Operational Guide
Find and Treat all Missing Persons with TB

KNCV
TUBERCULOSIS FOUNDATION

To eliminate TB

CONTENTS

ACKNOWLEDGMENTS

As this Guide is a 'living' document, designed around topical chapter modules, it is expected to evolve continuously as our efforts and evidence grow. For now, let's get the work done.

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ABBREVIATIONS

ACF	Active Case-finding
ACSM	Advocacy, Communication and Social Mobilization
AIDS	Advanced Immuno-Deficiency Syndrome
ANC	Antenatal Clinic
BCC	Behavior Change Communication
CAD4TB	Computer Assisted Detection for TB
CBO	Community Based Organization
CEA	Cost Effectiveness Analysis
CI	Contact Investigation
CHEW	Community Health Extension Worker
CHW	Community Health Worker
CSO	Civil Society Organization
CV	Community Volunteer
CXR	Chest X-ray
DHIS	District Health Information System
DHMT	District Health Management Team
DHS	Demographic and Health Survey
DHO	District Health Office
DMO	District Medical Officer
DOT	Directly Observed Treatment
DR-TB	Drug-Resistant TB
DS-TB	Drug-Sensitive TB
DST	Drug Susceptibility Testing
EPI	Expanded Program on Immunizations
FAST	Find cases Actively by cough Surveillance and rapid molecular sputum Testing
FBO	Faith-Based Organization
FGD	Focus Group Discussion
FQ-team	Facility Quality team
FTMP	Find and Treat all Missing Persons with TB
GF(ATM)	Global Fund to fight AIDS, TB and Malaria
GLI	Global Laboratory Initiative
GP	General Practitioner
HIV	Human Immuno-Deficiency Virus
HMIS	Health Management Information System
HSS	Health Systems Strengthening
HTC	HIV Counseling and Testing
HUS	Health care Utilization Surveys
ICCM	Integrated Community Case Management
ICF	Intensified Case-finding
IDSA	Infectious Diseases Society of America
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illnesses
ISTC	International Standards of Tuberculosis Care
KAPB	Knowledge, Attitudes, Practice and Behavior
KNCV	KNCV Tuberculosis Foundation
KP	Key Populations
KPI	Key Performance Indicators
LTFU	Lost To Follow-Up
M&E	Monitoring and Evaluation
MCH	Maternal and Child Health
NCD	Non-Communicable Disease
NGO	Non-Governmental Organization
NNS	Number Needed to Screen
NNT	Number Needed to Test
NSP	National Strategic Plan
NTP	National Tuberculosis Program
PCC	Patient Care Cascade
PLHIV	People Living with HIV
PMTCT	Prevention of Maternal to Child Transmission
PPA	Patient Pathway Analysis
PPM	Public-Private Mix
PWID	People Who Inject Drugs
QA	Quality Assurance
QI(P)	Quality Improvement (Plan)
RBF	Results Based Financing
RIF	Rifampicin
SDGs	Sustainable Development Goals
SOC	Standard of Care
SOP	Standard Operating Procedures
STP	Stop TB Partnership
TAT	Turn Around Time
TB	Tuberculosis
UHC	Universal Health Coverage
WASH	Water, Sanitation and Hygiene
VHW	Village Health Worker
WHO	World Health Organization
XDR-TB	Extensively Drug-Resistant Tuberculosis

GLOSSARY

This section defines the expressions which can be found in *grey italic font* throughout this guide.

Bacteriologically confirmed TB
A biological specimen which is positive by smear microscopy, culture or WHO-approved rapid diagnostics (WRD), such as Xpert MTB/RIF. All such patients should be notified to the national reporting system, regardless of whether TB treatment has started.

Behavior Change Communication
Behavior change communication (BCC) is an interactive process of any intervention with individuals, communities and/or societies (as integrated with an overall program) to develop communication strategies to promote positive behaviors which are appropriate to their settings.

CAD4TB
Computer-Aided Detection for Tuberculosis: CAD4TB can analyze digital chest X-rays by providing a probability percentage of the likelihood of TB being present.

Contact
Any person who has been exposed to an index patient (the initially identified patient with new or recurrent TB in a specific household or other comparable setting in which others may have been exposed). A **household contact** is defined as a person who shared the same enclosed living space for one or more nights or for frequent or extended periods during the day with the index patient during the 3 months before the patient started the current treatment episode. A **close contact** is a person who is not in the household but shared an enclosed space, such as a social gathering place, workplace or facility, for extended periods during the day with the index patient during the 3 months before the patient started the current treatment episode.

Contact Investigation
A systematic process to identify previously undiagnosed patients of TB among the contacts of an index patient and to identify contacts at increased risk for development of active TB. This process includes an interview with the index patient to obtain the names and ages of contacts and an assessment of contacts' risk for having TB (generally based on the presence of symptoms compatible with TB) or developing TB after infection, and to determine those for whom clinical evaluation is indicated.

Contact Investigation (CI) coverage
The number of contacts whom are investigated divided by the total number of identified eligible contacts as part of a contact investigation.

Community Systems
Community-led structures and mechanisms through which community members and community-based organizations and groups interact, coordinate, and deliver their responses to the challenges and needs affecting their communities.

Community Systems Strengthening (CSS)
An approach that promotes the development of informed, capable and coordinated communities and community-based organizations, groups and structures. This will enable community actors to contribute as partners alongside other actors to the long-term sustainability of health and other interventions at community level. CSS has a strong focus on capacity building of individuals and organizations and on resource mobilization.

Desk Review
The collection, organization, and synthetization of available information to gain an understanding of the country context, public health priorities and health care trends, and to identify gaps to address during the in-country field work. Desk review activities include scanning the literature and analyzing publicly available data.

Effective treatment
Treatment with a combination of WHO-recommended first- or second-line anti-tuberculosis drugs, suitable for the strain's susceptibility pattern.

FTMP interventions
A shorthand for all interventions aimed at optimizing case-finding and case-detection along the patient pathway from first disease manifestations (any sign or symptom) to diagnosis and treatment, to minimize the number of persons with TB who are "missing".

Health seeking behavior
Any care seeking action undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy.

Index patient coverage
The number of index patients for whom contacts are investigated divided by the total number of index patients. This can be stratified for specific priority index patient groups, such as sputum smear-positive pulmonary TB patients, Extensively/Multi-drug resistant TB patients (presumed or proven), Persons Living with HIV (PLHIV), children 0-4 years of age.

Integrated health services
The organization, coordination, and management of multiple activities and resources to ensure the delivery of more efficient and coherent services in relation to cost, output, impact, and use (WHO, 2011). Integrated service delivery: the management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system (WHO, 2008).

Key populations
People who are vulnerable, underserved or at-risk of TB infection and illness (see Annex 1).

Latent TB Infection (LTBI)
This refers to an infection with the *M. tuberculosis* bacilli, in the absence of signs and symptoms of TB disease.

Non-public sector
Formal private facilities and informal private facilities, where the informal private facilities include practitioners with little or no formal health training, e.g., pharmacies, traditional healers. The designation of non-governmental organizations (NGOs) into public or non-public sector should align with the country's norms for categorization.

Number Needed to Screen (NNS)
Definition: The number of people who would need to be screened to find one diagnosed TB patient.
Calculation: 1/ [Number of diagnosed TB patients / Number of people screened]

The NNS to identify one true TB patient in a specific risk group is the inverse of the prevalence of detectable TB in that risk group, assuming 100% sensitivity of the screening and diagnostic tools being used. However, since this assumption is never met, the NNS will always be higher in practice. If a given risk group has a very low prevalence of detectable TB many people will have to be screened

in order to find one TB patient, and this will translate into a high NNS. However, if a given risk group has a high prevalence of TB that can be detected by the screening and diagnostic tools being used, fewer people will need to be screened for each patient detected, resulting in a lower NNS.

The NNS can be used to prioritize which populations should be screened. In general, the lower the NNS, the higher the priority for screening.

Onion Model
A framework for assessing the fraction of TB patients (un)accounted for in TB notification and treatment outcome data. It is a method to gain a comprehensive understanding of where TB patients are missing, with the different steps in health seeking and various levels of the health system represented by different 'layers' of the onion.

Patient pathway
The steps TB patients take from the initial point of care-seeking to the point of achieving a successful treatment outcome.

Patient care cascade
Also known as the continuum of care, the cascade starting with all persons with TB in a community, via access to healthcare, identification as presumed TB, evaluation for TB, diagnosis of TB, initiation of TB treatment, notification to a successful treatment outcome. This approach considers drop-offs along the different points in the cascade, and can be represented as an onion model.

Preventive therapy
Treatment of latent TB infection (LTBI) with one or more anti-tuberculosis drugs, also referred to as chemoprophylaxis, which prevents progression from LTBI to active TB disease.

Presumptive TB
Refers to a patient who presents with symptoms or signs suggestive of TB disease from the perspective of the care provider (previously known as a TB suspect).

Quality improvement
An approach aimed at systematically improving the quality of care by addressing gaps between current practices and desired standards, through management decisions, team-based problem solving, process improvement, and quality redesign.

Stigma
Stigma can be defined as a relationship between an attribute and a stereotype that assigns undesirable labels, qualities, and behaviors to a person. Labeled individuals are devalued socially, leading to inequality and discrimination. For example, a TB patient is always assumed to be infectious, and therefore is labeled as 'dangerous', which justifies behaviors and policies that create social distance (e.g. separation).

Self-stigma and internalized stigma can manifest as shame, guilt and self-loathing. This can lead to reduced wellbeing, depression, low self-esteem, reduced self-efficacy, poor long-term coping, and lower quality of life and for a person to avoid social interactions even after the infectious period is over. Social, self, and contextual factors shape self-stigma.

Sustainable Development Goals
The Sustainable Development Goals (SDGs) are a collection of 17 interrelated global goals set out by the United Nations, each with several targets. The SDGs cover a broad range of social development issues, such as poverty, hunger, health, education, climate change, gender equality, water, sanitation, energy, environment and social justice. The goals were developed to replace the Millennium Development Goals (MDGs) which ended in 2015.

Systematic screening
This involves screening people for presumptive TB in a predetermined target group considered or known to be at high risk for TB disease, using screening tests which are very sensitive and simple to apply. This is applied on persons seeking care in health facilities (as a component of triaging – see below - also called enhanced case-finding or intensified case-finding), or on persons who have not sought care in the health care system (also called active case-finding) because they do not have access, or because they did not experience the signs and symptoms as problematic.

Treatment coverage
Previously known as the case detection rate. The number of new and relapse TB patients that were notified and treated in a given year, divided by the estimated number of incident TB patients in the same year, expressed as a percentage.

Triaging
Triaging is defined as the processes of prioritization the diagnostic and care pathways for people seeking healthcare, based on their symptoms, signs, risk markers and test results. Triaging involves assessing the likelihood of various differential diagnoses as a basis for making clinical decisions. It can follow more- or less-standardized protocols and algorithms for screening followed by diagnostic testing. Effective triaging to rapidly diagnose TB is important both for optimizing care for the individual and for ensuring good infection control. Triaging is often used for describing activities to increase case-finding among persons seeking care in health care facilities, activities which go beyond "passive" case-finding.

Universal health coverage (UHC)
UHC is defined as ensuring that all people have access to needed promotive, preventive, curative and rehabilitative health services, of sufficient quality to be effective, while also ensuring that people do not suffer financial hardship when paying for these services. For example by removing user fees when visiting public health facilities. UHC has therefore become a major goal for health reform in many countries and a priority objective of WHO.

