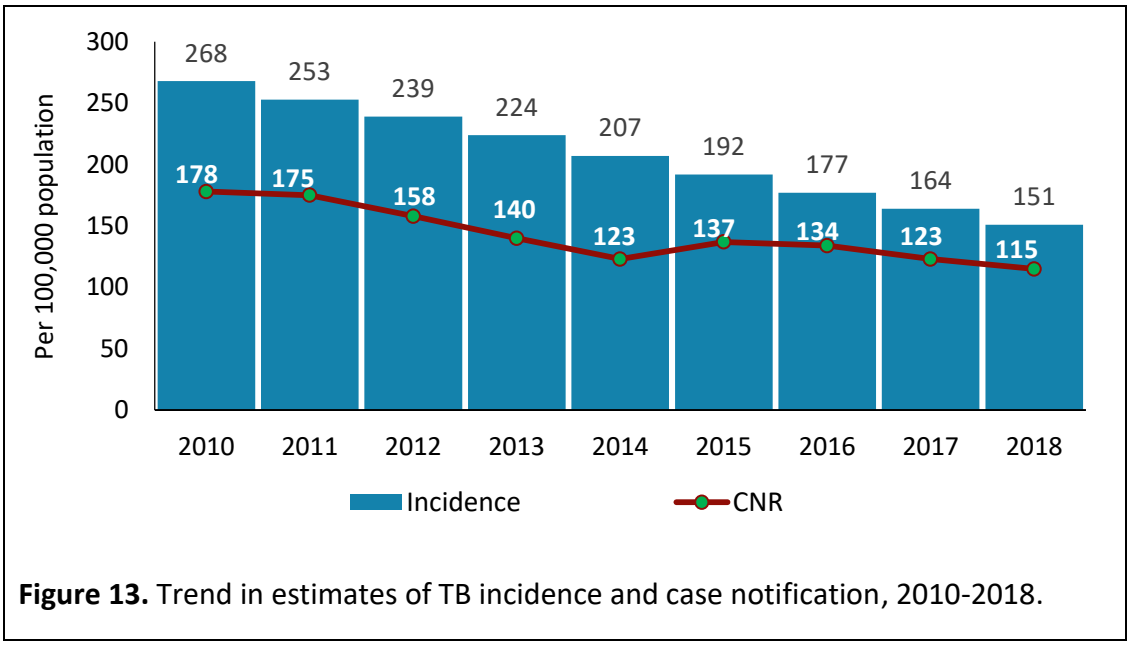


Figure 13. Trend in estimates of TB incidence and case notification, 2010-2018.

[15] TB mortality is estimated based on incidence and case fatality rates, as Ethiopia is yet to scale up vital registration system that better estimates causes of death.

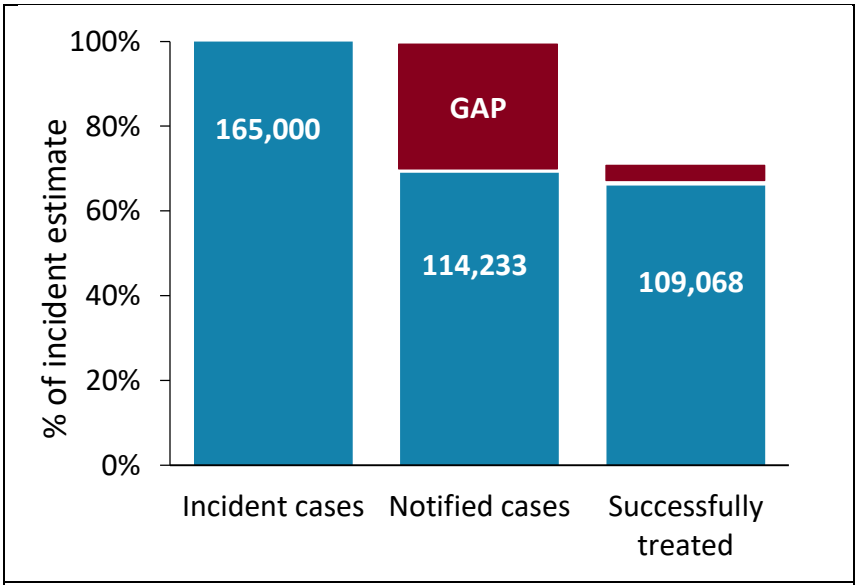


Figure 14. Treatment cascade for all forms TB, 2018 cohort.

The TB treatment cascade indicates gap between the estimated and notified persons with TB that represents the estimated missing persons with TB in the country (***Figure 14***). Likewise, a systematic review and meta-analysis of studies from Ethiopia indicate high smear positive PTB in the community.[16] If not diagnosed and treated, these persons can die or be chronically ill; with continued transmission in the community that would sustain the TB epidemic.

In 2018, the national treatment success rate (TSR) among all forms of TB was 96%; while it is 95% among bacteriologically confirmed PTB cohorts (ARM, 2019). Similarly, a meta-analysis of

[16] Balew Arega, Kelemu Tilahun, Abraham Minda et al. Prevalence rate of undiagnosed tuberculosis in the community in Ethiopia from 2001 to 2014: systematic review and meta-analysis. Archives of Public Health (2019) 77:33 https://doi.org/10.1186/s13690-019-0360-2

studies from Ethiopia shows progressive increase on proportion of those who are successfully treated; up from 71% (2005 -2010) to 89% (2016-2017)[17].

1.2 Drug Resistant TB

Globally, Ethiopia is among the high MDR-TB burden countries with more than 1,600 estimated incident cases in 2018. The WHO estimates that 0.71% of newly notified and 16% of previously treated persons with TB have RR-/MDR-TB; with an estimated incidence of 1.4 per 100,000 population. Since 2005, Ethiopia has carried out three national Drug Resistance Surveys (DRS). The most recent one, completed in 2019, indicates a dramatic decline of DR-TB incidence in the country (***Figure 15***).

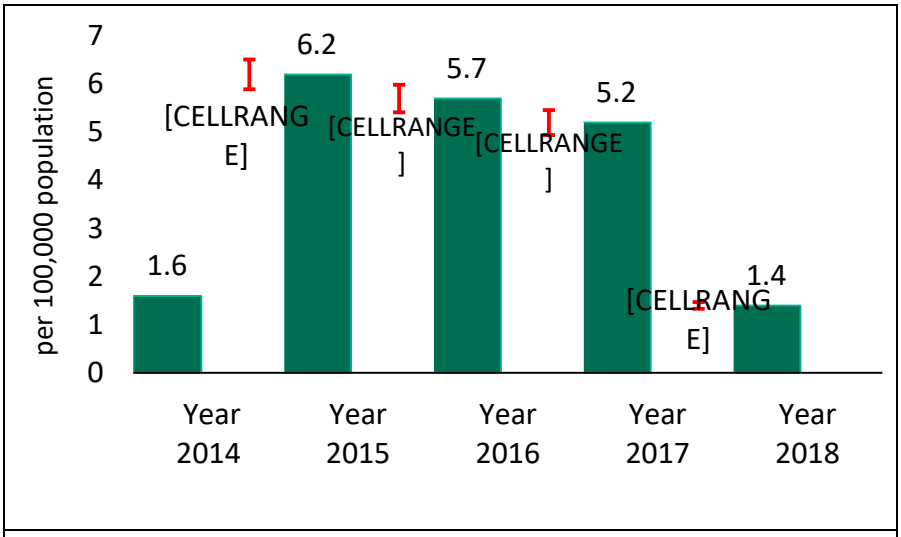


Figure 15. Trend in estimates of incidence of MDR-TB, 2014-2018.

Ethiopia started implementing programmatic management of DR-TB (PMDT) in 2009 in a hospital in Addis Ababa. Within successive years, treatment has expanded to 64 hospitals across the country, with predominantly decentralized ambulatory model of care.

[17] Seid MA, Ayalew MB, Muche EA, et al. Drug susceptible tuberculosis treatment success and associated factors in Ethiopia from 2005 to 2017: a systematic review and meta-analysis. BMJ Open 2018;8:e022111. doi:10.1136/ bmjopen-2018-022111.

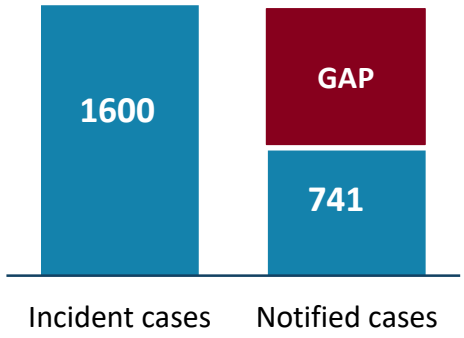


Figure 16. RR/MDR-TB treatment cascade, 2018.

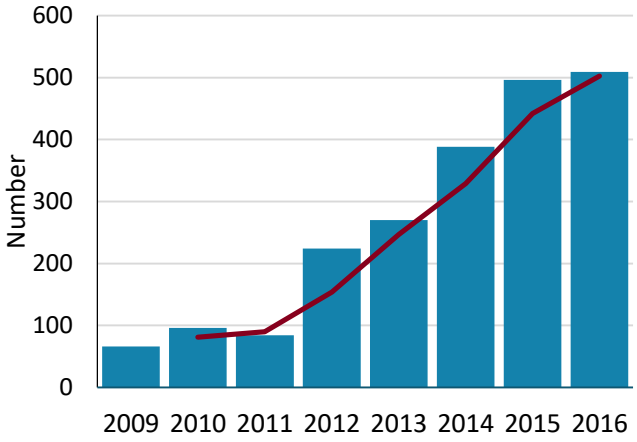


Figure 17. Number of persons with DR-TB successfully treated, 2009-2016.

In 2018, the national programme has enrolled 741 persons on DR-TB treatment (46% of estimated incident cases for the same period; ***Figure 16***). Close to 22% of them are also living with HIV, which is more than 4 times higher than the HIV coinfection rate among those with drug-susceptible TB (DS-TB). Ninety-eight percent of them have bacteriologically confirmed pulmonary (PTB) and/or Extra Pulmonary TB (EPTB) and 58% have history of anti-TB medicine exposure in the past. Children younger than 15 years of age constitute around one percent. Around six percent have resistance to Fluoroquinolones (FQs); 2.2% to second line injectables (SLIs); and 0.4% for both FQs and SLI.

Ethiopia is among the five high MDR-TB burden countries, globally, with high (72%) successful treatment outcome among persons with RR-/MDR-TB (***Figure 17***; ***Figure 18***). However, death rate is also unacceptably high, and seems to be consistent across time and unrelated to service expansion and decentralization (***Figure 19***). Generally, death and loss to follow ups tend to concentrate in the first six months after treatment initiation, both of which might be attributed to delayed treatment initiation and/or early drug adverse events[18].

[18] Ethiopia doesn't yet routinely register death, hence, difficult to ascertain outcomes among persons who are lost to follow up (LTFU). Some studies and anecdotal experience shows that LTFU may include death at home. However, here are those who died in health facilities and ascertained deaths.

Figure 18. Trend in RR/MDR-TB treatment success rate, 2014 -2018.

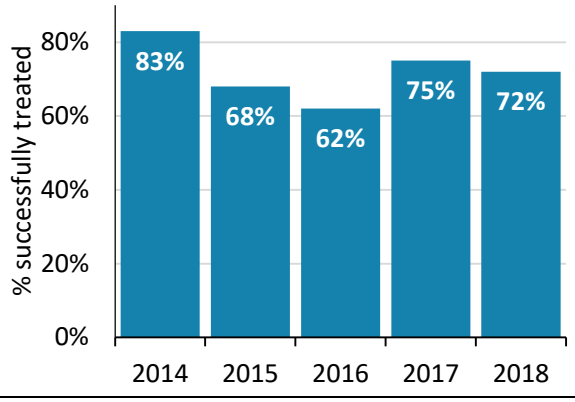
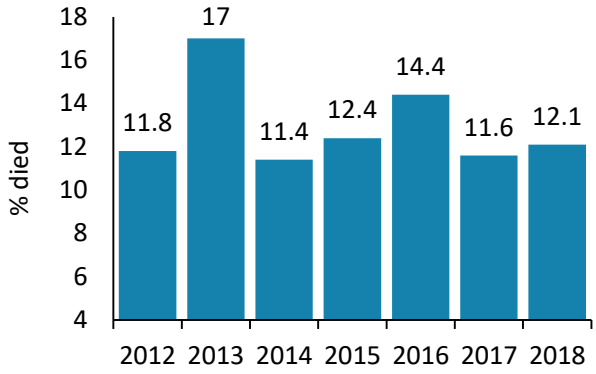


Figure 19. Trend in RR-/DR-TB deaths among all enrolled in SL treatment, 2012-2018.



The high TB/HIV coinfection rate and undernutrition among RR-/MDR-TB patients highlight the need for quality co-management of comorbidities, drug-drug interactions, and adverse drug reactions. This has been supported through healthcare providers training, clinical mentoring and technical backstops of national and regional panel of experts in managing patients with more complex clinical conditions. Additionally, regular death and clinical audit is planned as part of quality improvement initiatives.

From 2009 - 2018, around 155 children younger than 15 years of age are enrolled on second-line treatment in Ethiopia, which constitutes 4.5% of all nationally notified persons with RR-/MDR-TB during the same period. With mean age of 9.2 years, the majority of these children (83%) are above 5 years of age (ranges from three months to 14 years). The overall TSR among these children is 81%, which is higher than in adults [19]. Unfavourable RR-/MDR-TB treatment outcome among this group is closely correlated with age younger than five years, HIV coinfection and presence of anaemia[20].

Ethiopia implements adverse drug safety monitoring (aDSM) with national reporting. From 2016-2019, the national programme has received 131 incidents of adverse drug reactions (ADRs), out of which 32% (42) were serious (SAEs) that includes nine deaths. The remaining (68%) were adverse events of special interest and other adverse events (AEs). Most SAEs (28.6%) were related to SLIs; followed by Linezolid (21.4%); bedaquiline (Bdq) and Delamanid (Dlm) (7.1%); and Cycloserine (Cs) (2.4%).

[19] Aggregated average of all cases from different cohorts.

[20] Tola HH, Holakouie-Naieni K, Mansournia MA, Yaseri M, et al. (2020). Low enrolment and high treatment success in children with drug-resistant tuberculosis in Ethiopia: A ten-year national retrospective cohort study. PLoS ONE 15(2): e0229284. https://doi.org/10.1371/journal.pone.0229284

1.3 TB/HIV

In Ethiopia, the national HIV prevalence among the general population is 0.88% with wide regional variations from 4.35% in Gambella and 3.26% in Addis Ababa to SNNP at 0.42% and Somali region at 0.15%. In 2020, the national HIV incidence in the general adult population is estimated at 0.13 (0.16 in females and 0.11 in males) per thousand population with an estimated 13,000 (8,000 females and 5,000 males) new HIV infections. Sixty seven percent of new infections occur in the age group younger than 30 years of age, with significant variation in HIV burden across population. Women 15-49 years constitute 62% of all HIV infections with a prevalence rate twice higher than men of the same age group. The urban HIV prevalence (2.9%) is seven times higher than rural settings (0.4%). By January 2020, of the 79% of the estimated PLHIV who know their HIV status, 89% were on ART and 91% are virally supressed. The ART coverage among children <14 years, however, is considerably lower; 26% for children 0-4 years, 46% for those aged 5-10 years and 58% for those 10-14 years old.

In 2018, the HIV coinfection rate among nationally notified and tested all forms of TB is 5% with declining trend (***Figure 20***). During the same year, 92% of nationally notified persons with TB knew their HIV status. WHO estimates that 7600 persons to be TB/HIV coinfected in Ethiopia. Of which, 4816 (63%) were notified to the national programme, and 4393 initiated ART (91% and 58% of those notified and estimated with TB/HIV coinfection, respectively;

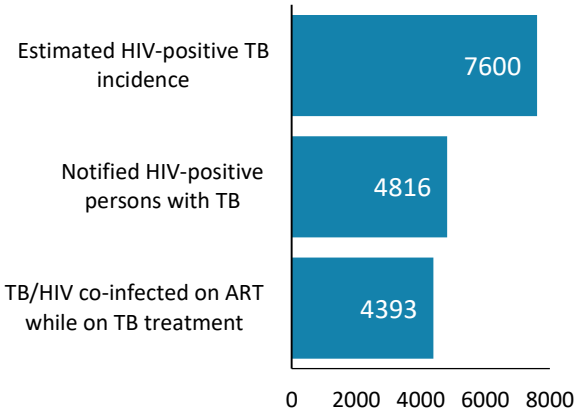


Figure 21). There is regional variation in HIV positivity among notified persons with TB, which mirrors geographic differences in HIV burden. The national system does not routinely report continuation of ART after TB treatment completion.

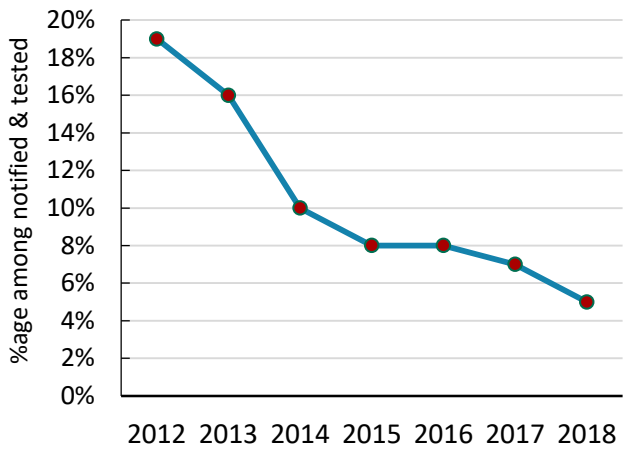


Figure 20. Proportion HIV co-infection among nationally notified TB cases, 2014-2018.

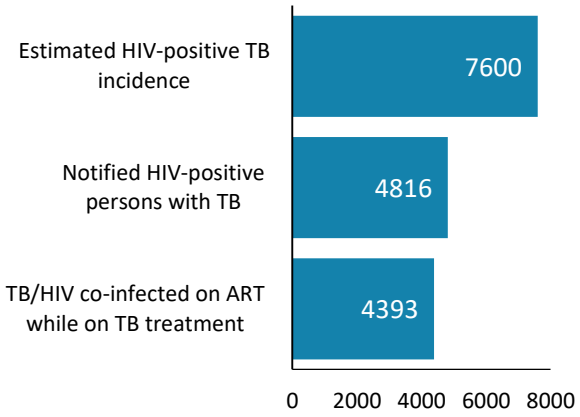
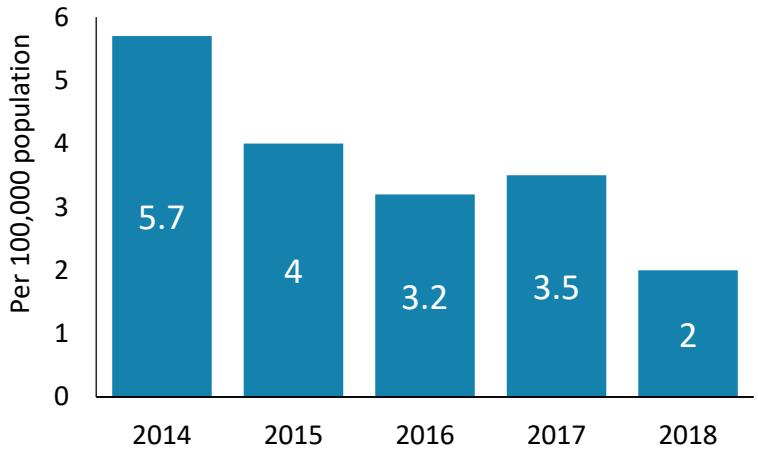


Figure 21. Estimated TB/HIV co-infection incident, notified, co-treated cases, 2018.

HIV associated TB mortality, as well as coinfection rate, have significantly declined in Ethiopia in the last decades (***Figure 20***; ***Figure 22***). This is attributed to the decline in HIV infection among the general population, as well as, to the increased ART coverage and universal ART (test and treat) policy of the country.

Figure 22. Trend in estimates of HIV associated TB mortality.



1.4 Tuberculosis and other comorbidities and risks

Several health and socio-economic conditions influence TB epidemiology and treatment outcomes. The national programme needs collaborative activities to synergize core interventions for prevention and management of both TB and comorbid condition. Table 2, below, summarises some risk factors and the corresponding estimated number of people with TB in 2018 (***Table 2***). In all categories, a very wide confidence interval indicates high degree of uncertainty. Better estimate of TB risks and population size are highly desired for improved planning and targeting.

Table 2. Five top risk factors and estimated TB cases in 2018[21].

Risk factor	Estimated number of TB cases [95% CI]
Undernutrition	53,000 (37,000-71,000)
Harmful use of alcohol	8,300 (29-38,000)
HIV	7,600 (3,000-12,000)
Diabetes	4,100 (240-13,000)
Smoking	3,800 (0-21,000)

1.4.1 Nutrition

Poverty related undernutrition, fuelled by household food insecurity, is among the main attributing factors for TB in Ethiopia. Prevalence of stunting and undernutrition among under-five children is high, with significant variation across settings. Between 2005 and 2019, the prevalence of stunting declined from 51% to 37%; underweight from 33% to 21%; and wasting from 12% to 7% (EDHS). A national assessment shows 36% of patients with DS-TB and 44% of those with DR-TB have acute severe malnutrition at the time of diagnosis. Another comparative cross-sectional study shows that 57% (95% CI: 54.80 - 59.54%) and 89% of TB patients are underweight and/or have anaemia, respectively, at time of TB diagnosis[22]. It is essential that nutrition is addressed through TB multi-sectoral accountability framework.

1.4.2 Diabetes Mellitus

People with uncontrolled Diabetes Mellitus (DM) have a 3-4 times increased risk of developing TB, as compared to the general population.[23] DM, additionally, delays smear conversion and is associated with increased mortality and relapse after successful completion of TB treatment. The WHO estimates, globally, around 15% of annual TB cases are related to DM. In 2015, the International Diabetes Foundation (IDF) estimated 2.9% of adults between 20-79 years of age,

[21] WHO. 2019. Global TB Report.

[22] Berhanu Elfu Feleke et al. Nutritional status of tuberculosis patients, a comparative cross-sectional study. BMC Pulmonary Medicine (2019)19:182. https://doi.org/10.1186/s12890-019-0953-0

[23] A.D Harries et al. Addressing diabetes mellitus as part of the strategy for ending TB. Trans of The Royal Society of Tropical Medicine and Hygiene, 2016;110 (3), 173–179.

1.3 million persons, in Ethiopia are living with DM. A study from Ethiopia indicates 8.3% and 8.5% prevalence of DM among TB patients in South East Amhara region and at the University of Gondar hospital, respectively[24,19]. The 2015 national STEP survey estimated a 5.9% prevalence rate of Diabetes among 15-69 years age group.[25]

1.4.3 Tobacco smoking

Smoking increases risks of developing TB by 2-3 folds and is associated with poor TB treatment outcome. The 2015 STEP survey in Ethiopia shows 4.2% (3.5- 4.9) of the adult population currently smokes tobacco. However, there is no specific data on smoking among persons with TB in the country, though global data indicate higher rates among this group compared to the general population.

1.4.4 Harmful use of alcohol and other substance use disorder

The relative risk for TB with alcohol use and alcohol use related problems is estimated to be 1.3 and 3.3, respectively. Studies show a rise in TB risk as alcohol consumption increases, and alcohol attributable incidence is increasing globally between 2000 and 2014[26]. Studies from Ethiopia have linked alcohol consumption to increased TB risk and non-adherence to treatment.[27,28] The national STEP survey of 2015 shows around 12% (12.4%; 11-13.7) of adults are engaged in heavy episodic drinking in Ethiopia.

1.4.5 Mental health

It has been estimated that up to 70% of TB patients experience mental health challenges; anxiety and depression being the most common.[29] Stigma, discrimination, isolation and lack of social support are reported as common stressors. Some anti-TB medicines, such as Cycloserine, and drug-drug interactions may also induce psychiatric adverse events. On the other hand, underlying psychiatric illnesses may negatively affect treatment adherence and continuity of

[24] N Abebe, et al. Diabetes in Ethiopia 2000-2016- prevalence and related acute and chronic complications; a systematic review. African Journal of Diabetes Mellitus 2017; 25(2): 7-12.

[25] EPHI, FMOH, WHO. 2016. Summary report on Ethiopia STEP survey on risk factors for chronic non-communicable diseases and prevalence of selected NCDs.

[26] Sameer Imtiaz et al. Alcohol consumption as a risk factor for tuberculosis: meta-analyses and burden of disease Eur Respir J 2017; 50:1700216

[27] Matiwos Soboka et al. Khat and alcohol use disorders predict poorer adherence to anti-tuberculosis medications in Southwest Ethiopia: A prospective cohort study. available at SSRN: https://ssrn.com/abstract=345551

[28] Alemu YM et al. Determinants for tuberculosis in HIV-infected adults in Northwest Ethiopia: a multicentre case-control study. BMJ Open 2016;6: e009058. doi:10.1136/ bmjopen-2015-009058.

[29] Ambaw et al. Burden and presentation of depression among newly diagnosed individuals with TB in primary care settings in Ethiopia. BMC Psychiatry (2017) 17:57.

care[30]. A cross-sectional study from Addis Abeba shows 68% of TB patients experience mild to severe psychological distress at 1-2 months (baseline) and 49% at six months of treatment initiation. The same study reported strong linkage of psychological distress with previous TB treatment history, HIV infection, tobacco smoking, unemployment, age above 35 years, and harmful use of alcohol. Persistence of symptoms of psychological distress after treatment initiation is linked with poor TB treatment outcomes[31].

1.4.6 Mining

Silicosis is much less frequent but a very strong risk factor for TB, and an important TB co-morbidity among miners. In Ethiopia, there are an estimated more than a million artisans in 40 woredas of five regions. The majority of traditional miners are young men and migrant workers. Only six percent of miners are formally organized (i.e. licensed); most are unlicensed and informally operating. A project-based screening, from 2016-2018, of persons engaged in mining indicates a very high TB notification per population (***Table 3***).

Table 3. TB screening among mining workers in Ethiopia, 2016-2018.

Year	Screened	TB diagnosed	TB CNR per 100,000 population
2016	1,304	31	2377
2017	19,965	314	1573
2018	35,487	463	1305
Total	**56,756**	**808**	**1424**

[30] Deribew A, Tesfaye M, Hailmichael Y, et al. Common mental disorders in TB/HIV co-infected patients in Ethiopia. BMC Infect Dis 2010; 10: 201. [PubMed: 20618942].

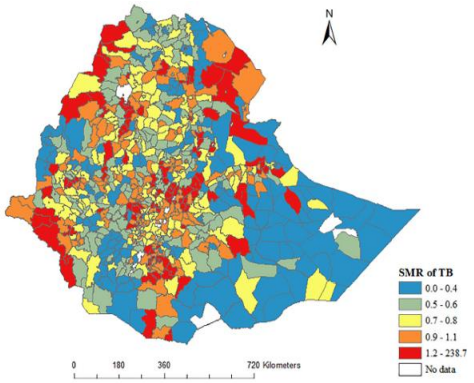
[31] Fentie Ambaw, Rosie Mayston, Charlotte Hanlon, Girmay Medhin and Atalay Alem. Untreated depression and tuberculosis treatment outcomes, quality of life and disability, Ethiopia. Bull World Health Organ 2018;96:243–255 doi: http://dx.doi.org/10.2471/BLT.17.192658

1.5 TB in geographic and population context

1.5.1 Variation in TB treatment coverage and outcome

In Ethiopia, there is significant geographic variation in TB treatment coverage and outcomes. A spatial epidemiological review in the country indicates clustering and geographic variation in TB notification (***Figure 23***)[32, 33]. The regional variation in treatment coverage ranges between as low as 40% in Benishangul Gumuz to more than 100% in Gambella, Harari, Dire Dawa and Addis Ababa (ARM, 2019; ***Figure 24***). Woreda based analysis of the national notification shows that urban health facilities tend to notify a greater number of persons with TB compared to rural areas, which could be related to accessibility,

Figure 23. Woreda distribution of notified all forms of TB to the NTLP, 2017.



[32] Alene KA, Clements ACA (2019) Spatial clustering of notified tuberculosis in Ethiopia: A nationwide study. PLoS ONE 14(8): e0221027. https://doi.org/10.1371/journal.pone.0221027

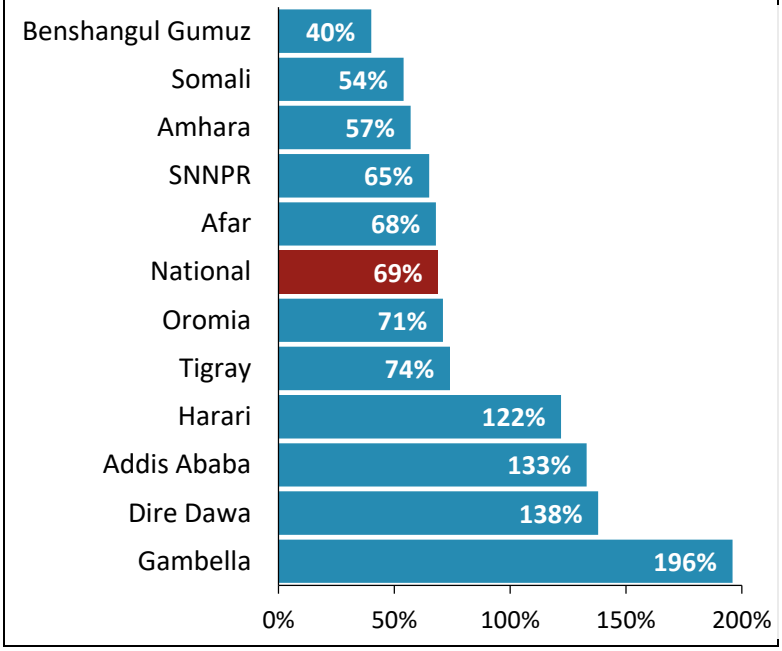
[33] Daniel G. Datiko et al. Sub-national prevalence survey of tuberculosis in rural communities of Ethiopia. BMC Public Health (2019)19:295 https://doi.org/10.1186/s12889-019-6620-9

patient convenience and general capacity of facilities.[34]

[34] Daniel Datiko, Ameha Hadgu, Degu Jerene and Pedro G. Suarez. High urban tuberculosis case notification rates can be misleading: evidence from an urban setting in Ethiopia. BMC Public Health (2020) 20:302. https://doi.org/10.1186/s12889-020-8290-z

The higher treatment coverage in some of the regions might not accurately reflect the local situation, particularly in urban settings. For instance, health facilities in Addis Ababa also serve the surrounding population from Oromia region; likewise, health facilities in Dire Dawa and Harari serve populations from neighbouring Oromia and Somali regions. Gambella region, on the other hand, experiences recurring influx of refugees that may have contributed to the "higher" treatment coverage.

Figure 24. TB treatment coverage by region, 2018[35].



[35] In Ethiopia, there is significant variation in regional population size from half a million to 25 million.

On the other hand, the TB treatment coverage in Amhara (57%), Benshangul Gumuz (40%), and Somali (54%) regions is consistently below the national average, which deserves a more in-depth review of districts with low or without reporting cases, particularly in Somali and Benshangul Gumuz regions in order to exclude possibility of underreporting.

There is inadequate sub-national epidemiologic data to accurately estimate TB burden at sub-national levels. The assumption that TB prevalence is 151 per 100,000 population across different geographic settings in the country might also have contributed to the treatment coverage variation across regions and woredas. The national reporting system doesn't disaggregate TB data by at risk population groups, including refugees; likewise, it is not a case-based reporting.

Some woredas in Afar, Gambella, and Somali regions have lower TB treatment success rate (TSR) compared to the national average (***Figure 25***[36]). Higher population mobility, due to pastoralist livelihood and cross-border movements may have contributed to lower TSR in these woredas. In depth analysis of eight-years (2008-2017) programme data from Gambella region shows higher unsuccessful TB treatment outcomes among refugees compared to host communities (AOR=2.17; 95% CI: 1.69-2.77).[37] Another four-years (2014-2017) data review shows that TSR among all forms of notified TB in refugee camps in Ethiopia is 73% - 79%, which is lower compared to the national average for the host country.[38] The higher HIV prevalence in Gambella region, compared to the national average (4.35%), may also have contributed to unfavourable TB treatment outcomes.

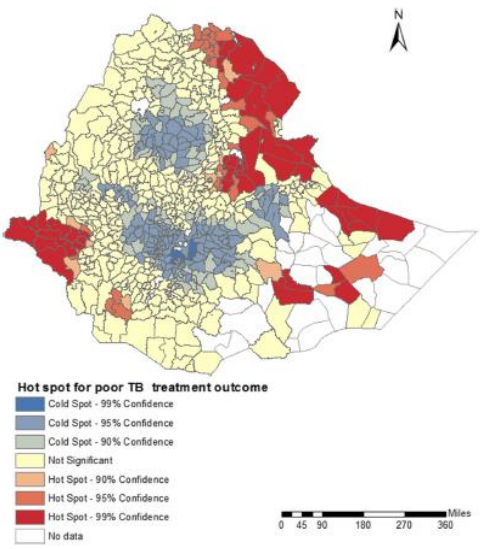


Figure 25. Treatment outcomes of all forms of TB by woreda, 2017.

On the other hand, focused review is necessary to further understand woredas with "no report/data" in Somali region.

1.5.2 Childhood TB

There is inadequate data to accurately estimate the burden of TB in children in Ethiopia. A study that reviewed TB patients who received care at health centres indicate that children constitute 13% of persons with TB, out of which 74% are diagnosed of smear negative PTB. This shows the challenges of detecting paediatric TB in those settings, though primary care facilities are the main entry point for most child health services. Another study that reviewed persons with TB lymphadenitis shows that 14% were children younger than 15 years of age.[39] From 2013-2019, children < 15 years of age with TB that are notified to the

[36] Kefyalew Addis Alene , Kerri Viney, Darren J. Gray et al. Mapping tuberculosis treatment outcomes in Ethiopia. BMC Infectious Diseases (2019) 19:474 https://doi.org/10.1186/s12879-019-4099-8

[37] Eyasu Ejeta, Getenet Beyene, Getu Balay, Zegeye Bonsa, et al. Factors associated with unsuccessful treatment outcome in tuberculosis patients among refugees and their surrounding communities in Gambella Regional State, Ethiopia. PLoS ONE. 2018. 13(10): e0205468. https://doi.org/10.1371/journal.pone.0205468.

[38] IGAD. 2019. Report on trends in tuberculosis case notification and treatment outcomes among refugee camps in Intergovernmental Authority on Development (IGAD) region: Four years retrospective analysis (2014-2017).

[39] José M. Ramos, Mario Pérez-Butragueño, Abraham Tesfamariam et al. Comparing tuberculosis in children aged under 5 versus 5 to 14 years old in a rural hospital in southern Ethiopia: an 18-year retrospective cross-sectional study. BMC Public Health (2019) 19:856. https://doi.org/10.1186/s12889-019-7206-2.

national programme are 106,651 (11.4% of all forms of TB notified during the same period; ***Figure 26***). Generally, the trend in the number of annually notified children with TB mirrors the size of all forms of TB nationally notified during the same period. In 2019, ten percent (11,010) of nationally notified all forms of TB were children younger than 15 years of age (***Figure 27***); out of which, only 26% are ≤ 5 years of age. Studies from Ethiopia shows low TB detection and high mortality among under five children.

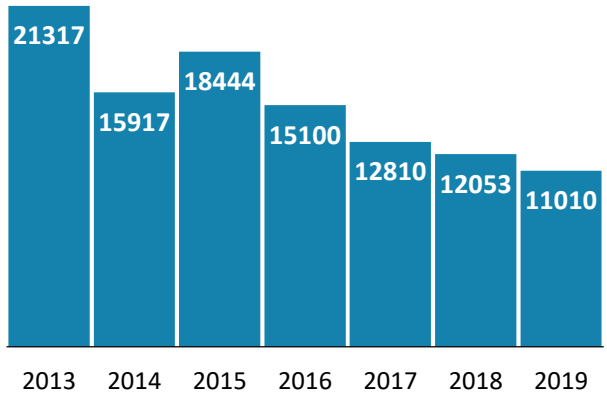


Figure 26. Number of nationally notified children, < 15 years of age, with all forms of TB, 2013-2018.

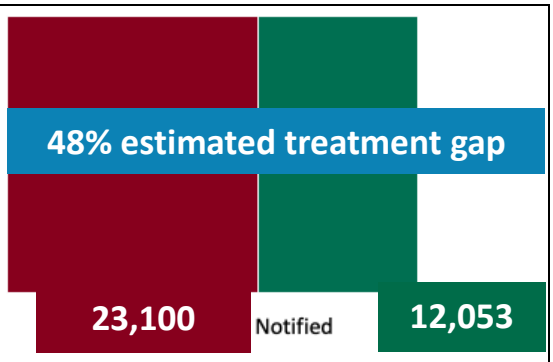


Figure 27. Gap between expected* and notified children < 15 years of age with all forms of TB, 2018.