BACKGROUND

In 2016, the World Health Organisation (WHO) estimated that close to 40% of the estimated tuberculosis (TB) patients were "missing". These represented more than 4 million people with TB for whom it is not known if they have ever received a diagnosis or appropriate treatment [1]. Through prevalence surveys it was shown that 30-80% of prevalent TB was found among asymptomatic patients [2] and that 10% to 65% of individuals with TB symptoms were not seeking care potentially because they faced certain obstacles (financial, distance to a clinic, stigma, etc.) [3]. Others may have reached the public or private health facility but were not evaluated for or diagnosed as having TB [4,5] or if they were diagnosed with TB they were not notified [6]. Also, some might have been diagnosed but not initiated on treatment or were not treated appropriately [7-10].

WHO's End TB strategy aims to find and diagnose these missing persons with TB, avoiding patient- and diagnosis-related delay, and treat them appropriately [11]. This is necessary to end the TB epidemic, to limit unnecessary patients' suffering and to prevent mortality. KNCV Tuberculosis Foundation (KNCV) will support countries to develop, implement and monitor & evaluate tailored interventions at district level to Find and Treat all Missing Persons with TB (FTMP).

ABOUT THIS DOCUMENT

PURPOSE OF THIS OPERATIONAL GUIDE

This Guide aims to support **district-level FTMP planning and implementation**. It provides practical approaches and tools how to develop, implement, monitor implementation, and assess the impact of the FTMP interventions. The guide focuses on the implementation at district level, in collaboration with the national and sub-national level for strategic guidance, data and implementation support.

INTENDED AUDIENCE

This operational guide is meant to **support National TB Program staff and all persons engaging in sub-national or national FTMP efforts (technical, non-technical and consultants). Specifically, it is meant for use by any organization working with country stakeholders** (NTP staff, District Health Staff, Staff from NGOs, CSO's and FBO's working in health and specifically in TB/HIV) who are involved in developing FTMP policies and implementing associated interventions.

WHEN TO USE THIS OPERATIONAL GUIDE

This Guide will be mainly used to guide the development and implementation of the country's FTMP strategy at district level. The guide can also be helpful to develop an FTMP strategy and FTMP interventions at national level and to develop FTMP funding requests.

HOW TO INTRODUCE THE FTMP STRATEGY AND THE OPERATIONAL GUIDE IN-COUNTRY

An introduction package on the FTMP strategy and operational guide is available to use for introducing the approach to the NTP and other stakeholders in-country. This package includes a short PowerPoint presentation and the FTMP brochure.

It is important to ensure buy-in and to fully involve the NTP from the start of FTMP interventions, that should be aligned with country's National Strategic Plan (NSP). An interdisciplinary team approach is recommended for implementation.

> The FTMP approach is intended to assist countries in reviewing current FTMP activities and strategies and to plan and implement FTMP goals and targets as defined in the TB NSP, Global Fund applications etc.

STRUCTURE

This Guide presents stepwise the FTMP approach and is structured as follows:

- The FTMP framework is presented in Chapter 2 and determines the structure of this Guide.
- The actual practical guidance starts with Chapter 3 **"Determine gaps and prioritize interventions"**, which provides a general approach on conducting a situational analysis to identify geographical areas **(Where)** and/or implementation areas **(What)** and/or *key populations* **(Who)** to intervene in.
- Chapters 4 to 7 cover the four implementation areas (community engagement, matching services to patient pathways, triage and screening and quality prevention and care), with a description of the three stages of implementation (assess & prioritize, implement, build evidence) in a step-by-step approach
- Each implementation area has been color-coded for easy reference
- Steps described for the different stages of implementation provide a list of recommended tools to implement the steps and information sources to find relevant background information.
- Terms that are explained in the glossary section have been indicated in *italic grey font*
- The FTMP Monitoring and Evaluation Logical Framework in Chapter 8 summarizes for each implementation area the objectives, activities, results and suggested indicators. The chapter presents also the elaborated list of suggested indicators.
- The Toolbox in Chapter 9 provides a short summary of selected tools, ordered alphabetically, referred to in the document, with a link to the source (if available), purpose, use, expected results, time and budget requirements, and evidence/ experience. Tools included in Chapter 9 have been indicated in **bold grey font** and are developed by different organizations. Other tools can be found in the different annexes which are developed for the purpose of this FTMP document. There is currently no experience with the utilization of these other tools.
- The Annexes contain additional in-depth information, organized by chapter, on the stages and steps described in the document.
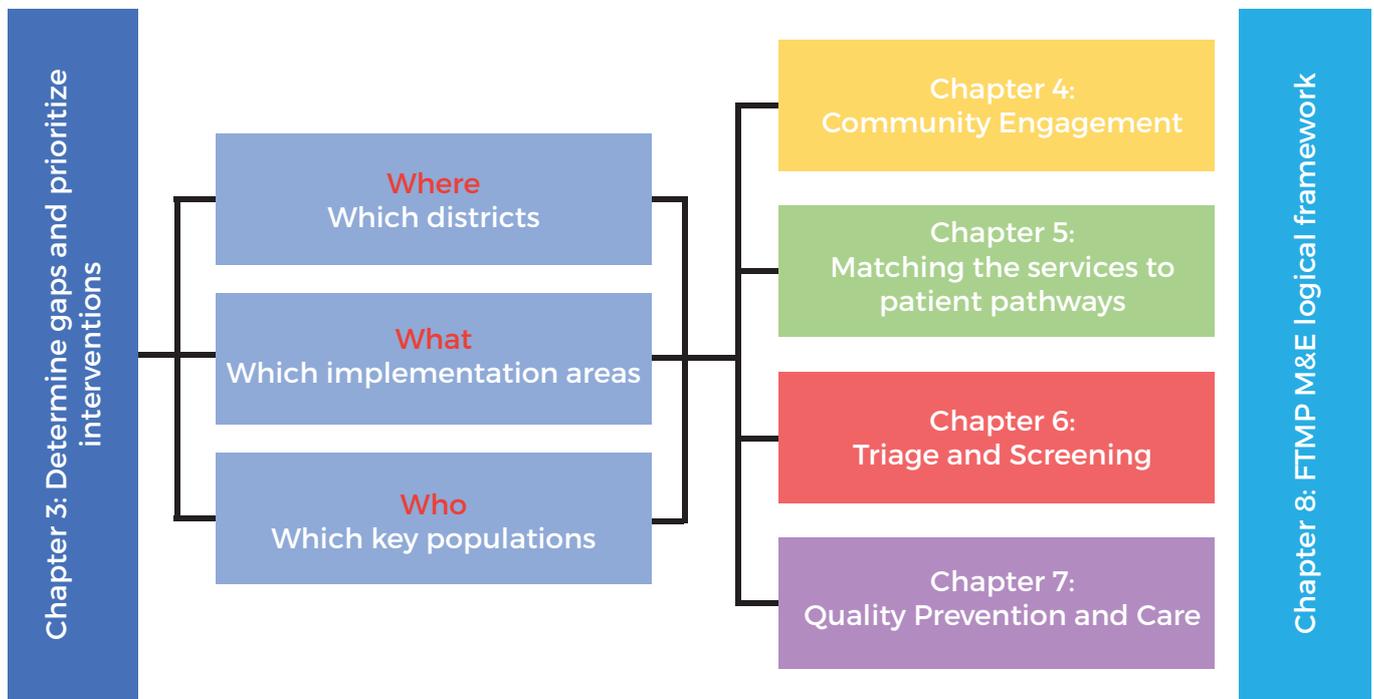
Figure 1: Structure of the Find and Treat all Missing Persons with TB Operational Guide

USE OF THE OPERATIONAL GUIDE

This guide can be used in different ways:

- From the beginning to the end, select the approaches and tools that are appropriate for your context
- Select one or more of the chapters that describe an intervention area the country wants to intervene and needs support to develop and implement their plans; for example Community Engagement (Chapter 4) and Quality Prevention and Care (Chapter 7) if you want to focus on *quality improvement* of care, engaging the community in this process
- Use the guide as a reference to look for tools and approaches at any moment in the country's FTMP process
- Note that in the guide steps and/or implementation areas can be skipped if deemed less relevant to the local situation, or depending on time, staff or budget available.

Professionals from different disciplines will be needed to facilitate the national and district level assessments and the four implementation areas: 1) Epidemiologist (Chapter 3), Community Engagement Specialist (Chapter 4), Health Systems Strengthening (HSS) Specialist (Chapter 5), TB and HSS specialist (Chapter 6), Quality and Human Resources Development Specialist (Chapter 7).

Chapters 4–7 (covering the four implementation areas) should result in a plan of interventions. It should be noted that these interventions will be integrated into the District Action Plan, and the planning templates used will differ for each country.

> **Implementation at district level**
> This Operational Guide aims to support district level FTMP implementation. Districts will differ per country in population size, TB epidemiology, governance, health systems and available budget. The assumption is that districts have control over their own budget and staff and thus can take district level decisions.

> **Annual District Action Plan**
> FTMP activities will be fully integrated into the annual District (Health) Action Plan. This will contribute to the relevance and quality of the plan and will facilitate the implementation of FTMP interventions.

THE FRAMEWORK

The FTMP Framework below, presents the FTMP Vision, Mission, Implementation areas, Stages, Guiding Principles, and Results.

VISION

A world free of tuberculosis

MISSION

Finding all missing persons with TB and ensure access to quality care

Prioritize implementation areas

| Community Engagement | Matching Services | Triage and Screening | Quality Care |

STAGES

Assess & Prioritize

Implement
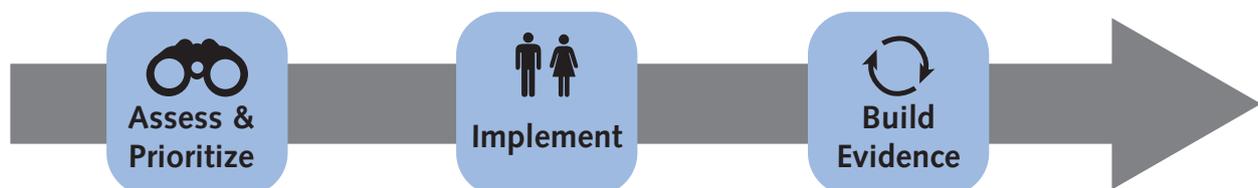
Build Evidence

GUIDING PRINCIPLES

Programmatic and integrated, patient-centered, and evidence based

RESULTS

Increased country FTMP capacity

Country FTMP plans

Increased access to quality diagnosis & care

Improved case notification and treatment outcomes
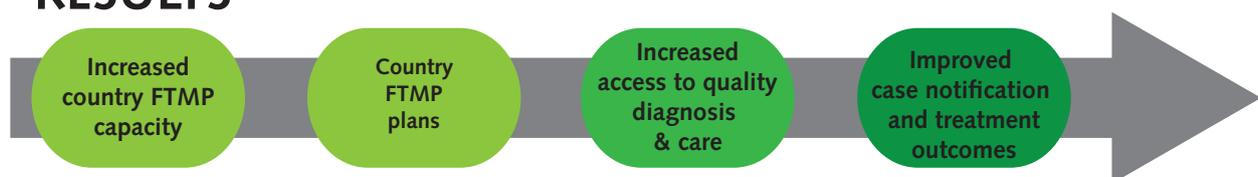
IMPLEMENTATION AREAS

The Framework includes four Implementation areas where interventions will be focused; these are not in order of importance.