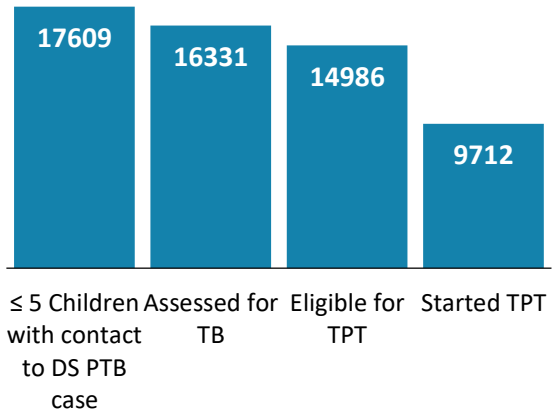
*Assumes that 14% of TB estimates are children younger than 15 years of age.

The national TB guidelines recommend TB preventive treatment (TPT) for eligible children younger than 15 years of age with history of household contact with persons with PTB and PLHIV. Ethiopia is using 3RH for TPT in HIV negative children < 15 years of age. In 2020, a combination of weekly 3HP will be introduced as the preferred TPT regimen for PLHIV. Within the framework of TB/HIV collaborative activities, TPT for PLHIV is provided as package of HIV care.

The highest gap in the TPT cascade among children ≤ 5 years of age with contact history to persons with PTB is between those identified as eligible and who actually initiated treatment (***Figure 28***). This partly is due to parents' refusal of starting "long duration" medicine to a "healthy child". The introduction of shorter child friendly regimen is expected to significantly improve TPT initiation. Information on TPT is also integrated in HEWs community education package in order to improve awareness on TB prevention and contact investigation.

An additional challenge is related to health workers' skill to confidently triage and initiate TPT in eligible young children among whom other respiratory illnesses are not uncommon. There is a need for ongoing trainings, supportive supervision, and mentoring to improve primary child healthcare providers' skill.

Figure 28. TB contact screening coverage and TPT initiation in ≤ 5 years of age, 2019.



A recent national assessment of quality of TB services shows incomplete recording of TPT completion at facilities. This review of 455 medical records of under-five children who initiated TPT shows 42% have incomplete data on treatment completion[40]. Programmatic monitoring of cascade of TPT from screening, treatment initiation and completion is an important tool to identify and address gaps, besides it being a good clinical practice.

1.5.3 Pastoralist communities

Consisting around 10% of the country's population, pastoralists predominantly reside in Afar, Oromia, SNNP and Somali regions (Annex 18.3; ***Table 18***) and are highly mobile. The national TB prevalence survey in Ethiopia shows higher TB burden among pastoralists, compared to the general population. Studies show that, for pastoralist communities, the long distance to the "nearest" health facility is a major barrier to accessing services, including for continuity of care. A study from Somali region of Ethiopia shows more than an hour of walking distance from health facilities, care seeking from "traditional healers", and lack of TB diagnostics in frontline primary facilities to significantly contribute to delays in TB diagnosis[41].

The NTLP, with the Global Fund to fight AIDS, TB and Malaria (GFATM) support, implements TB services in pastoralist areas using four mobile clinics (one each in Afar and Oromia regions, and two in Somali region).

[40] Khatri, U. and Davis, N. (2020). Quality of Tuberculosis Services Assessment in Ethiopia: Report. Chapel Hill, NC, USA: MEASURE Evaluation, University of North Carolina.

[41] Fentabil Getnet, Meaza Demissie, Alemayehu Worku, Tesfaye Gobena. Determinants of Patient Delay in Diagnosis of Pulmonary Tuberculosis in Somali Pastoralist Setting of Ethiopia: A Matched Case-Control Study. Int. J. Environ. Res. Public Health 2019, 16, 3391; doi:10.3390/ijerph16183391

1.5.4 Internally displaced people and refugees

Ethiopia hosts a large number of refugees and internally displaced persons (IDPs) who often face multiple hurdles in accessing health services. Most forced displacements in Ethiopia and its neighbouring countries are fuelled by conflicts and natural disasters. From 2016 to 2018, Ethiopia has experienced significant population movement due to intercommunal conflicts. In July 2019, there were 3.1 million IDPs in the country and close to a million refugees[42]. Implementation lessons highlight the importance of integrating TB in all emergency responses and services targeting IDPs, preparing health facilities to cope with the sudden influx of people, and ensuring continuity of care in emergency responses. This includes coordination with clinics/social services at sites of temporary stay and shelters; ensuring the supply system and health workers cope with increased demand; and planning for continuity of care from the outset.

1.5.5 Prisoners

Both global and in-country studies and programme implementation experience indicate increased risks of TB among prison inmates. The national TB guidance recommends regular TB screening of inmates at entry, on release and biannually in addition to those with history of contact with PTB. In 2018, the prison population in Ethiopia is estimated to be 86,500 [43]. Seventy two percent of prisons in the country have some form of health services on-site, but most do not fulfil the standards of the ministry of health. Hence, prisoners predominantly access health services from public facilities. All five Federal prisons provide HIV testing and TB treatment on site, while only two of them provide ART on site. In 2019, one hundred and twenty prisons implemented mass, entry, release and contact screening for TB, per national guidelines recommendations.

Table 4 summarizes the number of prison inmates screened and diagnosed of TB in 2017 and 2018. Lower CNR compared to point estimates from published literatures from Ethiopia and even from the general population could be related to the diagnostic criteria and tests used[44]. Though the national TB guidelines recommend the use of GeneXpert as primary test, this is not accessible in all settings across the country (Also see Box 3, Page 53 on implementation experiences of the Oromia regional state).

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[42] Emergency Plan of Action Final Report Ethiopia: IDP Population Movement, July 2019. Available at: https://reliefweb.int/report/ethiopia/ethiopia-idp-population-movement-emergency-plan-action-final-report-dref-n-mdret019

[43] Based on communication with prison authority.

[44] Addisu Melese and Habtamu Demelash. The prevalence of tuberculosis among prisoners in Ethiopia: a systematic review and meta-analysis of published studies. Archives of Public Health (2017) 75:37 DOI 10.1186/s13690-017-0204-x.

Year	Number screened for TB	Number diagnosed of TB	CNR per 100,000 population.
2017	32,555	23	71
2018	73,304	93	127
Total	**105,859**	**116**	**110**

Table 4. TB screening yield among prison inmates, 2017-2018.

1.5.6 TB and gender

For most Ethiopians, gender related social norms influence their access to resources, including health information and services, and risks and impacts of illness. Likewise, TB may affect men and women differently. The male-to-female ratio among nationally notified all forms of TB in Ethiopia is 1.2 for adults, while it is almost one among children. More than half of the nationally notified persons with all forms of TB are male. In both men and women, TB predominates in the younger age group, with more than 70% of nationally notified all forms of TB in the age group of 15-44 years, with the highest among 15-34 years of age (***Figure 29; Figure 30***). Analysis of service level data in some settings show that among persons with presumptive TB, those between 18-24 years of age have more than 6.7 times and those aged 25 -34 years 4.5 times likelihood of being diagnosed with TB compared to those ≥ 45 years of age.

Figure 29. Distribution of nationally notified all forms of TB by gender, 2018[45].

Some TB risk exposures, such as smoking, detention, and mining are higher among men compared to women (***Box 1***). The TB treatment coverage gap is higher among adult men, compared to women. In both men and women, the largest treatment coverage gap is among 15 to 34 years age group. A multi-year synthesis of burden of TB in Ethiopia indicates that all-cause mortality, while on TB treatment, is higher among men compared to women[46].

[45] Among adults, 50% are male and 40% are female, and the remaining (10%) are children.

[46] Amare Deribew, Kebede Deribe, et al. Tuberculosis Burden in Ethiopia from 1990 to 2016: Evidence from the Global Burden of Diseases 2016 Study. Ethiop J Health Sci.2018;28 (5): 519.

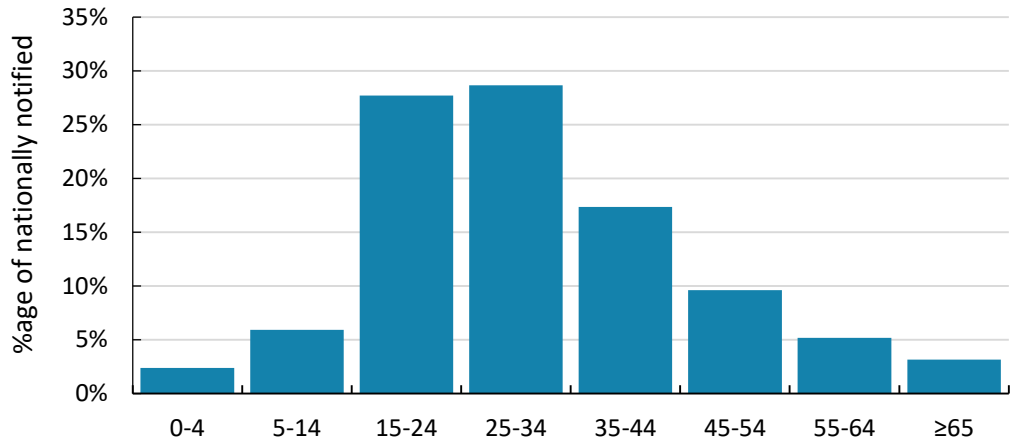


Figure 30. Age (in years) distribution of nationally notified all forms of TB, 2018.

On the other hand, compared to men, women would be more affected by the high TB patient cost. Rural women, for instance, are less likely to have disposable cash; hence, financial barrier (due to OOP at time of service use) might be more dismal to them. Additionally, experience from other health services highlight rural women's differing experience in travelling long distance to reach to the "nearest health facility", both in terms of "lost time" and travel costs, partly due to their multiple social and household responsibilities. Families (including women themselves) often deprioritize women's health needs in the long list of social and family/household responsibilities.

A longitudinal community-based intervention study in Southern part of Ethiopia shows that HEWs identify more female than male patients with TB, while health centres identify more men than women with TB [47]. This may signify gender differences in the choice of health facility visit for TB or health services in general. It could also be related to the all-female HEWs and HDAs more frequent contact with women at community level to provide MNCH and family planning services.

[47] Datiko DG, Yassin MA, Theobald SJ, et al. Health extension workers improve tuberculosis case finding and treatment outcome in Ethiopia: A large-scale implementation study. BMJ Glob Health 2017; 2:e000390. doi:10.1136/bmjgh-2017-000390.

Box 1. Gender and TB in Ethiopia: Brief Summary.

The 2019 UNDP human development report indicates that Ethiopia is among countries with the least gender development index with female and male human development index (HDI) of 0.424 and 0.501, respectively. The country ranks 123rd among 162 countries in gender inequality index[48]. Key inequalities, such as in access to and control over assets and resources, education, financial and health services are reflections of the gender inequality in the country.

There is gender disparity in TB case notification: Forty three percent of the 2018 notified TB cases are female in contrast to 57% male. The greater share of TB cases among men (with a ratio of 1.2) in Ethiopia is consistent with global reports and indicates higher TB treatment coverage gap among men compared to women.

There is significantly increased TB risk among men compared to women: Many risk factors associated with TB are more prevalent among men than women: Smoking prevalence among male adults in Ethiopia is 8.5% compared to 0.4% in women; 12 months prevalence of alcohol use is similarly higher among adult men (3.7%) compared to women (0.6%); diabetes is also slightly higher among male than female adults (5.8% Vs 5.0%). Furthermore, workplaces such as mines, mega development projects, and constructions are traditionally dominated by men, whose number also tend to be higher in prisons and in other congregated settings (such as, homeless shelters, police custody, and military camps). Several men working in mines, mega development projects and living in urban congregated settings are young migrant workers. Though the HIV prevalence in Ethiopia, is higher among women, HIV positive men are lagging in terms of knowing their HIV status. In urban Ethiopia, 83% and 70% of women and men knew their HIV status, respectively.

Making TB services more accessible to young men requires inventiveness. Several young men in the lower income quantile work in the informal sector, tend to be migrant workers or employed in small businesses, where paid-sick leave is “a luxury". When sick, several have to choose between their daily income and visiting clinics. On the other hand, routine health services are provided during working hours, so are household visits for contact investigation. Outreach services will need to incorporate flexibility and innovativeness to reach young men.

Rural women experience more challenges in accessing services. Rural women experience challenges due to lack of disposable cash; traditionally their health often get deprioritized by families, and TB in women is more stigmatized than in men. Studies show women generally wait longer than men to seek healthcare because of household duties and economic barriers.

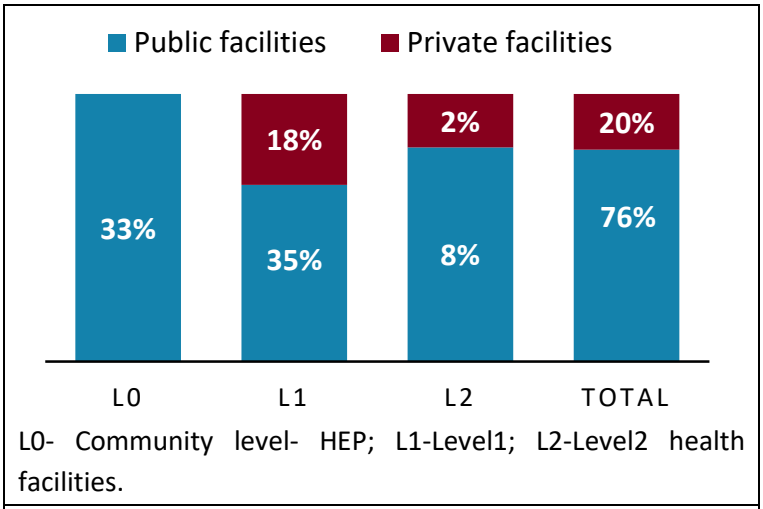
Main national TB programme data are disaggregated by gender. Further gender disaggregation, from the initial TB screening across the care continuum, is essential to better understand gender equity in access and reimagine service delivery models that reach all. In Ethiopia, efforts have been made to mainstream gender in the health sector with the objective of promoting equitable access to services and empower women. National guidance and support are provided to address structural issues and institutionalize equity. Addressing gender inequality and barriers with concrete gender-responsive interventions is essential. There is a need for an in-depth analysis of role of gender in TBL related health needs and preferences; and explore opportunities to support various communities. The underlying reasons for gender-based differences through the entire patient pathway and care continuum need to be articulated in designing informed equitable service delivery models.

[48] UNDP. 2020. Human Development Report.

1.6 The path to TB diagnosis and treatment

For most persons with TB, entry to care is an essential pathway to access TB prevention, care and treatment services and learn more about Tuberculosis and other co-morbidities. Planning and organizing TB services in alignment with the patient pathway supports people-centred care, reaching more persons with TB and population at risk, mitigates delay, and optimizes opportunities for contact investigation and TPT.

In Ethiopia, TB patient pathway analysis was done in 2017 using health service data.[49] The review shows 76% of persons with TB initiated care in public health facilities; around 20% in the formal private sector and the remaining in the informal traditional care settings. Among those who initiated care in public facilities, more than a third were at health posts with HEWs, who refer those with presumptive TB to health centres for diagnosis (**Figure 31**). An additional one third initiated care at health centres where around 80% had microscopy services and few access GeneXpert tests. Twenty percent of TB patients sought initial care in the private sector where the availability of TB diagnostics is even lower.



L0- Community level- HEP; L1-Level1; L2-Level2 health facilities.

Figure 31. TB patients first visit level of healthcare.

The review also indicated that most public facilities provide TB treatment services. While HEWs provide treatment support, they do not initiate or prescribe medicines either for TB treatment or prevention; and less than 11% of private clinics provided TB treatment.[50]

As part of a recent national TB service quality assessment, 539 patients on DS-TB treatment were asked about the timing on their pathway from TB diagnosis to treatment initiation[40]. Seventy one percent reported that they visited a health facility more than two weeks after onset of symptoms; while 15% sought care within 1-2 weeks of experiencing symptoms. Almost half of the respondents were tested for TB at a different public facility than where they were receiving TB

[49] Lelisa Fekadu, Christy Hanson et al. Increasing Access to Tuberculosis Services in Ethiopia: Findings from a Patient-Pathway Analysis. The Journal of Infectious Diseases 2017; 216 (S7): S696–701.

[50] TB mortality remains a challenge despite significant progress. TB is among the top five causes of hospital deaths in Ethiopia for over the past 10 years, per a recent global burden of disease (GBD) study.

treatment. Only 30% were tested at the facility where they are currently receiving treatment, and 24% at a different private facility.

Out of those TB patients interviewed, most patients (45%) received their test results on the same day testing is done, 18% waited a week, and 7% waited two weeks or more ***(Figure 32***). Just under a third reported that they had initiated treatment on the same day they had received their test results, and more than 50% initiated treatment within two days. A small proportion of patients had a long waiting period between diagnosis and treatment initiation, about 2% waited 1-2 weeks and 1% more than two weeks (***Figure 33***). Likewise, a separate focus group discussion with persons on DR-TB treatment highlights delays, partly due to limited DST coverage in peripheral facilities (***Box 2***).

Figure 32. Proportion of patients (DS-TB) and corresponding response on time between TB testing and result notification, 2019.[40]

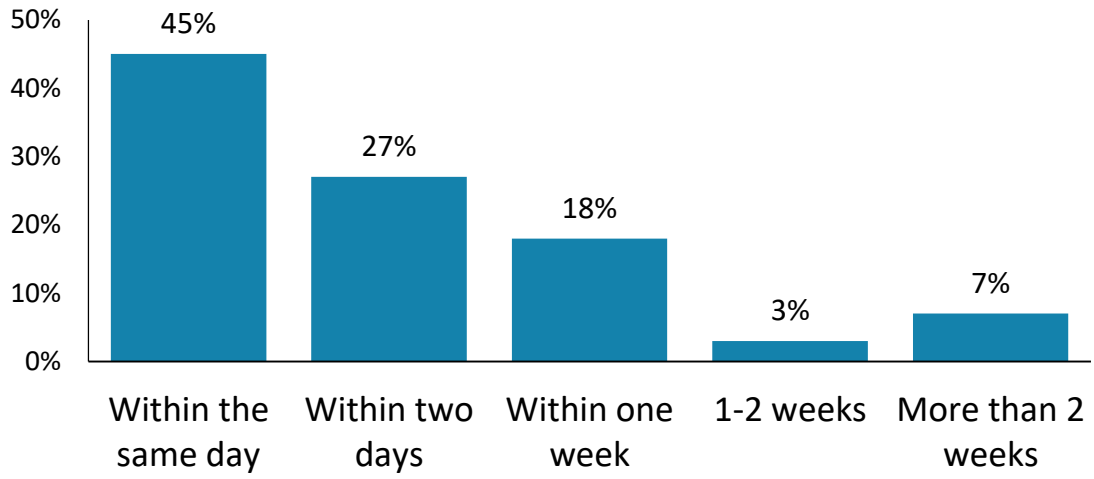
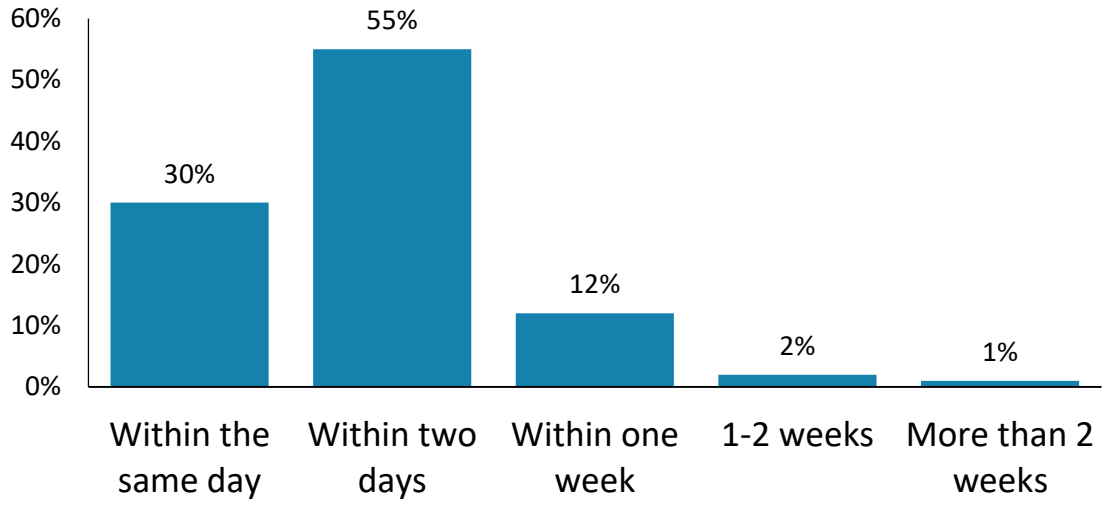


Figure 33. Proportion of response of patients (DS-TB) on time between TB diagnosis and treatment initiation, 2019.[40]



These data highlight the need to address delays at different levels, starting from home and within the healthcare system.

Box 2. The path to diagnosis and care: Experience of persons with RR-/MDR-TB[51].

Organic Health Care (OHC) is a registered civil society organization of DR-TB survivors and those currently on treatment. The organization is founded by DR-TB survivors and is involved in provision of psychosocial support to those who are receiving treatment and post treatment completion. The following is thematic summary of the focus group discussion (FDG) with persons on DR-TB treatment which is facilitated by OHC as part of this strategic planning.

"Tried local remedies before visiting health facilities". Most participants first seek traditional "healers' medication"; some went to shrine /holy water before visiting formal health facilities when they first fall sick. Others stated their first visit to private clinic and public health facilities after recognizing that they couldn't recover with homemade "remedies" and after "taking hot beverages".

Several learned about MDR-TB for the first time after being diagnosed. As the FGD participants are survivors of MDR-TB, most first learned about the condition at health facilities. Few respondents who have TB affected relatives expressed learning about the need to visit health facilities "for cough of over two weeks" from their relatives. The primary source of information about TB in general is radio and television. Some of the respondents expressed taking medicines for DS-TB for two months, and "they were told having MDR-TB". [*Highlights the need for universal DST, at least for RR, at time of TB diagnosis].*

The need for comprehensive support and shorter treatment duration. Most participants expressed shortage of health facilities that provide MDR-TB screening and treatment services in their locality as a challenge. Main challenges stated are: Absence of TB specialized hospital or health institution; "low knowledge of health professionals" about DR-TB other than those working in TB; limited psychosocial and financial support, including counselling services, for transportation, accommodation, food, etc; both government and private employers offer "shorter sick leave" to persons with DR-TB that often results employment termination following prolonged illness. Most of the respondents earnestly recommended "to shorten the prolonged drug administration" and perhaps "drop off injection" [*Ethiopia will fully transition to injection free shorter treatment regimen in the 2nd half of 2020*].

Stigma and discrimination. Most participants felt stigma and ostracization is "lower in DS-TB", it is "strong and fervent towards DR-TB". In general, it is "increasing in correlation with the recognition of MDR-TB by the community". Most respondents recommended "establishment of TB specialized hospital in the country" as well as to expand health facilities that provide full package TB services from screening to psychosocial, counselling, and financial support. Moreover, "updating all health professionals is mandatory".

Important lessons and issues:

- Address pre-diagnosis and treatment initiation delays – at home and in the health system.
- Dialogue and advocate with employers and provide legal support to affected persons.

[51] Organic health care. 2020. Findings from FGD with persons on DR-TB treatment. Presented at the national TBL-NSP second stakeholder consultation meeting. The FGD was facilitated by OHC in Addis Ababa, Dire Dawa and Harari region.

- There is unmet need for comprehensive psychosocial and economic support.
- Stigma and discrimination need to be addressed.
- Work towards improved access to TB services and building health workers capacity.

2. Leprosy epidemiology and burden

Leprosy is identified as major public health problem in Ethiopia. The National Leprosy Program was established as a vertical program in 1956 and Ethiopia is recognised globally as one of the pioneer countries with long experience in leprosy control.

With the introduction of Multiple Drug Therapy (MDT) in 1983, there were notable achievements in reducing the prevalence of leprosy. Nationwide, leprosy interventions were fully integrated within general health services since 2001. There has been a marked decline in the prevalence of leprosy from 19.8 per 10,000 population in 1983 to less than 1 per 10,000 population in 1999, when Ethiopia met the Global Leprosy Elimination target at national level. This has improved access, early detection, prompt treatment initiation and reduction in stigma and discrimination. However, the annual leprosy case notification in Ethiopia remains constant, at about 3000 - 5000 cases, with no marked reduction in the past 20 years (***Figure 34***).

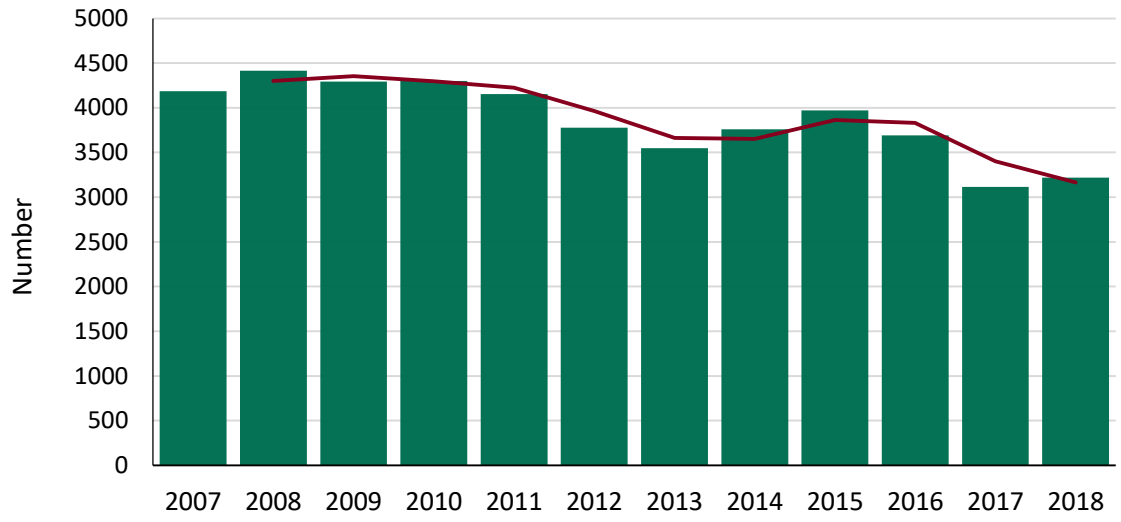


Figure 34. Trend in national Leprosy case notification, 2000-2018.

The burden of Leprosy varies significantly by region, ranging from 2.4 per 10,000 in Gambella to as low as 0.1 per 10,000 population in Somali region. There are also geographic settings and communities where the leprosy prevalence is above the elimination target. More than half of the nationally notified persons with Leprosy are from Oromia followed by Amhara region (***Figure 35***). This may be partly explained by availability of specialized Leprosy services in these regions.

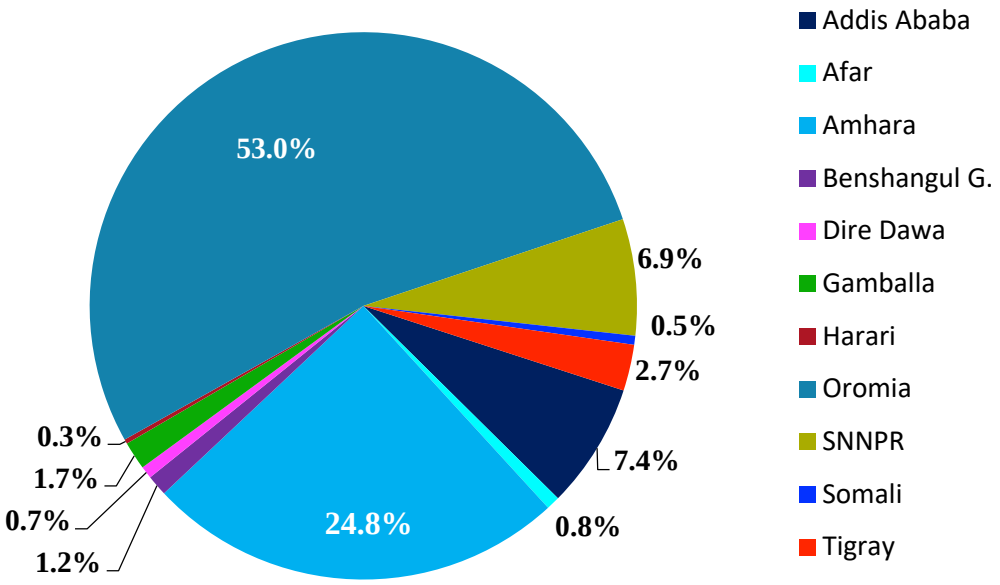


Figure 35. Proportion of New Leprosy cases by Regions, 2011 E.C (2017/18).

Data from the National Leprosy mapping shows an annual case load above 1 per 10,000 population in some Woredas. Out of 837, during the survey, 93 have been identified as high, 121 medium and 325 low leprosy burden Woredas (***Figure 36***). The high and medium Woredas contribute more than 80% of the national notifications.

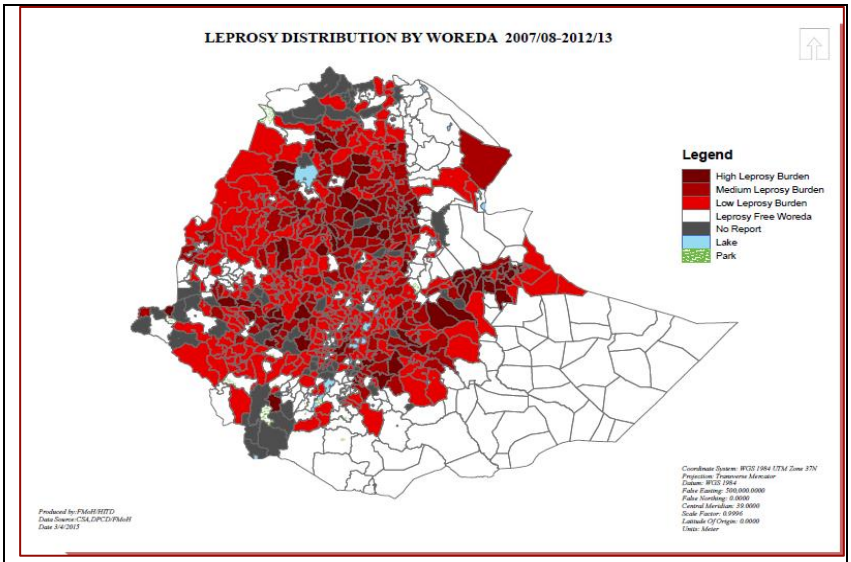


Figure 36. Leprosy burden distribution by woreda in Ethiopia.

Leprosy is a disabling disease. After an initial decline in the earlier part of the last 10 years, the Grade 2 disability rate among new cases has been increasing over the past 5 years (***Figure 37***).

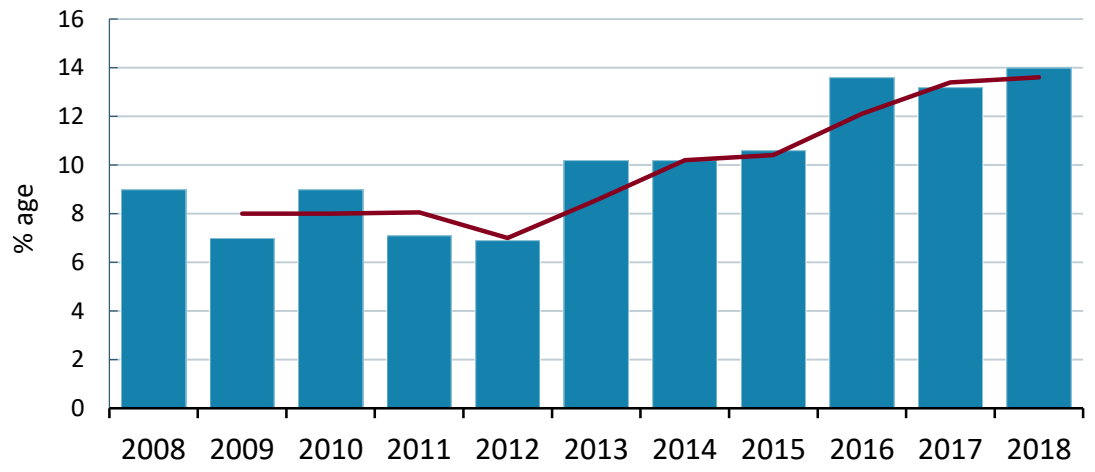


Figure 37. Percentage of Grade 2 disability among nationally newly notified persons with leprosy, 2008 - 2018.

In 2018, children younger than 15 years of age constituted 15% of the newly notified persons with leprosy. After stabilizing around seven percent, childhood leprosy in Ethiopia has been increasing since 2013 (***Figure 38***). This figure is much higher when compared to other countries in the African region, as well as the 5% global and national targets. The high rate of childhood leprosy and stagnation in absolute number of notified persons with Leprosy indicates ongoing active transmission.

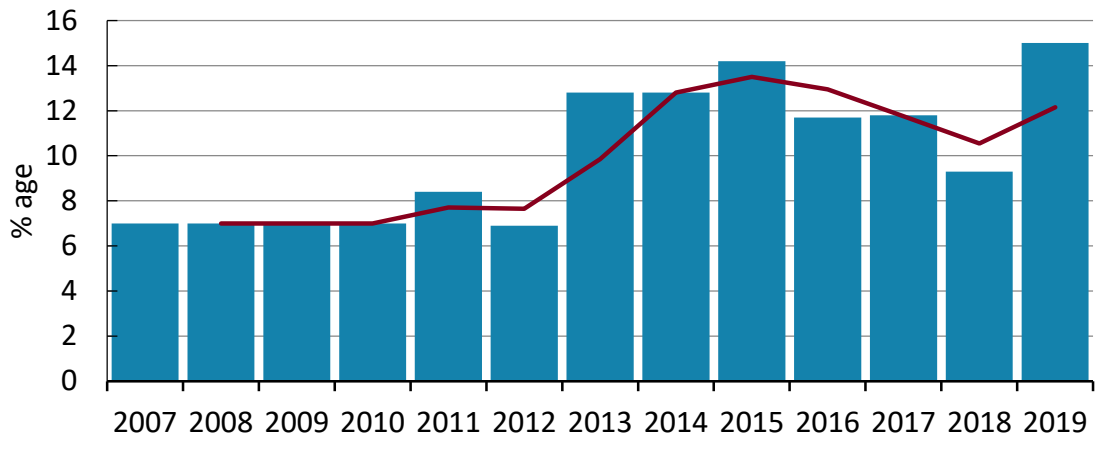


Figure 38. Percentage of childhood Leprosy among newly notified persons with Leprosy, 2007-2019.

The annual leprosy report shows emerging challenges of high proportion of relapses and Multibacillary (MB) among notified cases. In 2018/19, about 10.7% and 68% of notified cases were relapses and MB, respectively. These numbers are very high compared to the African region.

SECTION THREE: IMPLEMENTATION PROGRESS

1. TB programme implementation

Ethiopia has adopted the global End TB targets and strategies within the framework of the Sustainable Development Goals (SDG) and Universal Health Coverage (UHC). Targets of the current TBL-NSP (2013-2020/21) are harmonized with Ethiopia's commitment to End the TB epidemic by 2030.

During the NSP period of 2013-2020/21, access to TB services has expanded significantly. By the end of 2018, 96% of public hospitals and health centres; 71% of private hospitals; 6.5% of private specialized clinics; and 22% of private medium clinics are providing TB diagnostic and/or treatment services. Around 60% of health posts and one percent of private primary clinics provide partial or package of TB interventions, per national recommendations at such health facilities. Health posts and private primary clinics identify and refer presumptive TB cases, and do not provide diagnostic services. Health posts, additionally, provide treatment adherence support; contact investigation at community level; tracking lost to follow ups; and community education and social mobilization. In 2019, community TB contributed 22% of all notified cases to the NTP, while PPM-TB sites (885 private facilities) contributed 15% (***Table 5***).

Table 5. Number of TB laboratory and treatment service delivery sites in Ethiopia, 2019.

Health facility types	Number providing TB services	Remark
Government hospitals	281	90% of all public hospitals
Public health centres	3,622	97% of all public health centres
Health posts	16,243	100% of health posts
AFB microscopy	3,311 health facilities	2,923 public & 388 private HFs. Around 30% are LED and 70% light microscopes.
285 GeneXpert sites	314 GeneXpert machines	At 236 hospitals; 29 at health centres; and 20 at standalone referral laboratories.
Laboratory EQA sites	185 health facilities	
TB culture and DST, LPA	9 RRLs and 1 national at EPHI.	Culture and DST; SL-LPA.
Private health facilities	885 health facilities	PPM-TB sites
RR/MDR-TB TICs	64 hospitals	All public hospitals.

Ethiopia implements decentralized, predominantly ambulatory, RR-/MDR-TB treatment service delivery model. Sixty-four hospitals across the country are treatment initiation centres (TICs), and once stabilized, most patients continue at treatment follow up centres

(TFC) closer to their homes with scheduled monitoring and need-based unscheduled visit to their respective TICs. DR-TB treatment with "new and repurposed drugs" was introduced in Ethiopia in 2016. By September 2018, one hundred and twenty-four persons have benefited from regimens containing new TB medicines provided in nine hospitals. Ten TB laboratories have capacity for second line-line probe assay (SL-LPA). The TB/HIV integrated sample referral system is important to access TB diagnostic services to most health facilities, including private providers, and millions of people in the country.

2. Leprosy programme implementation

Globally, Ethiopia is one of the 22 Leprosy high burden countries (HBCs), annually reporting high number of new leprosy cases. In 2018/19, 3426 leprosy cases were notified to the national program, of which 96.2% were newly diagnosed. During the same year, 68% of the new cases were MB, 15% were children younger than 15 years of age, and 14% had Grade 2 disability at the time of diagnosis (***Table 6***). Treatment completion rate was 87% among MB and 99% for persons with PB.

Table 6. Leprosy notified cases to the national programme, 2018.

Region	All notified	Newly notified	Relapse	Retreat cases
Addis Abeba	241	223 (93%)	11 (4.6%)	7 (2.9%)
Afar	27	24 (89%)	1 (3.7%)	2 (7.4%)
Amhara	881	746 (85%)	110 (12.5%)	25 (2.8%)
Benshangul Gumuz	38	37 97%)	0	1 (2.6%)
Dire Dawa	32	22 (69%)	8 (25%)	2 (6.3%)
Gambella	53	43 (81%)	9 (17%)	1 (2%)
Harari	64	53 (83%)	10 (16%)	1 (1.6%)
Oromia	9	8 (89%)	1 (11%)	0
SNNPR	1767	1538 (87%)	180 (10%)	49 (2.8%)
Somali	17	16 (94%)	0	1 (5.9%)
Tigray	99	82 (83%)	14 (14%)	3 (3%)
National	**3426**	**2957 (86%)**	**368 (11%)**	**101 (2.9%)**

The 2019 external end-term TBLP review provides more detailed findings, main gaps and limitations in the leprosy elimination efforts of the country. Some of the highlights are:

- Stagnation in the number of notified persons with leprosy for the past two decades.
- Increasing trend of Grade 2 disability rate among new cases in the past ten years.
- Increasing trend in the proportion of childhood leprosy from 2013 onwards.
- Suboptimal quality of leprosy services through the integrated health delivery systems.

Progress in key selected indicators of NTLP is below (**Table 7**).

Table 7. Summary of progress in TBL Impact, Outcome and Coverage indicators.

Impact indicator	Target 2018/19	Achievements (2018)	
TB incidence	170/100,000	151/100,000	
TB mortality	21/100,000	22/100,000	
Mortality among HIV+ new and relapse TB patients	3.5/100,000	2/100,000	
Leprosy prevalence rate	0.2/100,000	0.32/100,000	
Outcome indicators	**Target 2018/19**	**Achievements (2018)**	
TB case notification rate	138/100,000	115/100,000 (83%)	
Treatment coverage	81%	69% (85%)	
DS-TB Treatment success rate (TSR)	90%	96% (100%)	
DR-TB Treatment success rate (TSR)	82%	72% (88%)	
Proportion of G2 disability among new leprosy cases	<1%	8%	
Leprosy treatment completion rate	95%	93% (97%)	
Coverage indicators	**Target by 2018/19**	**Achievements (2018)**	
Cumulative number of all forms of TB to be notified	1.2 million	838,017 (70%)	
Cumulative number of RR/MDR-TB cases to be notified during current NSP period.	6,971 (target based on earlier estimates)	4429 (64%)	
Proportion of bacteriologically confirmed TB cases among PTB cases	44%	62% (97.7%)	
# of bacteriologically confirmed DR-TB cases notified	1268 (target based on earlier estimates)	741 (58.4%)	
Laboratory confirmed RR/MDR-TB cases enrolled on SL-TB treatment during the specified period	1268 (target based on earlier estimates)	741 (58.4%)	
DST coverage among bacteriologically confirmed PTB cases.	100%	80%	
DST coverage among PTB patients.	71,352	57081 (80%)	
Under-five children household contact with PTB who began TPT.	16,598	9761 (59%)	
Registered new and relapse TB patients with documented HIV status out of total notified TB cases	92%	92% (100%)	
HIV positive new and relapse TB patients on ART during TB treatment	90%	91% (100%)	
PLHIV newly enrolled in HIV care, started TPT	67%		

3. Policy and implementation gaps

The people-centred framework is used to analyse policy, programmatic and implementation gaps and root-causes for identified gaps. The data, information, and issues highlighted under this section are identified through combination of:

a) External programme review held from November 18 to 30, 2019.
b) A national assessment of quality of TB services, November - December 2019.
c) Consolidated, published and unpublished, epidemiologic, health system and people related data across the continuum of care and patient pathway.
d) Stakeholder consultations held to build consensus around consolidated data; and identify priority gaps and root cause analysis of those gaps, January 22-24 and March 6-7, 2020.

Gaps across the care continuum:

3.1 People not accessing the health system.

People with

- TB infection or with high risk for disease.
- Asymptomatic disease and not seeking care.
- Symptomatic disease, but not seeking care.

3.1.1 Limited access and low health seeking behaviour

Poor health seeking behaviour results in delay or low utilization of health services, which is partly related to low socio-economic status (income and education), stigma, long distance from health facilities, and limited community awareness. One study estimated around 22% of persons with presumptive TB do not seek care; and younger individuals and those with limited transport means are more likely to delay care. In another national assessment, only 28% of the survey respondents have accurate and comprehensive knowledge about TB[52].

3.1.3 TBL related stigma

TBL related stigma and discrimination remain challenges in Ethiopia. Per a recent national assessment of TB service quality, 17% TB patients expressed negative experience in their interaction with health facility staff: health workers were not friendly to them (16%), their care providers treated them differently when diagnosed of TB (17%) and showed discriminatory attitudes towards them (10%). The same assessment indicates the experience of TB patients at community level. About 25% of the respondents indicated that people did not want to eat or drink with them because they had TB, and that they had stopped going to social events, religious services, and/or community occasions. Other studies, also from Ethiopia, show TB related stigma is worse in rural settings and females are more stigmatized; fear of job loss (33%), isolation (15%), and feeling avoided (9%) have negatively affected respondents' disclosure of having TB to others. In several communities in Ethiopia, leprosy is associated with fear, stigma, derogatory beliefs and myths, and discrimination that came across generations.

3.1.4 Financial barriers

Vulnerable persons and households could face financial barriers in accessing services. The 2016/17 sixth national health account (NHA) of Ethiopia indicates around 44% of TB expenditure is contributed by households' out of pocket payment (OOP) at time of service use. Small scale studies indicate that significant proportion of households experience catastrophic costs in accessing TB services (Also see 3.2.8, below).

[52] USAID/Challenge TB. 2018. TB knowledge, attitude and practice survey.

3.2 Persons with TBL presenting to health facilities, but not diagnosed or notified

⑩Presenting to health facilities, but not diagnosed.
⑩Diagnosed by non-NTLP, but not notified.
⑩Diagnosed by NTLP, but not notified

3.2.1 Programme plan and investment alignment with patient pathway.

Analysis of the TB patient pathway shows that only 45% of persons with presumptive TB have accessed a diagnostic test at the site where treatment is initiated. The remaining have to pass layer (s) of facilities before diagnosis; then get referred back to the facility closer to home for treatment once TB diagnosis is established. Eighty percent of public health centres have onsite microscopy. Around eight percent of public facilities do GeneXpert test onsite, and an additional close to 50% are potentially networked through sample referral system. TB laboratory services are not available in lower private clinics, which refer those with presumptive TB. This partly highlights the need for more sensitive point of care rapid TB diagnostics at peripheral facilities.

3.2.2 Scale of engagement of all care providers.

There is limited scale of engagement of all care providers in PPM-TB, with a gap in engaging privately managed health facilities and laboratories in TB at all levels. Eight hundred eighty-five (3%) high volume private facilities are currently engaged, contributing around 15% of nationally notified all forms of TB in 2019. Private facilities engaged in PPM-TB and providing TB microscopy services are also networked with external quality assurance (EQA) and GeneXpert test sample referral system.

3.2.3 Predominantly passive TB case finding approaches.

In most settings, active case finding is not implemented to a sufficient scale and is not systematically integrated with other services beyond that of HIV despite national guidelines recommendations to integrate TB in all adult and paediatric services. In 2018, the PTB household contact investigation coverage was around 62%, which is also an opportunity to diagnose TB and provide TPT. Household contact investigation happens both in health facilities and at community levels, including by HEWs and HDAs through home visits. In 2019, around 15% of nationally notified all forms of TB were identified through community-based TB services.

3.2.4 Screening criteria to diagnose presumptive TB.

TB case finding relies on an initial symptom-based clinical screening to diagnose presumptive TB. The national TB diagnostic algorithm does not include use of chest X-ray (CxR) for screening purposes, and there is limited access and radiology interpretation capacity at all levels.

3.2.5 Low DST coverage.

In 2018, seventy percent of nationally notified PTB cases were tested for RR using GeneXpert test. During the same year, only 56% of RR-/MDR-TB cases were tested for SLD resistance before or around treatment initiation[53]. There are challenges in realizing universal DST using GeneXpert test: Limited number of machines (i.e. compared to population size and vastness of the country's geography); cartridge stockout primarily attributed to funding gap; current sample referral network doesn't effectively reach woredas (around 30%) without postal service infrastructure; and frequent machine failure and lack of system for rapid maintenance and troubleshooting.

3.2.6 Human resource gap

Shortage of laboratory professionals in peripheral health facilities is a pressing challenge, and in moving forward there are limited number of radiologists in the country (***Table 1***). Health workers often work on rotation in several public facilities, resulting in challenges of building teams of lasting clinical and programmatic expertise. More experienced and qualified health workers tend to concentrate in urban settings. The national program integrates supportive supervisions, clinical mentoring and on the job trainings to address some of these challenges.

Infrequent exposure of healthcare providers to persons with leprosy, limited on-the-job training and mentorship, and lack of leprosy specific clinics due to limited number of dermatologists has resulted in an increasing number of health workers with skill gaps in Leprosy diagnosis and treatment. Due to limited engagement and linkage between dermatologists at training institutions and public health facilities, there are few opportunities for Leprosy capacity building, clinical consultations and patient referrals.

3.2.7 Insufficient programme coordination and management

Though TB/HIV collaboration at national level works well, its implementation is limited at subnational facility levels. Lack of coordination mechanism, such as with noncommunicable diseases (NCDs), mental health and nutrition programmes has hindered integrated service delivery. The current coordination and community involvement mechanisms are insufficient to engage wide ranges of TBL stakeholders.

3.2.8 Quality data availability and use

There is inadequate availability and use of quality data. The routine TB notification report is not disaggregated by at risk population, though recorded in TB unit register. The system doesn't track between initial TB screening and treatment enrolment, hence difficult to ascertain the magnitude of pre-treatment lost to follow ups. There is lack of integration of DHIS2, laboratory data, IPLS, and aDSM with insufficient comprehensive data use for effective programme management, including to inform local level target setting, prioritization, and planning. Laboratory data is not routinely available, and programme management predominantly relies on clinical and supply related data. Routine program

[53] WHO. 2019. Global TB report.

data quality assurance and verifications are not routinely done at various levels. The last national TB prevalence survey is out of date (i.e. done in 2011).

There is inadequate supply, incorrect use, and recording of leprosy registers and forms, resulting inadequate reporting. Leprosy disability grade 1 and contact investigation are not included in the national health information (DHIS2) system. There is limited joint planning and review between health information technicians (HIT) and the leprosy program, resulting inadequate performance monitoring and data verification at facility level.

3.2.8 High out-of- pocket payment at point of service use.

In Ethiopia, public facilities exempt persons with TB and Leprosy from paying for TBL prevention, care and treatment services once the diagnosis is established. However, TB patients pay before TB diagnosis, for some laboratory services, in private care settings, for X-ray, and management of some comorbidities often out- of pocket at time of service use. In a national TB service quality assessment that interviewed 539 persons on DS-TB treatment, 75% (n = 204), 48% (n=341), and 27% (n=310) of respondents indicated that they paid for X-ray, blood and sputum tests, respectively. Other small-scale cross-sectional studies show high number of TB patients experience catastrophic costs in accessing TB services.[54, 55] In Ethiopia, pooled payment, such as through insurance coverage is still low. A national TB patient cost survey with more detailed review is planned for 2021.

3.2.9 Funding gap

The national programme has a wide funding gap, compared to the estimated budget. The limited funding has been a challenge for scaling up priority interventions, including active case finding, PPM-TB and GeneXpert supplies, contributing to low notification.

[54] Assebe LF, Negussie EK, Jbaily A, et al. Financial burden of HIV and TB among patients in Ethiopia: a cross- sectional survey. BMJ Open 2020;10:e036892. doi:10.1136/ bmjopen-2020-036892.

[55] Abyot Asres, Degu Jerene and Wakgari Deressa. Pre- and post-diagnosis costs of tuberculosis to patients on Directly Observed Treatment Short course in districts of southwestern Ethiopia: a longitudinal study. Journal of Health, Population and Nutrition (2018) 37:15 https://doi.org/10.1186/s41043-018-0146-0.

Box 3. Some implementation experience.

Within the last years, the national programme has learned lessons that are relevant for this strategic plan: including that the woreda level disaggregation of TB notification varies across the country; facilities in urban areas tend to notify more compared to facilities in rural settings. However, some of the notified cases from these urban facilities are rural residents. However, here the lessons are about case notification.

Prioritizing locations and population: Oromia region, which is home for the largest population per region in Ethiopia, has identified ten groups as priority to finding missing persons with TB *(**Table 8***). In 2018, the region has expanded systematic screening to include persons with diabetes and health workers in health facilities, in addition to the routine screening of PLHIV. At the same time, the region has also implemented outreach services to miners in two zones; prisons; universities and high schools; military and IDP camps; and "holy water" sites. The region also screened household contacts of PTB in the last four years. Table 8 summarizes programme implementation findings by population screened. This lesson highlights the need for local level planning and population prioritization at regional and woreda levels, and linkage to community-based interventions and health facilities. The region has implemented various approaches to reach these population: intensified case finding in healthcare settings through targeted screening, and outreach screening of high-risk population, such as prisoners, miners, and household contacts by health facility teams. An earlier approach predominantly was passive case finding at health facilities. Additionally, the region's retrospective household investigation backtracked all contacts of persons with PTB diagnosis in the preceding four years. The other lesson is the opportunity for integrating TB in existing services, for instance IDP emergency responses; school health programmes; and health services for uniformed persons. Some populations have lower CNR compared to the general population, which partly is related to the testing algorithm.

Table 8. Prioritized population by Oromia regional state, 2018.

Population groups	Number screened	Number with TB	CNR/100,000 Popn.
Miners	41,460	219	528
Prisoners	28,116	104	370
Persons with DM	5,893	11	187
Health workers	6,984	14	200
Holy water sites	2,532	3	118
IDPs	51,564	17	33
University students	74,121	64	86
High school students	14,800	131	885
Retrospective household TB contacts	2,350	57	2426
Military camps	1,300	13	1000
Total	**229,120**	**633**	**276**

Screening health workers for TB. TB is stigmatized, more so, because of its link with HIV. This has been a challenge for routine TB screening of health workers, who may defer care or go where they "remain anonymous". The Dire Dawa city administration health bureau, in collaboration with partners, implemented "health screening" to all staff at health facilities in the city. This health package includes screening for NCDs, including hypertension, DM, and risk factors (e.g. BMI), and TB. Staff identified their care provider in their respective facility and an agreed-on mechanism to protect confidentiality. This has been instrumental for the successful implementation of health services targeting health workers in the city. During this NSP, the national programme plans scaling up this initiative across the country; closely support facilities for annual TB facility risk assessment; and monitor TB among health workers.

3.3 People notified, but not successfully treated.

- Diagnosed, not started treatment.
- Notified, not successfully treated.
- Successfully completed treatment, but not relapse free.

In 2018, the TSR for DS-TB and RR-/MDR-TB was 96% and 72%, respectively, which indicates successful treatment of high proportion of patients.

3.3.1 Insufficient quality and systematic patient support.

Most deaths among DR-TB patients happens in the first six months of SL treatment initiation. There is limited clinical and program managers technical capacity in implementing DR-TB national guidelines, with slow implementation of aDSM in DR-TB care centres and insufficient national pharmacovigilance (PV) capacity that often results inconsistent implementation of national guidelines. There is health workers skill gaps and unmet training needs, partly due to high attrition, in the face of frequent changes in global recommendations. There are no specific initiatives to improve quality of care at service delivery level.

A recent national assessment of quality of TB services indicate that the majority of interviewed persons with DS-TB (n=184) have a treatment supporter (92%): a family member (56%) or a health worker (34%). For supportive care services, there is wide discrepancies between what patients wanted and what they actually received: eighty seven percent of interviewed patients reported wanting one-on-one counselling, but only 57% received such services. In addition, 77% wanted counselling sessions with a lay or peer counsellor, but only 7% reported receiving it; 75% wanted nutritional support, but only 5% of the patients reported receiving a food basket. Furthermore 60% of the respondents wanted transport assistance, but only 1% received any; and 59% expressed a desire for home-based treatment, which only 5% of interviewed patients reported receiving it (Annex 18.3, ***Figure 57***).

There is suboptimal care in management of leprosy patients with complications: inadequate wound care and clinical follow up (VMT/ST) is not optimal. Interventions for case holding/treatment interrupter tracing and Prevention of Impairment and Disabilities (POID) during treatment and after completion are insufficient. Number of inpatient beds for persons with leprosy are limited; and high rate of relapse; stockouts of medicines; misclassification/ misdiagnosis of leprosy and limited follow up of clients released from treatment (RFT) are additional gaps.

There is a need to strengthen systematic patient-centred support for treatment adherence and to prevent lost to follow up and mitigate the monetary and opportunity costs of care to patients and their families.

4. STAKEHOLDER ANALYSIS

Stakeholders are individuals, organizations/agencies, and communities that can influence or be influenced positively or negatively by the implementation of this TBL strategic plan. Stakeholder analysis is the process of systematically gathering and analysing qualitative information and relationship to determine whose interests should be taken into account when developing/implementing TBL program.

The degree of influence from stakeholders varies depending on their:

- Span of control over resource allocation and mobilization.
- Level of political influence.
- Scope of participation in the sector, including service delivery.
- Influence on behaviour of the community.
- Role of law enforcement.
- Range of use of services provided by the sector.

Stakeholder analysis in TBL strategic planning is critical and helps to define the scope of work of all actors; clarifies contributions expected from each actor; and outlines areas of possible collaborative actions for achieving the TBL program national strategic objectives.

Successful stakeholder collaboration can result in:

- Better and timely decision making.
- Enhanced coordination among stakeholders.
- End users' satisfaction and trust.
- Improved control of scope of change, avoiding unnecessarily repeated alterations.
- Minimizing the impact of unproductive opinions and decisions on the programme.
- Allocation and effective utilization of resources.
- Improved multi-sectoral social protection of affected people.

It is important to note that key stakeholders can make or break a programme, hence, designing strategies and mechanisms for their timely engagement is important.

Table 9. NTLP stakeholder analysis

Stakeholder	Desired contributions	Their Needs	Resistance Issues	Degree of Influence	Institutional Response
Individuals and families affected by TBL	▪ Adoption of correct health seeking behaviour, ▪ Treatment adherence support, ▪ Stigma reduction ▪ Human rights and legal protection ▪ Self-care and support.	▪ Staying healthy. ▪ Health service access ▪ Affordable quality services. ▪ Dignity, respect, compassion. ▪ Confidentiality.	▪ Dissatisfaction and underutilization. ▪ Opting to unsafe alternatives. ▪ Poor TBL service utilization. ▪ Misperception ▪ Concern of stigma, discrimination, confidentiality.	High	▪ Community education and mobilization. ▪ Mitigate patient cost. ▪ Quality and equitable service. ▪ Mitigate stigma; empower communities ▪ TBL-IC/IP in healthcare settings. ▪ People-centred care
Communities and population at risk and vulnerable to TBL	▪ Ownership ▪ Assertive ▪ Health seeking behaviour and demand ▪ Healthy living	▪ Information ▪ Access and quality ▪ TB and leprosy prevention ▪ Affordable care ▪ Empowerment	▪ Dissatisfaction ▪ Opting unsafe and ineffective alternatives ▪ Underutilization ▪ Misperception	High	▪ Community involvement, mobilization. ▪ Quality, equitable and uninterrupted service. ▪ Compassionate Respectful Care
Health workers: public and private care settings.	▪ Commitment, ▪ Engagement ▪ Compassionate Respectful Care ▪ Provision of quality services	▪ Transparency; ▪ Capacity building; guidance & technical support, ▪ Safe work environment ▪ Career development	▪ Poor patient- provider interaction; ▪ Attrition ▪ Low quality services ▪ Low motivation	High	▪ Motivation and involvement. ▪ TBL-IC in healthcare settings; ▪ Capacity building; ▪ Professional development and retention strategy.
Parliaments, Prime Minister's Office, Council of Ministers, Governments at regional, Zonal and Woreda levels, and city administrations	▪ Evidence-based policy guidance, Political considerations ▪ Resource allocation ▪ Monitoring and review ▪ Ownership	▪ Policy implementation ▪ Equity and quality; ▪ Plans and reports. ▪ Accountability	▪ Organizational reform ▪ Competing priorities ▪ Resource limitation (inadequate budget allocation)	High	▪ Policy dialogue and advocacy ▪ Empower affected communities and CSO for policy dialogue and advocacy ▪ M&E system and capacity building.
MOH (Federal, RHB, Zonal HD, WoHO) and its agencies: EPHI, EPSA, EFDA, insurance, AHRI, HAPCO.	▪ Policy and strategies implementation, ▪ Equity and quality; ▪ Plans & reports alignment	▪ Resources, ▪ Policy guidance ▪ Technical support	▪ Limited resources (finance, HR) ▪ Non-alignment	High	▪ Joint planning and performance monitoring ▪ Resource generation and utilization ▪ Equitable resource allocation

Development Partners (bilateral and multilateral agencies; implementing partners)	▪ Harmonization and alignment; Participation ▪ Additional resource ▪ Technical Support	▪ Accountable and transparent system. ▪ Involvement in policy decision.	▪ Fragmentation ▪ High transaction cost ▪ Inefficiency and ineffectiveness ▪ Funding, budgeting	High to Medium	▪ Government leadership, stewardship, Transparent procedures Efficient resource utilization system ▪ Build financial management capacity
CSOs/NGOs, FBOs, professional associations, private philanthropic, religious leaders, influential persons.	Harmonization, Participation, Equitable resource allocation Advocacy and social mobilization	Participation in planning, implementation, TA, and M&E	▪ Dissatisfaction ▪ Fragmented implementation ▪ Interruption of services	High to Medium	▪ Transparency, ▪ Advocacy and participation Capacity building
Media – Private and public	▪ Reporting accurate information.	▪ Accurate information	▪ Misperception ▪ Profit oriented	High to Medium	▪ Advocacy and communication
Private sector: corporate, industrial parks, Telecom, Postal services	▪ Workplace health service ▪ Domestic finances	▪ Technical support	▪ Undermining employee rights. ▪ Fear of additional costs.	High to Medium	▪ Advocacy and dialogue ▪ TB prevention and care in workplace ▪ Domestic financing
Government Line Ministries and agencies [56]	▪ Inter-sectoral collaboration and response. ▪ Law enforcement. ▪ Monitoring and review	▪ Evidence-informed plan ▪ Effective and efficient use of resources ▪ Technical support ▪ Briefers on impacts	▪ Fragmentation ▪ Dissatisfaction ▪ Considering health as low priority	High to Medium	▪ Collaboration, and information/ evidence generation and sharing ▪ Transparency ▪ Multi-sectoral accountability Framework
Academia and research institutions	▪ Evidence generation and dissemination ▪ Qualified workforce production ▪ Innovation	▪ Information; ▪ Harmonization ▪ Funding ▪ Responsiveness	▪ Resource limitation ▪ Competing priorities	High to Medium	▪ Equitable resource allocation ▪ Plan alignment and harmonization ▪ Research prioritization

[56] Education; Finance; Labour, Youth, Women and Children; Mining and Petroleum, Urban development and housing, Peace, Trade and Industry; Science and technology; office of the Federal Attorney; Ethiopian postal enterprise; ministry of Agriculture, Transport, Water irrigation and electricity, and Defence; ARRA, CSA, VERA.

SECTION FOUR: TBL - NSP 2021/22 - 2025/26

1. PROCESSES OF DEVELOPMENT OF THE TBL-NSP

1.1 Overview and Rational

The Federal Ministry of Health (FMOH) initiated the process of developing this national TB and Leprosy strategic plan (TBL-NSP) owing to the conclusion of the current strategic plan by the end of June 2021.

1.2 Principles of the TBL-NSP development

Development of this TBL-NSP is governed by four principles:

A. Evidence informed
B. Inclusive and consultative processes
C. Harmonized with national health sector policy and strategies and transformation plan.
D. People-centred framework: Use of people-centred care framework for identifying gaps and root cause analysis and recognise key interventions.

1.3 Processes

The development of this strategic plan has the following processes:

1.3.1 Establishment of core national technical team to lead the process.

A core group with members from diverse stakeholders and background were established to lead the development of the TBL-NSP, including the end term external review of the TBL national program. Roles and responsibilities of the core group, rational and deliverables of the team was defined by terms of reference (Annex 18.5.2).

1.3.2 Concept note development and national consultation.

A concept note, which outlines objectives, methodologies, plan and timelines, and budget for the development of this NSP was developed to guide processes and deliverables. National stakeholder consultation was held on the concept note and review feedback were incorporated (Annex 18.5.1). The team has also developed concept note and facilitated the process in collaboration with various stakeholders.

1.3.3 End-term external TBL programme review

An end term external programme review (ETR) of the just ending TBL-NSP (2013/14 - 2020/21) was held from November 18 to 30, 2019. The core team lead, directed, and coordinated the ETR process through consultative writing of budgeted concept note with timelines, objectives and deliverables. One hundred twenty-one experts, including nine external reviewers, drawn from diverse institutions and area of expertise were involved. The external review findings and recommendations were used to inform this strategic plan.

1.3.4 Data consolidation

Epidemiologic, health system and care pathway data were consolidated across the continuum of care to inform gap identification, root cause analysis and to inform prioritized

planning. Published and unpublished data sources, including routine national programme data has been used. The sources of data is listed in the concept note for developing this TBL-NSP.

1.3.5 Stakeholder consultations

Three national stakeholder consultations were held in January, March and April 2020. Diverse stakeholders drawn from government, multilateral and bilateral agencies, civil societies, private providers; sub-national programme managers; healthcare providers; regional and national laboratories; other government sector offices; prison administration; TBL affected communities; other programmes and initiatives (such as HIV, NCD, mental health, HEP) have participated in the consultations. Owing to the COVID-19 pandemic, the third consultation was done electronically.

Focus group discussion was held with persons currently on DR-TB treatment in Addis Ababa, Dire Dawa, and Harari region. It was done in collaboration with organic health, which hosted and facilitated the discussion and presented the findings during the second stakeholder consultation. The stakeholder consultations were supported by writers' and core team retreats. Additionally, two country dialogue sessions were held by GF Country Coordinating Mechanism, Ethiopia (CCME), and the TBL-NSP was presented and discussed in the first online meeting. In all the consultation processes, valuable inputs were received and incorporated in finalizing this TBL-NSP.

1.3.6 Intervention impact modelling and cost-effectiveness analysis

TIME modelling is applied in prioritizing interventions identified during stakeholder consultations. The two categories of interventions whose impact is modelled are the TB screening and diagnostic algorithm, and approaches to reach at risk population. The impact modelling for the interventions was conducted on the projections from the baseline calibration, 2019 onwards. Budget preparation using one health tool

One Health tool, which is also the tool to costing the overall health sector plan, is used to prepare the budget (Section - Financing the implementation of the NSP).

1.4 Principles

a) People-centred prevention and care.
b) Evidence-informed planning, implementation, and monitoring.
c) Equity and Compassion
d) Quality and Excellence
e) Partnership and Collaboration
f) Participatory and Ownership
g) Sustainability and Self-reliance

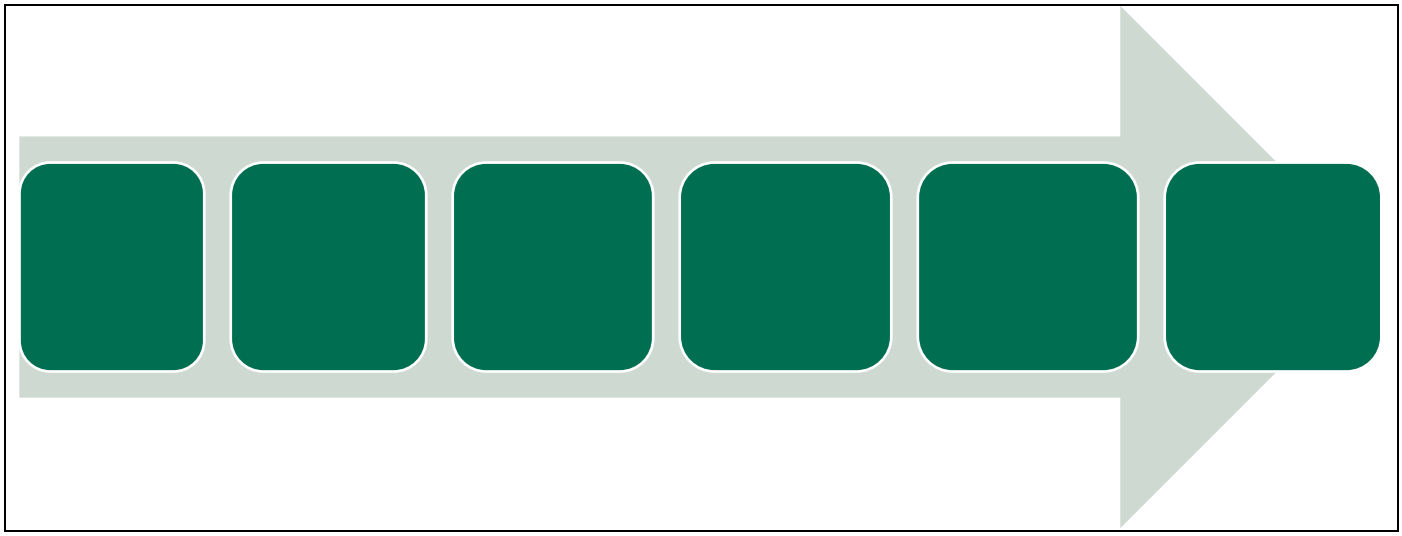
2 VISION, MISSION, PROGRAMME IMPACT, OUTCOMES AND OBJECTIVES.

Vision	The vision of the health sector is to see healthy, productive and prosperous society in Ethiopia.
Mission	The mission of the health sector is to promote health and wellbeing through providing and regulating comprehensive package of equitable quality health services in Ethiopia.
TBL-NSP aim	The aim of the TBL-NSP is to contribute to the vision of the health sector by ending the TB epidemic and leprosy as public health problems in Ethiopia.
TBL-NSP Strategic Objectives	▪ Address gaps across the patient pathway. ▪ Prevent infection and active disease. ▪ Provide people-centred equitable quality TBL services. ▪ Enhance bold policies and strengthen supportive systems. ▪ Generate and use TBL strategic information and research outputs.
TBL-NSP Impact.	**By 2025/26:** ▪ Reduce TB incidence from 151 to 91 per 100,000 population. ▪ Reduce TB deaths from 22 to 7 per 100,000 population. ▪ Reduce families facing catastrophic costs due to TB to ≤ 25%. ▪ Reduce leprosy prevalence from 0.3 to 0.1 per 10,000 population. ▪ Reduce the proportion of people with leprosy diagnosed with grade-2 disability from 14% to less than 5%.
TBL-NSP Outcomes	**By 2025/26:** ▪ Maintain treatment success rate (TSR) of notified DS-TB cases ≥90%. ▪ Achieve ≥ 90% TSR among children < 15 years of age. ▪ Increase DR-TB TSR from 72% to 80%. ▪ Achieve ≥ 90% TSR among TB/HIV co-infected persons.
TBL-NSP Output and Coverage	**By 2025/26:** ▪ Increase DS-TB treatment coverage from 69% to 95%. ▪ Increase DR-TB treatment coverage from 46% to 90%. ▪ Diagnose and treat 587,643 persons with all forms of TB. ▪ Diagnose and treat 82,270 children with TB. ▪ Diagnose and treat 505,373 adults with all forms of TB. ▪ Diagnose and treat 5,430 persons with RR/MDR-TB. ▪ Provide TPT to 353, 313 household contacts of PTB. ▪ ≥ 95% of newly notified all forms of TB know their HIV status. ▪ All TB/HIV co-infected persons start ART while on TB treatment. ▪ 60% of PPM sites will be engaged in TB service provision. ▪ Increase community contribution to nationally notified persons with TB from 15% to 25%. ▪ Universal SL-DST among persons with RR/MDR-TB, around time of diagnosis. ▪ Diagnose and treat 10,000 persons with leprosy. ▪ Provide leprosy preventive therapy to 9000 people.

3 TBL-NSP STRATEGIC OBJECTIVES

Figure 39. TB Strategic Objectives.

STRATEGIC OBJECTIVE 1: ADDRESS GAPS ACROSS THE PATIENT CARE PATHWAY



4.1 Promote care seeking and prevention in the community

4.1.1 Brief description

Low health seeking behaviour contributes to limited utilization of effective interventions; though, early diagnosis and treatment optimizes health outcomes, both at patient and population levels. Additionally, comprehensive community education and social mobilization are essential to stigma reduction and create supportive environment at community levels.

4.1.2 Targets

- Increase TB contact investigation coverage from 62% to 90%, by 2025/26.
- Increase community contribution to nationally notified TB cases from 15% to 25%, by 2025/26.
- Contribute to increased case notification and stigma reduction.

4.1.3 Interventions

- Engage TB affected communities and persons, and civil society/non-governmental organizations (CSOs/NGOs) in public education and social mobilization; and to refer those with presumptive TB, household TB contacts, and eligible for TPT.
- Integrate TB in woreda level health facility - community joint planning, supervision, and data reviews, and monitoring.
- Increase comprehensive awareness about TB among at-risk population and religious, traditional and political leaders using local level feasible communication channels, including radios, TV spots and panel discussions.
- Mobilize traditional, political and religious leaders for public education and speech about available TB services, and social mobilization against stigma in the community.
- Expand comprehensive community-based TB service packages in all woredas.
- Provide comprehensive TB prevention and care services to all TB affected households.
  - Mapping and registry of TB affected households (current and in the past two years), at health post level. Screen all HH PTB contacts, using CxR on annual basis, where feasible. Quarterly screen household PTB contacts at community level.
  - Test household TB contacts with CXR abnormality and/or TB symptoms using WRDs.
- Integrate TB in school health programmes, using school mini media and peer educators, organizing regular educational sessions on basics of TB and impacts of TBL stigma.
- Train adolescents and the youth in TB advocacy, communication and peer mobilization using feasible information and networking technologies, including social medias.
- Tailor advocacy and communication messages to specific TB risks and at-risk populations.
- Identify and engage champions from TB affected and at-risk population groups e.g. train inmates as peer educators and advocates on TB in prison settings. Build capacity of TB affected persons for their involvement in community education.
- Support health extension workers (HEWs) to integrate TB with other health community education interventions.

4.2 Targeted and differentiated approach to reach high risk groups

4.2.1 Brief description

Targeted approach to reach at risk and most vulnerable population is a key strategy to end the TB epidemic. The national programme has identified key and at-risk population for TB (***Table 10***). This, however, may vary in different geographic settings of the country. Systematic TB screening among at risk population is also one of the strategies to finding missing persons with TB.

Table 10. Broad category and TB key population in Ethiopian context.

Category	Key TB at risk population
People who have increased TB exposure due to where they live or work.	▪ Household contacts of PTB, including children. ▪ People who live in urban slums. ▪ Prisoners. ▪ Health workers. ▪ People residing or working in congregate settings.
People with increased TB risk due to factors that affect immunity.	▪ Persons with undernutrition. ▪ People living with HIV (PLHIV) ▪ People living with diabetes mellitus. ▪ People who smoke or use alcohol harmfully. ▪ Persons above 65 years of age.
People who have limited access to quality services due to combination of reasons.	▪ Adolescent and young men, 15-34 years of age. ▪ Refugees and returnees. ▪ Pastoralist communities. ▪ Internally displaced persons. ▪ Homeless/street persons and families.

4.2.2 Target

- Achieve 90% TB treatment coverage among key affected population, by 2025/26.

4.2.3 Interventions

Engage TB affected and at-risk population in planning, implementation, monitoring and evaluation of TB programme at all levels. Map out population groups at risk of TB and experience barriers to access health services. Facilitate engagement at woreda and facility levels, through peer-managed forums, associations or representations of affected population, as feasible.

Use outreach mobile TB services among pastoralist communities. Four mobile TB clinic service continue operating in Afar, Oromia and Somali regions. Strengthen implementing comprehensive package of TB screening, diagnosis, treatment and TPT services. Document

lessons learned with recommendations to further achieve equitable TB service access and outcome among pastoralist communities.