1. Community Engagement
Engage the community in building on existing community systems for TB literacy, stigma reduction, patient referral, and treatment support. This will result in finding more TB patients in an earlier stage of the disease, which will contribute to reducing TB transmission, better treatment outcomes, less patient suffering, and reduction of treatment, patient, and societal costs.

2. Matching services to patient pathways
Matching the supply and delivery of diagnostic and treatment services should be based on TB epidemiology, patient's pathways analysis, diagnostic and treatment network analysis, and the degree of integration with other programs. This should lead to better access and more efficient utilization of diagnostic and treatment services.

3. Triage and screening
To increase case-finding, countries need to introduce, improve or scale-up interventions to actively find *presumptive TB* patients. Among these interventions are *triaging* in health facilities, *systematic screening* of *key populations*, and *contact investigation*. This guide presents how to prioritize, implement, and evaluate these interventions.

4. Quality prevention and care
The quality of patient-centered prevention and care, based on the **International Standards of TB Care** (ISTC), is a key factor for success in finding, diagnosing and treating the missing persons with TB. Quality prevention and care requires clear guidelines, competent staff who are empowered to provide patient-centered care, a learning culture, and quality management. Patients, health care workers, and district health managers will plan, implement, and evaluate *quality improvement* interventions.

STAGES

The following three stages, which are inherently iterative, need to be taken in order to systematically develop, implement and measure impact of FTMP interventions (details on how to implement these stages are included in each chapter on the four implementation areas):

1. Assess and prioritize
Conduct a situational analysis, on *key populations*, the health services, *community systems*, and *patients' pathways*/*health seeking behavior* and TB *patient care cascade*.

This starts with an assessment at (sub) national level to prioritize the districts, implementation areas, and key populations where the FTMP interventions should take place followed by more detailed district assessments.

These district level assessments should take place in every selected district to develop the district FTMP plans. Depending on the availability of data, this can be done as a desk review, or targeted assessments can be conducted if resources allow.

The missing persons with TB can be found (1) in health facilities (e.g., public & private health facilities, pharmacies, traditional healers); (2) in the communities (e.g.,

neighborhoods, churches and mosques, schools, clubs), and (3) in other settings and services (e.g., prisons, children's homes). Key populations (KPs) (e.g., the rural and urban poor, people living with HIV, children) can be found in all these places, although KPs can be very context and situation specific, and some KPs are more easily accessed in specific settings such as HIV clinics, prisons, and workplaces. Civil society organizations (CSOs) and community-based organizations (CBOs) play an important role in finding and treating all missing persons with TB in the community, given their proximity (networks and services). This is visualized in Figure 2 "Areas to find and treat all missing persons with TB".
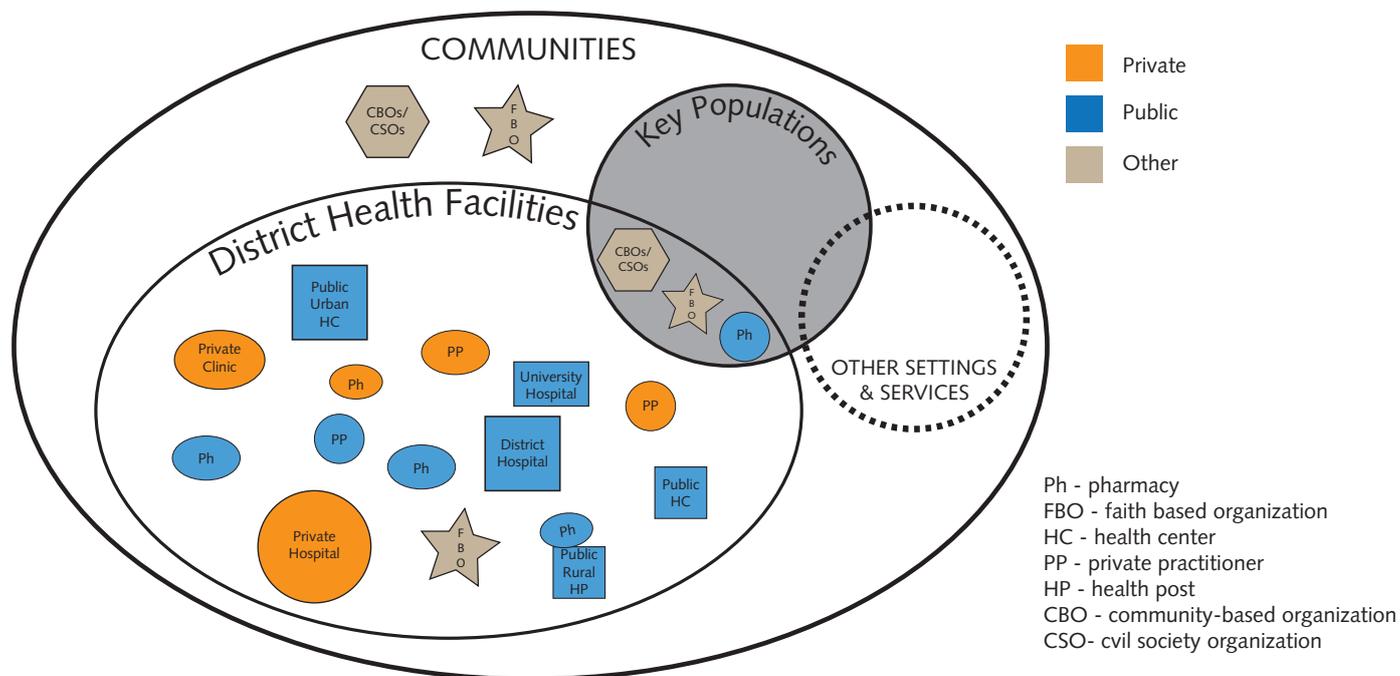
Figure 2: Areas to find and treat all missing persons with TB

2. Implement
Involve relevant stakeholders in the planning, development and implementation of tailored interventions, taking into account the country's and district's TB epidemic, the health and community systems, patient *health-seeking behavior*, and the district's financial and human resources capacity. Stakeholders may differ by district, however, at the very least they will most likely include the District Health Office including relevant health programs, public & private health providers, non-governmental organizations (NGOs), patient organizations, CSOs, and CBOs from within and outside the health sector. The development of an M&E framework also forms part of the planning process.

3. Build evidence
Building evidence for optimization and scale-up by implementing an M&E framework to systematically determine the contribution, cost-effectiveness and (if resources allow) the outcome of tailored interventions, making optimal use of existing data, resources, and infrastructure. Lessons learned will be used to optimize the approach and to scale-up to other districts where applicable (see the FTMP planning cycle in Figure 3).
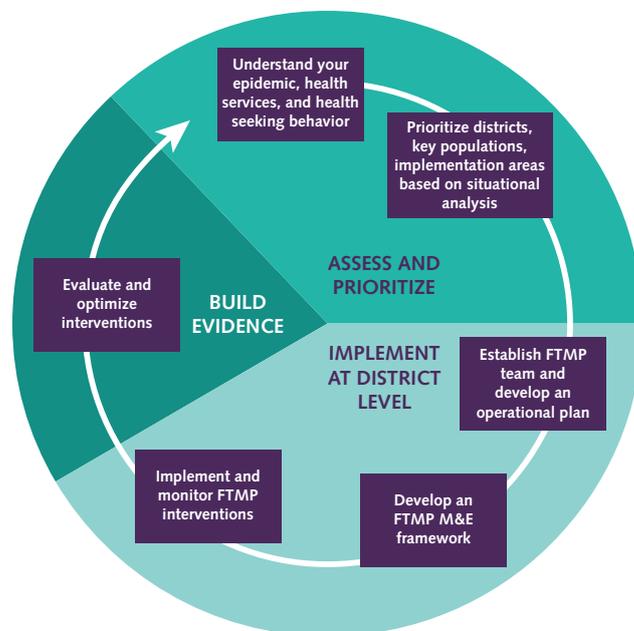
Figure 3: Stages in developing and implementing the FTMP interventions

GUIDING PRINCIPLES

The FTMP guiding principles are:

1. Programmatic and Integrated
The generic (or broad) FTMP strategies should be included in the TB NSP, and fully *integrated* in the annual district plan and the (TB) health services. Collaboration with other sectors and programs such as community development, prison services, and educational services is essential to engage communities and reach specific populations. In most country contexts, KNCV will support interventions at the district level as being the unit of operations. This approach will ensure ownership, scale-up, and sustainability at implementation level.

2. Patient-Centered
The WHO's patient-centered approach enables the patient "to exercise their rights and fulfill their responsibilities with transparency, respect, and dignity." Patients are treated not as mere passive recipients of supply-side curatives, but as partners in their access to care and as recipients of services. Patient-centered care is an aspect of the quality of care. It will minimize the number of patients who are not diagnosed and missed, and who don't complete treatment due to failing of (early) case detection systems and practices, and poor patient adherence support. *Universal Health Coverage* (UHC) is an important aspect of patient-centeredness enabling patients to have universal access to quality ensured essential health care services without facing catastrophic cost.

3. Evidence Based
The initiative promotes the implementation of evidence-based interventions, taking into account practitioner expertise and patients' acceptability. In cases where existing evidence for an intervention is weak, the systematic collection of data through the M&E framework will offer an opportunity to generate evidence and build on it to improve the system, including through dissemination of best practices. In situations where the M&E framework does not provide the answers needed, additional quantitative and/or qualitative evidence should be generated through operations research. This approach ensures that interventions are effective and efficient in finding persons with TB who otherwise would be missed.

DETERMINE GAPS AND PRIORITIZE INTERVENTIONS

In 2016, there were an estimated 10.4 million new (incident) TB patients worldwide, and case-finding efforts resulted in 6.3 million TB patients being notified [2]. The treatment success rate for drug-susceptible patients was 83% (for the 2015 cohort), which was similar to previous years. Closing the 4.1 million gap between notified and incident patients and increasing the treatment success rate requires a careful situational analysis. This should result in a better understanding of where these gaps are most profound; i.e. (1) where in the health system, (2) during which step(s) in the *patient care cascade* and pathways, (3) among which populations, and (4) in which geographical areas. Subsequently, this information about the TB epidemiology, *health-seeking behavior*, and health services should guide the prioritization of implementing interventions aimed at closing this gap.

PURPOSE, OBJECTIVES, AND RESULTS

PURPOSE
The purpose of this chapter is to determine the gaps at **national and sub-national** level where and when persons with TB are missed by the programs and service providers. This chapter provides a step-by-step approach in order to understand the TB epidemiology, *health-seeking behavior*, and health services. Conducting this work will aid to prioritize the 1) **geographical areas** (districts), 2) **implementation areas** (community engagement, matching services to *patient pathways*, triage and screening, and quality care and prevention), and 3) the **key populations** to target.

OBJECTIVES
By using this chapter, the reader will be able to understand how to:
1. Assess the TB epidemiology on a national and sub-national level including KPs
2. Review the TB surveillance system
3. Assess the TB patient care cascade and the capacity of TB diagnostic and treatment delivery systems and services
4. Assess the TB patients' pathways[1]
5. Determine the gap between the total number of notified TB patients and the estimated TB incidence
6. Prioritize in which of the implementation areas/districts/populations to invest.

RESULTS
1. Prioritized district(s) for FTMP interventions
2. Prioritized implementation areas for FTMP interventions
3. Prioritized populations for FTMP interventions.

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1   Where a full Patient Pathway Analysis exercise is not feasible, the program should at least establish the preferred services entry point (private vs. public, formal vs. informal), and performance by provider type. Relevant data is routinely collected through national TB prevalence surveys and program reviews.

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Understand the TB epidemiology	Review the TB surveillance system	a. Assess the patient care cascade b. Assess the patient pathway	Determine the gap between notified patients and estimated incident patients	Prioritize implementation areas/districts/populations
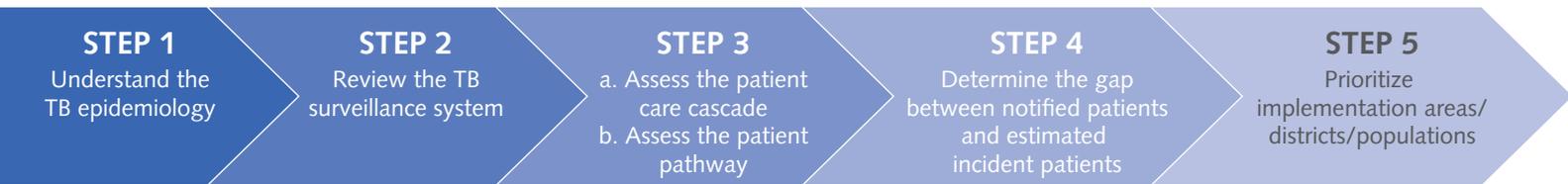
STAKEHOLDERS

NTP program managers, NTP M&E team, Regional TB coordinators, WHO, CSOs, CBOs, FBOs, private providers, external and internal consultants

STEP 1
Understand the TB epidemiology regarding trends in case notification and treatment outcomes across different populations at national level and district level, if the data are available.

HOW

1. Assess the TB burden in the population and assess which *key populations* are underrepresented in case notification data
2. Compare treatment outcomes between populations and districts and determine which groups or geographical areas have the worst outcomes
3. Conduct spatial analyses (geographical mapping) to visualize the burden of TB in the country and the association with certain factors.

TOOLS (SEE CHAPTER 9: TOOLBOX)
- **TB Epidemiological Review**
- **MATCH tool**
- **Inventory study**

INFORMATION SOURCES
- National Prevalence Surveys
- NTP Annual reports
- Program reviews
- National Strategic Plan (NSP)
- WHO Global TB report
- WHO Global Health Observatory
- Research literature
- AIDSinfo database
- MoH databases
- Laboratory databases
- Demographic and Health Surveys (DHS)
- Vulnerability assessments

The **availability** and **quality** of routine surveillance and survey data may vary and therefore influence the results of this and the next step. Depending on the time, budget and expertise available, conducting full epidemiological assessments may not be feasible, which may result in having to make assumptions regarding the epidemiological situation or steps in the patient care cascade to prioritize interventions.

Review the TB surveillance system to identify potential under-notification of TB patients at the national level and district level, if the data are available.

HOW
- External review of the TB surveillance system by the systematic use of WHO's Standards and Benchmarks checklist.
- Include reporting of TB related activities conducted in other programs (IMNCI, ANC, MCH, HIV, PMTCT, nutrition, and NCD etc.) and by private providers and facilities.

TOOLS
- WHO Standards and Benchmarks [12] (**part of TB Epidemiological Review**)
- Inventory study

STEP 3A:
Assess the patient care cascade at the national level – using the Onion Model

HOW
The *patient care cascade* (PCC) is presented as an "*Onion Model*" and developed as a framework for assessing the fraction of missing TB patients [3, 13]. It is a method to gain a comprehensive understanding of where persons with TB are missing, with the different steps in health-seeking and various levels of the health system represented by different 'layers' of the onion. Figure 4 is based upon several versions of this model.

Person with TB in the community

Access to healthcare

Attending public or non-public health facilities

Screened for TB

Diagnosed with TB

Started TB treatment

Notified

Completed treatment/ Cured
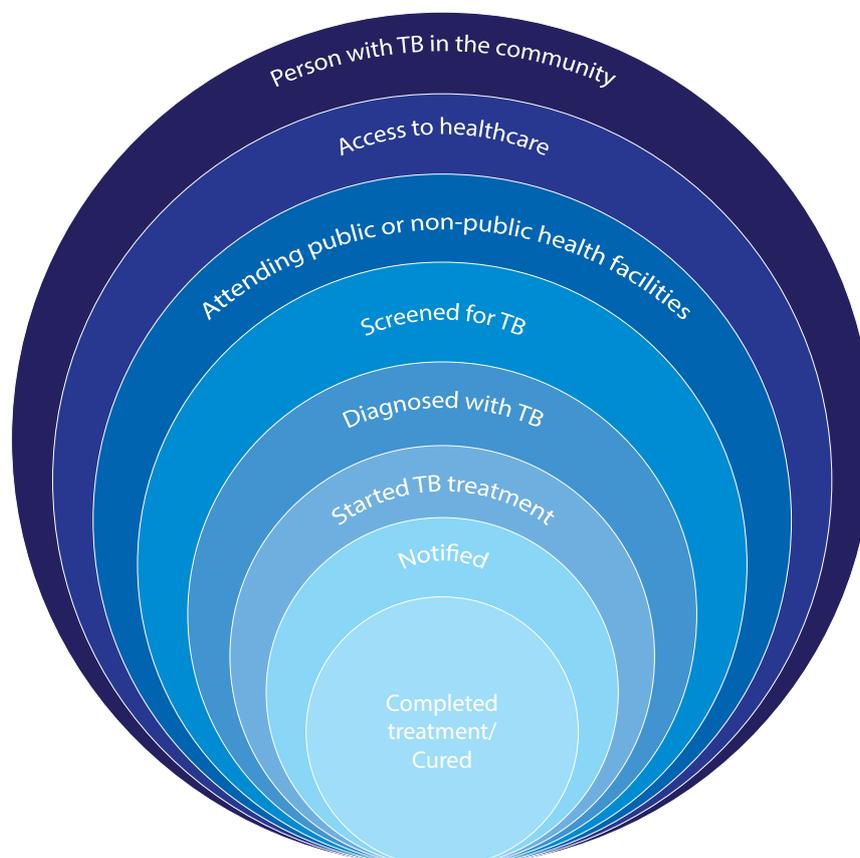
Figure 4: Onion Model with key steps along the patient care cascade.
Adapted from [3, 13-15]

The outer layer of the onion represents all people with TB in the community, irrespective of case detection. Each following layer represents a proportion of persons with TB as they go through the *patient care cascade* to access care, get diagnosed with TB, and eventually reach a successful treatment outcome. Table 1 summarizes the steps represented by each layer, and the fractions that drop off along the way.

Table 1: Steps in the care cascade and fractions dropping off represented by the layers in the onion model

#	Layer	Representation	Fraction dropped off
1	Persons with TB in community	All persons with TB who are present in the community	Not applicable
2	Access to healthcare	Persons with TB who have access to healthcare facilities	Persons who cannot or experience significant barriers to access care
3	Attending public or non-public health facilities	Persons with TB who seek care, either in non-public or in public healthcare facilities	Persons who have access to healthcare, but do not seek care, including those who are not aware of TB symptoms
4	Screened for TB	Presumptive TB patients screened for active TB disease	Patients who are not identified as having presumed TB and/or who cannot access diagnostics or other methods of evaluation for active TB disease
5	Diagnosed with TB	Patients diagnosed as having active TB	Patients who are not diagnosed as having TB, including patients with false-negative diagnostic tests and with inappropriate tests
6	Started TB treatment	Diagnosed TB patients who are started on TB treatment	Patients who do not access TB treatment, including initial loss to follow-up or those who died before treatment was initiated
7	Notified	Patients who are notified to the National TB Program (NTP)	Patients who are diagnosed and may be treated but are not notified. This is particularly relevant in the private sector
8	Completed treatment, cured	TB patients who are started on treatment whose outcome is registered as successfully treated	TB patients with unfavorable outcomes, including death, failure and default

ASSESS THE DIFFERENT LAYERS OF THE ONION:

1. Estimate the burden of TB at national and sub-national level:
    Depending on the epidemiological situation, the number of patients can be subdivided by drug-sensitivity (drug-sensitive and RIF-resistant) and/or HIV-co-infection
2. Assess access to healthcare for different communities and/or *key populations* (e.g., urban, peri-urban, rural, refugees, and internally displaced populations)
3. In the public and *non-public sector* assess the following:
    a. The distribution of persons with TB accessing care
    b. The distribution of persons with TB accessing diagnostic testing
    c. The distribution of TB patients being diagnosed
    d. The distribution of TB patient initiated on anti-TB treatment
    e. The distribution of TB patients being notified
    f. The distribution of TB treatment outcomes.

ASSESS THE TB HEALTH SERVICES IN THE COUNTRY

1. Assess the number of public and non-public providers that offer TB services
2. Map the location of the providers
3. Determine what services the providers offer in terms of diagnostics, treatment, prevention, and care
4. Evaluate how non-NTP providers are engaged, including:
   a. Private providers
   b. Public, non-NTP providers (e.g., services offered in other programs/departments (HIV, nutrition, MCH, EPI, NCDs, hospital wards etc.)
   c. Not for profit providers (NGOs, FBOs etc.).

TOOLS
- TB Epidemiological Review
- Inventory study

INFORMATION SOURCES
- WHO Global TB report
- TB prevalence survey report (if recently conducted)
- Any other sub-national surveys
- Laboratory data
- Literature review, e.g., on estimated diagnostic test sensitivity, proportion of smear and Xpert MTB/RIF negative patients with culture test, proportion of false- or true-negative patients that were treated empirically, studies on initial loss to follow-up rates, etc.
- Patient-level data from NTP (electronic TB register)
- Patient-level data from non-NTP sources (if available)
- HMIS/DHIS or other (sub)national TB data
- DHS
- Service Provision Assessment Surveys
- Service Availability Readiness Assessment
- National health facility inventories
- NTP registries.

STEP 3B:
Assess the patients' pathways at national and sub-national level - the alignment between patients' health-seeking behavior and TB service availability using the patient pathways analysis.

HOW
Conduct a patient pathways analysis (PPA) at the national and sub-national levels. The PPA methodology was developed to improve understanding of the alignment between patient care seeking and the availability of TB screening, diagnosis and treatment services. A PPA describes the steps that persons with TB take from the first visit to a healthcare facility to a successful outcome. The results of a PPA show preferences on where to receive care and may show programmatic gaps in care-seeking, TB diagnosis, TB treatment initiation, and continuity of care. These can be used to identify and develop interventions to address the gaps, and to meet the needs of TB patients where they are. The main differences with the Onion Model are that a PPA

uses data on care-seeking and service availability for patients who have been notified, which are usually more readily available than data on TB diagnosis and treatment in patients who are not notified; and the ability of the PPA to provide insight into the reasons why patients drop-off at points along the care cascade, by highlighting misalignment between patient care-seeking and service availability [16, 17].

How to conduct a PPA:

Collect and analyze the data, using the PPA Tool (in toolbox) providing detailed instructions and software packages to implement the PPA.