Integrate TB into existing health programs and services for at risk population. Ensure bi-directional integration of TB and TPT with HIV, MNCH, DM/NCD, mental health, nutrition services. Foster multi-sectoral and multi-stakeholder collaboration in integrating TB in health services in prison; mining sector; for refugees and returnees, and IDPs. Implement outreach community-based screening, diagnosis and linkage model of TB service delivery for IDPs, prisoners, miners, residents of urban slums, pastoralist communities, schools, and in high TB burden woredas. Create demand for TB services among key population through tailored community education and communication messages.

Monitor TB service access and intervention outcomes among priority populations and geographic settings. Routinely disaggregate indicators by geographic settings, gender, and at-risk population. Annually publish reports on equitable access to TB services and intervention outcomes among at risk population.

Integrate contact investigation and TPT in all interventions targeting high risk population. Tailor community education and communication messages for demand creation.

Improve subnational estimate of TB disease burden and size of at-risk population.

4.3 Accelerate TB screening and diagnosis including universal DST

4.3.1 Brief description

Prompt diagnosis and treatment is the cornerstone to end the TB epidemic. Ethiopia, in 2018, has missed 31% (52,000) and 54% (864) of estimated persons with DS and DR -TB, respectively. During the same period, the SL-DST coverage among those with RR/MDR-TB was only 56%[57]. The national DST coverage, both first and second line, significantly lags behind from the planned universal coverage. Strengthening the quality and quantity of TB screening and access to quality assured diagnostics, targeting the patient pathway, are priority to End the TB epidemic.

4.3.2 Targets

- 60% of initial screening of all notified TB cases will be using CxR, by 2025/26.
- 90 % of those with presumptive diagnosis tested for TB; and 100% of those with TB initiate treatment, by 2025/26.
- 90% of newly notified PTB cases are tested using WHO-recommended rapid molecular diagnostic (WRD) technologies, by 2025/26.
- Increase SL-DST coverage among RR/MDR-TB, around time of diagnosis, from 56% to 100%, by 2025/26.

4.3.3 Interventions

Improve targeted systematic screening of population at risk of TB

- Household contacts of PTB case, children and adolescents, PLHIV, persons with DM, prisoners, IDPs, migrant workers, miners, persons with undernutrition, mobile population and pastoralist communities, health workers, residents of urban slums etc.
- TB active case finding at community level in woredas with higher TB burden.
- Intensive case finding in public and private health facilities medical and paediatrics outpatient departments, MNCH and nutrition services, HIV care settings, and DM and mental health clinics.
- TB outreach services from primary health care units to IDPs, prisons, mining settings, migrant workers, mobile population and pastoralist communities.
- Integrated PTB contact investigation with MNCH services; community TB care package; school health programmes.
- Provide single national consolidated standard operating procedure (SOP) to integrate TB in priority settings: IDPs and refugee health services; urban slums; prisons and other congregate settings. Such SOP also incorporates ethical considerations, confidentiality and informed consent in screening for TB.
- Integrate all contact screening with assessment for TPT eligibility and initiation.

[57]WHO. 2019. Global TB report.

Use chest X-ray (CxR) for initial TB screening.

- Include CxR as initial screening tool in national TB diagnosis algorithm, prioritize high volume hospitals and TB at-risk population groups, including household contacts.
- Use of digital CxR technology aided by computer and artificial intelligence (AI) with task shifting.
- Include CxR among exempted services provided without patient out of pocket payment at service use.
- Document lessons from implementing mobile TB services in pastoralist communities, which uses digital CxR for screening purposes.

Expand access to quality assured TB laboratory services (See section SO4, #4)

- Strengthen access to laboratory services.
- Introduce LF-LAM and Truenat as part of WHO approved rapid diagnostics.
- Strategically introduce ultra-GeneXpert testing capacity.
- Reduce funding gaps in TB laboratory supplies.

Increase DST coverage, both First- and Second- Line tests.

- Increase number of facilities with onsite DST, using molecular rapid diagnostics, such as Truenat or other similar technologies as available, at peripheral PHCUs.
- Implement integrated TB/HIV postal service-based system of specimen referral and result delivery, using digital technologies for rapid result communication with clinical teams.
- Outsource to private sector specimen transport and result delivery in woredas without postal service infrastructure, as feasible.
- Interconnect all GeneXpert machines and newly introduced WRD technologies electronically for real time data generation and sharing.
- Continue second line rapid Line-Probe Assay (LPA) test at 10 referral laboratories, for all with diagnosis of RR/MDR-TB. This is particularly critical as the country is using injection free shorter RR/MDR-TB treatment regimen.
- Contract out GeneXpert and other TB machine maintenance and replacement to private sector, including the machine manufacturers, as feasible.

Expand engagement of all care providers in TB diagnostics (See section SO4, #2).

- Engage private laboratories and PPM-TB health facilities in specimen referral networks; provide free or subsidized TB laboratory consumables in exchange for data and assurance of free or reduced patient cost of services.

Increase human resource for TB laboratory services.

- Implement short and mid-term strategies to increase human resource for TB laboratory services through preservice training; and task-shifting to nurses and HEWs to use TB point of care testing, and specimen preparation and referral.
- Advocate and dialogue with regional governments to increase recruitment and retention of laboratory professionals in peripheral health facilities.

Provide comprehensive TB services in primary healthcare and community settings.

- Implement differentiated approach to community TB care: in urban, pastoralist, and rural settings; high and low burden settings.
- Expand TB specimen referral network to include community settings, with primary hospitals- health centre- health post linkage, and TB integration at PHCU.
- Undertake rapid assessment of woredas with zero TB notification for ≥ two years.

Strengthen programmatic monitoring across the continuum of TB care from initial screening (Section 12.1)

4.4 Early treatment of all types of TB with efficacious medicines

4.4.1 Brief description

Appropriate and effective treatment of all forms of TB, DS- and DR-TB, pulmonary and extrapulmonary, should be initiated soon after diagnosis to all regardless of age, sex, or type of TB disease, bacteriological status, co-morbidities or legal or socio-economic status of a person. For the last decades, Ethiopia has successfully expanded TB care and treatment services across the country. Rapid uptake of new drugs and regimens for DS-TB and DR-TB, including child-friendly formulations, is an integral part of care to optimize treatment outcomes. Decentralized treatment service delivery models at primary health care units will continue, and community-based TB treatment support have contributed to achieving high success rates.

There is geographical variation in TB treatment coverage, though this requires better understanding of epidemiology, and population differences in disease burden and service utilization pattern at local levels. Some woredas lag behind in achieving the high national TB treatment outcome. There will be in-depth analysis to better understand underlying reasons. Clinical and death audit will also be integrated in PMDT, to enhance MDR-TB treatment outcomes by through improved quality of services.

National capacity to ensure access to comprehensive specialized care services for some DS-TB and DR-TB patients, as well as, people with post-TB treatment pulmonary complications needs to be built with a network of centres of excellence for multi-disciplinary responses. Building the capacity of CSOs and associational of TB survivors and affected persons for treatment literacy.

4.4.2 Targets

- Increase TB treatment coverage from 69% to 95%, by 2025/26.
- Maintain treatment success rate of notified DS-TB cases at ≥ 95%, by 2025/26.
- By the end of 2025/26, identify and treat 587,643 persons with all forms of TB.

4.4.3 Priority interventions

Treat promptly all forms of TB.

- Prompt treatment initiation of all diagnosed with TB, including DR-TB, through rapid linkage to treatment sites.
- At enrolment to TB treatment, request rapid DST for all eligible who already don't have the result, per national guidelines.
- Record DST test results on TB unit register.
- Use digital/information technologies to ensure linkage from diagnosis to treatment.

Differentiated service delivery model, responsive to settings and population.

- Integrated and decentralized service delivery models adopted to key affected and at-risk populations to TB, such as adolescents, young adults, men, mobile population. For

instance, working men and women, and in-school adolescents might benefit from different clinic opening hours than the traditional working hours.

- Coordination with stakeholders to ensure continuity of care to highly mobile populations, such as IDPs, refugees and returnees, prisoners and detainees, migrant workers and pastoralists.
- Strengthen feedback mechanisms following patient and specimen referrals; catchment area meetings (CAM) and clinical mentoring using information technologies to coordinate TB diagnosis, care and treatment.
- Programmatically monitor post diagnosis/pre-treatment referrals to minimize pre-treatment lost to follow ups.

Provide contact investigation and linkage to TPT as package of TB care.

- Provide information to all persons with TB/DR-TB about the need for contact
- investigation and obtain informed verbal consent.
- Provide tailored information and jointly identify feasible option for contact investigation and prevention treatment to all eligible contacts of index persons with PTB. Most initial contact investigations can be done through HEWs in home settings, which potentially reduces patient inconveniences. However, this should be tailored as feasible to individuals.

Community delivery of package of TB services.

- Implement package of community diagnosis, prevention, treatment and care services in primary health care units (PHCU, i.e. primary hospitals, health posts and centres). Around 68% of TB patients first entry to care are public health centres and health posts.
- Involve HEWs, CSOs, and CBOs in community DS- and DR-TB education, adherence support, and contact investigation & reengagement to care following interruption.
- Explore opportunities for peer-managed and treatment supporter navigator, as feasible, within referral linkages processes.
- Strengthen routine supportive supervision and feedback mechanisms; clinical mentoring to enhance health workers technical capacity, both in private and public facilities and at all levels.

4.5 Children and adolescents with TB

4.5.1 Brief description

From 2013 to 2019, a total of 106,651 children < 15 years with TB were notified to the national programme. In 2019, children younger than 15 years of age constitutes 10% (11,010) of the nationally notified all forms of TB; indicating 37% of expected cases were missed. Ethiopia has introduced child friendly fixed-dose combination formulations for treatment of TB. TB is incorporated in Integrated Management of Childhood Illness (IMCI), under-five outpatient registers, and integrated community case management (iCCM). However, such interventions need to be scaled up and quality of TB screening in children need to be enhanced. Symptomatic overlaps of TB with pneumonia, malnutrition and other childhood illnesses is a challenge for healthcare providers to confidently diagnose TB in young children. Still many health workers at primary health facilities, which is the most frequent entry to child health services, are not equipped and confident to diagnose and treat TB in children. There is limited programme data on TB among adolescents in the age group of 10-19 years. However, studies show higher TB burden among these groups[58]. Additionally, some challenges of accessing health services and treatment adherence are peculiar to adolescent population.

4.5.2 Targets

- By the end of 2025/26, diagnose and treat 82,270 children < 15 years of age with TB.
- Achieve 90% treatment coverage in children < 15 years, by 2025/26.
- Achieve 95% TSR among children < 15 years of age, by 2025/26.

4.5.3 Interventions

- Set up specific child/adolescent technical working group at national level, which includes RMNCH and HIV programmes, Ethiopian paediatrics society, private providers, civil societies working with adolescents and adolescent health service providers.
- Integrate TB in family and community-based interventions to find the missing children and adolescents with TB.
- Integrate TB screening in all paediatrics services and community-based TB care; antenatal and postnatal services; reproductive health; and child and adolescent health services.
- Use child friendly fixed-dose combination medicine formulations in the treatment of DS- and DR-TB in children, both in public and PPM-TB sites.
- Provide on the job training, clinical mentorship, supportive supervision, and job aids to build health workers capacity in TB diagnosis and treatment in children and adolescents.
- Integrate screening, diagnosis & treatment in children & adolescents in all PPM-TB sites.
- Increase access to more feasible childhood TB diagnostics, including using stool and urine specimens and by building healthcare providers' skill in gastric aspiration.

[58] Nduba V, Hoog A H, et al. Prevalence of tuberculosis in adolescents, western Kenya: implications for control programs. In J Infect Dis 2015; 35: 1117.

- Young children acquire TB from close contact with an adult or adolescent with infectious TB. All close contacts of a young child with TB will be screened for TB.
- Build capacity of healthcare providers and programme managers through in-service training; clinical mentoring and supportive supervision. Integrate TB in children and adolescents in health professionals pre-service training.

4.6 Programmatic management of DR-TB (PMDT)

4.6.1 Brief description

Ethiopia has been implementing PMDT for the last two decades, with high level of successful treatment outcome. The country has successfully introduced new and repurposed drugs and will shift to shorter injection-free regimens in 2020. Ethiopia implements electronic aDSM system in collaboration with EFDA, which is the lead national agency in pharmacovigilance/ aDSM.

Networked through sample referral system with facilities, nine regional and one national reference laboratories provide second line -LPA (SL-LPA) testing. Furthermore, culture is possible at regional laboratories, while culture and DST, at national referral laboratory at EPHI.

4.5.2 Targets

- Increase DR-TB treatment coverage from 46% to 90%, by 2025/26.
- Increase DR-TB Treatment Success Rate from 72% to 80%, by 2025/26.
- Increase SL-DST coverage among persons with RR/MDR-TB, around time of diagnosis, to 100%.

4.5.3 Interventions

- Introduce electronic medical record with case-based reporting in all DR-TB treatment sites, using existing electronic aDSM infrastructure.
- Strengthen quality of DR-TB services:
  - involvement of national and regional clinical panels in the management of DR-TB.
  - on the job training of healthcare providers, and clinical mentoring from TICs to TFCs. and from national and regional clinical panels to TICs.
  - early detection and management of adverse drug events by availing monitoring lab services and supplies, and ancillary medicines.
  - patient adherence support, including nutritional support and peer-managed patient education use digital technologies for referral linkage and follow ups.
  - education and information for informed patient decision.
  - ensure confidentiality and consent in all care settings.
  - rollout of shorter injection free DR-TB treatment regimen, and routine use of SL-DST at the time of RR/MDR-TB diagnosis using SL-LPA test.
  - use of digital technologies to expedite laboratory result communication from regional referral laboratories to clinical teams.
- Coordinate DR-TB clinical and laboratory services, supplies, and referral linkages among TICs, TFCs, programme and supply managers, laboratory staff through regular catchment area meetings.
- Annual death and clinical audit and disseminate to share implementation experience.

- Routine implementation of TBICP in healthcare settings and educate persons with DR-TB on basic prevention in their family.
- Advocate for continued support of persons with sequela after DR-TB treatment completion.

4.7Maximize health outcomes by addressing comorbidities

4.7.1 Brief description

The burden of HIV infection among persons with TB varies by population and geographic settings. Additionally, undernutrition, DM, mental health and tobacco smoking are important determinants for successful TB treatment outcomes, and their effective management optimizes health outcomes, both at individual and population levels. Integrated service delivery necessitates programme level coordination and collaboration. Lessons from TB/HIV collaborative activities can also facilitate integration between TB/Nutrition, DM, mental health and substance use areas.

4.7.2 Targets

- 95% of newly notified all forms of TB know their HIV status, by 2025/26.
- 100% persons with TB/HIV co-infection start ART while on TB treatment, by 2025/26.
- ≥ 90% TSR among TB/HIV co-infected persons, by 2025/26.
- Provide bidirectional integrated TB/HIV, TB/DM, TB/mental health services.
- Provide nutrition assessment, counselling and support as package of TB care services.

4.7.3 Interventions

- Strengthen collaborative mechanism for integrated primary care between TB and HIV, DM, nutrition, mental health services at national, regional and facility levels.
  - Offer HIV testing and counselling to all with presumptive and diagnosed TB.
  - Develop mental health and DM screening and co-management tools for primary TB care settings.
  - Screen all with TB for DM and mental health issues in TB care settings and facilitate linkage for co-management, as required.
- Provide people-centred integrated screening, diagnosis, prevention, care and treatment services.
- With the COVID-19 pandemic, coordinate facility visits for persons on TB/HIV co-treatment and TPT for medicines pickup, laboratory tests, particularly in high volume health facilities.
- Provide or link for co-trimoxazole preventive therapy (CPT) and ART for TB/HIV co-infected persons. Start ART as early as possible, as recommended by the national guidelines. Provide HIV prevention information and condom for persons with TB.
- Work with ART/PMTCT clinics to coordinate facility visits of TB/HIV co-infected persons through regular multidisciplinary facility meetings and shared peer navigators between TB and HIV clinics.
- Introduce urine TB LAM into the diagnostic algorithm.

- Integrate TB screening and diagnosis in DM, mental health and nutrition care settings, and linkage with TB prevention and care.
- Pilot feasibility of smoking and alcohol interventions in TB care settings, per national guidelines recommendations.

4.8 Empower patients through education, technologies and support

4.8.1 Brief description

Most TBL affected persons experience barriers, including socio-economic difficulties to access essential diagnostics, prevention, care, treatment and rehabilitative services. Such challenges are further accentuated by stigma at community and healthcare settings, and self-stigma. A recent national assessment of quality of TB services highlights knowledge gaps in TB routes of transmission, treatment, and prevention. Knowledge about basic TB services is particularly low: out of 559 respondents, danger signs (56%), side effects of medicines they take (61%), what to do if side effect happens (52%), and the need to provide sputum test while on treatment (59%) were correctly identified. Ninety-four percent and 80% of interviewed TB patients, respectively, expressed desire of having individual counselling with clinicians or HEWs, while only 50% and 14%, respectively, received such services. Food and transport support are also desired, as well as home-based treatment, small group educational and peer-led counselling sessions (Annex 2; ***Figure 57***).

4.8.2 Targets

- Contribute to optimal treatment outcomes and quality services.

4.8.3 Interventions

Capacitate clinical teams to respond to comprehensive clinical, nutritional and psychosocial needs of patients. Train health workers to learn local language or supporting use of translators as necessary. There will be use of locally appropriate education materials, and language sign for those with impaired hearing. Health workers on- the -job short trainings will include capacitating health facilities to implement package of adherence interventions, including adherence and nutrition counselling and support. In most facilities a health worker is assigned in TB clinic at any one time, which might pose a challenge to one-to-one quality patient counselling and education. Persons and people affected by TB and patient peer groups can effectively implement educational and counselling interventions in health facilities.

Empower patients and their families through education, counselling and support. There is no single magical intervention to ensure treatment adherence and retention in care. Moreover, the needs of patients may change across the care continuum, phase of treatment, or due to other socio-economic situations and issues. In most situations, implementing package of interventions and adherence counselling would be essential:

1) <u>Counselling and educational interventions.</u>
   - Use peer-led group sessions; one-to-one and group education and audio-visuals like flipcharts, as relevant.
   - Engage TB survivors and champions, civil societies, and community organizations in patient education and adherence support.

- Use communication experts in developing educational materials and provide integrated health workers job aids.
- Education sessions could include on the basics of TB, available TB prevention, care and treatment services, benefits of contact investigation, link between HIV/TB are some of the important topics and others as necessary.
- Inform persons with TB about treatment supporter and benefits of keeping contact information in the facility record, and how to protect their family members from being infected through household TB infection control measures.

2) Patient support interventions.

- Provide nutritional and transport support to eligible persons with TB.
- Use adherence supporters and case managers, in coordination with the HIV clinic.
- Encourage and support clients' disclosure (whomever important for them) for them to receive support, including from family members and friends, while respecting persons autonomy when, for whom and what to disclose.
- Provide or link to appropriate support when other services are required, such as for mental health care.

Digital adherence support technologies. Use feasible digital technologies as appropriate for individual patient, considering access, ease of use, and ethics and confidentiality. Develop operational guidance for comprehensive use of digital technologies.

Facilitate and advocate for multi-sectoral patient support.

- Policy dialogue for enabling multi-sectoral comprehensive support to TBL affected families and communities.
- Build capacity of patient advocates to dialogue with civil service commission and employers' association for extended paid sick leaves for persons with DR-TB.
- Map out local social services; facilitate referral linkage with community support groups, resources and local organizations, including for legal and economic support as relevant.

Strengthen monitoring effectiveness and acceptability of TBL patient support interventions, including through periodical client satisfaction assessment. Support operational research on effectiveness and acceptability of TBL packages of patient support interventions.

STRATEGIC OBJECTIVE 2: PREVENT INFECTION AND ACTIVE DISEASE

TB prevetive treatment

TB infection and control in healthcare and congregate settings

Vaccination

1. TB PREVENTIVE TREATMENT

1.1 Brief description

The treatment of latent TB infection (LTBI) is one of the End TB strategies to avert new Mycobacterium tuberculosis infection and progression to TB disease. The national guidelines prioritize PLHIV and < 15 years of age with household contact history with PTB index case for treatment of latent TB infection using shorter TB preventive treatment (TPT) regimens. Additional TPT eligible are people who are initiating anti-TNF treatment, or receiving dialysis, or preparing for an organ or haematological transplant. In 2018, TPT coverage among PLHIV is 67%, while it is 22% among ≤ 15 years old contacts of PTB.

There will be use of shorter TPT regimens, per the national TBL guidelines. Expanding TPT target population will be considered as more evidence is made available. TPT is also in the multisectoral action framework, which facilitates broad-based involvement of stakeholders and various communication forums.

1.2 Targets

- Increase TB contact investigation coverage from 62% to 90%, by 2025/26.
- 90% of those assessed and eligible for TB infection linked for TPT, by 2025/26.
- 353, 313 eligible persons will initiate TPT, by the end of 2025/26.
- By the end of 2025/26, eighty percent of all persons who initiate TPT will complete treatment.

1.3 Interventions

Provide TPT as package of TB services. TB diagnosis is an important entry for screening close contacts for TB and provide TPT.

- Inform all persons with TB on screening close contacts and opportunity to prevent TB, for an informed decision.
- Provide simplified job aids for client education and counselling and adherence support.
- Use feasible digital technologies, to support adherence and TPT completion.
- Enhance capacity for phased introduction of testing for TB infection, such as interferon gamma release assays (IGRA) or/and tuberculin skin test (TST).

Integrate contact screening and TPT in other services (*Figure 40*).

- TB contact investigation and TPT in IMCI and iCCM, HIV, MNCH, nutrition services, and school health programme.
- Integrate TB contact investigation and TPT in PPM-TB package of services.

Integrate TPT in active case finding among high-risk population.

- Integrate TPT and household contact investigation, as package of community TB care and MNCH services through health extension programme (HEP). Home visits for contact investigation and TPT will be per agreement and verbal approval of the index person.
- Integrate contact investigation and TPT in pastoralist TB mobile services and in all outreach TB screening, diagnosis and care services for high risk populations.

Strengthen programmatic monitoring of contact screening and TPT.

- Programmatic monitoring of TPT initiation, and completion as well as other outcomes and regimen use and population coverage.
- TPT cascade to identify specific gaps and improvement actions across the cascade (***Figure*** 40).
- Monitoring contact investigation and TPT could be a challenge as these services are provided in various settings, both at facility and community levels. Digitization of data capture across levels of the health system will be piloted, both by HEW (using eCHIS platform) and at health facilities, for instance using WHO PREVENT TB mobile application for TPT.

Figure 40. Package of screening for TB, diagnosis, care and TPT.

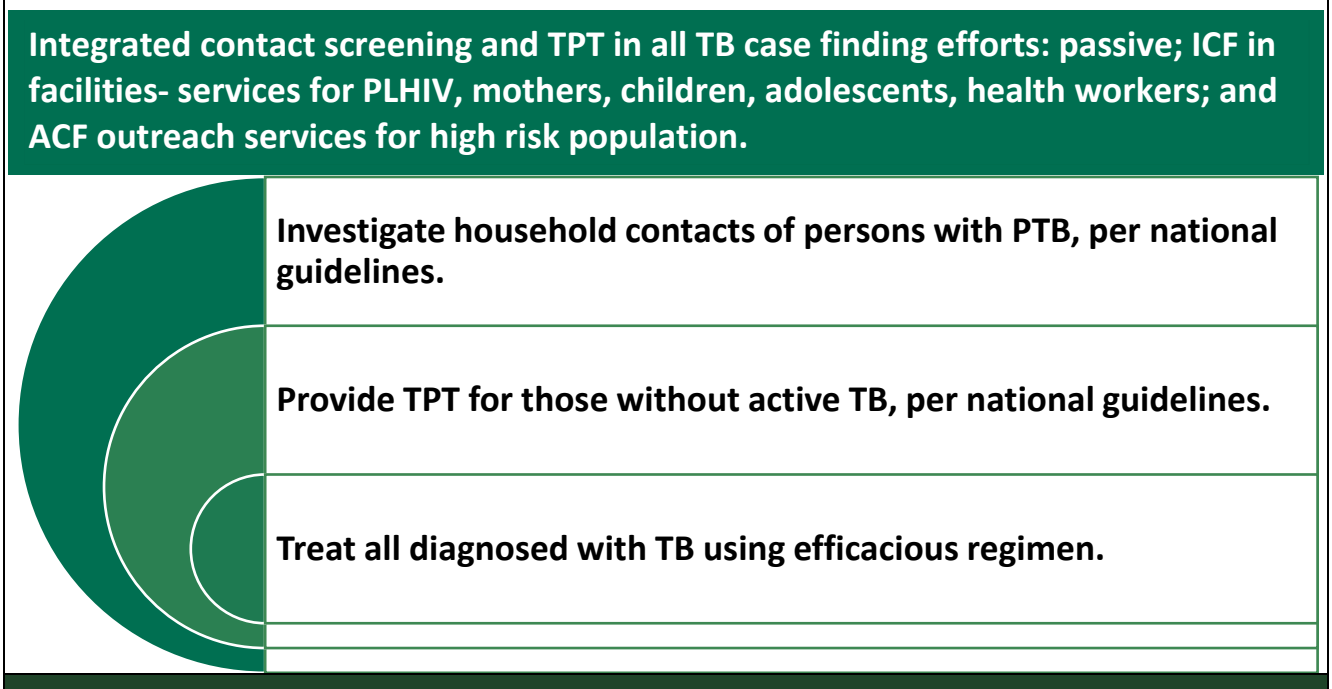
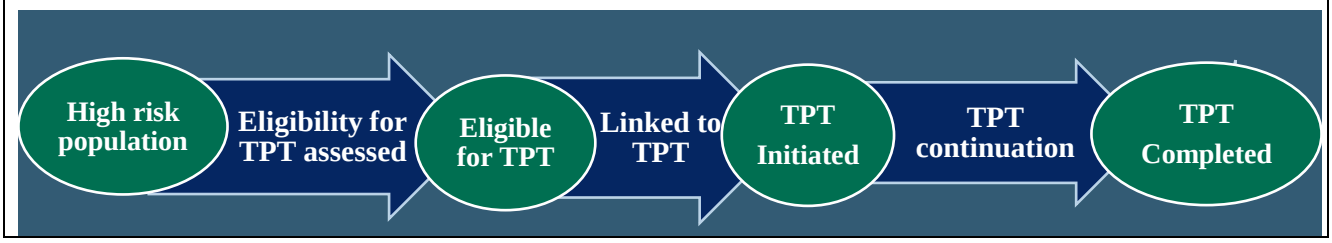


Figure 41. Programmatic monitoring of cascade of TB preventive treatment.



2. INFECTION PREVENTION IN HEALTHCARE AND OTHER CONGREGATE SETTINGS

2.1 Brief description

Health facilities are expected to be safe, both for clients and their families, visitors and health workers. The global and national recommendations for TB prevention in healthcare settings (also other congregate settings) are implemented inconsistently across health facilities in Ethiopia. A recent TB quality assessment of 185 facilities show, 74% of urban and 53% of rural facilities providing TB services do cough triage; and 41% and 30% of urban and rural health facilities, respectively, stated that they have system in place to screen and evaluate their staff for TB. While some facilities report TB among health workers within the last 12 months, TB surveillance among HCWs is not a nationally reportable indicator.

2.2 Targets

- By 2025/26, all public health facilities and PPM-TB sites will undertake annual risk assessment in their health facilities.
- By 2025/26, all public health facilities and PPM-TB sites implement comprehensive TBICP in healthcare settings.
- By 2025/26, 60% of public and 50% of private health facilities implement TB surveillance system among health workers.

2.3 Interventions

- Assign TB infection control and prevention (TBICP) focal person at national and RHBs TB team.
- Train health facility administrators and facility staff TBICP standards in healthcare settings.
- Annual health facility risk assessment and analysis, building capacity of programme managers and healthcare providers, for an informed planning.
- Strengthen multidisciplinary health facility team for general ICP/TBICP and engagement of TB focal persons.
- Support implementation of national ministry of health guidelines for new health facility building design.
- Monitor cough triage, separation and fast tracking within the context of the COVID-19 pandemic.
- Strengthen scale up of regular health screening and TB surveillance among health workers.
- Enforce TBICP in other congregate settings, such as prisons and homeless shelters.
- Regular supervision and mentoring of congregate settings other than healthcare, such as IDP camps and prisons on TB/DR-TB infection control.
- Consider regular screening and TPT to health workers, as feasible.
- Monitor TB surveillance among health workers as nationally reportable indicator.
- Establish DR-TB referral care centres with capacity to provide comprehensive specialized care services including TB/RR-TB lung surgery and ICU care.

3 Vaccination

STRATEGIC OBJECTIVE 3. PROVIDE PEOPLE-CENTRED EQUITABLE QUALITY SERVICES

1. STRENGTHEN PEOPLE-CENTRED EQUITABLE QUALITY TBL SERVICES

1.1 Brief description

People centred approach in TBL prevention and care focuses, organizes, and plans around the health needs and expectations of affected and at-risk people and communities. It is comprehensive, which also requires health workers commitment, communication skill and support. Health service quality and equity are priority agenda for the national health sector transformation plan (HSTP) of Ethiopia. Globally, quality of health services is an increasingly recognized barrier to achieving optimal health outcomes and population health. A national assessment of quality of TB services is undertaken, which is one of the inputs in the development of this TBL-NSP (**Error! Bookmark not defined.**).

Providing equitable quality services is not only the right thing to do, but it also optimizes programme effectiveness and efficiency by aiming: (1) health workers adherence to evidence-based guidelines and protocols; (2) continuous improvement of processes of care and outcomes of interventions; (3) responsive to the needs and preferences of affected populations; and (4) policies, supportive systems and innovations facilitate equitable access and utilization of services, and intervention outcomes (***Figure 42***).

Figure 42. Main domains to strengthen equitable quality TBL services to all.

1.2 Target

- Contribute to optimal TB intervention and treatment outcomes.

1.3 Interventions

Ensure health workers adhere to national protocols and guidelines.

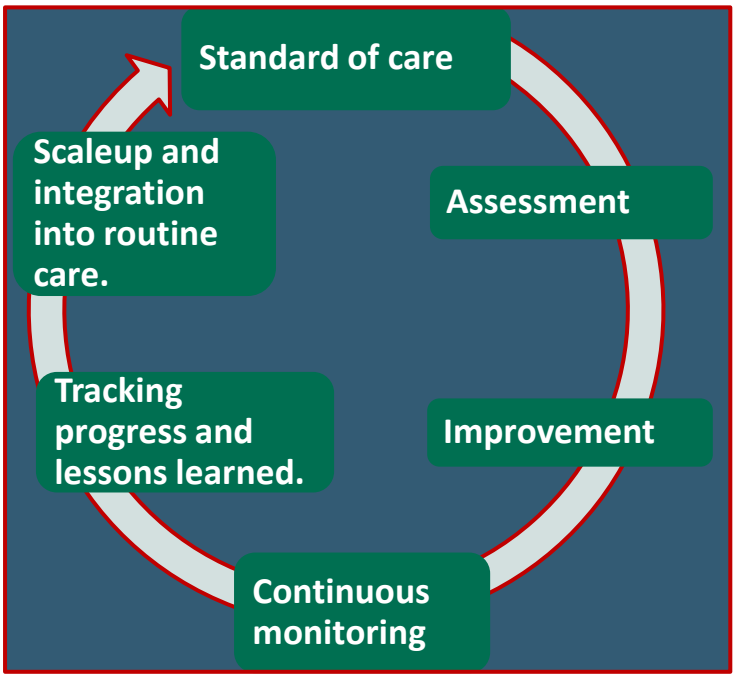
- Provide national guidance for standardized quality improvement and monitoring that allows comparing measurements across facilities, population, and time.

- Integrate quality in programme functions and health services, at all levels.
- Ensure health workers competence and practice is consistent with evidence-based national guidelines, protocols, and service standards, through supportive supervision, on the job training and mentoring.
- Monitor and strengthen quality of care through periodical: i) facility clinical and laboratory registers/chart reviews; ii) direct observation of patient-provider interactions; and iii) use of written case simulations.

Responsiveness is not only about the system should address the health needs of individuals and affected population as priority. It is the fact that affected persons and service users' preferences, values, input and expectations are considered in packaging, organizing and delivering health services. Health system responsiveness includes respecting the dignity, privacy, autonomy, confidentiality, consent, and informed decision

People-centred prevention and care. Ensure confidentiality, consent, informed decision and linkage to appropriate services. Strengthen roles of patients and TBL affected population in improving service delivery processes, using facility score cards, focus group discussions, and client satisfaction reviews. Proactive management of a) frequency of facility visits; b) facility waiting times and follow up visits; c) service linkage and integration; d) travel distance and patient costs to access services; e) clients' feedback and f) availability of healthcare providers and skill mix. Plan and organize services around patient pathway, as much as feasible.

Figure 43. Quality improvement cycle.



Ensure quality TB services.

- Provide TB quality improvement guidance with integrated framework in ICF, ACF and routine TBL services; treatment, prevention and care;
- Implement quality improvement initiatives, monitoring progress across the continuum of prevention and care.
- Orient programme managers and healthcare providers on quality improvement (***Figure 43***).
- Hold national, regional and facility level DR-TB clinical panels symposium to facilitate experience sharing.
- Quarterly DR-TB cohort reviews; clinical audits; clinical mentoring; and DR-TB updates for

clinical panels.

- Train and mentor healthcare providers on early adverse drug event detection and management, and reporting using aDSM electronic system.
- Support DR-TB treatment adherence, including use of digital technologies, and nutritional support.

Quality assured laboratory services (Section 4).

- Expand TB laboratory quality management towards accreditation.
- Quality system in TB culture and DST, rapid molecular diagnostics, and AFB microscopy.
- Update and distribute national TB laboratory professionals' toolkit (SOPs, sample transportation, supply request and distribution).
- Maintain linkage of EPHI reference laboratory with supra-national TB laboratory.

Monitor TBL service quality across time, population and geographic settings.

- Monitor selected indicators to track service quality for continuous improvement. Some areas for quality improvement include: a) DST (FL and SL) coverage; b) screening, diagnosis, linkage to prevention, care, treatment initiation, management of co-morbidities and adverse events; c) treatment outcomes; d) availability of key inputs to provide essential TBL services; e) service users experience; and f) adherence to quality assured laboratory services and turnaround times.
- Organize quality summit and implementers experience sharing, as side meeting to the annual TB research conference.

Health system responsiveness refers to the degree to which health systems are responsive to the needs and expectations of service users. It includes respecting and responding to preferences, needs, and values of individuals and communities during health service provision ensuring that their preferences and values dictate health service delivery processes. s; user focus: choice of provider, short wait times, patient voice and values, affordability, and ease of use.

Health system responsiveness includes respecting the dignity, privacy, autonomy, confidentiality, and informed decision; choice of provider, short wait times, patient voice and values, affordability, and ease of use.

SECTION FIVE: LEPROSY STRATEGIC PILLARS

STRATEGY PILLAR 1: PEOPLE-CENTRED PREVENTION AND CARE

1.1 Promote care seeking and prevention in the community

Strengthen knowledge about Leprosy, encouraging individuals and communities to play active role in early self-referral and to adopt positive attitudes towards persons affected by leprosy. Public education to build knowledge about leprosy and improve understanding to stimulate civic concern about role and responsibility; increase demand and support for quality health services; refute myths and misconceptions; make stigma and discrimination unacceptable; develop community ownership; enable positive attitude and behaviour for social action; provide support to people affected by leprosy to enable them overcome barriers that prevent them from social engagement; and increase knowledge and awareness of human rights related to leprosy and disability.

Use locally feasible materials, such as printed and electronic media made for engagement of local community platforms (e.g. Idir, religious and elder leaders, FBO and CSO) for public education. Ensure messages reach populations at risk, as well as other stakeholders, decision-makers and the public at large. Communication messages include leprosy's curability, availability of medicines free of charge, early signs, stigma and its impact, and providing support and reassurance to affected persons and families.

1.2 Systematic screening of contacts and chemoprophylaxis.

Active case finding is recommended for high-risk and vulnerable groups, such as households and close contacts of persons with leprosy. Retrospective screening of contacts of registered persons will be implemented, targeting contacts of persons diagnosed within the preceding five years. The WHO 2018 leprosy guidelines recommend the use of Single Dose Rifampicin (SDR) as preventive treatment for adults and children (2 years of age and above) contacts of leprosy patients, after excluding leprosy and TB disease and other contraindications.

1.3 Accelerate leprosy diagnosis

Early case detection with focus on contact investigation. Strengthen active case finding in high-risk and vulnerable groups, including contacts of a child with leprosy, women and disadvantaged populations. Any active screening efforts must be paired with systems to ensure quality diagnosis and to monitor its impact and costs.

Increase access to Leprosy laboratory services for those who need confirmation diagnostics. Strengthen access, either through patient referral or through transportation of a fixed smear and/or tissue that could be stained at the laboratory and/or examined by pathologist. Strengthen diagnostic efforts, when leprosy is identified solely on clinical grounds, to ensure proper classification as paucibacillary (PB) or multibacillary (MB).

Ensure all health facilities identify persons to be evaluated for leprosy. Most general health facilities in the country are expected to provide leprosy diagnosis and treatment

services. Hence, pre-service and in-service training will be strengthened to improve health workers knowledge and promote better leprosy management in public health facilities, with adequate emphasis to leprosy related practical skills and continuous follow up.