1. Use the following (sub)national level data sources:
   a. Care seeking data: TB prevalence survey, population-based survey (e.g., infer from Demographic and Health Survey); and triangulation of data if both sources are available
   b. Data on availability of TB services: Service Provision Assessment Surveys, Service Availability Readiness Assessment (coordinated by WHO); If not available, use national health facility inventories and NTP registries:
      i. TB services to include: smear microscopy, capacity for molecular testing, radiography, specimen transport, patient referral, first-line anti-TB medicines
      ii. Optional: availability of patient support, treatment adherence support, conventional DST and second-line anti-TB medicines.
      iii. There may be a need to standardize the naming of facility levels or types.

2. Analyze the data:
   a. Initial care seeking: the proportion of persons with TB who seek care, by facility level and sector (public or private)[2].
   b. Diagnostic coverage: the proportion of health facilities with TB diagnostic services, by facility level and sector and by type of diagnostic service
   c. Diagnostic access at initial care-seeking: the proportion of persons with presumptive TB who seek care in a facility with TB diagnostic services, by facility level and sector (the likelihood that a person with presumptive TB has access to TB diagnostic services at their initial health care visit)
   d. Coverage of TB treatment services: the proportion of health facilities that have anti-TB medicines or can supervise TB patients on treatment
   e. Treatment access at initial care-seeking: the proportion of patients who seek care in a facility that has anti-TB medicines or can supervise TB patients on treatment (the likelihood that a patient has access to TB treatment services at the initial health care visit)
   f. Notification location: the location of case notification for patients notified to the NTP
   g. Treatment outcome: the treatment outcomes among patients notified to the NTP.

3. Visualize the data using available software packages

4. Analyze the data, considering the context of the NTP, in consultation with local/country experts.

Annex 3.1 provides a demonstration example of a patients' pathways visual.

TOOL
Patient Pathway Analysis How-to Guide. Assessing the Alignment of TB Patient Care Seeking & TB Service Delivery.

---

2 The proposed PPA methodology is limited to assessing where people seek initial care and not why they seek care at that specific provider. Information regarding people's care-seeking preferences would help to shape the right interventions.

INFORMATION SOURCES

- National TB Prevalence Survey
- DHS
- Health care Utilization Surveys (HUS)
- Service Provision Assessment Surveys
- Service Availability Readiness Assessment
- National health facility inventories
- NTP registries
- Patient and community interviews
- Inventory studies.

STEP 4:
Determine the gap between notified TB patients and estimated incident TB patients.

HOW

The PPA indicator 'notification location' should provide a good understanding of the total number of patients notified to the NTP/WHO, segmented by public and non-public sector. The number of patients notified in each sector can be compared with the total number by WHO estimated incident TB patients in the country. The remaining estimated patients that are not notified by either the public or private sector health facilities could be considered as 'missed' persons with TB.

TOOL
Patient Pathway Analysis

INFORMATION SOURCES

- WHO Global TB report
- Methods used by WHO to estimate the global burden of TB disease [18].

STEP 5:
Prioritize districts/implementation areas/populations.

HOW

It is imperative to have maximum stakeholder buy-in at this point. Organize a broad stakeholders meeting to present and discuss the data analysis results and decide on the priority interventions. The broad stakeholders meeting needs to include national and regional stakeholders and is led by the NTP. Prioritize in which districts, implementation areas (Figure 5) and in which populations should be intervened. Selection of districts, implementation areas, and target populations has to be driven by vulnerability and risk of the target population as well as achievable yield, cost-effectiveness, efficiency (i.e. low NNS, low false-positive and false-negative rates for selected algorithms, etc.), and by taking into account the implementation capacity (human and financial resources, leadership).

Note: When calculating potential intervention yields and yield-costs using the Screen TB tool, the tool does not account for the likely overlap of risk populations (risk of over-estimating potential yield). Remember to take commuting and work migration patterns into account when defining priority intervention districts.

TOOLS
- **WHO Screen TB Tool** [19]
- **MATCH tool from KIT** (see earlier)
- **TB Epidemiological Review** (see earlier).

INFORMATION SOURCES
- Vital registration & census data (if available)
- National TB Prevalence Survey
- DHS
- HUS
- Service provision assessments (SPA)
- Service availability and readiness assessments (SARA) surveys
- Multiple indicator cluster surveys (MICS)
- Vulnerability & risk group assessments (e.g., socio-economic status, living conditions, poverty, nutrition, relevant co-morbidities, etc.)
- Global Information System (GIS) data.

Implementation areas covered in this guide, aligned with gaps identified through applying the **Onion Model** for the patient care cascade are visualized in Figure 5.

Community Engagement:
TB stigma; advocacy; community referral; social support; behaviour change communication; TB screening; iCCM; sputum collection points; transport; adherence support; LTFU; contact investigation.
Refer to Chapter 4

Matching Services to Patient Pathways:
Diagnostics; PPM; mandatory notification; engagement of private and un-engaged public sectors; FAST; decentralization; referral system
Refer to Chapter 5

Quality Prevention and Care:
Quality improvement plans; patient and staff satisfaction; laboratory QA; SOPs/SOC
Refer to Chapter 7

Triage and screening:
Triaging; systematic screening; contact investigation; CF in key populations; FAST; integrated/community-based service delivery; diagnostics; simplified notification system
Refer to Chapter 6

Person with TB in the community
Access to healthcare
Attending public or private health facilities
Screened for TB
Diagnosed with TB
Started TB treatment
Notified
Completed treatment Cured

Figure 5: Onion model with implementation areas to help find and treat all missing persons with TB at each step of the patient care cascade

ACSM = advocacy, communication and social mobilization; CF = case-finding; FAST = Find patients Actively by cough surveillance and rapid molecular sputum testing, Separate safely, and Treat effectively based on rapid drug susceptibility testing; iCCM = integrated community case management; LTFU = loss to follow-up; PPM = public-private mix; QA = quality assurance; SOP = standard operating procedure; SOC = standard of care; TB = tuberculosis

To find TB patients early during the course of their illness, a wide range of stakeholders from inside and outside the health sector, need to be engaged [20]. The patient pathway from first symptoms to seeking health care promptly in the public and non-public health sector up to treatment support can have a much higher quality and efficiency when an enabling environment is created where the affected community (patient, family, community) can actively participate and exercise their rights and responsibilities related to health and TB care. Strong *community systems* need to be in place to support activities and services, and improve health outcomes (Figure 6).

Community systems strengthening can happen by linking formal community health workers (CHWs) with the CSOs, community leaders, and volunteers within and outside the health facilities and beyond the health sector.

CBO - community Based Organization
CHWs - community health workers
CV - community volunteers
FBO - faith based organization
NGO - non-governmental organization

Figure 6: Community System presenting possible stakeholders that play a role in community TB prevention and care

PURPOSE, OBJECTIVES, AND RESULTS

PURPOSE
To provide a step-by-step approach on when and how to engage the community for TB prevention and care in a sustainable manner.

OBJECTIVES
Using this chapter, the reader will understand how to:
1. Assess the role of the community in TB prevention and care in the district and how they contribute to finding and treating all missing persons with TB
2. Assess the gaps in TB knowledge, skills, attitudes, and health-seeking behaviors
3. Assess TB stigma in the community
4. Engage community stakeholders to support activities related to TB literacy and

stigma, early *health-seeking behavior*, *systematic screening*, and the quality of TB care

5. Prioritize and implement community engagement interventions
6. Monitor and evaluate the results of the community engagement interventions, and understand and utilize the lessons learned to improve future interventions.

Results of the community engagement interventions

Community engagement interventions should lead to the following results:

1. Increased number of TB patients seeking care at an earlier stage of the disease
2. Increased number of persons referred by CHWs/CVs
3. Increased number of TB patients receiving treatment adherence support by CHWs/DOT providers/CVs
4. Improved TB treatment outcomes including reduced % of Lost to Follow-Up (LTFU).

To reach the results above the intermediate results are:

• Appropriate knowledge of community members of the TB disease, ways of transmission, TB treatment, and where to find quality and affordable TB services
• Reduced TB *stigma in the community*
• Active involvement of the community, including former TB patients, in the design, implementation and monitoring of (TB) health services; and in the delivery of health education and patient support
• Increased levels of satisfaction of TB patients and healthcare workers (HCWs) with patient support groups and other community interventions.

More detailed information on the community TB M&E framework, including suggested indicators, can be found in Chapter 8.

APPROACH

Assess & Prioritize		Implement	Build Evidence
STEP 1 Conduct a joint gap analysis (TB situation, community involvement/knowledge, health-seeking behavior, and stigma)	**STEP 2** Prioritize the actions needed and develop a community TB M&E framework	**STEP 3** Engage communities in TB activities (awareness training to treatment support)	**STEP 4** Evaluate and redesign/optimize community TB interventions based on lessons learned
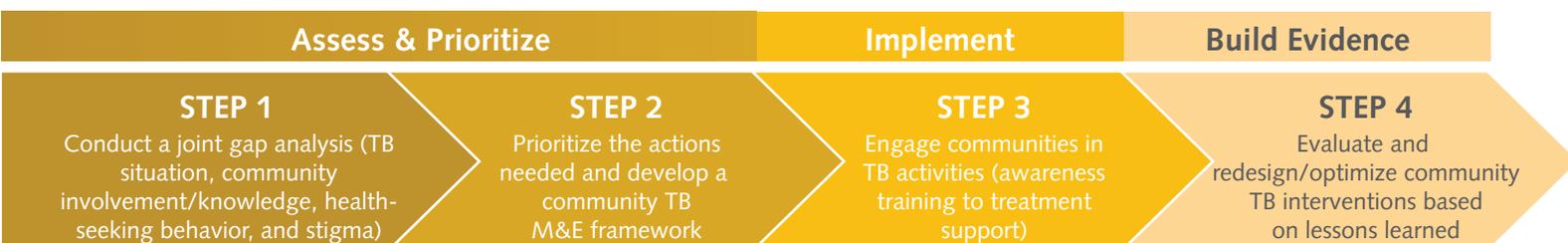
ASSESS AND PRIORITIZE

1. Assess the district TB situation and existing/potential community stakeholders and resources
2. Select the priority interventions that are needed and feasible to better engage the community to find and treat all missing persons with TB.

STAKEHOLDERS

District Medical Officer (DMO), Community Health Officer, District TB officer District M&E officer, Facility TB coordinators, representatives of CBOs, CSOs, FBOs, associations of informal providers, patients and community members (of different gender, age groups, religions, social class, and ethnic groups).

HOW

1. Assess the district TB case notification and treatment results in the previous 2 years and the involvement of CHWs and CVs:
   - Collect and analyze (routinely available) information about the district TB notification and treatment results in the previous 2 years
   - Collect and analyze information about the involvement of CHWs and CVs in the different geographical catchment areas. Use the Community TB performance assessment tool (see Annex 4.1)
   - Share and discuss this information with a broad stakeholders group to create a common understanding about the current TB situation in the district (notification, treatment results in the different health facilities) and the involvement of CHWs and CVs.

2. Assess the role of the community in TB prevention and care
Choose from the two options below to assess the role of the community in TB prevention and care, depending on the country context and the team's preferences:

OPTION 1:
Discuss the questions below with a broad stakeholders group and develop a district community stakeholders map (see Annex 4.2) a. Which stakeholders are involved in community health initiatives, including TB prevention and care in the district? How are they organized? How are they supported or sustained? b. In which communities do they work? c. What are the activities of these stakeholders in community TB prevention and care? d. What involvement do these stakeholders have in other programs (e.g., malaria, HIV, Child Health, WASH, other)? e. Are CHWs and other stakeholders (CSOs, FBOs, volunteers) sufficiently trained, equipped and mentored to perform tasks in community TB prevention and care? f. Do the different stakeholders sufficiently connect to each other and/or share information and experiences among themselves, and with the health facility staff and the District Health team, including the TB officer? g. What improvements are needed to strengthen the role of the different stakeholders in TB prevention and care?

Table 2 overleaf summarizes possible activities of community organizations in TB prevention and care.

Table 2: Possible activities of CSO's and FBOs in TB prevention and care

Theme	Possible activities
Prevention	Awareness raising, information, education, communication (IEC), behavior change communication (BCC), infection control, training
Detection	Triage, screening, contact investigation, sputum collection, sputum transport, training providers
Referral	Linking with clinics, transport support and facilitation, accompaniment, referral forms, training providers
Treatment adherence support	Home-based DOT support, adherence counseling, pill counting, training providers, home-based care and support
Social and livelihood support	Cash transfers, insurance schemes, nutrition support and supplementation, voluntary savings and loans, inclusive markets, training providers, income generation
Advocacy	Ensure availability of supplies, equipment and services, training providers, governance and policy issues working with community leaders
Stigma reduction	Community theatre/drama groups, testimonials, peer support groups, community champions, sensitizing and training of facility staff, CHWs and leaders

Table adapted from: WHO. 2012. Engage-TB: integrating community-based tuberculosis activities into the work of nongovernmental and other civil society organizations: implementation manual (Page 31) [20]

OPTION 2:

Review the Patient-Centered Care Model and the "Cough to Cure" patient pathway (see Annex 4.3), choose the model that is most relevant or practical for your environment, and present the selected model to the broad stakeholders group to discuss:

a. Which community stakeholders are involved in each of the four stages of the patient-centered care model or the six steps in the "Cough to Cure" patient pathway?
b. What are the activities of these stakeholders in TB prevention and care?

3. Assess community members' TB knowledge, attitudes, practices and behavior:
- Use the information from a national KAPB (knowledge, attitude, practice and behavior) study or prevalence survey. The assessment should include information about **TB stigma in the community**. If this information is not available, organize focus group discussions in a selected number of communities in the district, making use of the KAPB Focus Group Discussion tool (see Annex 4.4).
- Consider conducting a KAPB study in different regions (sub-national level) of the country if time and funds allow.

> Community members can include members of CBOs, CSOs, FBOs, CVs, general members of the community, etc.

It is not only important **to measure community members' current TB knowledge, attitudes, practices and behavior** (e.g., stigma, infection prevention, health-seeking behavior), **but also their readiness to change their behavior** [21].

4. **Assess TB patients' TB knowledge, attitudes, practices and health-seeking behavior**

Conduct interviews with TB patients currently on treatment about their TB knowledge, the stigma they face and their health-seeking behavior. TB stigma negatively impacts *health care-seeking behavior*, care delivery, and recovery [22-26]. The burden and impacts of TB stigma are rarely quantified due to methodological shortcomings [27].

Suggested interview questions are:

   a. What do you know about TB and TB treatment?
   b. Where did you get information about TB and TB services? (family members, community healthcare workers, DOT providers, herbalists, traditional healers, pharmacists)?
   c. Where did you go first to look for TB care?
   d. What problems did you face to access care?
   e. How do you perceive the accessibility and quality of TB care?
   f. What improvements do you propose?
   g. How did your relationships with other people in your family and community change over time now you have TB?
   h. How can you contribute to your successful treatment?

To collect this information routinely, (some of) these questions could be added to the patient card and patients will be asked at the TB patient's history taking. Unfortunately this information would only be available from individuals who went to the clinic, and were diagnosed and started on treatment, whereas we are interested in the experiences of individuals who didn't go to the clinic to seek (TB) care. To partially overcome this, patients who had long patient delays before diagnosis could be interviewed.

> **Behavior Change**
> Behavior is mediated through cognitions: what we know and think effects our behavior. However knowledge is not sufficient to change behavior as perceptions, motivation, skills and factors in the social environment play also important roles in behavior change

STEP 2:
Prioritize the actions needed and develop the community TB M&E framework.

HOW

Develop a "plan of action to strengthen TB community engagement" (see Annex 4.5 for a suggested template), based on the assessment results. This plan of action should be integrated into the District Action Plan. Suggested intervention areas and activities:

A. Strengthen the involvement of CBOs/CSOs/FBOs in TB prevention and care:

• Use existing structures such as health committees to mobilize for TB free districts/cities
• Involve more CSO/FBOs in TB prevention and care
• Strengthen the performance of CBOs/CSOs/FBOs in TB prevention and care
• Strengthen the linkages between community organizations, the health facilities and other relevant stakeholders (by the district or sub-district authorities).

> Community systems can be strengthened by conducting mapping, setting up communication channels (for example committees, meetings, social media/WhatsApp groups), sharing trainings, sharing experiences, agreeing on uniform enablers/incentives, mobilizing resources locally, establishing self-help groups and conducting joined TB and health events.

B. Increase the community's TB literacy
Decide on the behavior change communication (BCC) interventions
- Agree on target groups, overall goal and capacity building approach (health education sessions, training, mentoring, peer support).
- Decide to develop or make use of an existing community level TB behavior change communication program. Baseline information is needed and will be collected in step 1.

C. Reduce TB stigma
Decide on a TB community stigma approach, based on the results of the assessment in step 1. Useful approaches can be found in: Training on TB prevention and care for CHW and Understanding and Challenging TB stigma, toolkit for Action (HIV Alliance and Zambart).

> TB stigma has negative consequences on key populations seeking care, and reduces TB treatment adherence.

D. Increase referral of presumptive TB patients by CHWs and CVs
- Establish a community referral system, using existing systems where possible.
- Train community members in patient referral:
  » Develop guidelines and tools for patient referral by community members
  » Train existing CHWs and CHWEs in patient referral. If CHWs and CHWEs are not working in the community, select community members to be trained as CVs.

E. Strengthen community support during treatment
- Develop and implement a patient support program (including patient education and counseling, financial and nutritional support etc.) for treatment adherence. Make use of digital health solutions (e.g., WhatsApp, SMS, video DOT).
- Train DOT providers/CVs to counsel patients during treatment.
- Train TB staff to train and supervise DOT providers/CVs in patient counseling.

F. Improve access to quality patient-centered TB care
- Inform community members, including patients and their family members where TB services are available in public and non-public sector
- Assess the quality of care, and include patients and healthcare workers in this assessment.
- Develop and implement a plan to improve the quality of care.

> Refer to **Chapter 5 "Matching services to patient pathways"** to get more insight in the accessibility of services and interventions to improve accessibility.
>
> Refer to **Chapter 7 "Quality prevention and care"** for more guidance on quality of care aspects.

G. Develop the community TB M&E framework
Develop the community TB M&E framework to monitor and evaluate the District Community Annual Plan of Action. The M&E framework (Chapter 8) provides more information.

TOOLS (STEPS 1 AND 2)
- Community TB performance assessment tool (see Annex 4.1)
- District Community Stakeholders' map (see Annex 4.2)
- Patient-Centered Care Model (see Annex 4.3)
- KAPB Focus Group Discussions (see Annex 4.4)
- Plan of action to strengthen TB community engagement - template (see Annex 4.5)
- WHO/Stop TB Partnership: A guide to developing knowledge, attitude and practice surveys [28].

INFORMATION SOURCES (STEPS 1 AND 2):

- Quarterly and annual TB district reports
- Data collected in chapter 3 or other chapters of this guide if relevant
- District community health reports
- Reports of CSOs and FBOs
- National Prevalence survey results on KAPB
- Results of KAPB study done in country (if available)
- TB patients' histories
- Surveys and reports at district level
- Engage-TB Operational Guidance Annex 1, page 15 and 16; Annex 2, page 17 [20]
- Engage-TB implementation Manual [29]
- Building the capacity of Civil Society Organizations in TB control (TB CARE I)
- Community Systems Strengthening Framework, Global Fund [30]
- Theory at a glance: a guide for health promotion Practice (2005), NIH [22]
- Stop TB Partnership. 2013. Guide to Monitoring and Evaluation of Advocacy, Communication, and Social Mobilization to Support Tuberculosis Prevention and Care [31]
- Removing the masks, the power of challenging TB/HIV stigma and finding success in Zambia [32].

IMPLEMENT

This stage aims to (1) further develop and fine-tune the activities of the defined action plan; (2) implement these activities; and (3) monitor the implementation and adjust when needed.

STAKEHOLDERS

- The District Health Office: District TB Officer, District Health Education Officer
- The Facility: TB coordinators, TB nurses, health facility staff, community groups, DOT providers, CHWs, CBOs, FBOs.

STEP 3:
Further engage and mentor communities to implement the community TB action plan.

HOW

1. Provide technical assistance and mentor CBOs/CSOs/FBOs to implement the action plan. Health facility staff and/or the district TB coordinator can provide TA on TB prevention and care. More experienced CBOs/CSOs/FBOs (in TB, HIV, Community Development etc) can mentor a more junior community organization on developing their organization, plan and implement the set action plan.

> Refer to **Building the Capacity of Civil Society Organizations in TB Control** (TB CARE l) for an approach on how to build the capacity of community based organizations through training, mentoring, and networking.

2. Promote sharing (good practices, materials developed) and learning among CBOs/CSOs/FBOs. This can be done through formal meetings and the use of mobile and digital tools (e.g., WhatsApp, mobile phone, email).

3. Optimize linkages among community organizations and health facilities in order to share results, solve problems, develop innovative ideas, and build trust and commitment. This can be done through formal (monthly) meetings, mentoring, and supervision by health facility staff.

4. Organize an annual workshop at district level to present and discuss 1) progress in the implementation of the action plan 2) M&E results 3) action plan for the next year 4) collaboration among the community organizations and with the health facilities 5) capacity building needs and opportunities.

5. Develop the community TB behavioral change communication program:
   a. Define the target groups that are under-notified, based on the data analysis in step 1
   b. Connect with community groups and leaders that represent the above target groups or have easy access to them (e.g., youth clubs, sports clubs, women's organizations, religious groups)
   c. Design an effective behavior change approach with these community groups.

5. Develop training packages for CHWs, CVs, DOT providers, etc. and plan and implement Training of Trainers (TOT) and trainings for the defined target group. Every country should have a national training curriculum for CHWs.

6. Develop guidelines, tools and job aids for CHWs, CVs, DOT providers etc. e.g., an implementation manual for CSOs, community register, referral forms, IEC materials (posters, leaflets).

7. The materials mentioned under 5, 6, and 7 can be developed by NTP and/or the district TB program together with the community stakeholders. When the NTP develops these documents district level stakeholders, including patients, need to be involved.