STRATEGY PILLAR 2. ENSURE QUALITY COMPREHENSIVE CARE

2.1 Increase treatment completion rate to more than 95%

Strengthen support to newly diagnosed patients to successfully complete treatment as recommended. Programme performances in terms of case holding shall be evaluated on the basis of treatment completion rate. Programmes will ensure that health workers have resources for tracing patients (mobile phone, home visits, through volunteers) that discontinued treatment and pursue people-centred approach to support adherence. Ensure annual refresher training on recording and reporting for leprosy, including on accurate cohort analysis of treatment completion.

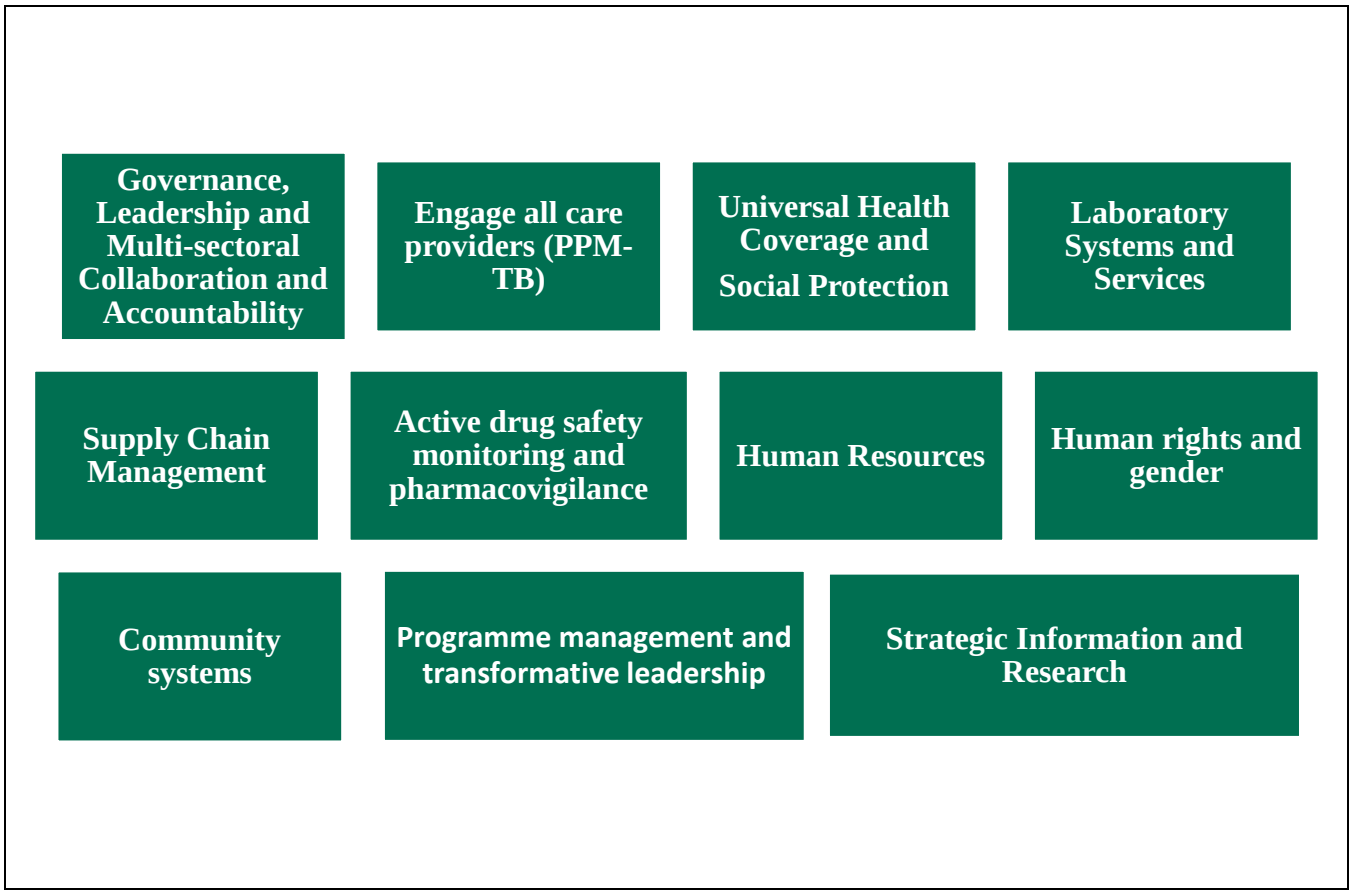
2.2 Strengthen disability prevention and care

Leprosy management does not stop at the time of diagnosis and treatment but in some cases requires life-long care. Twelve percent of leprosy patients in Ethiopia have grade 2 disability at the time of diagnosis, new disabilities also occur during treatment or later in life because of additional reactions or already irreversible nerve damage. For this reason, it is fundamental to identify those at increased risk of developing further disabilities after completion of MDT and continue follow up. Identify and support those with leprosy-related disabilities who are in need of self-care training, disability management or rehabilitation for planned care after MDT.

2.3 Enhance leprosy knowledge among health workers

The knowledge, attitude and skills of general health workers in leprosy control activities have never been addressed since the integration of leprosy control program into the general health service in Ethiopia. In order to sustain expertise, focus on strengthening regional leprosy training centres and centres run by partners and utilize e-learning wherever available.

STRATEGIC OBJECTIVE 4. REINFORCE BOLD POLICIES & SUPPORTIVE SYSTEMS



1. GOVERNANCE, LEADERSHIP AND MULTI-SECTORAL COLLABORATION AND ACCOUNTABILITY

1.1 Brief description

Preventing TBL by addressing socio-economic determinants and securing comprehensive sevices calls for collaborations and accountability within and beyond the health sector in order to reach set targets, with roles and responsibilities within and beyond government. The 2018 political declaration of the United Nations General Assembly High-Level Meeting (UNHLM) recognizes that Ending the TB epidemic requires stewardship and informed leadership from the highest government level to enable the ministry of health and NTP guide a comprehensive intensified response. Enabling and pursuing multi-sectoral accountability at national and local levels is expected to achieve the health-related SDG targets and provides the essential framework for ending the TB epidemic. A national multi-sectoral accountability framework aims for tracking progress towards SDGs, End TB targets and declaration commitments based on high-quality data, holding country stakeholders accountable for the actions required to end the TB epidemic.

1.2 Targets

- Annual multi-sectoral accountability framework TB (MAF-TB)meeting with documented recommendations and action points.
- Annual TBL bulletin including a national end TB progress report.
- Incorporate TBL in the goals of all relevant sectors: government, private, non-government and civil society.

1.3 Interventions

- Convene national inter-ministerial commission on TB or its equivalent to enable independent complementary mechanisms, and inform review and action points of the commission.
- Mainstream systematic screening and care for at risk key population: Prison administration; Ministry of Mining, Labour and social affair, Education, innovation and technology etc.
- Adopt/adapt experience from other programs with strong multi-sectoral coordination and collaborate to improve awareness and advocacy to sectors and actors on their roles and responsibilities in relation to TBL prevention and elimination.
- Advocate for national implementation of global political commitments made by Ethiopia. Ensure availability and use of data required to reliably track the TB epidemic, assess progress towards targets and drive response efforts. Support national TB and SDG monitoring systems.

Box 4. Main components of national TB multisectoral accountability framework.

1. **Commitments:** Sustainable Development Goals (SDGs) for 2030; WHO End TB Strategy Targets; UN-HLM Political Declaration on HIV, 2016; The three 90's: 90-90-90 TB targets of the STOP TB Partnerships Global Plan to END TB; and Political Declaration of UN-HLM on TB, 2018.
2. **Actions:** Development, funding and implementation of national strategic and operational plans to end the TB epidemic, which take a multisectoral perspective and comprises of both government and partners; resource mobilization that includes allocation of budgets, with increasing share of funding from domestic sources; development and use of national MAF-TB; establishment, strengthening, and maintenance of a national multi-sectoral mechanism, such as inter-ministerial commission.
3. **Monitoring and reporting**: Strengthen routine TB surveillance, including treatment outcomes, through national health information system (DHIS2/PHEM) that meets quality and coverage standards; strengthen routine monitoring of TB related deaths through national Vital Registration Agency system (VERA), with international coding standards of causes of death; and monitor priority indicators related to the national TB response and associated targets. Publish the annual bulletin of the national TBL programme.
4. **Review:** Annual reviews of the TB response using national-level review mechanism with:
   - high-level leadership, preferably under the direction of head of government or deputy head of state;
   - a multi-sectoral perspective; and
   - engagement of key stakeholders.

2. ENGAGE ALL CARE PROVIDERS (PPM-TB)

2.1 Brief description

Engaging all care providers is a core strategy to expand services and end the TB epidemic. The national patient pathway analysis shows around 20% of TB patients first visit is at formal private care facilities. Ethiopia has been implementing PPM-TB since 2006, however, only about 3% of private health facilities are participating in PPM-TB contributing 15% of the national notification in 2018. Considering the size and potential of private providers to deliver services of TB diagnosis, treatment, prevention, and the persistent TB case detection gap in the country, the national guidance recommends scale up of engagement of all levels of private providers including pharmacies, primary and speciality clinics and centres, hospitals, for-profit and not-for profit facilities, workplaces and government facilities outside of the ministry of health.

To scale up engagement of all care providers towards universal access to TB care and prevention, the NTP will adapt flexible models of engagement by facility level and regional context; build capacity to assure quality and affordable care; establish supportive regulatory framework; provide incentives and enablers; and monitor performance and contribution of private providers.

2.2 Targets

- By 2025/26, all TB patients diagnosed in PPM-TB sites will be notified to the NTP.
- By 2025/26, 60% of PPM sites will be engaged in TB service provision, as appropriate.
- By 2025/26, PPM-TB sites will contribute 30% of nationally notified all forms of TB.

2.3 Interventions

Strengthen diagnostic services and supplies in PPM-TB sites.

- Ensure private patients' access to TB diagnostic and treatment services, including for diagnosis of TB infection and TPT through engagement of private laboratories; sample referral networks; provision of free/subsidized TB laboratory consumables in exchange for data and assurance for free or reduced patient cost of services.
- Expansion of TB diagnostics, such as microscopes and WRD molecular tests at PPM-TB sites, with cost-sharing mechanisms in selected high-volume private health facilities.
- Train laboratory professionals and supply managers in PPM-TB sites.
- Advocate for government incentives for private providers importation of TB diagnostics for private facilities, such as, through tax-exemption.
- Mobilize the support of private facility managers and owners to TB services.
- Recognize best performing PPM-TB sites.

Strengthen referral linkage and coordination among all care providers.

- Map out and prepare lists of different categories of private providers; undertake TB training needs assessment; develop sub-national plan for PPM-TB site prioritization.

- Develop updated national and local level referral directory to strengthen networking and patient and specimen referral linkages.

Implement feasible PPM-TB model. Based on exisiting experiences and lessons review, design, adapt and implement feasible performance-based PPM-TB models of engagement, including in training private providers. Ensure and support strategies that reduce TB patient cost in private care settings. Integrate adherence support, TB contact investigation and TPT at PPM-TB sites as package of TB services. Support private health facilities to fulfil minimum regulatory standards for TB services. Mobilize and support corporate and business sector health services to initiate and expand workplace TB programmes to serve workers, their families and communities.

Strengthen capacity of health workers in PPM-TB sites to prevent, diagnose, treat, and notify TB, through training, regular supportive supervision and clinical mentoring. Update tailored PPM-TB site modular on the job training materials. Provide national SOPs and guidelines to all PPM-TB sites and use feedback mechanisms on referred clients or samples. Engage private health sector representatives in policy and planning processes.

Programme monitoring and evaluation of PPM-TB sites.

- Data management systems for reporting, monitoring and evaluation of PPM-TB sites: Ensure availability of standardized M&E tools; strengthen capacity of PPM-TB sites through training, mentoring and supportive supervision on use of the national M&E tools and procedures.
- PPM-TB sites participate in annual programme planning and review;
- PPM-TB linked with the national information system (DHIS-2) for their direct data entry into the system.

3. UNIVERSAL HEALTH COVERAGE AND SOCIAL PROTECTION

3.1 Brief description

Building upon achievements of the health sector and aligned with SDG3, HSTP II aspires to attain UHC through increasing effective coverage of essential health services by 2030. Universal TBL screening, diagnosis, prevention, treatment and care is an essential component of the country's commitment to UHC, which highlights services are provided as well as funded without economic hardship to individuals and households. Strengthening primary healthcare, including HEWs and HDAs are part of an important strategy to ensure UHC.

- **Essential service availability:** The Government of Ethiopia has revised its essential health service packages (EHSP) in 2019. HSTP II intends to ensure that all the components of care and all the essential interventions are available at respective service delivery levels, mainly at the primary health care level, with an acceptable level of quality.
- **Essential service coverage**: Ensuring the utilization of the needed health services by all segments of the population is one of the components of UHC. HSTP II intends to ensure that all individuals and communities receive the services they need. Effective coverage combines three widely used components of need, utilization, and quality of healthcare interventions and is a relevant and actionable measure for tracking progress towards achieving UHC. Crude coverage takes into account the fraction of those who use an intervention without the quality component (gain in health) while the effective coverage adjusts this concept for the quality or effectiveness of the intervention.
- **Financial risk protection:** This is a key component of UHC, which is defined as access to all needed quality health services without being exposed to financial hardship. HSTP II intends to ensure that the EHSP service components are accessible and utilized by the community without causing financial hardship to service users.

3.2 Targets

- Achieve 95% TB treatment coverage, by 2025/26.
- Reduce households facing catastrophic costs due to TB to 25%, by 2025/26.
- Undertake national TB patient cost survey, 2021/22.

3.3 Interventions

Reduce OOP health expenditure due to TB.

- Undertake national TB patient cost survey and develop national strategies and milestones.
- Monitor health insurance coverage and utilization by TB patients; expanding TB-specific benefit package integrated into the health insurance based on the cost survey results.

Include TBL diagnosis, treatment, care and prevention in the national UHC essential benefit package. Currently, CxR is not included in the national essential heath service

package. Advocate and ensure inclusion of all ranges of TBL prevention, diagnosis, treatment and care services among priority UHC packages.

Strengthen collaboration with Ministry of Labour, employer and employee associations. Provide guidance for evidence-based workplace TB policy to mitigate discrimination and uphold rights of TB affected employees in the workplace. Substantial number of TB patients lose their jobs due to lack of adequate sick leaves; even after being cured, they continue facing TB stigma. Sensitize employers and employee associations about TB, and support implementation of workplace policy that protects workplace confidentiality and support.

Support multi-sectoral collaboration for social protection.

- Strengthen linkage and advocate for inclusion of TB affected households in national development safety net schemes and income generating projects.
- Work with affected communities and civil societies to link TBL with income generating activities, employment opportunities, community support resources.

People-centred prompt TBL diagnosis and treatment.

- Mitigate the burden of TB on households through combination of interventions that reduce delays at various levels: (i) improve community care seeking; (ii) decentralize screening, diagnosis and treatment; (iii) effective specimen referral system; (v) strengthen HEWs engagement in diagnosis, treatment and care services; (vi) mitigate TBL related stigma.
- Expand universal DST coverage to ensure early diagnosis and prompt treatment with efficacious regimen. Rollout shorter regimens for treatment of RR/MDR-TB and LTBI. Support private providers with TB diagnostics and supplies to reduce patient costs.

4. LABORATORY SERVICES

4.1 Brief description

TB diagnostic laboratories and public health emergency responses are led, coordinated and supported nationally by EPHI. In Ethiopia, the TB laboratory services are organized in three tires, interconnected through sample referral and quality assurance systems: National Referral Laboratory (at EPHI); Regional Referral Laboratories (RRL); and peripheral laboratories at hospitals and health centres. Coordination between national and regional referral laboratories, and regional laboratories with RHBs and facilities in their respective region and performance monitoring is generally inadequate.

TB laboratory system highly benefits from quality data and information to provide services that meet clients' needs. In Ethiopian, laboratory services don't use the DHIS2 database system to generate and report laboratory data. The laboratory information system needs to generate quality data that supports effective clinical and programme management.

4.2 Target

- All public and PPM-TB private facilities are networked in TB specimen referral system.
- All AFB Microscopy sites implement quality management system (QMS).
- 80% of GeneXpert MTB/RIF and TB culture and DST tests achieve nationally recommended turnaround time (TAT), by 2025/26.
- By 2025/26, all testing sites using WRD will have data connectivity system and transmit results electronically to clinicians and to NTP.
- All TB laboratories implement real time data collection and reporting, by 2025/26.
- Increase WRD testing sites from the current 285 to 350, by 2025/26.
- 100% AFB microscopy EQA coverage, at least by random slide rechecking.
- 100% of laboratories conducting culture, line probe assay or phenotypic DST, or a combination of these, implement formal quality management system.
- 100% of DST sites have demonstrated proficiency by EQA panel testing for all DST methods performed.
- All public and private TB laboratories adhere to national testing algorithm, SOPs, and guidelines, by 2025/26.
- All laboratories conducting culture, line probe assay and/or phenotypic DST implement quality management system.
- 80% of TB culture DST laboratories, and GeneXpert sites are accredited, by 2025/26.

4.3 Interventions

Expand access to TB laboratory services.

- Strengthen, equip and ensure uninterrupted laboratory supplies.
- Increase access to rapid molecular tests, such as GeneXpert, Truenat, in the TB diagnostic network.

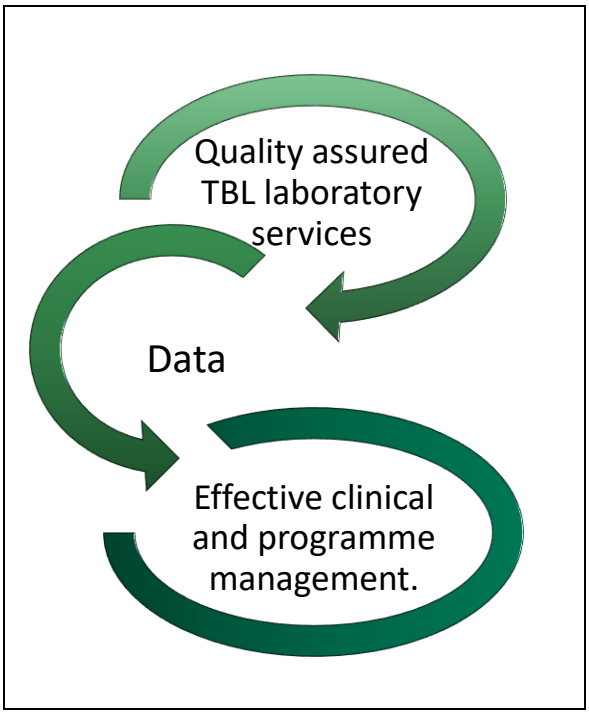
- Increase rational placement of GeneXpert machines with higher number of modules for regional and national referral laboratories.
- Optimize TB/HIV integrated specimen referral and result delivery, including through system digitization and connectivity, and use of local transport system in woredas where the postal infrastructure doesn't reach.
- Introduce whole genome sequencing (WGS) in the TB diagnostics network.
- Closely collaborate with the East, Central and Southern Africa Regional TB Laboratory strengthening project.

Public-private partnership for quality TB laboratory services.

- Use PPM platform for TB laboratory equipment maintenance, including framework contracts with suppliers.
- Advocate to incentivize high volume PPM-TB sites to have onsite testing capacity, for instance through tax exemption for importation.
- Comprehensive training and supportive supervision, including tier-specific supportive supervision for quality assured laboratory services.
- Include PPM-TB laboratory services into national quality assurance system.
- Rationally support engagement of private laboratories in TB, networking with private health facilities.

Quality assured TBL laboratory services.

- Quality management system of both public and private TB laboratories microscopy, GeneXpert, culture and DST.
- Regular machine maintenance and calibration, and correct preparation and sample transport.
- Train national and regional biomedical professionals for TB culture and DST lab equipment maintenance.
- TB/HIV integrated laboratory joint planning, training, supervision and monitoring for quality assured laboratory services, including for reasonable TAT.
- Update and disseminate TB lab standard operating procedures, and ensure routine health workers adherence through supervisions, trainings, mentoring and monitoring.



Laboratory information system.

- Quality real time data, including on culture, EQA, DST using electronic connectivity, such as GxALERT and ASPECT for GeneXpert and SL-LPA. Routine use of laboratory data for quality improvement, performance monitoring, planning, and supply management.
- Delivery of test results to clinical teams using electronic digital system.
- Annual comprehensive TB laboratory data analysis and report to monitor quality, cost, efficiency of service delivery using key performance indicators (KPIs) across the care cascade.
- Strengthen laboratory technical working groups as coordination forum at all levels.
- Strengthen IPLS for TB lab commodities with end to end visibility.

5. Supply Chain Management

5.1 Brief description

EPSA is mandated to ensure uninterrupted availability and accessibility of safe, efficacious and affordable medicines in response to major public health burdens with rational drug use. This includes procurement and distribution of pharmaceuticals, medical supplies, laboratory reagents, and equipment. Grouped into seven clusters (or hubs), EPSA has 19 branches across the country. Located in Addis Ababa, the head office coordinates hubs, which serves as outposts to distribute pharmaceuticals, chemical reagents, medical supplies and equipment. Hubs also gather pharmaceutical demand within their domain and communicate with head office to form nationally aggregated demand. All procurement of pharmaceuticals and medical supplies are pooled nationally. The NTP and EPHI use the Global Drug Facility (GDF) mechanism for the procurement of second line and paediatrics anti-TB medicines, reagents and consumables for culture and DST, and GeneXpert machine and supplies. PEPFAR and other partners may also participate in the procurement of some of these pharmaceuticals. EPSA is responsible for in-country storage and distribution of all pharmaceuticals and other supplies, irrespective of the procurement mechanism.

EPSA and NTP along with partners have a system for regular quantification and procurement of TB medicines and supplies. This mechanism has played crucial role in the successful introduction of new TB regimens, including child friendly TB formulations; RR/MDR-TB shorter treatment regimens; new and repurposed anti-TB medicines for DR-TB treatment.

5.2 Targets

- Zero facilities reporting stockout of anti-TB medicines in the preceding three months at time of the assessment, by 2025/26.
- Zero diagnostic facilities reporting stockout of TB laboratory supplies in the preceding three months at time of the assessment, by 2025/26.
- Maintain wastage of TB pharmaceuticals to less than 2%.

5.3 Interventions

Strengthen forecasting and quantification.

- On-site support health facilities regular submission of Report and Requisition Form (RRF) at Integrated Pharmaceutical Logistics System (IPLS) and place proper monitoring of SLDs, AFB reagents and manage stock status.
- Conduct regular national quantification (packaging, unit) exercises and quarterly supply planning; enhance contract management (enforce accountability coordination and integration.
- Ensure strategic support for TB commodity framework procurement.

Ensure regular pharmaceutical supply chain audits.

- Ensure timely delivery/distribution of health facilities request, through pre-import permission.
- Strengthen laboratory reagents regulatory quality assurance.
- Improve AFB reagents preparation and distribution system; and bundling of TB laboratory reagents.
- Improve TB commodities (medicines, laboratory reagents and supplies) market authorization.
- Integrate DR-TB medicines into routine IPLS.
- Strengthen programme and supply chain through training, supportive supervision and on the job mentoring of supply managers.

End-to-end traceability and visibility of pharmaceuticals.

- Reinforce inventory management system at health facility level, through regular supportive supervision.
- Roll-out electronic Logistics Management Information System (LMIS) to ordering and stock management at health facilities.
- Scale up implementation of track and trace (GS1) initiatives.

Strengthen supply system at PPM-TB sites.

- Include PPM-TB facilities in supply routing and scheduled supply delivery. Direct delivery of distribution of TB medicines and supplies to PPM-TB sites.
- Standardized last mile distribution of TB pharmaceuticals and laboratory supplies to PPM -TB sites. Optimize distribution network to PPM-TB sites.
- Supply chain linkage between public and private HFs and administrative structure.
- Regular supply management monitoring of PPM-TB sites.

Data generation and use.

- Conduct suppliers' prequalification.
- Timely provision of proof of delivery to the NTP.
- Develop/use standard laboratory commodities quantification database.
- Improve essential supply chain data visibility (real time) and use.

Capacity of supply managers at all levels.

- Training and support to health workers in TB pharmaceuticals management, including guidelines update and regimen transition management.
- Train supply chain and laboratory professionals on quantification principles and tools.
- Supportive supervision and performance assessment at health facilities.

6. ACTIVE DRUG SAFETY MONITORING AND PHARMACOVIGILANCE

6.1 Brief description

Strengthening active drug safety monitoring (aDSM) for Second Line Drugs (SLDs) is an important prerequisite for delivery of quality services.

6.2 Targets

- Contribute to quality of care and optimal treatment outcomes.

6.3 Interventions

- Strengthen aDSM national coordination mechanism between NTP and FDA.
- Provide on-the-job training of healthcare providers and programme managers, including data collection and analysis, feedback exchange, and joint operational planning and supervision with EFDA.
- Implement an electronic aDSM system for RR/MDR-TB nationally.
- Implement aDSM for second line anti-TB medicines, disseminate findings quarterly to all stakeholders.
- Ensure availability clinical tools and laboratory tests for DR-TB treatment monitoring, per national guidelines recommendations.

7. HUMAN RESOURCE

7.1 Brief description

Human resource availability, skill and mix are critical to end the TBL epidemic. Within the last years, Ethiopia has substantially increased human resource for health (HRH) and national capacity for health professionals training. The national HRH strategic plan (2016-2020) envisions ensuring presence of adequate numbers and knowledgeable and skilled HRH with equitable distribution. For TBL main themes in building capacity of health workers, both facility teams and programme managers, and communities (***Figure 44***).

Figure 44. Main areas in building capacity of health workers and communities.

7.2 Targets

- All TBL programme managers' positions filled at all levels.
- Skilled laboratory professionals available in all public TB-laboratories.

7.3 Interventions

- Advocate and dialogue with RHBs and ministry of health for filling of essential TBL posts, both at programme management and facility levels.
- Closely monitor (using KPI) the impacts of COVID-19 pandemic on TBL staffing number, patterns and skill mix. Map out main tasks of TBL care and consider task shifting where relevant, so that where appropriate increased number of health workers are prepared to fill in.
- Update national and regional TBL health service providers, programme and supply managers, and laboratory professionals', through in-service training, supervision, and mentorship.
- Advocate to increase number of laboratory professionals through pre-service training.
- Introduce digital TBL in-service training tools and job aids including blended learning, mobile app platforms, and USB flash drive offline self-learning materials.
- Prepare and disseminate self-learning materials and on-the job tools and guidelines for health workers.

8. HUMAN RIGHTS AND GENDER

8.1 Brief description

All humans, irrespective of their nationality, gender, socio-economic background, race, religion, or any other status have the right to health services when they need it. This value is inculcated in the constitution of Ethiopia; and in UHC that the country has already adopted. TBL are highly stigmatized public health and socio-economic issues in Ethiopia. Stigma and discrimination are barriers to health and other social services. People affected by TBL; PLHIV; household contacts and families of persons with confirmed TBL; women and girls; persons with mental health disorder; IDPs; refugees; and migrant workers experience additional socio-economic barrier. Gender is one of the social determinants of health and health outcomes.

8.2 Targets

- Percent of people diagnosed with TB who experienced self-stigma that inhibited them from seeking and accessing TB services
- Percent of people diagnosed with TB who report stigma in health care settings that inhibited them from seeking and accessing TB services
- Percent of people diagnosed with TB who report stigma in community settings that inhibited them from seeking and accessing TB services
- All programme data disaggregated by gender, and national TBL service equity analysis report produced annually.
- In-depth gender and TB analysis to better design gender-responsive service delivery models.

8.3 Interventions

Mitigate community, healthcare setting, and self- stigma.

- Undertake national TB stigma assessment to develop sub-nationally contextualized action plans and monitor progress across time.
- Disseminate survey findings to all stakeholders to develop, implement and sustain a country-wide, multi-media interventions to address stigma and discrimination, including its impact on access to services.
- Integrate TBL stigma messages in community education & social mobilization to sensitize and promote awareness at various forums, including annual TBL world day celebrations.

Engage and empower key stakeholders.

- Engage key and vulnerable groups to mitigate stigma and discrimination.

- Disseminate the patient charter to all stakeholders, including health workers and TB affected persons and communities.
- Empower law makers and enforcement agencies, such as parliamentarians TB caucus, and Regional and Woreda councils to strengthen their effective engagement.
- Build capacity and engage peer educators and support groups.
- Facilitate inclusive, community-led dialogue to empower human right groups for health. Engage TB survivors and champions in community sensitization and share their stories and experience in social mobilization.
- Engage religious, traditional and other community leaders to speak out against TBL related stigma and discrimination; and promote treatment adherence and completion.
- Establish patient feedback mechanism, at facility level, through scorecard.
- Scale up and sustain community level campaigns, data analysis and dialogues to promote equitable access to services.
- Integrate legal and treatment literacy and empowerment as part of services provided to affected communities.

Strengthen interventions targeting healthcare system.

- Support pre-service and on-the-job training of health workers on ethics, rights and responsibilities of TB affected persons and health workers, and on occupational safety.
- Incorporate stigma and its manifestation and impact in health workers training, targeting to create better understanding and prevention in healthcare settings.
- Strengthen TB awareness messages in healthcare settings targeted to specific population groups, such as IDPs, refugees, PLHIV, children, DR-TB, men, etc.
- Scale-up and sustain networks of people affected by TBL to strengthen organizational capacity and leadership in TBL related rights and responsibilities.

Strengthen equitable access to quality TB services among at risk populations.

- Undertake an equity and gender analysis of TB services to implement comprehensive, multi-sectoral action plan to address inequity in TB service utilization and intervention outcomes.
- Create and sustain TB stigma reduction interventions for adolescents and young people, including for PLHIV.

Strengthen service delivery models that reach young men.

- Pilot and expand interventions to reach young men, including peer-based interventions, workplace initiatives, and community-based outreach services.

9. COMMUNITY SYSTEMS

9.1 Brief description

In Ethiopia, communities and families are at frontline in the response to health needs. Reaching communities with information and services, ensuring equitable access to interventions will require building strong and resilient community systems. Within the formal health system, HEWs and HDAs refer those with presumptive TB, undertake household contact investigation, trace and reengage LTFU, support treatment at health post level, and educate communities.

Community structures that are not within the health service delivery system, can also contribute to address social determinants of health; in economic and legal support; human rights protection and gender equity; community led accountability and peer-managed interventions (***Figure 45***).

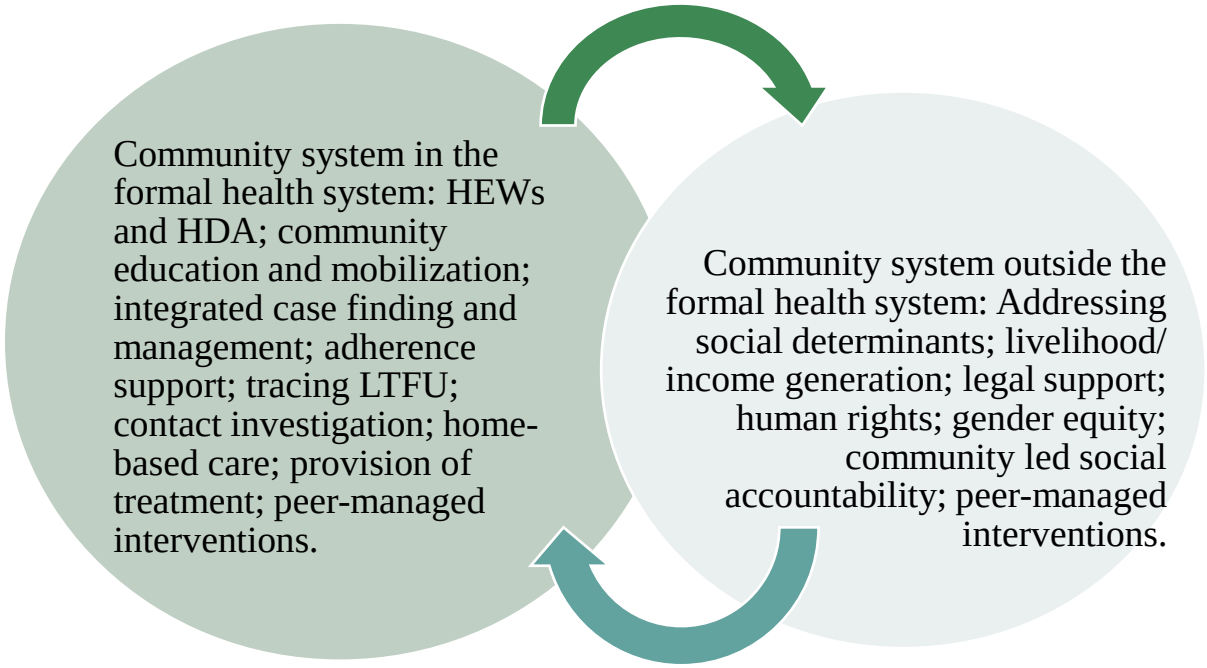


Figure 45. Linkage across ranges of community responses.

9.2 Targets

- Contribute in finding persons with TB, expansion of TPT and optimizing treatment outcomes.
- Contribute for comprehensive community level services to persons affected and population at risk of TB.
- Advocate for increased NSP funding to narrow the funding gap.

9.3 Interventions

Strengthen linkage between PHCUs - affected communities

- Build capacity of PHCUs to deliver comprehensive package of community TB care, including sample referral in high TB burden woredas, household contact investigation, and outreach screening among high risk groups.
- Strengthen community- HP-HC referral linkage through catchment area management, referral slips and feedback, Woreda-led coordination and supportive supervision.
- Provide package of simplified integrated job-aids and updates to HEWs.
- Train HEWs to work with TBL affected and at-risk population groups.
- TB community level data collection and reporting integrated in eCHIS.
- Establish stakeholder coordination forums in high TB burden Woredas, engage affected communities, CSOs and HEWs in such forums.
- Community education at woreda and kebele level for stigma reduction and mobilize public support to affected groups using adolescent, youth, and school children and peers.
- Mobilize resources for engaging CSOs to establish community monitoring mechanisms and document lessons learned.
- Implement mobile TB service for pastoralist communities and use outreach services to engage communities.
- Advocate to keep TBL high on in the agenda of competing priorities.

Optimize engagement of TBL affected and at-risk population.

- Engage TB affected people in multisectoral collaboration and accountability framework.
- Build organizational and leadership capacity of associations of affected people capacity for their meaningful engagement in all TBL responses.
- Strengthen political commitment at different levels through advocacy and sensitization.
- Develop a strategic framework and mechanisms to promote engagement of affected population and civil society.
- Empower and establish networking platforms across varies affected groups.
- Mobilize resources, technical support to strengthen leadership and institutional capacity of civil societies.
- Develop an advocacy document that highlights the socio-economic and psychological impacts of TBL, and joint planning and integrated advocacy agenda among stakeholders.
- Produce annual End TB report, including who is doing what, financial resources and funding gap and co-financing commitments.
- Support advocacy, including panel and community forums and platforms with optimal use of existing health advocacy forums.
- Train, engage and monitor media, public and private, engagement in awareness creation and public advocacy. Use media spot to communicate about stigma, its manifestation and impact.
- Dialogue and advocate for country endorsement of the Barcelona Declaration.

- Advocate for increased domestic funding and to narrow the funding gap. Proactively mobilize resources to narrow funding gaps. Monitor and support efficient utilization of available funds.
- Engage/train TBL patients in income generation, at community level.

10. PROGRAMME MANAGEMENT AND TRANSFORMATIVE LEADERSHIP

10.1 Brief description

Several achievements are the result of effective programme management, coordination and partnerships to address TBL in Ethiopia. Several past lessons are relevant for the successful implementation of the TBL-NSP. At this stage of ending TB, effective and efficient programme management, partnership and coordination requires looking into broad based multi-sectoral actions: engagement of affected communities and civil society, various stakeholders including government ministries, local government structures, the private sector, the donor community as well as communities targeted by service delivery.

10.2 Interventions

Build TBL programme managers capacity for strategic leadership; implement new recommendations; programme monitoring, gap and resource prioritization, proactive risk management and mitigation; quality operational planning and resource mapping; situation assessment; quality data generation and use; estimation of local disease burden; to advocate for sustained political commitment and work with ranges of stakeholders at all levels.

Strengthen coordination and collaboration at all levels.

- Establish forums for PPM coordination; multisectoral collaboration and engagement of civil societies, affected communities and other partners.
- Use joint annual programme review, supportive supervision, clinical mentoring in collaboration, particularly in high burden Woredas.
- Regularly monitor and review progress in collaborative activities.
- Work for TB service integration with other services and share progress at various existing forums for efficiency gain.
- Strengthen political commitment by working with various stakeholders.