8. Collect and monitor community TB data as per the M&E framework.

TOOLS (SEE CHAPTER 9: TOOLBOX)
- Building the capacity of Civil Society Organizations in TB control (TB CARE l)
- Community referral form (example from Zimbabwe)
- Digital adherence technology for treatment support, such as mobile phones, SMS Electronic Dose Monitors and 99 DOTS. Some of these adherence technologies will be piloted by KNCV from 2018-2020 in selected countries.
- Fotovoces (Spanish) (TB CARE l)
- Leap mHealth tool (AMREF Health Africa's mobile learning project), to train and supervise community healthcare workers
- Patient-centered care package (TB CARE l)
- TB literacy toolkit (TB CARE l)
- Training TB prevention and care for CHWs in Zimbabwe
- Understanding and Challenging TB stigma, toolkit for Action

INFORMATION SOURCES
- Effectiveness of mobile learning and Face-to-Face approach in training community health volunteers in Kenya, a comparative study, AMREF Health Africa.[3]
- ICASO, 2015. Working together, a community driven guide to meaningful involvement in national responses to HIV [33].
- Community Systems Strengthening Framework, Global Fund (see information sources listed under steps 1-2 above).
- WHO Engage TB Approach: implementation manual [29]; Training Manual: Curriculum and facilitators' guide [34].

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3   Effectiveness of mobile learning and Face-to-Face approach in training community health volunteers in Kenya, Amref Health Africa http://amref.org/about-us/where-we-are/kenya/

BUILD EVIDENCE

1. Evaluate the implementation of the District Community Plan of Action
2. Use the lessons learned to improve community TB interventions.

STAKEHOLDERS
National and district M&E officer, District and Facility TB coordinator, Representatives of CBOs, CSOs, FBOs, and CHWs & CVs.

STEP 4:
Evaluate and redesign or optimize community TB interventions based on lessons learned.

HOW
1. Evaluate the District Community Annual Plan of Action on a quarterly basis.

2. Quarterly:
- Discuss the community M&E results per facility and agree on adjustments needed
- Discuss the community M&E results at district level and agree on adjustments needed.

3. Annually:
- Discuss per facility the community M&E results, lessons learned and agree on improvements
- Discuss at district level the community M&E results, lessons learned and agree on improvements.

TOOLS
Key questions to guide discussion with district, HF, and community stakeholders on the community M&E results:
   a. What results are we are most proud of?
   b. What has led to these successes?
   c. What did we not achieve?
   d. Why were we not successful?
   e. What should we do better in the coming year?

INFORMATION SOURCES
Advocacy, communication and social mobilization for TB control: collection of country-level good practices (WHO). A good practices guide on the different aspects of how to enhance TB services with community engagement and communication interventions, 2010 [35].

MATCHING SERVICES TO PATIENT PATHWAYS

Optimum health networks that balance the supply of diagnostic and treatment services (capacity) with the patients' demand (needs) are key to improving access and ensuring effective utilization of the health services. Based on epidemiological data, the patient care cascade, patients' pathways, and diagnostic and treatment network analysis at district level, this chapter discusses interventions to optimize health care service delivery to meet the patients' demand for TB prevention and care. These interventions should be included in the District Action Plan.

PURPOSE, OBJECTIVES, AND RESULTS

PURPOSE
This chapter provides a step-by-step approach on how to optimize health service delivery networks in identified districts by matching them with patients' needs, preferences, and perspectives.

OBJECTIVES
Using this chapter, the reader will be able to understand what is needed to:
1. Assess current capacity/utilization of diagnostic and treatment centers (supply) in their district against epidemiological situation and current patients' needs (demands)
2. Match supply (health service capacity) with demand (patients' needs and epidemic)
3. Monitor and evaluate the performance of the diagnostic and treatment networks.

RESULTS
1. Improved laboratory sample transportation systems
2. Improved diagnostic connectivity, and rapid feedback of lab examination result to requesting clinician
3. Improved utilization of diagnostic networks
4. Diagnostic delay reduced
5. Loss to follow-up reduced (initial and during treatment)
6. Increase of patients tested for drug-resistant TB (DR-TB).

More detailed information on the Matching Services to the Patient Pathway M&E framework, including suggested indicators can be found in Chapter 8.

APPROACH

Assess & Prioritize		Implement			Build Evidence
STEP 1	**STEP 2**	**STEP 3**	**STEP 4**	**STEP 5**	**STEP 6**
Identify patients' needs regarding diagnostic and treatment services	Assess current capacity and service gaps of diagnostic and treatment centers	Establish project team, choose optimization approach, and develop plan for interventions	Develop a district M&E framework.	Implement the interventions	Evaluate and revise/optimize interventions based on lessons learnt

ASSESS AND PRIORITIZE

STAKEHOLDERS
NTP, District Health Management Team (DHMT), expert consultants, laboratory & treatment services (both public and private), professional societies, NGOs, patients/ex-patients, representatives of key populations, CSOs' representatives, social workers.

STEP 1:
Identify patients' needs regarding diagnostic and treatment services.

HOW
Conduct an analysis of the key factors that influence patient health seeking behavior (in both the public and the non-public sectors), through patients interviews and/or focus group discussions:
- Patients' preferences (public and non-public services, for close/further away services, by-passing primary level services, etc.)
- Patients' expectations (being treated with respect, non-discriminatory, non-stigmatizing, etc.)
- Other preferences incl. cultural, traditional
- Availability of services (waiting times, convenient hours, availability of drugs, etc.)
- Affordability (patients pay for services, transport, etc.)
- Support (transport/food/money support, peer support groups)
- Social protection (enablers, incentives, etc.).

TOOLS
- **QUOTE TB Light** - a qualitative standardized research method to assess quality of care as seen through the eyes of patients. It includes focus group discussions to rank the importance of the nine quality dimensions of TB services and individual interviews to assess the performance of these services for patients who have accessed care [36]. Based on the Quote TB Light results a plan of improvement is developed and implemented
- **Onion model or patient pathway analysis** (see also Chapter 3 for more details).

INFORMATION SOURCES
- IDSA publications on TB patients' pathways[4]
- National surveys, for example Demographic and Health Survey (DHS), Service Provision Assessment (SPA) or Service Availability and Readiness Assessment (SARA) [37] if available.

STEP 2:
Assess current capacity and service gaps of diagnostic and treatment centers (public and private) in the district, capitalizing on the data from the TB diagnostic and care delivery systems and services national assessment (See Chapter 3)

HOW
1. Conduct a situational analysis of selected diagnostic and treatment centers in the selected district(s) based on the following key elements:
- Governance and leadership (management, guidelines, public-private mix)

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4   JID supplement November 2017, available at https://academic.oup.com/jid/issue/216/suppl_7

- Health financing (district expenditure versus district allocated budget per 100,000 population, TB funding sources (e.g., Government, GF, partners, etc.), TB specific budget lines in the annual District (Health) Plan
- Service delivery (operating times, patient & specimen cascade/referral networks and systems/integration of TB services in non-NTP programs)
- Human Resources for Health (availability and skills of TB dedicated staff, designated district TB coordinator, capacity building, supervision, mentoring, average number of community volunteers per ten TB patients, etc.)
- Health information systems (surveillance system, reporting by private providers and non-NTP providers)
- Availability of health commodities (medicines, reagents) and equipment (X-ray, GeneXpert, sputum induction, audiometers, electrocardiography (ECG), clinical chemistry and hematology analyzers, etc.)
- Infrastructure (Number and percentage of health facilities with separate TB clinics, community sputum collection points, DOT points per 100,000 population, etc)
- Specific services (childhood TB services, PMDT services, co-morbidity services [HIV, viral hepatitis, diabetes], etc.).

Aspects to cover, when applicable:
- Availability (inventory, capacity)
- Coverage (results, utilization by the public)
- Readiness/gaps (shortages, deficiencies, over/under-utilization, no maintenance).

2. Based on the findings of the situational analysis, select indicators and set targets (see Chapter 8).

TOOLS
- WHO Laboratory assessment tool (not specific for TB) [38] (Develop custom tools for this step)
- **PPM toolkit**.

INFORMATION SOURCES
- Assessments conducted as part of FTMP activities in other chapters
- Facility registers & reports
- MOH/NTP & relevant other programs (such as HIV, MCH, NCD)
- M&E data in annual reports
- PPM reports
- TB Epidemiological Review
- Diagnostic connectivity systems data
- Available survey data and special studies
- Interviews with laboratory staff and TB care providers
- GLI Practical Guide to TB Laboratory Strengthening [39]
- TB CAP: Strategic guide for building public private partnerships [40].

IMPLEMENT

STAKEHOLDERS
NTP, DHMT, NTRL, District Health Laboratory, key laboratory staff, expert consultants, partner NGOs and CSOs, health insurance representatives, unit managers, patient community representative(s), relevant HCWs, facility supervisors, private providers/facilities, patients/ex-patients, costing consultant/finance expert.

HOW

1. Create a diverse team with:
   - NTP staff
   - District Health Officer
   - District TB officer
   - District Laboratory officer
   - Unit managers
   - Private providers (private health facilities and pharmacies)
   - Patients, CSOs and/or community representative(s).

2. Based on 1) the epidemiological data, 2) patients' needs (step 1), 3) diagnostic and treatment centers' capacity (step 2) and 4) available funding for interventions, decide which basic priority intervention(s) will be followed for the optimization:
   - Basic package approach: if identified gaps or needs are similar across centers and if minimum standards need to be reached by all sites. With this approach, every diagnostic and treatment center should receive tailored interventions in order to reach a specific level of performance.
     » Example: Ensure that persons with presumed TB are identified and examined in all health facilities (by instituting efficient diagnostic services or laboratory sample transportation systems with quick feedback).
   - Selective approach: if most of the identified gaps or needs are in one or more centers. In that case, a limited number of diagnostic & treatment centers are selected to receive tailored interventions.
     » Example: Ensure that all persons with presumptive TB are examined for DR-TB on the first consultation.
   - Network approach: if identified gaps or needs are systemic (e.g., dysfunctional sample referral system, non-optimal diagnostic equipment allocation, dysfunctional referral system for treatment follow-up, etc.). Interventions here are designed from a district/network level and focus on one or several elements.
     » Examples: Reorganize the lab network services to optimize access to rapid diagnosis of bacteriological confirmed TB; Improve hub and spoke models for both diagnostic and treatment services among public and private services.
   - Combined approaches: combination of two or more of the above approaches.

3. Discuss and agree with stakeholders:
   - The scope of technical, managerial, and capacity building interventions
   - Financial issues to ensure sufficient funding (e.g., free services, services paid through insurance schemes, social protection schemes, etc.)
   - Procurement
   - The elimination of financial barriers for patients with TB symptoms seeking care.

4. Develop a plan of interventions that will be included in the District Action Plan:
   - Perform an in-depth facility level assessment focusing on the identified gaps, if necessary, of one or several key elements already evaluated in the situational analysis to further detail requirements for optimization
     » For example: if the DST coverage rate is low: conduct an assessment of the referral system, access to diagnostic testing, adherence of clinicians to guidelines, etc.

- Develop an operational plan using the selected optimization approach, detailing the overall goal, objectives, activities to address the identified gaps, responsibilities, time-frames, indicators with targets and budget (see box for examples).

5. Cost the plan and identify funding sources

6. See box below for examples of interventions to match services to patients' pathways.

Examples of interventions to match services to patients' pathways

Governance and Leadership
- Updating of TB management guidelines for adults and children for DS- and DR-TB as needed (e.g., if new diagnostics, drugs or formulations are or have been introduced)
- Decentralization of TB services to improve access and follow-up at lower levels of care:
  - » TB diagnostic services
  - » TB treatment services
- Procurement and strategic placement of additional Xpert MTB/RIF modules, or biosafety cabinets for sample processing (including non-respiratory samples for Xpert MTB/RIF).