STRATEGIC OBJECTIVE 4: STRATEGIC INFORMATION AND RESEARCH

1. Strategic Information

1.1 Brief description

A strategic information is an integral part the TBL-NSP for tracking progress, recognize and address emerging needs, prioritize and adopt effective interventions throughout the implementation period. Additionally, availability and use of quality data is a strategic priority for the national programme. The WHO logic model of programme monitoring and evaluation is used in order to articulate the logical relationship from inputs to outputs, outcomes and impact. Besides a logic model, monitoring equity, quality, UHC, and stigma are included. It also highlights M&E areas for the TBL-NSP period to:

a) Monitor implementation of planned strategic interventions.

b) Track country progress towards set goals, targets and benchmarks.
c) Evaluates TBL program output contribution towards HSTP II targets.
d) Data collection, analysis, and use for informed decision at various levels.

The national indicators target are listed in line with the goals, objectives and interventions of the TBL-NSP, and are arranged per focus area (i.e. Impact, outcome and output), definition (Numerator and Denominator), disaggregation, data sources, frequency of data collection and responsible entity (***Table 11***)

1.2 Routine TBL programme monitoring system and data management

1.2.1 Routine programme data collection

The NTLP uses standardized data collection tools, which are regularly updated in accordance with the WHO global recommendations. The program uses the DHIS2 platform for reporting and nationally standardized registers, cards and forms at health facility level for routine patient data collection. At facility level, healthcare providers use the patient data for individual care and monitoring intervention outcomes among cohorts of patients; while, program managers use data for performance monitoring. The various forms and registers include user friendly instructions on how to fill respective forms to support standardized definition of data elements (Annex 18.2; ***Figure 58***).

Interventions during this NSP period:

- Introduce electronic medical record (EMR) for DR-TB, building on existing aDSM electronic infrastructure.
- Use OPD registers to monitor TB screening, diagnosis and linkage to treatment.
- Strengthen TB laboratory data recording and reporting through mentoring and supervision.
- Strengthen monitoring contact investigation and TPT initiation and completion through mentoring and supervision.

1.2.2 Data compilation and analysis

TBL focal persons at health facilities fill standardized reporting forms, which is shared with facility health information unit that compiles facility data. TBL program data quality check is integrated into team performance monitoring. The facility data is entered into DHIS2 electronic reporting system either at facility or woreda level. Where it happens at woreda level, data is transferred from facility to respective woreda using standardized hardcopy forms.

1.2.3 Routine TBL programme report flow and feedback

TBL program data analysis is done at the end of each quarter. Per Ethiopia's fiscal year, the four quarters are:

a) Quarter 1: July - September.
b) Quarter 2: October - December.
c) Quarter 3: January - March.

d) Quarter 4: April - June.

Data disaggregation methodology is similar throughout the system.[59] Health facilities record individual patient level data, and report to woreda or sub city health offices within six days of the end of respective quarter. Ascertaining data entry, completeness, accuracy and consistency is expected at each level of the system: at Woreda Health Offices (WoHO), Zonal and Sub-city health offices, RHBs, and the FMOH. Likewise, each level is expected to provide feedback to the next lower level. The NTLP reviews data and provides feedback to RHBs programme team within six weeks after the closing of the reporting quarter. The NTLP also prepares annual summary report within six months after ending of the year. A more detailed feedback is provided during national bi-annual programme review meetings.

- Strengthening data quality and use at all level is an emphasis area for the NSP.
- Update and disseminate health workers TBL programme M&E pocketbook.
- Support development and introduction of eCHIS system to improve community TB report, including contact investigation.

DHIS2 supports users' database system access and generate reports. DHIS2 has data completeness and timeliness auditing options, which programme officers can monitor.[60]

1.2.4 Mechanisms to ensure quality of routine programme data

Data quality assurance is a process involving identification of errors, inconsistencies and other data anomalies to improve quality, which encompasses accuracy, reliability, completeness, timeliness, integrity, and confidentiality. [61, 62]

The following mechanisms are used to support data quality.

(i) **Programme reviews** are used to monitor implementation progress, achievements and challenges, and incudes verifying TBL data. Given the size of the country, TBL programme reviews are held at woreda, zonal, regional and national levels. The output of programme review meetings is action points that includes on data quality.

(ii) **Data quality assurance** and implementation guidance for data quality assurance, including DHIS2 Information Use Training Module; and Data Recording and Reporting Procedures Manual are available. Additionally, the TBL program provides health workers pocket guide for TBL M&E. Training and mentorship are used to strengthen quality by improving health workers capacity in data collection, analysis, and information use.

(iii) **Supportive supervision** takes place at all levels of the system: national, regional, zonal, woreda, health facility and community levels. Such forums are used to directly

[59] FMOH. 2017. Data recording and reporting procedure manual.
[60] FMOH, 2017. DHIS2 implementation plan.
[61] FMOH, 2017. National data quality manual.
[62] FMOH, 2016. Preliminary report on health data quality assessment.

observe, review and provide feedback to health workers on data generation and use. It is done in collaboration and coordination with major partners and stakeholders.

1.2.5 TBL programme M&E coordination

At the national level, the process of collecting, analysing, and reporting is led by the policy plan directorate of the FMOH. A focal person within the national TBL programme team coordinates TBL specific M&E. Additionally, the TBL technical working group (TWG) meetings, where all partners and stakeholders are represented, reviews and address M&E related specific issues.

1.2.6 TBL routine information dissemination

The following are main forums for NTLP to disseminate information on programme performance, progress and challenges.

a) Biannual TBL program reviews

Biannually, the NTLP shares summary performance and analysis report on key indicators in various forums, including programme reviews and national TWG meetings. National programme review meetings are attended by regional TB programme officers, NTLP staff, stakeholders and partners. All regions present implementation progress and challenges in their respective region. Priority areas for joint recommendations and action points are developed at such meetings.

b) Annual TBL bulletin

Annually, the NTLP publishes a comprehensive overview of the TBL program with trend analysis, in depth performance review, and highlights of key challenges. This has been used to disseminate TBL programme data, though regular production has been a challenge in the last two years. During this TBL-NSP period, the national programme will resume publication of this bulletin annually.

c) Annual TB research conference of TRAC

The national TBL program has an annual TB research symposium where research abstracts, new global developments, and NTLP performance and challenges are presented and discussed. Conference proceedings and abstract books are disseminated in hard and electronic copy. Annual TB conference is attended by programme managers, researchers, academicians, partners and policy makers.

1.3 Performance monitoring indicators and targets.

Twenty-seven impact, outcome, and coverage indicators are selected to monitor and evaluate the TBL-NSP (***Table 11***). The period for data collection and analysis varies for each indicator, ranging from monthly to five years. Some of the indicators have been already used during HSTP I and are included without any modification, while some are updated, and

new indicators are also added. The indicators are selected based on national and global priority for monitoring progress in TBL.

1.4 Monitoring across TB screening, prevention, diagnosis, treatment continuum.

Introduce or strengthen routine monitoring from screening to presumptive TB diagnosis, laboratory investigation, TB diagnosis and enrolment in TB treatment (***Figure 46***).

Figure 46. Illustration for TB monitoring across the continuum of care.

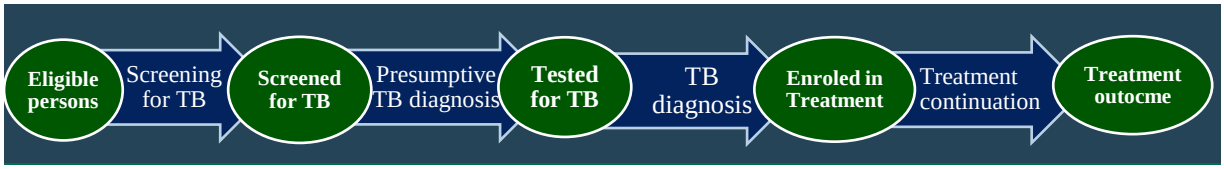
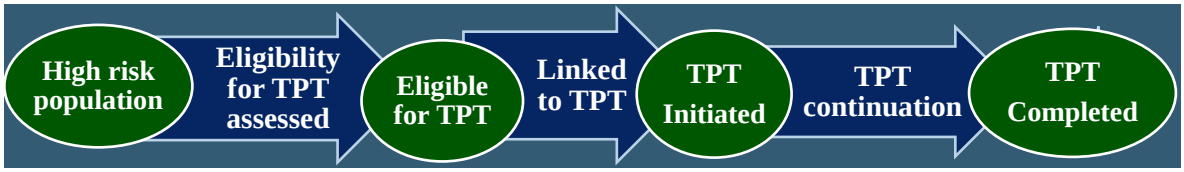


Figure 41



- Use existing OPD register to monitor pre-treatment stages of the cascade of TB screening and diagnosis. Facilities routinely use integrated OPD register for recording and reporting on outpatient visits. TB is already integrated in the OPD register, however, assessment of OPD registers, in several facilities, are incomplete, which could be due to screening not done or data not recorded. There will be strengthening of this approach starting from high volume public hospitals, followed by lesser volume hospitals and high-volume health centres, scaling up to all public facilities by the end of TBL-NSP period.

- Reporting on presumptive TB will be integrated into the routine DHIS2 system. Data generated will be used to strengthen continuity of care from the initial screening.

Implement data improvement mechanisms at national and sub-national levels. Provide technical support to regional and sub-regional levels to strengthen woreda level data quality and use. Ensure monthly data review meetings at woreda level, and quarterly review at regional levels. Introduce programme specific annual rapid data quality assessment (RDQA) practice and feedback to improve indicators with data quality problem.

Support use of data for decision making. Integrate data analysis and visualization in health workers training. Promote data visualization using maps, dashboards, infographics to make data presentation and use more attractive and simplified. Analyse available data regularly to identify policy and implementation gaps, emerging priorities and issues.

Strengthen programme M&E. Develop, review, print and supply data capturing tools: registers, job aids, forms. Use national and regional technical working group to align and harmonize M&E activities. Train zonal and woreda level programme officers to use of DHIS-

2 system to improve data analysis, interpretation and use. Health workers training, supportive supervision and on- the-job mentoring will be used to ensure correct data entry, screening of eligible persons, and triangulation with laboratory records.

Pilot and adopt unique patient identifier. Pilot feasible patient identifier to track patients from diagnosis to treatment enrolment and outcome. Consider initial piloting in high burden woredas and volume hospitals.

1.5 National surveys and surveillance

a) **TB prevalence survey.** In 2011, EPHI conducted the first TB prevalence survey. TB prevalence survey is expected every five years. Without surveys, it is a challenge to accurately estimate sub-national and sub-population TB burden.
b) **Drug Resistant Survey.** Ethiopia has conducted the first DRS in 2011, and the second in 2014. The third DRS is conducted in 2018/19, and the official report will be available in 2020.
c) **Survey to estimate catastrophic TB patient cost**. Eliminating catastrophic TB patient cost is one of the End TB targets. It is a periodic survey of every 2-3 years.[63] Ethiopia, as one of the countries that adopted End TB strategy has plan to conduct this survey during this TBL-NSP.
d) **Stigma assessment.** TB related stigma is a challenge in Ethiopia. Small scale studies show high level of community stigma, as well as in healthcare settings. This assessment will be done every 3-4 years, and progress will be monitored using stigma specific indicators.

[63] WHO, 2015. Implementing the end TB strategy: the essentials.

Table 11. Performance measure key indicators and targets.

No	Category	Indicator	Unit	Baseline	Year	Source	Freq.	Resp.	2021/22	2022/23	2023/24	2024/25	2025/26
1	**Impact**	TB Incidence per 100,000 population	Rate	151/100,000 Popn	2018	GTB report	Annual	NTLP	121	113	105	98	91
2	**Impact**	HIV- TB Mortality per 100,000 population	Rate	22/100,000 Popn	2018	GTB report	Annual	NTLP	17	15	13	11	7
3	**Impact**	Mortality among HIV +Positive new and relapse TB cases	Rate	2/100,000 Popn	2018	GTB report	Annual	NTLP	2	2	1.5	1.5	1.5
4	**Impact**	Leprosy prevalence rate	Rate	0.3/10,000 Popn	2018	Global	Annual	NTLP	0.3	0.2	0.2	0.1	0.1
5	**Outcome**	Proportion of bacteriologically confirmed among PTB cases	Prop	62%	2019	DHIS2	Quarterly	NTLP	70%	75%	80%	80%	85%
6	**Outcome**	Treatment success rate for bacteriologically confirmed TB cases	Rate	95%	2019	DHIS2	Quarterly	NTLP	96%	96%	96%	96%	96%
7	**Outcome**	Cure rate for bacteriologically confirmed TB cases	Rate	84%	2019	DHIS2	Bi-annual	NTLP	90%	90%	90%	90%	90%
8	**Outcome**	TSR for all forms of TB	Rate	95%	2019	DHIS2	Quarterly	NTLP	96%	96%	96%	96%	96%
9	**Outcome**	RR/MDR-TB TSR	Rate	75%	2019	DHIS2	Quarterly	NTLP	72%	75%	77%	80%	80%
10	**Outcome**	RR/MDR-TB Cure rate	Rate	58%	2019	DHIS2	Quarterly	NTLP	60%	60%	75%	85%	85%
11	**Outcome**	Proportion of Disability grade 2 among new leprosy cases	Rate	14%	2019	DHIS2	Quarterly	NTLP	10%	8%	6%	4%	<1%
12	**Outcome**	Leprosy Treatment completion	Rate	94%	2019	DHIS2	Quarterly	NTLP	95%	95%	95%	95%	95%
13	**Outcome**	Percentage of households experiencing TB catastrophic costs	Prop	NA	2020	Survey	Five years	NTLP	Targets to be set based on stigma assessment findings, which determines the baseline				
14	**Outcome**	Percent of people diagnosed with TB who experienced self-stigma that inhibited them from seeking and accessing TB services	Prop	NA	NA	Survey		NTLP					
15	**Outcome**	Percent of people diagnosed with TB who report stigma in health care settings that inhibited them from seeking and accessing TB services	Prop	NA	NA	Survey		NTLP					
16	**Outcome**	Percent of people diagnosed with TB who report stigma in community	Prop	NA	NA	Survey		NTLP					

		settings that inhibited them from seeking and accessing TB services											
18	**Coverage**	TB treatment coverage	Prop	69%	2018	GTB	Quarterly	NTLP	90%	92%	95%	95%	95%
19	**Coverage**	RR/MDR-TB treatment coverage	Prop	47%	2018	DHIS2	Quarterly	NTLP	90%	90%	90%	90%	90%
20	**Coverage**	Percentage of TB patients with DST results for at least RR among total number with PTB	Prop		2019	DHIS2	Quarterly	NTLP	80%	85%	90%	90%	95%
21	**Coverage**	Number of bacteriologically confirmed RR/MDR-TB cases notified	#	658	2019	DHIS2	Quarterly	NTLP	1196	1139	1084	1031	980
22	**Coverage**	Laboratory-confirmed RR/MDR-TB cases enrolled on second-line anti-TB treatment during the specified period	#	658	2019	DHIS2	Quarterly	NTLP	1196	1139	1084	1031	980
23	**Coverage**	Number of nationally notified all forms of TB	#	113,613	2018	DHIS2	Quarterly	NTLP	125,122	121,928	119,372	113,637	107,584
24	**Coverage**	Proportion of all forms of TB with known HIV status	Prop	82%	2019	DHIS2	Quarterly	NTLP	92%	95%	95%	95%	95%
25	**Coverage**	ART coverage among TB/HIV co-infected persons while on TB treatment	Prop	97%	2019	DHIS2	Quarterly	NTLP	97%	97%	97%	100%	100%
26	**Coverage**	Contact screening coverage ≤ 15 years of age	Prop	62%	2019	DHIS2	Quarterly	NTLP	61,600	68,280	69,669	77,287	78,253
27	**Coverage**	TPT for eligible ≤ 15 years household contacts of PTB.	Prop		2019	DHIS2	Quarterly	NTLP	61,292	67,939	69,321	76,900	77,861
28	**Coverage**	Proportion of children among notified persons with leprosy	Prop	13%	2019	DHIS 2	Quarterly	NTLP	11%	9%	7%	5%	2%

2. Research and evidence use

2.1 Brief description

Building on lessons learned from implementing earlier plans and considering emerging issues the HSTP highlights TB among priority public health problems. One of the strategic objectives of the HSTP is strengthening decision making based on Research and Evidence.

Established in 2001, the ministry of health TB research and advisory council (TRAC) is a national forum that brings together TB program managers, researchers, universities, funding agencies, and implementing partners to promote TB research in Ethiopia. In collaboration with partners, TRAC has facilitated and supported in-country TB researches and established mechanism for TB research dissemination through annual conferences. In the last decade, TB research has increased in Ethiopia, with TRAC's systematic and coordinated efforts to build capacity of in-country researchers through training, mentoring and financial support of national and international partners.

Based on the national and global drive for increased research and innovations to achieve the End TB targets and in-country lessons over the past decade, TRAC, in collaboration with its partners have developed national plan for TB operational research in Ethiopia. This national plan incorporates epidemiologic, basic and clinical, operational and health system priority areas for TB research.

TRAC, which is composed of a wide range of experts from the ministry of health, research institutions, universities and partners will continue to proactively promote, advocate, facilitate and engage in conducting and disseminating TB research; and act as a forum for dialogue and interaction between TB researchers and program managers in Ethiopia.

2.2 Targets

- Ensure institutional sustainability of TB research advisory council.
- Organize annual TB conference in collaboration with universities, ministry of health, partners and regional stakeholders.
- Monitor implementation of the national plan for TB research in Ethiopia.

2.3 Interventions

- Support annual TB conferences of TRAC in collaboration with universities, RHBs, partners, TB affected communities and other stakeholders.
- For Ethiopia, priorities include better understanding of the TBL epidemiology in geographic and sub-population, operational researches to optimize implementation and impact, and promote innovations.
- Priority research areas are annexed with this TBL-NSP.
- Support implementation research to optimize service delivery models for mobile population.

Research Priorities

Ethiopia has fairly established TB research advisory committee (TRAC) that advises the country on TB research, works with academia and researchers to disseminate research findings through annual conferences. Ethiopia has also developed a national plan for priority TB research, which is still relevant. Here, below, are selected expanded research priorities are included along the continuum of care the patient pathway framework.

Focus area	Priority areas
People not accessing the health system	▪ Synthesis of published studies to establish TBL knowledge among the general population. ▪ TBL stigma assessment to monitor progress across time. ▪ Equity analysis of TB services and outcomes. ▪ National TB cost survey. ▪ Repeat patient pathway analysis.
People seeking care but either not diagnosed or not notified	▪ Expansion of DST coverage: Feasibility of strengthening sample referral systems Vs expansion of testing sites. ▪ Feasibility and acceptability of onsite digital X-ray at all first-level hospitals vs CxR voucher schemes vs mobile Xray services for TB screening. ▪ National TB prevalence survey with sub-national estimates. ▪ Studies to improve burden estimate by population and geographic settings. ▪ Periodical assessment of TB surveillance system and data.
People diagnosed but not successfully treated	▪ Facility level audit of unfavorable treatment outcomes in woredas with low TB- TSR. ▪ Death and service quality audit at DR-TB treatment sites.

1.3.6 Interventions impact modelling and cost-effectiveness analysis

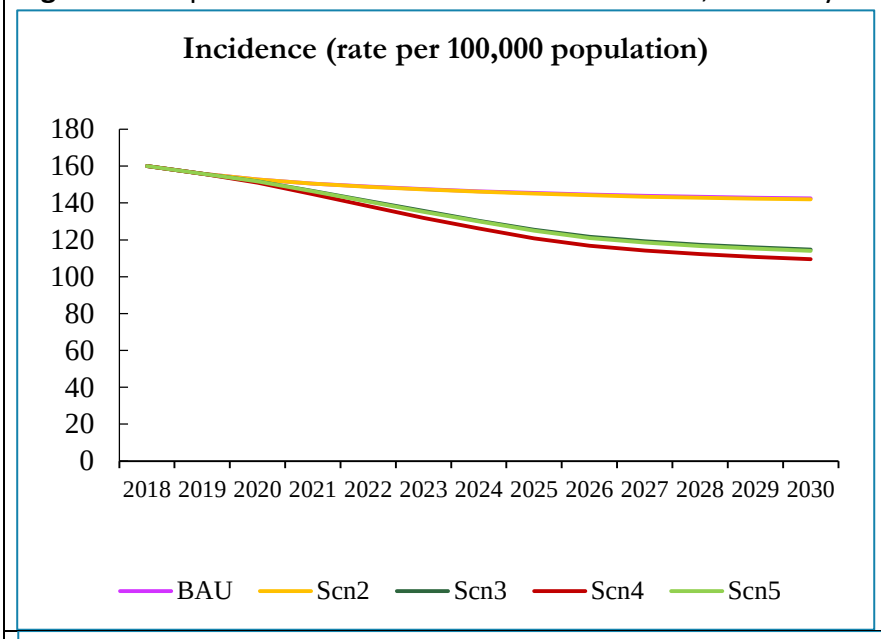
TIME modelling is applied in prioritizing interventions identified during stakeholder consultations. The two categories of interventions whose impact is modelled are the TB screening and diagnostic algorithm, and approaches to reach at risk population. The impact modelling for the interventions was conducted on the projections from the baseline calibration, 2019 onwards. The interventions were each run in different combinations to assess the individual impact for some interventions and the combined for others. The scenarios are run against business as usual (current status) results to provide the cost-effectiveness of each intervention (**Error! Reference source not found.**).

Table 12. Description of different scenarios assessed for epidemiologic impact.

Scenario #	Scenario category	Interventions
1	Status quo	Continue as it is.
2	GeneXpert coverage as first test	Expand GeneXpert test alone (to 80% coverage).
3	CxR screening and GeneXpert test as first diagnostic tool	Introduce CXR for initial screening (to 60% coverage).
		Expand GeneXpert coverage (to 80% coverage).
4	Scenario 3+intensive case finding in health facilities (including PPM)	Screen 70% of outpatient visitors, including in private care settings.
5	Scenario 3 + contact investigation and community outreach	Household contact investigation

Ethiopia's primary health care unit, particularly health centres and community health extension in rural areas, are the first entry to care for large number of people. For instance, two third of TB patients first visited for care community health posts HEWs and health centres. The community TB care contributes around 15% of the nationally notified all forms of TB. However, this modelling and cost analysis doesn't include community-based screening in high burden woredas as one of the intervention scenarios due to the limited sub-national epidemiologic data to estimate TB burden at woreda level. In general, the reach of household contact investigation as the only case finding strategy is inherently limited. Hence, it is used as incremental activity to use of CxR screening, rapid molecular test (GeneXpert test), and intensive case finding at facility level.

Figure 47. Impact of different scenarios on incidence, mortality and case notification.



KEY:
BAU=Business as usual.

Scn2 = Expand only GeneXpert coverage as first test (80% coverage).

Scn3 = CxR screening (60%) + GeneXpert as 1st test (80% coverage).

Scn4 = Scn3 + ICF in high volume health facilities (including PPM-TB sites)

Scn5 = Scn3 + contact investigation through community outreach.

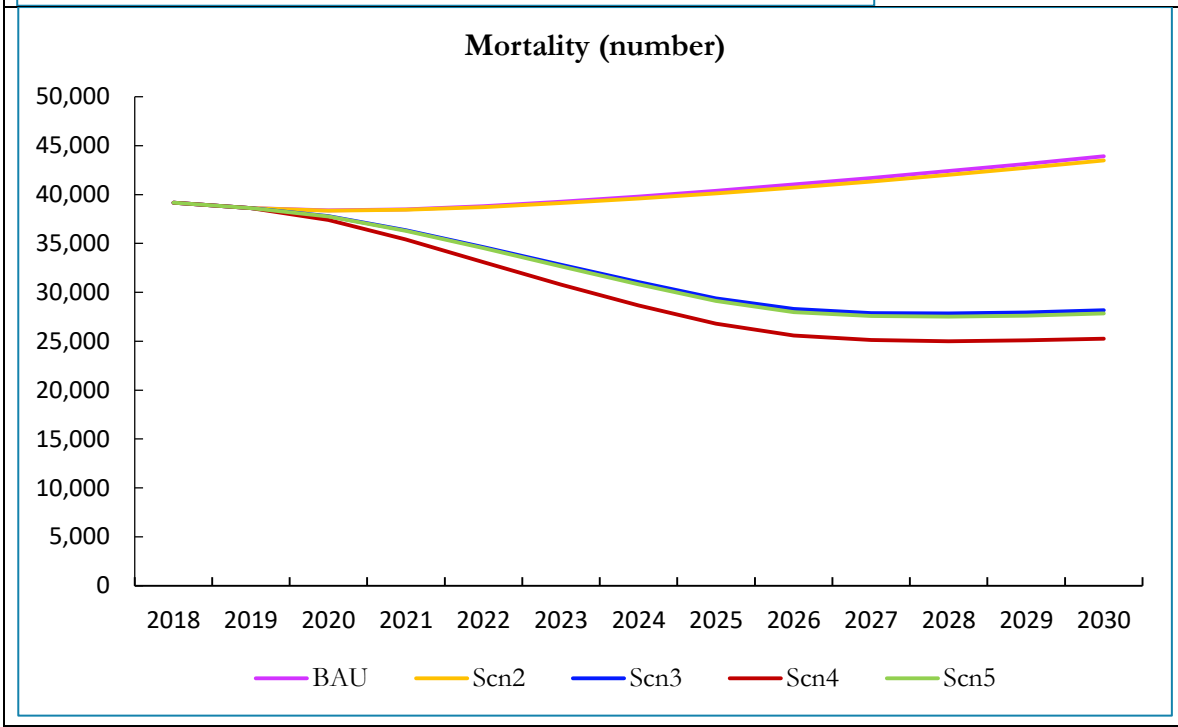


Figure 48. Impact of combination of CxR screen with GeneXpert test expansion, intensive case finding at health facilities, household contact investigation and TPT on TB incidence.

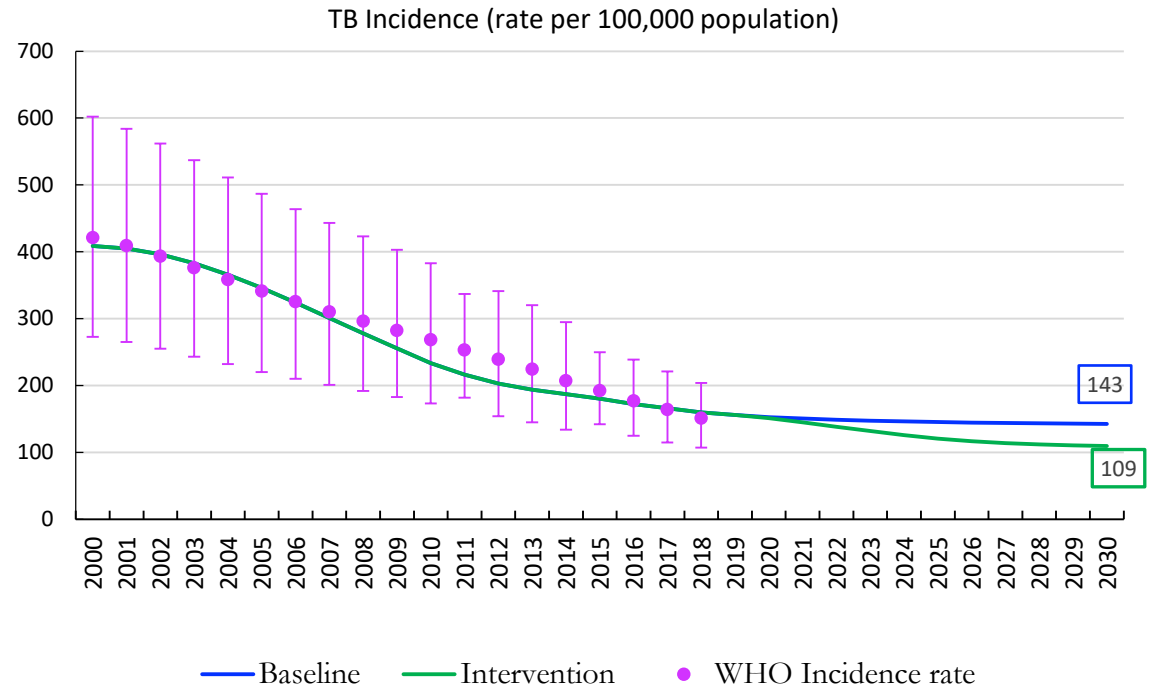
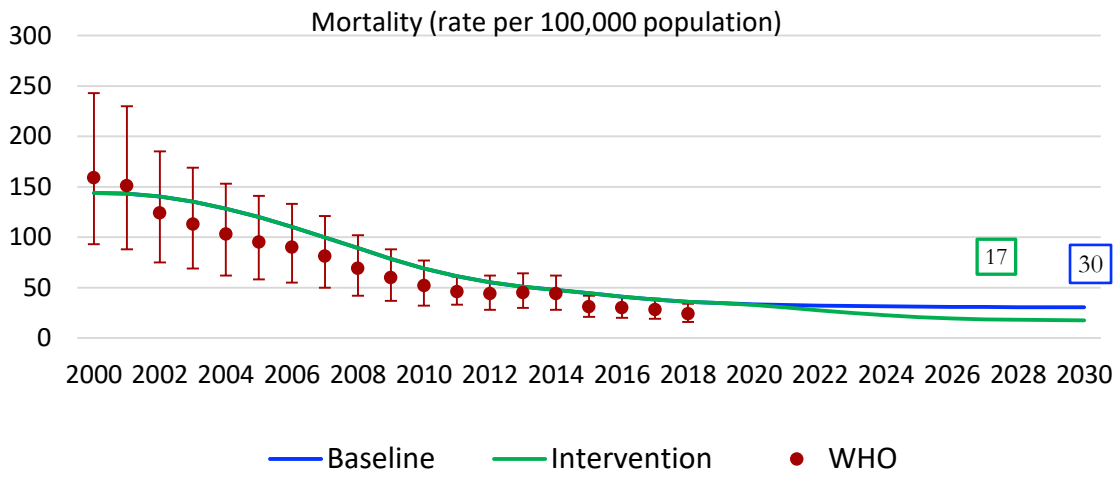


Figure 49. Impact of combination of CxR screening with GeneXpert test expansion, intensive case finding at health facilities, and household contact investigation and TPT on TB mortality.



The cost-effectiveness of each of the scenarios was run using the results from TIME Impact and Economics and are summarised (**Error! Reference source not found.**). Overall, the most cost-effective scenario is introducing CxR for screening plus use of rapid molecular DST, GeneXpert as primary test, and contact investigation with an incremental cost per DALY averted of $855 and $856, respectively. Scenario 4 has an incremental cost per DALY averted of $2,308 and may have additional costs of engaging all care providers (PPM-TB). However, this intervention (aka scenario 4) has the highest impact on TB incidence and mortality. Contact investigation through outreach services has also lower incremental costs.

However, the impact of contact investigation as the only case finding strategy is limited, in terms of finding the missing persons with TB and bending the incidence curve.

Table 13. TIME impact cost effectiveness analysis.

Scenario #	Scenario category	Incremental cost per death averted	Incremental cost per DALY averted	GDP per capita: US$772
1	Status quo			
2	Increase GeneXpert coverage alone to 80% coverage	$25,508	$3,182	4.12 GDP per capita
3	Use CxR for screening and increase GeneXpert coverage as first diagnostic test	$6,591	$855	1.11 GDP per capita
4	Scenario 3 + intensive case finding in health facilities (including PPM)	$16,795	$2,308	2.99 GDP per capita
5	Scenario 3 + contact investigation	$6,571	$856	1.11 GDP per capita

THE COVID-19 PANDEMIC AND ITS IMPLICATION

1.1 Brief description

This national strategy is planned while the COVID19 pandemic is globally spreading and claiming the lives of many people. As the COVID-19 pandemic affects countries and communities around the world, its impact on basic health services is being acutely felt even in better resourced settings. Furthermore, compared to the general population, persons with TB might be more vulnerable to COVID-19 due to an underlying chronic pulmonary sequela of TB or higher rate of smoking. The COVID-19 pandemic may also aggravate an underlying TB-related stigma, due to cough and public use of mask, or in a positive note it may also normalize public use of masks. However, the COVID-19 pandemic has the potential to backtrack Ethiopia's progress in public health, including in achieving the goals of ending the TB epidemic. The number of persons with COVID-19 is increasing in Ethiopia, while at the same time some of the possible implications of the pandemic on basic health services are emerging needs (***Table 14***).

TB programme has also multiple experiences that may help the country's response to COVID-19. Contact investigation, addressing some barriers to health services including stigma and laboratory specimen referral systems are some of the areas to draw lessons.

Table 14. Some of the potential impacts of the COVID-19 pandemic on basic health services.

Health system related potential risks		Strategic interventions
Human resources for health -HRH	Health workforce reduction due to quarantine, illness, or need to care for rapidly increasing number of persons with COVID-19 who need emergency care.	▪ Prevent transmission of SARS-COV-2 in healthcare settings. ▪ Provide PPE for health workers at risk of occupational exposure. ▪ Integrated HR in facility level COVID-19 and TB service plan, including task sharing as appropriate. ▪ Reinforce sputum collection in an open, well-ventilated space, away from others and preferably outside.
Laboratory services and system	TB laboratory services could be overstretched or interrupted due to increased testing demand for SARS-COV-2. Reduced functionality of TB/HIV laboratory sample referral system due to lockdowns, transport disruptions, and need to transfer SARS-COV-2 test sample.	▪ Test for both COVID-19 and TB when clinically indicated. ▪ Maintain TB molecular diagnostic services, inlcuding close monitoring of supplies, trend in testing number and availabiltiy of laboratory professionals. ▪ Monitor and mitigate TB/HIV integrated sample referral system.
Supply management	Global and national disruption of critical TBL supplies, including essential medicines, N95 respirator, laboratory reagents and commodities.	▪ Design procurement and supply delivery with anticipated global and national supply bottlenecks.
Clinical services	Outpatient departments, including at DR-TB treatment sites might prioritize care for persons with COVID-19.	▪ Undertake periodical rapid health facility assessments to monitor TB services (screening, diagnosis, treatment and prevention): any

	Hospital admission capacity might be overstretched with increased number of persons with COVID-19 who need emergency care.	disruptions, mitigations, screening and triage, workforce capacity, and availability of TB medicines and key supplies.
Active case finding (ACF) outreach services	ACF, including household contact investigation might be reduced due to lockdowns, transport disruptions, and home visit restrictions due to COVID-19 pandemic.	▪ Integrate TB/COVID-19 screening and outreach services, where feasible. ▪ Update national algorithm for integrated TB/COVID-19 screening, as more evidence and implementation experience is made available.
Financial resources	An already inadequate health sector and domestic resources might be diverted to manage public health and socio-economic consequences of COVID-19 pandemic.	▪ Specific COVID-19 funding available at various levels. ▪ Periodically monitor TB resource implications of the COVID-19 pandemic at various levels through TB programme managers interview and supportive supervisions.
Routinely analyze and report the overall impact of the pandemic on TB service provision and utilization using set of core indicators.		
People response related potential risks		**Strategic interventions**
Health facility visit	Persons may opt deferring health facility visits due to concern of SARS-COV-2 exposure in healthcare settings.	▪ Make alternative arrangements to reduce visits for TB follow up. ▪ Prioritize patient-centred outpatient and community-based care over facility-based TB treatment for eligible patients. ▪ Provide adequate stocks of TB medicines to all patients to take home to ensure treatment completion while limiting facility visits. ▪ Use innovative communication technologies to maintain treatment support. ▪ Use digital health tools to support delivery of patient-centred care and services, including peer-to-peer support. ▪ Engage community actors to monitor any patient challenges in accessing TB services and care and to propose context-specific and locally tailored solutions.
	Persons with TB might not be able to visit health facilities due to lockdowns and public/private transport disruptions.	
	Persons with TB might discontinue treatment or share medicines with family members due to inability to timely visit health facilities to pick their anti-TB (and ART) medicines.	
Household prioritization	Resources of affected households, including time, might be overstretched due to the need to care for family members with COVID-19, multiple deaths within the family, or post-exposure isolation.	▪ Engage community actors to monitor any patient challenges and to propose context-specific and locally tailored solutions. ▪ Engage civil societies and affected communities to strengthne community based COVID19 responses.
Stigma aggravated	More stigma might be barrier to early seek services and interventions and in adopting healthy behaviours.	▪
	Persons might differ disclosing symptom of cough due to fear of stigma related to diagnosis of COVID-19 and possible quarantine.	

1.2 Targets

- Mitigate potential impacts of COVID19 pandemic on basic TBL services.
- Undertake periodical assessments and monitoring for early detection and prevention of emerging programmatic and quality of care related issues and needs.
- Support and facilitate community monitoring of TB services using key indicators.

1.3 Interventions

Create awareness on potential impacts of the COVID-19 pandemic.

- Create awareness about COVID-19 among persons with TB and their families.
- Orient programme and supply mangers and health facility teams on potential impacts of COVID-19 on routine TBL services.
- Update the current COVID19-TB guidance as new evidence & recommendations emerge.

Continued programme and service coordination at all levels

- Coordinate TBL programme with the COVID-19 response at various levels.
- Coordinate with other programmes and services, such as HIV, NCDs, and MNCH.

Proactively monitor and address potential impacts of COVID-19 over basic TB services.

- Closely monitor potential impacts on clinical, laboratory, and pharmacy services; and supply chain management using key performance indicators.
- Support and facilitate community-based monitoring by TBL affected persons and at-risk groups, in relation to service and supply interruptions and human rights violations.
- Consider community-based peer-supported treatment with multi-month dispensing of anti-TB medicines for those who don't benefit from close clinical follow ups.
- Explore potentials for integrated TB/COVID-19 community education, household contact investigation, patient triage assessment and TBICP in healthcare settings.
- Advocate and support continued inpatient services for severely ill persons with DR-TB.
- Support TB care providers, laboratory professionals, and programme managers network using digital platforms.
- Develop and disseminate self-learning materials for health workers using apps and ministry of health website, and off-line USB flash drive.
- Undertake more frequent quantification and updates of supplies, with close follow ups in coordination with RHBs and PFSA.

FINANCING THE IMPLEMENTATION OF TBL-NSP 2021/22 -2025/26

1. The situation

Ending the TB epidemic and leprosy elimination require more resources, and commitment from all stakeholders. Ethiopia has already committed to key political and technical recommendations related TBL. The TB programme heavily relies on OOP at time of service use and international assistances. Additionally, the national TBL programme has persisting funding gap of 20-30%, if implemented in full scale.

2. Financial requirements

Full implementation of this five years TBL-NSP requires an investment of US$ 664,069,601 with an average of around 132.8 million annually (***Figure 50***). While around 92% of the budget estimate is for TB, 8% is for Leprosy programme (***Figure 51***).

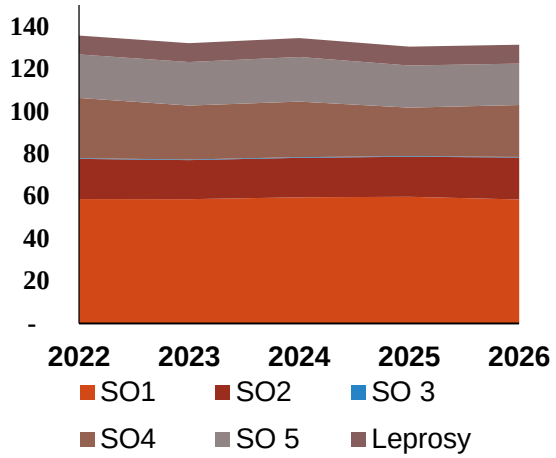


Figure 50. Annual budget required for full implementation of the TBL-NSP, USD**.**

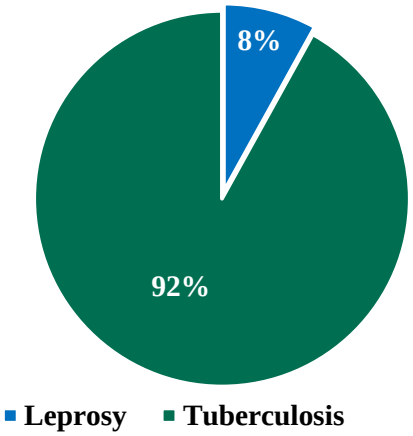
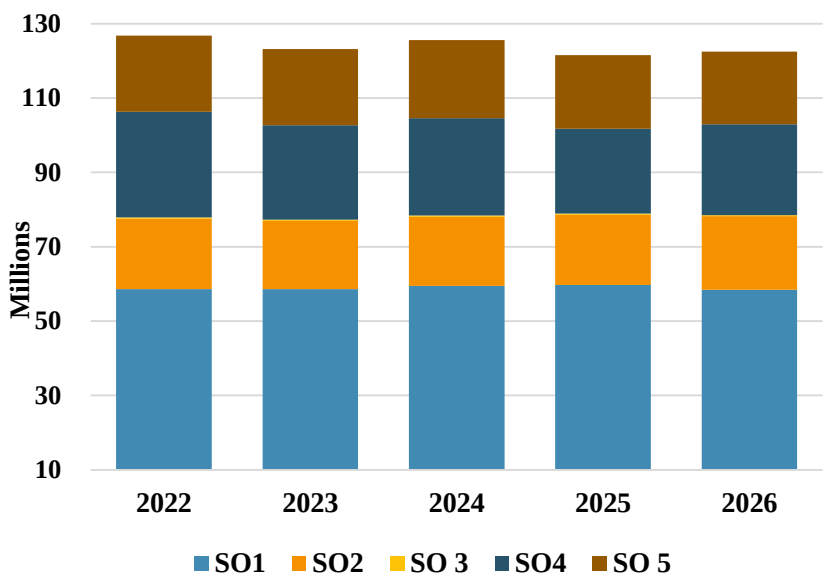


Figure 51. Proportion between TB and Leprosy programmes.

In comparing budget estimate across TB strategic objectives, 48% is to address gaps across the patient pathway (SO1); 21% related to strengthening health systems and policies for TB screening, prevention, care and treatment. Strategic information and research (SO4) accounts for 16% of the budget, while preventing TB infection and active disease (SO2) shares 15%. People-centred equitable quality services accounts for ≤ 1% of the budget, which is due the inclusion of equity, quality and principles people-centred care in all strategic objectives. For instance, laboratory service quality is included under SO4 as health system cross cutting area. Likewise, SO1 includes targeted approach to reach at risk population, which constitutes 29% of the budget in the category (***Figure 52***).



Key:

SO1= Address gaps across the patient pathway.

SO2= Prevent infection and active disease.

SO3= Provide people-centred equitable quality services.

SO4= Enhance bold policies and strengthen supportive systems.

SO5= Strategic Information and research.

Figure 52. TB budget by strategic objective, 2022-2026, USD.

Treatment (including both DS and DR treatment) constitutes the highest proportion (36%), which is followed by strategies to reach high risk population (22%) and TB diagnostics (14%) of the SO1 budget. Prevention of TB infection (in healthcare settings) and TPT account for 13% and 11% of SO1. The remaining smaller amounts are contributed by budgets related to TB in children and adolescents, treatment adherence support, community education, TB/HIV and other comorbidities, and service quality (***Figure 53***). Budgets related to the diagnosis and treatment of TB in PLHIV, children, as well as DR-TB are all included in the TB diagnosis and treatment category. The budget allocated specifically in these categories (i.e. TB/HIV, children and adolescents) is for policy and program related activities.

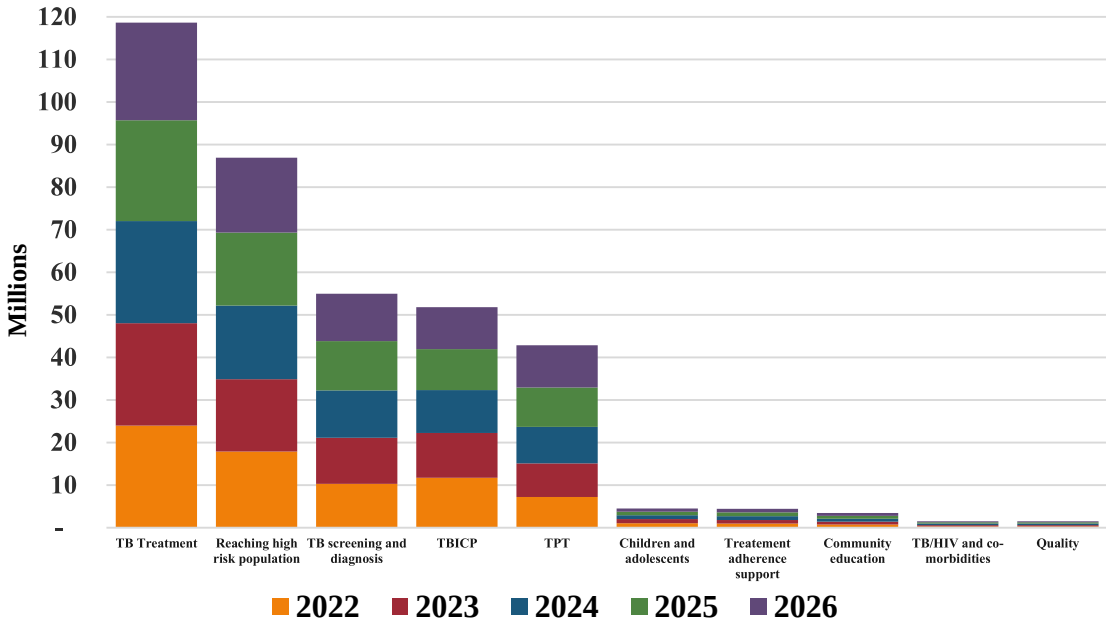


Figure 53. TB SO1 budget estimate by sub-category, USD.

Likewise, budget for quality, such as of laboratory and supplies is integrated into the different thematic areas including laboratory services and supply management under SO4. Hence, the standalone quality budget under SO3 is to address crosscutting areas. Strategic Objective 3 and 4 (SO3 and SO4) constitute TBL related health system and other supportive policies (SO3), and strategic information and research (SO4) (**Figure 54**, ***Figure 55***). The human resource budget (HR) here includes only the additional advisors required for implementing this TBL-NSP and TBL specific trainings and clinical mentoring and does not include the broader HRH required to deliver routine clinical, pharmacy, and laboratory services; supply and programme management; community health extension programme and other health workers time.

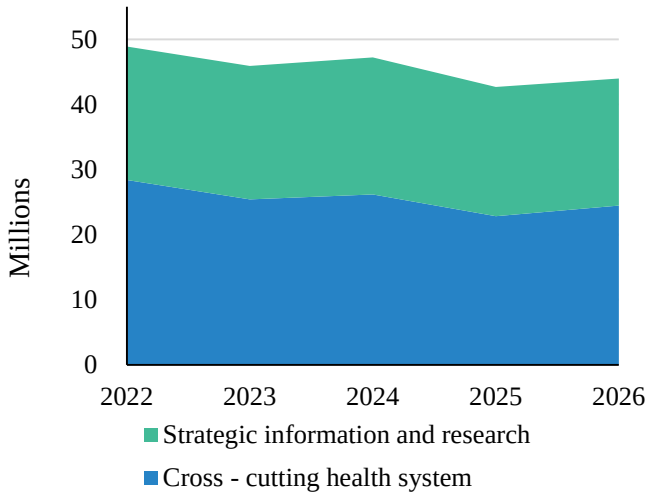


Figure 54. Strategic objectives 3 and 4 budget estimates, USD.

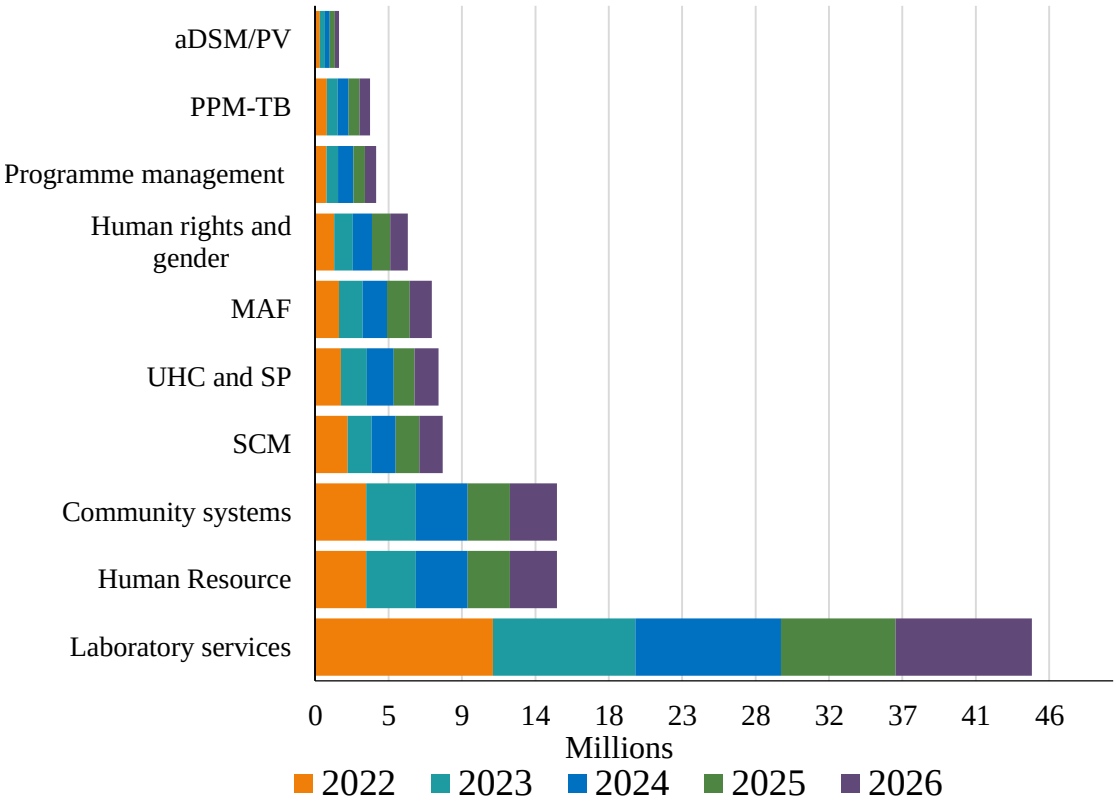


Figure 55. TB supportive policies and health system related budget estimate of SO3, 2022-2026, USD.

SCM=Supply chain management; UHC-SP = universal health coverage and social protection; MAF= multisectoral action framework.

Leprosy programme has two strategic pillars, with budget of 53.1million USD and annual average of 10.6million USD (***Figure 56***).

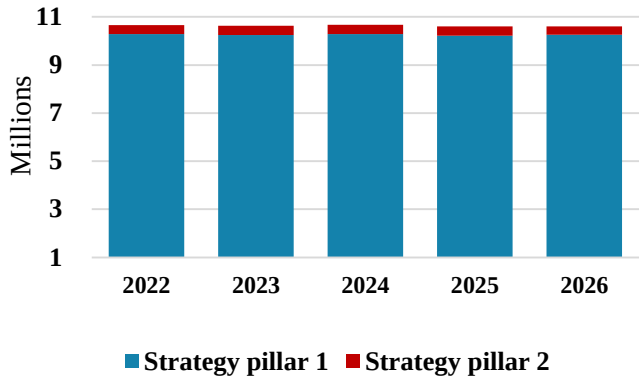


Figure 56. Leprosy budget by strategic pillar, USD.

Strategy Pillar 1= People centred prevention and care.

Strategy Pillar 2= Quality of care.

18. ANNEXES

18.1 Operational Plan

SO	Initiatives	Activities of the initiative	Unit	ANNUAL TARGETS				
				21/22	22/23	23/24	24/25	25/26
SO1	Promote care seeking and prevention in the community	**Increase community contribution to nationally notified TB cases to 20%**	**#, proportion**	**25,519**	**27,489**	**29,572**	**31,740**	**33,994**
		Increase TB contact investigation coverage to 90%.	**# of contacts**	**105,649**	**113,804**	**122,428**	**131,404**	**140,735**
		Implement full package CBTB care, including contact investigation and TPT at health post using HEWs and HDAs	# of HPs	8,404	14,007	14,007	14007	14,007
		Advocacy and sensitize traditional, religious and political leaders at community level.	# of woredas	132		114		
		Refresher training to HEWs in high burden woredas	# of HEWs	2200		1625		
		TB prevention and control interventions for Selected high TB burden Woredas in agrarian regions	# Woredas	88	65	153	153	153
		Support specimen referral in high burden woredas	#woredas	66	-	57	123	123
		Expand CBTB care services in urban settings.	#urban areas	21				
		Integrate TB with other community level community educations: HIV, MCH, NCDs	#document	1				
		Integrate TB in first and second cycle school health programme	#of schools	30	60	90	90	90
		Pilot community-based management of DR-TB: Develop guides and tools, capacity building, implementation in 4 woredas/sub city, monitoring, document lessons.	Guides	1	1	-	-	-
		Sensitize Woreda and Kebele political leaders on role of HEWs in empowering communities.	# of woredas	132	-	114	-	-
		Develop, print and distribute TB booklets for students and school communities.	# of copies		160,000		160,000	160,000
		Annual inventory of communication channels and print and electronic materials at Federal and Regional levels.	No of assessments	1	1	1	1	1
		Daily radio spot for four weeks in 5 different languages.	No spots	600	600	600	600	600
		Produce four different 60 sec. each TV spots in five languages on TBL control and prevention.	No spots	20	20	20	20	20
		Print billboards in different congregate settings.	No billboard		2	3	2	
		Print and distribute public educational leaflets.	No leaflets	150,000	150,000	150,000		
		Provide HWs TBL patient education flipchart.	No	3000	4000	5000	3000	3000

		Provide TB/HIV prevention health workers tools.	No of copies	3480	3616	3795	3937	4121
		School TB education message using existing school “mini-medias”.	# schools	800	200	200	200	200
	Ensure targeted approach to reach at risk population	Map out TB high burden woredas	# of Woredas	1				
		Establish woreda level coordination mechanism in high burden woredas	# of woredas	1				
		Provide outreach mobile TB services in three regions	# of woredas					
		Document the experience of implementing mobile TB services in the country.	# of woredas		1	1		
		TB direct technical support in selected low performing pastoralist woredas	# of woredas	22	28	50	50	50
		Provide outreach TB prison services from primary healthcare units.						
		Four different radio spots 16 sec each in five languages disseminate for 8 weeks per year	No spots	60	60	60	60	60
		Four different TV Spots 16 sec each in five languages disseminate for 8 weeks per year	No spots	60	60	60	60	60
		Establish/strengthen regional and woreda level mechanism for engagement of TB affected and at-risk population.	Guidance	1	1	1	1	1
		Engage TB affected and at-risk population in planning, implementation, monitoring and evaluation of TB programme	Guidance	1	1	1	1	1
		Conduct outreach screening for selected TB high risk population (Mining, Holly water, refugee, IDPs development site)	No of Sites	50	50	50	50	50
		TB outreach services for selected urban slum Woredas / Kifle ketema	No of Woredas /KK/	21	43	43	43	22
		Integrate TB in existing services for high risk population: HIV, MNCH, NCD, mental health, nutrition.						
		TB/DR-TB case finding initiative to additional in urban slum areas.	No urban areas	4	20	30	20	15
		Annual analysis and publication of equity in TB services.		1	1	1	1	1
		Increase number of HFs providing TB diagnostic and treatment services to prison population.	No prisons		40	50	60	80
		Provide guidance to narrow the TB treatment gap among young men.	# guidance	1				
		Scale up "childhood TB- IMNCI integration model" in health facilities.	No of HFs.	200	250	300	350	400
		Annual review meeting focused on childhood TB	No meetings	1	1	1	1	1
	Accelerate TB screening and diagnosis	**Number of nationally notified all forms of TB**	**# notified**	**125,122**	**121,928**	**119,372**	**113,637**	**107,584**
		DST coverage at least for RR among PTB cases	**% coverage**	**80%**	**85%**	**90%**	**90%**	**95%**
		Increase number of notified children with TB	**# <15Yrs**	**17517**	**17070**	**16712**	**15909**	**15062**
		Increase number of bacteriologically confirmed RR/MDR-TB cases notified	**# notified**	**1196**	**1139**	**1084**	**1031**	**980**

	including universal DST	Increase PTB HH contacts investigation, both at facility and community levels	No screened					
		Use CxR as screening tool for diagnosis of presumptive TB	%age	20%	25%	30%	40%	60%
		Provide outreach TB screening, diagnosis and linkage to care in high burden woredas through PHCUs	# of Woredas					
		Provide TB outreach mobile TB service & Linkage to care to pastoralist communities in three regions	# mobile services	4	4	4	4	4
		ICF in high volume health facilities using CxR as screening tool	# of facilities	20	50	100	200	285
		Provide biannual TB outreach prison services through PHCUs.	# of prisons	65	65	65	65	65
		Provide scheduled outreach TB services to IDPs, miners, refugees and large development projects	# screened	10,000	30,000	40,000	50,000	60,000
		Integrate contact investigation in all TB care settings	%age	100%	100%	100%	100%	100%
		Biannual comprehensive implementation report on TB outreach, including mobile services.	# Reports	2	2	2	2	2
		Expand availability of digital X-ray	No of HFs	15	12	10	9	8
		Increase GeneXpert on site testing facilities	# of HF	285	291	300	300	300
		TB culture and DST services	#of labs	10	11	12	12	13
		Increase Whole Genome sequencing (WGS) testing for DR-TB patients	% of DR-TB	5%	10%	10%	10%	15%
		Introduce TB-LAM POC diagnostics	No of sites	50	100	200	300	300
		Introduce Truenat in TB diagnostics	# of sites					
		National transition to GeneXpert ultra	# of sites					
		Provide AFB smear microscopy services	# HF	3,300	3,400	3,500	3,700	4,000
		Provide integrated TB/HIV sample referral service	# of sites					
		Develop and disseminate standardized provider job aids on TB diagnosis and treatment.	No of materials	4205	386	429	392	312
		Provide SL-LPA testing	# labs	10	11	12	12	13
	Early treatment of all forms of TB	**Increase DS-TB treatment coverage**	**% of incident cases**	**90%**	**92%**	**95%**	**95%**	**95%**
		Increase MDR-TB treatment coverage	**% of incident cases**	**90%**	**92%**	**95%**	**95%**	**95%**
		Increase SL-DST coverage among persons with RR-/MDR-TB at the time of diagnosis.						
		National operational guidance on patient-centred integrated care in Ethiopia context.	Document	1				
		Increase number of DR-TB treatment initiating centres.	No. of TICs		72	82	91	99
		Prepare, duplicate and disseminate clinical reference manual on TB and DR-TB care.	No of copies	2000		2000		
		Maintain national DR-TB Concilium/clinical panel.	No	1				
		Regular DR-TB Concilium site visits.	No of visit	4	4	4	4	4
		Quarterly cohort review and use of data for quality improvement.	No of reviews	4	4	4	4	4

		Clinical audit and data use for quality improvement.	No of audits	1	1	1	1	1
		Advanced clinical training for DR-TB Concilium.	No trainees	60	90	90	90	90
		Number of RR/MDR-TB patients with baseline rapid SL-DST test.	No of pts.	1,515	1,931	2,167	2,381	2,578
		Quarterly DR-TB clinical mentoring.	No of TICs	48	48	50	50	50
		Quarterly DR-TB catchment area meetings.	No of TICs	48	48	505	50	50
		Integrate TB in national guidance of adolescent health services	Guidance					
	TB/HIV collaborative activities and management of co-morbidities	Provide guidance and tool for DM and mental health screening in TB care settings.	Guidance	1				
		Integrate DM and mental health screening in TB care services	# of facilities	25	50	100	300	400
		Map out high TB/HIV coinfection burden woredas	# woredas	1				
		HIV testing coverage among notified TB.	%age		89%	92%	96%	96%
		ART coverage among TB/HIV co-infected persons.	%age		87%	90%	94%	96%
		Offer HIV testing to all notified persons with TB	Number	125,122	121,928	119,372	113,637	107,584
		Initiate one-stop TB/HIV service delivery in selected facilities, based on disease burden, local context and healthcare delivery system.	No of HFs	119	251	539	567	604
	Empower patients through education, technologies and support.	Integrate counselling/psychosocial support in comprehensive TB health workers training.	No of trainees	100	100	100	100	100
		Provide psychosocial, economic and nutritional support to eligible DR-TB patients.	No of patients	1515	1931	2167	2381	2578
		Develop, print and distribute booklet on TB for HDA, TB patients and communities in 5 languages.	No of copies	150,000	150,000	150,000	50,000	50,000
		Print and disseminate patient charter (5 languages).	No of copies	150,000	200,000	200,000	200,000	
		Provide national guidance for engaging patients/families in treatment adherence support.	Guidance			1		
SO2	**TB preventive treatment**	Integrate contact investigation and preventive treatment in all TB services.	No of HFs	3480	3616	3795	3937	4121
		Integrate contact investigation and TPT in updated health workers job aids and training materials						
		Pilot feasible digital technologies for TPT adherence support	Document	1	1			
		Enhance capacity for phased introduction of testing for TB infection	Provide Guidance	1				
		Provide guidance to integrate TB contact investigation and TPT in PPM-TB services		1				
		Integrate TPT in outreach services for TB high-risk population.		1				
		Integrate contact investigation and TPT in Mobile TB services		1				
		Integrate programmatic monitoring of contact investigation, and TPT initiation and completion in routine TB M&E.	Routine reporting	1	1	1	1	1
	Improve health	Furnish and equip established drug resistance treatment sites	No of HFs	15	12	10	9	8
		Assess capacity of TB service delivery infrastructure to identify	No of regions assessed	11		11		11

	facility infrastructure to provide TB services.	facilities with renovation need.						
		Assign TBICP focal persons at national and regional levels	No	12	12	12	12	12
		Train health facility administrators' facility staff on TBICP standards in healthcare settings	Prop of public facilities					
		Implement annual health facility risk assessment, analysis, and planning.	Prop of facilities		1	1	1	
		Implement TB surveillance among Health workers.	No of report		1	1	1	1
		Support establishment of TB IC in operation theatres and ICU in selected hospitals.	No HFs		6	13		
		Equip selected operation theatres with UVG fixture.	No of HFs	2	2	2	2	2
		Equip selected ICUs with UVG fixtures.	No of HFs	2	2	2	2	2
		Equip selected health facilities operational theatres with negative pressure for advanced lung surgeries.	No of HFs	2		2		2
		Support establishment of TB IC friendly operation theatres and ICU in selected hospitals.	No HFs		6	13		
		Sensitization workshop for MPs (social sector committee members from federal and regional government)	# of participants	30	30	30	30	30
SO3	**Ensure equitable quality services.**	Annual review of health workers adherence to national protocols and guidelines as part of routine supportive supervision.						
		Develop quality improvement guidance in routine TBL care settings.	No of guidance	1				
		Publish annual TB equity assessment report.	No of report		1	1	1	1
		Organize annual TB service Quality summit as part of TRAC side meeting.	No of summit	1	1	1	1	1
		Monitor quality of TB services across time, population and geographic settings.	No of report	1	1	1	1	1
SO4	**Governance, Leadership and multi-sectoral collaboration and Accountability**	Disseminate national operational guidance for engaging NGOs and CSOs in TB care and treatment.	No of copies		5000			
		CBOs, CSOs and NGOs experience sharing of TB prevention and control.	No of events		1	1	1	
		Hold annual high level MAF	No meetings	1	1	1	1	1
		Co-organize world TB day commemoration with partners, including NGOs and CSOs at national and regional levels.	No of events	1	1	1	1	1
		Ensure political commitment and support through sensitizing influential persons, media professionals' and other promoters, at all levels.	No of sessions	65	130	130		
		Support TB caucus initiative, provide engagement framework /disseminate Barcelona declaration.		1	1	1		
		Sensitize TB stakeholders, media professionals', regional governments, and others.		1	1	1		

		Sensitizing influential persons, media professionals' and other promoters, at all levels.	No of particip	65	130	130	100	100
		Support TB caucus initiative, provide engagement framework /disseminate Barcelona declaration.	No of sessions	1	1	1	1	1
		Engage TB Good Will Ambassador to support TBL control efforts and patients.		1	1	1	1	1
		Sensitize Woreda and Kebele political leaders on role of HEWs in empowering communities.	No of workshops		900			
		Strengthen/establish TB media forum in all Regions.	No of forum	7	8	9	10	10
	Engage all care providers	**Increase case detection by engaging all care providers**	**No of cases**		**18,080**	**21,352**	**24,948**	**28,830**
		Develop feasible PPM-TB model of service delivery and support regional adaptation and implementation	Regions adopted	11	11	11	11	11
		Expand TB diagnostic and treatment services in PPM sites: Private for profit, workplace, FBO and NGO health facilities (including universities, refugee camps, uniformed forces)	No. private HFs	602	727	852	977	1103
		Presumptive TB case identification and referral services in 35% of existing private sites: lower clinics, etc.	No. of HFs	250	509	1188	1769	1963
		Presumptive TB case identification and referral linkages through CSOs, NGOs and FBOs engagement	No of CSO CBOs	30	35	35	35	35
		Map out and sensitize informal health service providers on TB prevention and care.	No of woredas					
		Develop guidance for feasible PPM-TB model through national consultation.	No of guidance	1				
		Provide M&E tools in private care settings						
		Ensure direct data entry of big private TB diagnosis and treatment sites into DHIS2						
		Engage private TB laboratory in TB diagnostic networks.						
	TBL universal coverage and social protection	Undertake national patient cost survey	No survey	1				
		Ensure inclusion of TBL prevention, diagnosis, treatment and care in UHC essential benefit package.	Guidance	1	1			
		Facilitate multi-sectoral collaboration for social protection: develop guidance or include TBL in social protection guidance.	Guidance	1				
		Advocate for evidence-based workplace policy and protect rights of affected employees.	Guidance	1	1			
	Laboratory Services	Sustain adequate performance in EQA for smear microscopy	No of HFs	2016	2621	2752	3032	3032
		Implement scheduled integrated specimen referral system based on laboratory network schedule	No of HFs networked	1157	1167	1177	1188	1199
		Implement on-call-based integrated specimen referral system based on laboratory network schedule	No HF networked	1600	2300	2644	2807	2872

		Provide backup currier system for TB specimen referral	No of region	11	11	11	11	11
		Establish eBased result delivery to sample referring sites	No of HF	10	165	2644	2807	2872
		Establish electronic laboratory information management system, & sustained connectivity of Xpert machines.	# machine connected	100%	100%	100%	100%	100%
		Expand TB lab quality management towards accreditation for AFB smear microscopy sites.	No of HFs	1	10	15	15	20
		Implement quality management system in TB culture labs towards ISO 15189 accreditation.	No of HFs	1	2	2	2	4
		Implement quality management system in GeneXpert facilities towards ISO 15189 accreditation.	No of HFs	0	15	20	20	20
		Support establishment of national PT production centre at EPHI by ISO 17025.	No of HFs	0		1		
		Conduct regular EQA to regional TB culture and DST laboratories.	No of visits	2	2	2	2	2
		Update, print and disseminate integrated TB lab diagnostic test, QA and biosafety guidelines.	No of copies		7000		4448	
		Provide updated TB Laboratory service toolkit.	No package		5000		2000	
		Expand EQA coverage for TB laboratory diagnostic tests (AFB, GeneXpert, Culture and DST).	No of HFs	4205	4591	5020	5411	5724
		Monitor and supervise performance FNA-TB diagnostic services.	No supervision	0	25	35	45	55
		Provide DR-TB adverse event monitoring lab tests at TICs and regional laboratories.	No of HFs	20	12	10	9	8
		Quarterly onsite supervision from regional laboratories to hospitals.	No. visits	13	13	13	13	13
		Quarterly onsite supervision from EQA centres to health facilities.	No. visits	4	4	4	4	4
		External QA linkage of national TB reference laboratory with supra national laboratory.	No lab	1	1	1	1	1
		Service contract agreement for TB culture laboratory equipment (MGIT machine, LPA machines, centrifuge, pipettes).	No of agreements	2	2	3	2	2
		Regular calibration of refrigerated centrifuge, autoclave, balance, micropipettes, incubators, oven, thermometers.	No of agreements	10	12	15	18	20
		National consultation on key TB laboratory indicators for service quality monitoring.			1			
		Adopt National TBL NSP to region specific strategic plan based on local context.	No Regions	11	11	11	11	11
	Supply Chain Management	Procure therapeutic food for DR-TB patients with severe acute malnutrition.	No Patients	509	485	461	439	417
		Procure therapeutic foods for DR-TB patients with moderate acute malnutrition.	No Patients	485	618	693	762	825
		Procure and distribute Binocular LED-FM Microscope	Pcs	0	300	0	0	300
		Procure and distribute triple package for sputum sample	Pcs	500	500	500	500	500

		transportation.						
		Procure and distribute reagents, and consumables for AFB microscopy	No. of HFs	-	4,591	-	5,412	-
		Procure and distribute invertor with sealed maintenance free battery	Pcs	242	152	152	152	137
		Procure and distribute falcon tube	Pcs	681,269	789,834	913,091	927,682	943,205
		Procure and distribute cartridges for GeneXpert test	Pcs	501,200	652,147	753,481	765,521	778,331
		Procure and distribute UVG fixtures	Pcs	40	40	40	40	40
		Procure electrolyte analysers with reagents	Pcs machine	60	72	82	91	99
		Procure and distribute ECG machine	Pcs machine	60	72	82	91	99
		Strengthen IPLS supportive supervision for need based distribution of anti-leprosy drugs in health facilities	No of visits	2	2	2	2	2
		Strengthen supply management TWGs at national and regional levels in collaboration with EPSA.	No. of meetings	6	6	6	6	6
		Supportive supervision to EPSA regional hubs, WoHOs and HFs to strengthen IPLS and APTS implementations.	No of visits	2	2	2	2	2
		TB supply management training to TICs, NTP, EPSA and RHB	No trainee	100	100	100	100	100
		TB focal supply and programme managers IPLS training	No trainee		150	150	150	150
		Regular annual quantification for TBL pharmaceuticals and bi-annually revised forecast and supply planning in coordination with EPSA, EPHI and other stakeholders.	No of quant.	2	2	2	2	2
		Develop/adopt and utilize standard forecasting and supply planning tools for TBL pharmaceuticals	Report	2	2	2	2	2
		Train on forecasting and supply planning for EPSA/EPSA hubs, FMOH staffs, RHBs	No of trainee	30	35	35	35	35
		Procurement of first line paediatrics anti-TB drugs	No patient	40173	32933	34031	35346	36011
		Procure and distribute SL anti-TB drugs	No patient	1,196	1,139	1,084	1,031	986
		Health workers training on APTS.	No of HFs		50	50	75	75
		Support reagent distribution at regional/EQA laboratory through mentoring and supportive supervision.	No of visits	2	2	2	2	2
		Procure and provide equipment for EQA centres (Balance, Distiller and measuring cylinder etc.) for microscopy reagent preparation.	No of HFs	30	48	65	82	100
		Procure distribute standard reagent containers for AFB reagent to HFs.	Pcs	12,000	12,000		64,942	68,688
		Conduct post-marketing surveillance for anti-TB medicines	No assessment		1		1	
		Update specification complying with international and national standards to meet acceptable quality for all TB related drugs, supplies, equipment and reagents.	No of updates	1	1			5
	Human rights	undertake national TBL stigma assessment, setting baseline and						

	and Gender	progress monitoring targets.						
		Engage media professionals and PR officers to address TBL stigma						
		Incorporate stigma and human rights in health workers training.						
		Support pre-service and on-the-job training of health workers on ethics, rights.		1	1			
		Undertake national TB- gender assessment and provide guidance for addressing gender equity in TBL responses.						
		Design service delivery models to reach young men in different settings.						
	Community system	Strengthen linkage between PHCUs and affected community's associations						
		Build capacity of affected communities and civil societies organizational and leadership capacity to engage in TBL						
		Establish networking platforms across varies affected groups.						
		Ensure linkage with community based comprehensive psychosocial and economic support services						
	Human Resources	HCW training on rational use of anti-TB medicines	No trainee		100	100	100	100
		DHIS2/HMIS focal persons and regional program officers ToT on TB data management and M&E	No of trainee		30			30
		DHIS2/HMIS zonal and woreda focal persons and program officers training on TB data management and M&E	No of trainee		2,236			2,236
		Train/orient RHBs TB programme in conjunction with finance personnel on grant management	No trainee		22		22	
		Comprehensive TBL for nurses and clinicians providing diagnosis and treatment services (public and private)	No trainee	8410	9182	8296	10824	7706
		TB supply managers training at HFs, EPSA and hubs, and health administrative units, MOH	No trainee		2872	2872	1353	1353
		Comprehensive TBL and HIV program coordinators and service providers TOT.	No trainee		120		120	
		Pre-service training on clinical and programmatic management of TBL.	No institution	13	15	15	15	15
		Onsite orientation on TB-IC and DR-TB for TIC.	No trainee	99	120	150	175	3000
		TB and TB/HIV training to prison and other congregated selected settings	No trainee	210	120	120	210	120
		Facilitate and support training on X-ray reading.	No trainee		50			
		National assessment & supportive supervision to regions	No asses.		11		11	
		Provide training on TB research	No trainee	60	120	180	200	240
		Refresher IRT for HEWs in all regions	No of HEW			35000		38000
		Train media professionals and PR officers on TBL	No trainee	90	90	120	120	120

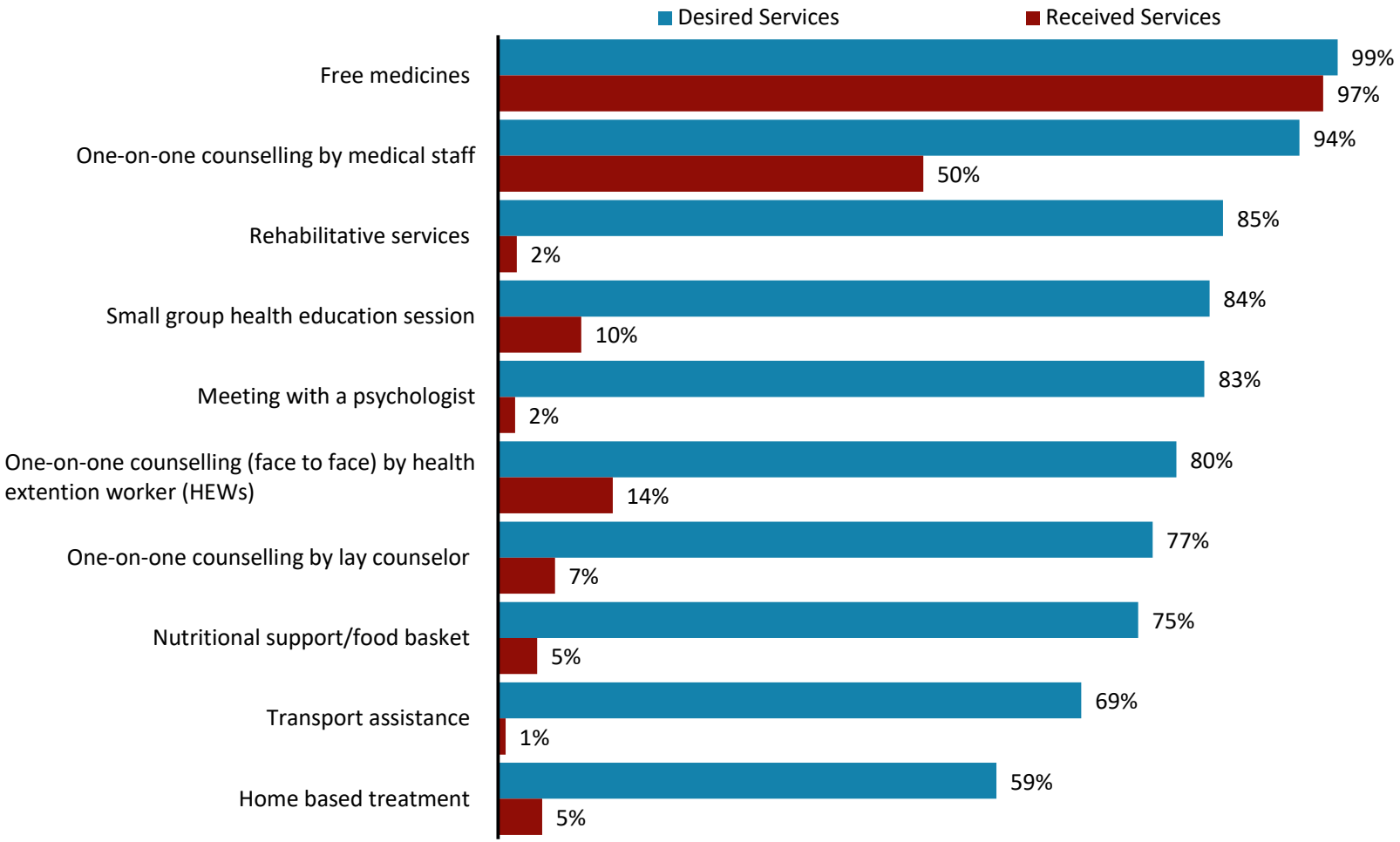
		Training skills on HW-patient communication for healthcare providers and program managers	No trainee		60		60	
		Sensitization workshop for MPs (social sector committee members from federal and regional government)	No particip			30		
		Provide regular technical support on grant management from FMoH to RHBs.	No of visits	22	22	22	22	22
		Conduct TBL training for clinical students in medical schools using blended modules	No trainee	2600	3000	3000	3000	
		AFB smear microscopy and EQA training for medical students using blended modules	No trainee	1300	1500	1500	1500	1500
		Support integration of TBL, TB/HIV and DR-TB in health sciences pre-service curriculum	No schools					
		HCWs PMDT training of trainers	No trainee		30	30	30	30
		Basic and advanced PMDT training for HCWs	No trainee	50	1784	484	2096	562
		Sensitization on updated national guidelines on diagnosis and management of DR-TB.	No trainee	60	60	60	60	60
	Program management	Comprehensive annual TBL operational plan as part of woreda based annual plan by engaging TBL focal persons from 920 woreda, 99 zones, and eleven regions at zonal level.	No of Woreda TBL plans	1176	1176	1176	1176	1176
		Quarterly TBL-TWG coordination meetings at national and regional levels.	No of meetings	4	4	4	4	4
		Convene TB laboratory TWG at national and regional levels for programme coordination.	No of meetings	4	4	4	4	4
		Strengthen and functionalize DSM TWGs at national and regional levels in collaboration with EPSA and regional HUBs and incorporate TB aDSM agenda.	No. of meetings	4	4	4	4	4
		Joint planning and implementation: FMoH/RHB, prisons, congregated settings and key stakeholders.	No of sessions	1	1	1	1	1
		Revise, print and distribute package of TB recording and reporting (RR) materials for HFs.	No of copies	959	5009	14	7021	406
		Print and distribute package of RR providers support tools for HFs.	No of HF	4940	4205	386	429	392
		Print and distribute package of leprosy reporting and recording tools.	No of HF	519	4878	232	5302	239
		Update, print and distribute DR-TB RR for TICs and TFCs.	No of HF	1422	4292	129	104	264
		Introduce DR-TB electronic RR.		10	10	10	10	10
		Conduct TB specific DQA at national level in coordination with national and regional PPD.	No of rounds	12	12	12	12	12
		Conduct zonal level TB specific DQA in coordination with HMIS unit.	No of rounds	198	198	198	198	198
		Prepare and distribute TBL M & E pocket guide	No of copies	6934	8410	9182	10040	10824

		Prepare and distribute TBL M&E framework.	No of event		1			
		Annual resource mapping for TBL program at national and regional levels.	No Mapped	12	12	12	12	12
		Provide technical support on grant management from RHB to Zonal health offices.	No of visits	198	198	198	198	198
		Orient national, regional and sub-regional TB programme mangers on GF grant	No orientation	1	1		1	
		Disseminate National Guidelines for programmatic management of TBL.	No of copies		7000		4448	
		Print and disseminate annual regional TB bulletin	No of copies	10245	10245	10245	10245	10245
		Biannual TB program supportive supervision SS) from FMoH to RHBs.	No of visits	2	2	2	2	2
		Quarterly TB program SS from RHBs to ZoHOs	No of visits	44	44	44	44	44
		Maintain GF assisted 5 national TB advisors.	No	4	5	5	5	
		Maintain GF assisted 22 regional TB program advisors.	No	22	22	22	22	22
		Maintain GF assisted 3 TB officers at national and regional labs.	No	18	18	18	18	18
		TB program management and leadership training for ZHDs and WoHOs TB officers	No of trainee			2,236		
	Strategic information and Research	Quarterly TB program SS from ZoHOs to WoHOs	No of visits	396	396	396	396	396
		Quarterly TB program SS from WoHOs to HFs quarterly	No Round	3680	3680	3680	3680	3680
		SS from EQA hospitals to health facilities	No of visits	332	380	440	540	600
		SS from regional lab to EQA centre hospitals	No of visits	26	26	26	26	26
		SS from EPHI to regional labs	No of visits	2	2	2	2	2
		TB EQA review and specimen transportation	No meeting	26	26	26	26	26
		Annual External Technical support, GLC, GDF	No of visits	2	2	2	2	2
		Biannual national level TB program specific review	No review	2	2	2	2	2
		Bi-annual regional level TB program review	No review	22	22	22	22	22
		Quarterly Zonal level TB program review	No review	356	356	356	356	356
		Quarterly Woreda integrated programme review	No review	3680	3680	3680	3680	3680
		Integrated SS from HFs to HP	No of visits	41759	43394	45538	47242	49452
		Mid and End term external TBL program review	No review			1		1
		Establish joint task force at regional level: RHB, prisons, congregated settings and key stakeholders.	Program management					
		TB surveillance among health workers.	No of report		1	1	1	1
		Support development of TBL regional research plan	No regions		4	7		
		Support and facilitate systematic evidence review in TBL priority areas	No reviews		2	5	5	2
		Support dissemination of key TB research finding through annual conference.	No publication			5	10	7

		Conduct annual TRAC conference	No of conf.	1	1	1	1	1
		Conduct second round TB prevalence survey	No survey				1	
		Stakeholder consultation to monitor implementation progress of national TB research.	No of meeting		1			1
		National geographic mapping of DR- TB patients.	No of mapping		1		1	
		Evaluation of implementation new TB diagnostics: Xpert ultra, urine LAM, Truenat.	No of assess		1		1	
		Assess impact of national TB lab EQA scheme implementation on program performance.	No assessment	1	1			
		Assess performance of national TB/HIV integrated specimen referral system.	No assessment		1		1	

18.1 Additional indicators, sources and frequency of measurement

Figure 57. TB support services desired and received by patients on DS-TB treatment (n=539).



18.2 National TB and Leprosy recording tools at health facilities

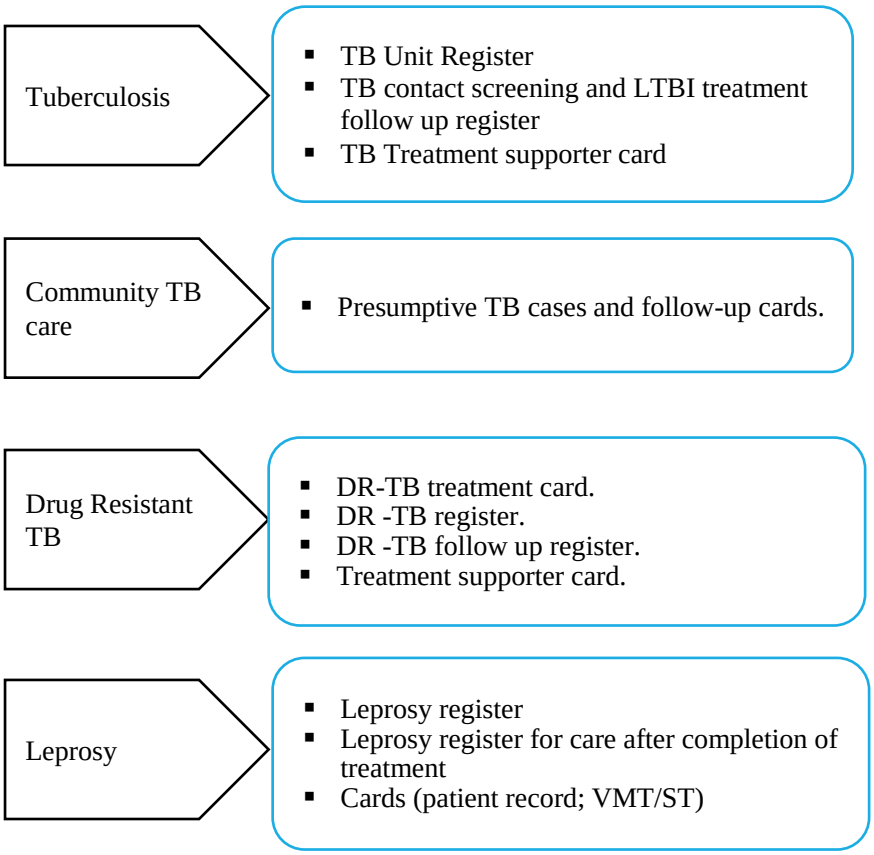


Figure 58. Facility level patient data collection tools of TBL

18.3 EPSA pharmaceutical and information flow

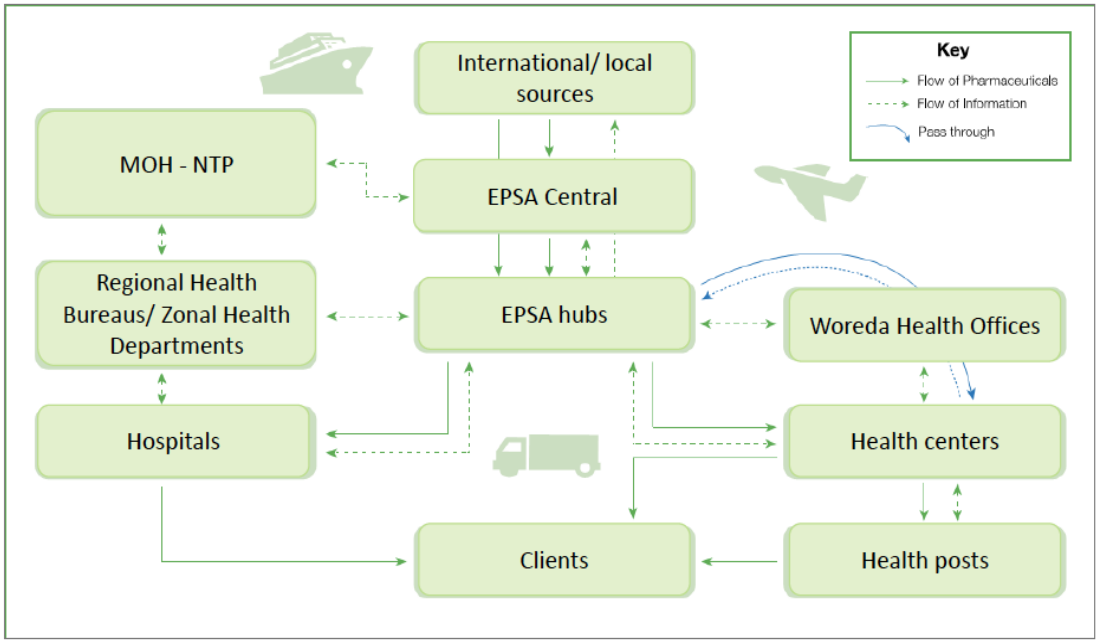


Figure 59. Flow of pharmaceutical supply information and product deliveries.

18.4 Population at risk of Tb and size estimate

Table 15. Outpatient visit and hospital admission rate, 2017.

Indicator	Definition	Total number per year	Performance in 2017
Outpatient (OPD) attendance per capita	Average number of outpatient visits (including new and repeat visits) per person per year.	71,065,160	0.8 (0.2:1.8)
Admission rate:	Number of annual inpatient admissions per 1000 population	1,144,522	12.1 (4.9:72.8)
Bed occupancy rate:	Mean percentage of occupied beds during the review period under review (usually one year).		38.3% (15.7%: 44.1%)
Average length of stay (in days):	Of patients in an inpatient facility during a given period of time.		4 (3:6)
Country population size in 2017 was 94, 228, 814			
National Health Service utilization in 2017. Source: Health and health related indicator 2009 EFY.			

Table 16. Estimated size of populations at high risk of TB.

Population group	Number of regions	Number of woredas	Population size	Remark
Pastoralist communities	7	122	9,813,600	
Miners	5	40	1,259,910	Includes artisans
PLHIV	All regions		778,000	HIV burden varies by region and Woreda.
Internally displaced people			3.1 million	Fluctuating number, up or dawn often dramatically.
Refugees	Predominantly in four regions, and the highest in Gambella region		900,000	The number fluctuates and number vary by region.
Prisoners	All regions and Federal prison	107 prisons	86,500	Number varies
People who reside in urban slums	All regions	Major urban locations	2,456,977	Population size estimate focuses on major urban areas
Healthcare providers	All regions	In all healthcare settings	300,000	

Person ≥ 55 years of age			4,800,000	Total estimate

Table 17. Woreda distribution of artisan in Ethiopia.

Region	Zones	# of Woredas	Estimated miners	Main mineral
Amhara	N/Wollo, N/Shewa	5	18,660	Gold
Benshangul Gumuz	All zones	13	110,950	Gold
Oromia	Guji, Borena, W/Wallaga, K/Wolleaga	13	650,200	Gold, Tantalum
SNNPR	Mizan, Sidama	4	320,200	Gold
Tigray	North and West Tigray	5	160,000	Gold
Total		**40**	**1,259,910**	

Table 18. Number of pastoralist population, by Region and woreda, 2017.

Regions	Number of districts	Size estimate
Afar	29	1,301,000
Benishangul Gumuz	3	40,600
Dire Dawa	1	108,600
Gambella	5	133,600
Oromia	34	4,007,900
SNNPR	6	219,700
Somali	44	4,002,200
Total	**122**	**9,813,600**

18.5 Concept note and terms of reference for TBL-NSP development.

18.5.1 Concept note and plan for developing TBL-NSP

Rationale

The current Tuberculosis and Leprosy National Strategic Plan (TBL-NSP) concludes mid-2020, which necessitates development of the next five-year (July 2020 - June 2025) plan in 2019/2020. This concept note aims to facilitate and coordinate the process of developing the TBL-NSP, and puts together key inputs, outputs, timelines, and budget. Ethiopia has adopted global targets to eliminate TB and leprosy, which is an important context in developing the new TBL-NSP. Key milestones for ending TB are reduction of incidence and mortality by 50% and 75%, respectively, by 2025 (i.e. at the end of this TBL-NSP) relative to 2015, and zero catastrophic cost. This calls for a comprehensive and equally ambitious strategic plan that paves the road to TB and Leprosy elimination, in the context of Sustainable Development Goals (SDGs) and universal health coverage (UHC).

Core principles

Main principles for the development of TBL-NSP are:

- **Evidence-informed**: The TBL-NSP development will be, as much as possible, informed by evidence. Epidemiologic and service delivery/health system, and other relevant data will be consolidated to inform the patient diagnosis-care pathway, disease burden, and intervention feasibility.
- **People-centred:** The national programme prioritizes a process that articulates and is informed by the needs, challenges, and competing priorities of affected population in accessing TBL services. This is notonlytheright thing to do, but also supports the country in narrowing treatment coverage gaps and mitigate delays at several stages in the diagnosis-care/prevention continuum.
- **Inclusive and consultative**: The TBL-NSP development process will be informed through a consultative process. Consultation workshops will be used to solicit insight and input from wide ranges of stakeholders, including civil societies and patient groups.
- **Coherent and harmonized**: The national TBL-NSP is integral part of other national commitments and priorities that directly impact public health. In formulating the TBL-NSP, consistency with national health and development policies and strategic plans, and harmonization of processes towards common national health sector vision will be maintained.

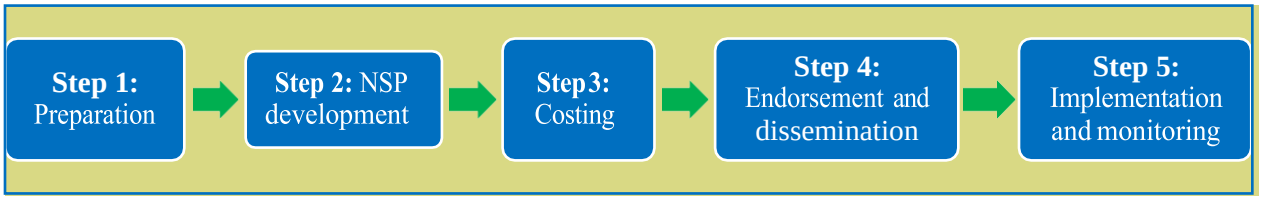
Writing the TB and Leprosy NSP

Developing the TBL-NSP will be led by a national core team with a defined terms of reference (ToR). As necessary and feasible, the core team will establish thematic sub-groups and involve additional experts, in order to enrich the various sections of the TBL-NSP. There will be desk reviews and field assessments, as necessary, in framing the TBL situation and disease burden in the country; service delivery and health system context; patient pathway across the care continuum; modelling and economic analysis; policy and implementation opportunities and challenges. The development of the TBL-NSP is structured in such a way that it evolves through participatory approaches, appraisals, and feedback.

The National TBL programme (NTLP)/ Federal Ministry of Health (FMOH) will convene stakeholder consultations, at various stages of the development of the TBL-NSP. This includes consultation with programme managers of TBL and other programmes (i.e. other than-TBL) within the ministry of health (MOH); relevant government agencies and line ministries[1]; healthcare providers; private sector; academia and research institutions; funding agencies; development partners; Non-Governmental Organizations (NGOs); patient and professional associations and other civil society organizations (CSOs).

The process will have five main steps (Figure 1).

Figure 1. Key steps in the development of the TBL-NSP.



Step 1: Preparation

In this first step, a concept note for the development of the TBL-NSP will be developed by a core team, which will be shared with the national TB/HIV technical working group (TWG), disease prevention and control directorate (DPCD) of the Federal Ministry of Health (FMOH), and regional health bureaus' (RHBs) TB officers and government agencies (i.e. EPHI, EPSA, EFDA). The draft will be enriched through feedback and inputs from key stakeholders and discussion within the FMOH. The final version will be shared with all stakeholders, including development partners. Furthermore, a core team with terms of references (TOR) established to lead the process and partners for technical and financial support will be identified.

Key activities:

- Develop budgeted concept note for development of the TBL-NSP.
- Establish core team with ToR.
- Present and solicit feedback from the national TB/HIV technical working group. Share
- the concept note within the FMOH and RHBs, for any feedback.
- Collate and incorporate any feedback on the concept note.
- Identify partners for technical and financial support to develop the TBL-NSP. Establish
- regular meetings of the core team.

Outputs:

- Final concept notes for development of the TBL-NSP (i.e. this document). ToR
- for core team and list of its members.
- Main partners for technical and financial support identified.
- Core team meeting minutes.

[1] Line ministries and entities such as prison administration, working with refugees and returnees, uniformed persons, education sector, which facilitates multisectoral engagement and accountability.

Step 2: Development of the TBL-NSP

In the second step, four main activities will be undertaken:

a) **Data consolidation:** the core team will ensure epi, health system/service, patient pathway, etc data consolidation per agreed terms of reference. Analysis of, including TBL epidemiology; broader national health sector policy, strategy, plans, health system and services; TBL patient-centred care continuum; based on relevant surveys, surveillances, and researches will be done in order to articulate current situation and inform the future directions and focus of the national TBL programme. Stakeholder and funding landscape analysis will also be done at this step.

b) **End-term TBL programme review:** An external TBL programme review, with a focus on challenges and lessons, including in the continuum of diagnosis - care/prevention and people-centred care will be undertaken. This is expected to support the country in paving the road to ending the TB epidemic and eliminate Leprosy.

c) **Stakeholder consultation:** Stakeholder consultation workshops will be held. Table 1 summarizes the thematic points and expected deliverables of each consultation workshop.

d) **Writing the TBL-NSP:** The core/writing team will draft the various sections of the TBL-NSP over retreat meetings (Table 1).

Objectives of this step are:

- data consolidation: situational analysis[2], including epidemiologic, targeted desk reviews, and external programme review.
- TBL programme SLOT and gap analysis.
- epidemiological and intervention modelling.
- TBL funding landscape and stakeholders' analysis.
- identifying strategic objectives, goals, and interventions through evidence informed deliberation and inclusive consultation processes.
- prepare an operational, monitoring and evaluation plan of the TBL-NSP.
- drafting the TBL-NSP narrative sections.

Key activities:

- Collect and synthesize the health sector context: health sector policy and transformation plan; national strategies for health sector financing, human resources, laboratory, supply chain management, health extension programme, and universal healthcare coverage; essential health service package (EHSP); key demographic data; etc.
- TBL epidemiologic and other data consolidation along the prevention/care continuum: synthesis of programme, survey and surveillance data; *patient pathway analysis*; national *drug resistance*, *service availability and readiness assessment* (SARA), *trend analysis of hospital admissions and outpatient*

[2] The situation analysis includes, but not limited to, looking into health sector policy and strategic context, EHSP, UHC, health system organization, service coverage and current and projected disease burden. This would provide the basis and foundation for the development of the TBL-NSP.

consultations, national health account surveys report; summary of TBL service delivery model, including TB laboratory services; and external programme review/evaluation.

- Synthesis of relevant TBL project- end evaluation reports, such as EndTB of Partners in Health, Ethiopia (PIH-E) and USAID/Challenge TB projects.
- Programmatic gap and root cause analysis along the prevention/care continuum.
- Stakeholder mapping.
- TBL programme funding landscape analysis.
- TBL programme, including policy and operational, gap analysis.
- Background, rational and objectives; and facilitate external programme review[3].
- Provide guidance for and facilitate structured consultations: defining objectives, participants, tools/approach, agenda and outputs/deliverables of each meeting[4].
- Develop template, ToR and tools for programme review, epidemiologic analysis, funding landscape and programme gap analysis, stakeholder consultation and deliberation processes, workshops and meetings.
- Convene stakeholder consultation meetings and workshops (Refer Table 1) [5].
- Organise core team and writers' retreat.
- Identify components of the strategic objectives, goals and interventions, including building consensus on key criteria for identification of strategic objectives and interventions:
  - √ Conduct prioritization of strategic interventions based on agreed upon criteria.
  - √ Present and discuss various sections of the TBL-NSP for stakeholder consultation.
  - √ Convene meetings/interviews/distant calls or webinars with key experts (both national and international).
  - √ Draft the TBL-NSP with consultation inputs.

Outputs:

- National health sector policy and strategies synthesized summary report.
- Situational and epidemiologicanalysis.
- External programme review report.
- TBL stakeholders' SWOT analysis.
- TBL funding landscape and programme gap analysis.
- Tool for identification of TBL strategic objectives and interventions. Comprehensive
- list of strategic objectives and interventions.
- Workshop reports and consultation briefing notes.
- Draft TBL-NSP strategic plan – narrative, without cost/budget.

[3] Include external experts, as necessary.

[4] Meetings include that of the bigger stakeholders' consultation and writing group retreat.

[5] There would be series of technical workshops.

Table 1: Broad themes for deliberation at stakeholders' consultation and writing group retreat meetings.

Activity	Thematic area of deliberation	Output	Remark
1st stakeholder consultation workshop	▪ Rational and timeframe for developing TBL-NSP. External programme review key findings and implications. ▪ TBL Epidemiologic analysis; gap across prevention/care continuum; TBL programme gap and root cause analysis. ▪ TBL Stakeholder mapping. ▪	▪ Consensus on rational and timeframe. ▪ Situation analysis report. ▪ Priority problems and root cause analysis TBL ▪ program, operational and policy, gaps identified. ▪ TBL stakeholders SWOT.	
First core team and writers' retreat	▪ Draft background, including epidemiologic, health system, health sector policy and strategies section of the TBL-NSP write up. ▪ Prepare tools and guides for the 2nd stakeholder consultation workshop	▪ Draft first four sections of the TBL-NSP. ▪ Tools and guides for the second stakeholder consultation.	
2nd stakeholder consultation workshop	▪ Strategic goals, objectives, and interventions. ▪ Priority interventions across the care continuum. ▪ Operational plan. ▪ Monitoring and evaluation plan.	▪ Strategic goals and objectives ▪ Priority interventions. ▪ Operational, monitoring and evaluation plans.	
Second core team and writers' retreat	▪ Writing narrative sections of the TBL-NSP. ▪ Preparatory inputs to costing team meeting	▪ Draft narrative sections of the TBL-NSP. ▪ Costing tools and guides prepared	
TBL-NSP costing, modelling and core, writers' team retreat	▪ Costing/budgeting the TBL-NSP. ▪ Interventions modelling, and intervention optimization. ▪ TBL-NSP funding gap analysis.	▪ Costed/budgeted draft TBL-NSP. ▪ Optimized	
3rd stakeholder consultation workshop	▪ TBL-NSP costing and funding gap analysis. ▪ First draft of TBL-NSP.	▪ Final draft of TBL-NSP.	

Step 3: Costing and intervention TIME modelling of draft TBL-NSP

In this third step, the draft TBL-NSP will be costed/budgeted using one health tool. There will also be budget breakdown analysis in relation to the funding landscape analysis, which provides comparative analysis and will be incorporated, as a section, in the TBL-NSP. Systematic assessment of the health and economic benefits of identified interventions will be done using TIME model (TOR, Annex 2).

There will be final stakeholder consultation on costed/budgeted draft TBL-NSP, which would further be updated based on consultation feedbacks.

Key activities

- Cost estimation and analysis using one health tool.
- Update, as required, the strategic objectives and interventions based on one health tool output and funding landscape analysis, and intervention modelling.
- Convene stakeholder consultation on costed draft TBL-NSP.

Outputs

- Workshop report.
- Updated one health tool and intervention modelling.
- Updated and costed final draft TBL-NSP.

Step 4: Endorsement and dissemination

In this step, the final draft of TBL-NSP will be presented and discussed with FMOH leadership for final input and endorsement. Once the TBL-NSP is endorsed by the FMOH, it will be disseminated to all relevant stakeholders who would be crucial in utilizing it for planning, service delivery and monitoring its implementation.

Key activities

- Presentation, discussion and endorsement at the FMOH. Print
- and disseminate.
- Conduct a dissemination workshop with RHBs, ministry agencies and key stakeholders.

Outputs

- Edited and endorsed final version of TBL-NSP.
- Final version of TBL-NSP disseminated to key stakeholders.
- Dissemination workshop report.

Step 5: Implementation and monitoring

Implementation of the TBL-NSP will be tracked per its monitoring and evaluation plan, which establishes key indicators and targets.

Key activities

- Monitor implementation progress of the TBL-NSP, through annual plans; routine programme reports and bi-annual programme reviews; mid- and end- term external programme reviews.

Outputs

- Periodical progress reports throughout the implementation cycle, based on defined indicators and targets set by the TBL-NSP.
- Progress reports of routine bi annual TBL programme reviews. Mid-
- and end- term TBL-NSP external programme review reports.

Scope and Outputs:

At the end of the TBL-NSP development process, the core team will deliver costed/budgeted draft TBL- NSP for the coming five years, 2020/21-2025/26. Some of the additional outputs of this process include concept note for the development of TBL-NSP; TBL situation in Ethiopia; TBL programme and financial gap analysis; key priority strategic objectives and milestones of the TBL-NSP; operational and monitoring plans to address identified gaps.

TBL-NSP DEVELOPMENT ACTIVITIES AND TIMELINE

Table 2. TBL-NSP development summary activity plan*.

Activities	July 19		Aug 19		Sept 19		Oct 19		Nov 19		Dec 19		Jan 20		Feb 20		Mar 20		April 20	
Establish core team with TOR																				
Develop concept note with budget																				
TBL-NSP core team meeting																				
Mobilize technical and financial support																				
Context analysis and review, including health sector policies/strategies																				
Data consolidation: Epidemiologic, health system, and others.																				
TB funding landscape analysis																				
External end-NSP programme review/evaluation	Preparation phase																			
First stakeholder consultation workshop																				
First core group and writing team retreat																				
Second stakeholder consultation workshop																				
Second Core group and writing team retreat																				
Modelling – epidemiologic and interventions; costing and budgeting																				
Third (final) stakeholder consultation workshop																				
Third core group and writing team retreat																				
FMOH clearance, printing and dissemination																				
NB: Refer accompanying excel worksheet for a more recent and detailed activity plan.																				

*The plan was later extended up to end of July due to the COVID-19 pandemic related restrictions.

Selected sources to inform the TBL-NSP development.

Sources for evidence to inform the TBL- NSP	Scope, status	Remark
Spot in-depth assessment	TB Laboratory system, to be done	Proposed as an analysis of existing data that are not routinely reported, such as laboratory data, contact investigation, presumptive TB record etc.
	Case finding strategies, to be done	
End term external programme review/ evaluation	Similar to MTR, to be done	External reviewers – AFRO led the MTR in 2017 with several international experts.
Sector policy and transformation plan; national strategies for health sector financing, HRH, laboratory, supply chain management, HEP, UHC; EHSP; demographic data; etc.	Synthesis to be done	Staff time
DRS	Survey completed	Analysis of programme data and survey report
Epidemiologic analysis	To be done	
TB Patient pathway analysis	Already published	Synthesis of reports and data to inform the TBL-NSP development. Staff time.
SARA	Report available	
National Trend analysis of hospital admissions and outpatient consultations.	Report available	
National health account (NHA) survey (s).	2016 report available (most recent)	
TB end-project reports	USAID/Challenge TB and endTB of PIH projects end-term evaluation reports	
National TB services quality assessment	Assessment protocol is finalized.	
VALUE TB study	Ongoing national study on costs of delivering TB prevention, care and treatment services for the health system.	This is an ongoing research that looks into costs of delivering TB services to the health system. If ready, this adds value for cost-effectiveness analysis and costing interventions.
Catastrophic cost survey	Proposal just developed. Uncertain if the result would be ready to inform the TBL-NSP.	If survey report is not ready, desk review of key relevant documents will be necessary.
Prevalence survey	NA, last prevalence survey was done in 2011.	TB prevalence survey is not done

18.5.2 Terms of refernece for core team for the development of TBL-NSP

Background and Rationale

The National Tuberculosis Leprosy programme (TBLP) is in the process of developing the next five-year national strategic plan (TBL-NSP, July 2020 to June 2025). To this effect, a concept note, with a detailed plan and budget has been developed. As articulated in the concept note, a core team will have an overall responsibility of ensuring the development of the TBL-NSP, per agreed standards and timelines, and is accountable to the national TB/HIV technical working group and NTP/FMOH. The aim of this terms of reference (TOR) is to highlight roles and responsibilities of the core team in the development of the TBL-NSP.

Guiding Principles

The core team for developing TBL-NSP will be guided with the following principles:

a) **Communication** – all members of the core team are expected to have proper and timely communication and interaction amongst each other, and the national TB/HIV technical working group.
b) **Participatory** – all tasks of the core team would be performed in a participatory manner, where all members contribute to achieving the objectives of the core team timely.
c) **Punctuality, meeting attendance, and commitment to quality deliverables**– members of the core team are required of attending regular meetings and to timely complete tasks assigned to them.

Objectives

The main objective of the core team is supporting the FMOH/NTLP in developing quality TBL-NSP, which adequately articulates the national context. The specific objectives are to:

- Provide technical assistance to the NTLP/FMOH in developing the TBL-NSP timely.
- Ensure quality of the TBL-NSP document and adherence to agreed processes and timelines.

Composition and Working Rules

Membership

Group composition includes core and extended team members, with defined roles and responsibilities.

Core team members

Members of the core team are identified based on technical background and expertise, and they don't represent a specific institution, organization or their employer in the core team. Refer section 7 for members list.

Extended team members

The core team has extended group members who will participate in the writer's retreat and are also periodically briefed by the core team on progress. Refer section 7 for members list.

Roles and Responsibilities of Core Team

In developing the TBL-NSP, the following are key roles and responsibilities of the core team:

- Technically assists the NTLP to develop budgeted concept note and plan for TBL-NSP development. Present and discuss
- the concept note (#1) at the national TB/HIV TWG, solicit feedback and any input. Setup sub-teams, as required, to
- accomplish the tasks of developing the TBL-NSP.
- Collect relevant background documents and prepare tools and guidance for consultation meetings and workshops.

- Facilitate or propose facilitators for various consultation workshop meetings to develop the TBL-NSP. Draft (write)
- the various sections of the TBL-NSP, incorporate input, edit and cross-edit to produce final draft.
- Periodically brief the national TB/HIV TWG on progress and issues related to developing the TBL-NSP. Present
- final draft of TBL-NSP to the FMOH leadership for formal endorsement.

Chair and co-chair of the core team

The core team will identify chair and co-chair with roles and responsibilities to:

- Call and chair core team meetings.
- Endorse planned meeting agenda.
- Track implementation of core team recommendations and tasks assigned to individual team member. Represents
- the core team in the national TB/HIV TWG meetings and other relevant forums.
- In his/her absence, the cochair is delegated to assume the responsibility of the chairperson.

Secretariat

The core team shall have one elected secretary from members, and:

- Organizes agenda and venue for the core team meeting, in consultation with the chairperson. Shares
- meeting agenda with core team before meetings.
- Records and circulates core team meeting minutes among members.
- Produces regular report of core team meetings, decisions and recommendations and their implementation status for NTLP, and national TB/HIV TWG.

Extended team members

The extended team members will:

- Be briefed monthly on progress in development of the TBL-NSP by the core team via email and provide feedback as necessary.
- Attend the TBL-NSP core team/writers' retreat, as necessary. Participate in
- the TBL-NSP stakeholder consultation workshops.

Meeting requierments

- At the initial stage, the core team will meet weekly. Thereafter, bi-monthly meetings will be held. As
- necessary, extraordinary meetings will be held.
- Meetings will be on Thursday afternoon, from 2- 4 PM, at eth FMOH/NTP office. Each
- regular meeting will last not more than two hours.
- Additionally, core team members will attend 2-3 team/writers retreat meetings, in addition to three stakeholder consultation meetings.
- Failure to attend three consecutive meetings or repeated failure to carryout assigned tasks within agreed time frame would result in cancellation of membership from the core team.
- All sub-groups/writers established by the core team will be accountable to the core team.

Core and Extended team members

Core team members		
Name		**Remark**
Taye Letta	Chair	TBL programme management
Dagim Damitew		Supply management
Semaligne Samuel		M and E
Eyerusalem Negussie		Technical advisor
Feven Girmachew / Kumera Terfa		Laboratory, capacity building
Muluwork Getahun		TB/HIV lab services
Asfawossen Woldegiorgis		PPM
Tadele Kebede		Leprosy
Andargachew Kumsa	Secretary	PMDT
Ismael Hassen Endris	Co-chair	Childhood TB, programme management
Challa Negeri		Key population, TB
Demelash Assefa		Costing, Modelling & Budget
Beniam Feleke		HIV/TB
Yewulsew Kassie/Anteneh Kassa		Community TB; Key population TB
Endalkachew Fekadu		Civil society
Leul Abate		National HIV programme
Genet Getachew		MOH-HIV programme

Extended team members	
Name	
Neghist Tesfaye	CCM, Ethiopia, oversight committee chair.
Teklu Weldegebreal	CCM, Ethiopia, oversight committee vice-chair.
Meseret Yenehun	CCM, Ethiopia secretariat, programme coordinator.
Degu Jerene	KNCV, The Netherland
Max Meis	KNCV, The Netherland
Nabila Shaikh	LSHTM

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