Health Financing
- Alignment of district expenditure with the district allocated budget as per district implementation plan
- Fundraising and applications for Global Fund and partner funding
- Ensure availability of financial data for TB specific budget lines in the district action plan
- Advocate with health insurance system to include TB screening and DOT/treatment services in the package.

Service Delivery
- Redistribution of diagnostic services/Xpert MTB/RIF according to the findings of the situational analysis, including the private sector
- Integration of TB services with other primary healthcare programs, e.g., HIV/ART, PMTCT, IMNCI, nutrition, MNCH, nutrition, etc.

Human Resources for Health
- Capacity building:
  - » Laboratory staff on (new) diagnostic techniques
  - » Clinicians in the public and private sector on use of Xpert MTB/RIF including for extra-pulmonary specimens, and other diagnostic tests, new developments in TB treatment/management, quality and patient-centered care
  - » Public and private providers on TB screening of patients in OPDs, patient-centered TB care and recording and reporting, including notification
  - » Clinical diagnosis of childhood TB.
- Regular supportive supervision
- Regular mentoring of facility staff
- Assess/monitor workload and task shifting needs and implement any improvements needed.

Health Information
- Strengthening integrated recording and reporting on all steps in the patient care cascade and in all programs involved in TB diagnosis and treatment services.

Health Products
- Strengthening the supply system for health products and consumables.

TOOLS
N/A

INFORMATION SOURCES
- Patient needs assessment in step 1
- Situational analysis from step 2
- Further findings from in-depth assessment (if applicable).

STEP 4:
Develop an FTMP component to the district M&E framework.

HOW
Develop the 'Matching services to patient pathways' M&E component to the district M&E framework to monitor and evaluate this FTMP component of the District Annual Plan of Action. See the FTMP M&E framework (Chapter 8) for more information.

STEP 5:
Implement the interventions.

HOW
1. Implement the costed intervention plan:
    - Assign/recruit responsible staff
    - Build capacity on selected interventions as appropriate
    - Conduct interventions
    - Conduct regular supervision
    - Report quarterly on progress of interventions to facility management, DHMT, NTP and the project team
    - Analyze performance
    - Correct weaknesses through remedial actions.

2. Use the M&E framework to monitor the implementation of the plan
    - Collect data on a regular basis (e.g. monthly)

TOOLS
N/A

INFORMATION SOURCES
N/A

For more information on possible interventions for engagement of the private sector, refer to the box on the following page.

Private Sector Engagement

- Mandatory notification and reporting to the NTP (data on presumptive TB patients, evaluation of presumed TB patients, TB patients diagnosed, TB patients started on treatment, referrals of TB patients, treatment outcomes etc.)
- Establishment of public-private partnerships (PPMs)
- Regulation of laboratories and pharmacies for providing quality TB diagnostics and care
- Incentive structures and/or performance-based financing
- Information technology to facilitate TB care such as electronic notifications and drug vouchers, linkages with universal ID numbers or large databases for social security, mobile phones and call centers (hotlines) for TB information and treatment follow-up
- Social franchises or social businesses
- National, sub-national and private health insurance (NHI) schemes to include TB screening, diagnosis and treatment services in their package
- Health care licensing bodies to include basic TB services in the requirements for PHC service
- Include TB diagnostics and treatment as part of the accreditation system for medical doctors in their continuing medical education (CME)
- For situations with an extensive private sector, often associated with urban areas, a separate document is under development by KNCV.

BUILD EVIDENCE

STAKEHOLDERS
Project team, NTP M&E officer, DHMT M&E Officer.

STEP 6:
Evaluate and revise policies and redesign or optimize interventions based on evaluations and lessons learnt.

HOW
1. Analyze the data from the district M&E framework (developed in step 4 and monitored in step 5)
   - Analyze changes and trends in the performance indicators against the baselines
   - Analyze changes and trends in process indicators.

2. Strengthen the TB recording and reporting system
   - Review and develop/revise data collection tools as needed
   - Ensure routine notification and reporting by private providers to the NTP
   - Facilitate reporting by non-NTP programs (e.g., malaria, HIV, MCH, nutrition, etc.) to the NTP.

3. Analyze changes and trends:
   - Evaluate which interventions work and don't work, and for what reasons
   - Adjust policy, SOPs and work practices to improve performance
   - Communicate monitoring and evaluation findings (successes and failures) to all stakeholders
   - Discuss findings with implementing team.

4. Review interventions design if change/improvement is unsatisfactory:
   - Against preset targets
   - Advocate with national level where policy changes are needed.

District PPM and Urban TB approach in Indonesia

In Indonesia, 54% of the 258 million population live in urban areas with access to a mix of public and private health care providers. Pharmacies play an important role as the first point of care seeking. In 2017, an estimated 80% of patients accessing TB treatment in the private sector went unreported. Early results from the implementation of simplified notification by GP's suggest that a significant number of these could be picked up by engaging General Practitioners (GPs), who also have an important role to play in increasing access for patients who currently do not access care at all (approximately 350,000 annually).

In February 2017, the NTP, in collaboration with the USAID-funded Challenge TB project led by KNCV, developed a roadmap for TB Free Cities. Central to this roadmap is the national district PPM (DPPM) approach to engage all providers. Private provider engagement through DPPM is sustained through the health insurance system within a national decentralization strategy, under which districts make action plans for TB control to mobilize district financing for TB programming (District Action Plans). These are monitored through "minimum service standards" by district and include a TB case finding indicator reported to the President's Office.

A **two-tiered** DPPM approach:

At the **primary care** level, important DPPM interventions include simplified electronic notification (through a smartphone app called WIFI-TB) and the formation of primary care networks consisting of GPs, laboratories and pharmacies. These networks have access to Xpert as a primary test and appropriate treatment regimens with differentiated patient support modalities in combination with capacity building through professional societies. The public health services serve a facilitating and coordinating role. In parallel, CSOs raise community awareness, participate in contact investigation efforts and the provision of patient-centered support, participating also in planning and oversight as members of the district PPM Teams.

At the **secondary care** level, the DPPM approach is mediated by the professional societies in collaboration with multi-stakeholder District PPM teams. These efforts involve the establishment of hospital TB teams and operationalization of the Indonesian Standards of TB Care in each hospital, the rollout of electronic mandatory notification in all hospitals, intensified case finding among hospital patients, and the introduction of Xpert as a primary diagnostic test for TB in combination with the appropriate use of chest X-ray.

At the **national and provincial levels**, the NTP and partners engage with medical network organizations and companies to adjust their quality standards and develop the required business models to ensure the effective management of TB throughout their networks and access to qualified diagnostics and appropriate treatment.
In Urban areas, the DPPM approach emphasizes the mapping of disease hotspots and health networks to match and prioritize key interventions. Local commitment and advocacy is in line with the Family Health and community ownership approaches promoted by the Ministry of Health, resulting in the formation of strong multi-sectoral, local public-private-community partnership movements for **TB Free Cities** with the national government taking a regulatory and stewardship role.

6

TRIAGE AND SCREENING

Many countries, even those with consistently declining TB notification rates, may still miss a significant number of patients. This gap in *treatment coverage* (previously known as the case detection rate) could be tackled through several interventions. The interventions discussed in this chapter are considered key components of the WHO's End TB Strategy 2016-2035: *systematic screening* among populations at risk of TB disease or developing disease when having TB infection which includes *contact investigation* [41, 42]. One other intervention that will be discussed in this chapter is *triaging* in health facilities [43, 44]. The assessment, prioritization, implementation, and evaluation of these interventions are presented in this chapter.

PURPOSE, OBJECTIVES, AND RESULTS

PURPOSE
The purpose of this chapter is to provide a step-by-step approach to maximize case-finding; including interventions that countries with a low *treatment coverage* should introduce, scale-up, and improve to actively find *presumptive TB* patients.

OBJECTIVES
Using the chapter of this guide the reader will understand what is needed to be able to:
1. Assess which risk groups should be prioritized for TB case-finding
2. Select and implement the appropriate interventions: triaging, systematic screening including contact investigation
3. Monitor and evaluate the TB case-finding interventions.

RESULTS
1. Increased triage and screening interventions with optimal screening and diagnostic algorithms
2. Planned cost-effective triage and screening interventions among well prioritized key populations
3. Systematic monitoring and evaluation of triage and screening interventions.

More detailed information on the triage and screening M&E framework, including suggested indicators in Chapter 8.

> **Note on childhood TB:** Although every effort possible should be made to bacteriologically confirm TB in children, this is not always practically feasible. As a result of Paucibacillary TB most young children will have negative test results.

APPROACH

Assess & Prioritize		Implement			Build Evidence
STEP 1 Identify/map populations at high-risk, key stakeholders, partner organizations, and TB services	**STEP 2** Prioritize in which populations to intervene and how	**STEP 3** Develop a plan to increase case-finding with stakeholders	**STEP 4** Develop an M&E framework for increased case-finding	**STEP 5** Implement case-finding interventions	**STEP 6** Evaluate and revise/optimize interventions

ASSESS AND PRIORITIZE

STAKEHOLDERS
NTP, District Health Management Team (DHMT), expert consultants, laboratory & treatment services (both public and private), professional societies, NGOs, patients/ex-patients, representatives of key populations, CSOs' representatives, social workers.

STEP 1:
Identify and map populations at high-risk, key stakeholders, and partner organizations for TB prevention and care in the district.

HOW
1. Conduct a *desk review*
* Which populations are considered at high-risk (*key populations*) in this district?
* Do they have special needs and are they adequately addressed?
* Are there barriers to accessing TB services such as distance, costs, information about TB care, quality of care, TB stigma in the community and among healthcare workers.
* Are there partner organizations working with these key populations in this district?
* What is the private and corporate sector engagement to address TB in particular risk groups (e.g., private hospitals for miners or factory workers)?

2. Organize consultative stakeholders meeting
* Discuss the findings of the desk review: case-finding gaps (use the Onion Model refer to Chapter 3: "Prioritize implementation areas") [3, 15]; relevant key populations and settings; special needs; access barriers; stigma in the community and among healthcare workers; best practices; public-private mix (PPM)
* Review the prevalence survey report on patient perspectives and preferences, symptoms among prevalent patients and patients missed by the health system
* If needed, consider additional consultations: focus group discussions, stakeholder interviews.

3. Mapping
* Visualize, using a district map, the identified risk groups and settings vis-à-vis gaps and under-utilization of available services.

TOOL
MATCH tool (see toolbox).

INFORMATION SOURCES
* National Health Strategy
* National TB Strategic Plan
* TB program review
* TB prevalence survey
* National TB Case-finding strategy (if available, e.g. in countries supported by Global Fund)
* Epidemiological review
* Social Protection program
* District Specific Population, Health and TB data
* Data collected for Chapter 3 (Determine gaps and prioritize interventions) of this guide.

HOW

1. Prioritize key populations and affordable case-finding interventions:
   - Which key population prioritized at national level represents a significant part of the TB burden; and/or has a high-risk compared to the general population for developing TB in this district?
   - Calculate and compare NNS and estimated cost per patient detected for different triage/screening algorithms (see Figure 7 for the inverse relationship of NNS to diagnose one patient in any given risk group with the TB prevalence in that risk group).


Low Prevalence	Moderate Prevalence	High Prevalence
Larger NNS	Moderate NNS	Smaller NNS
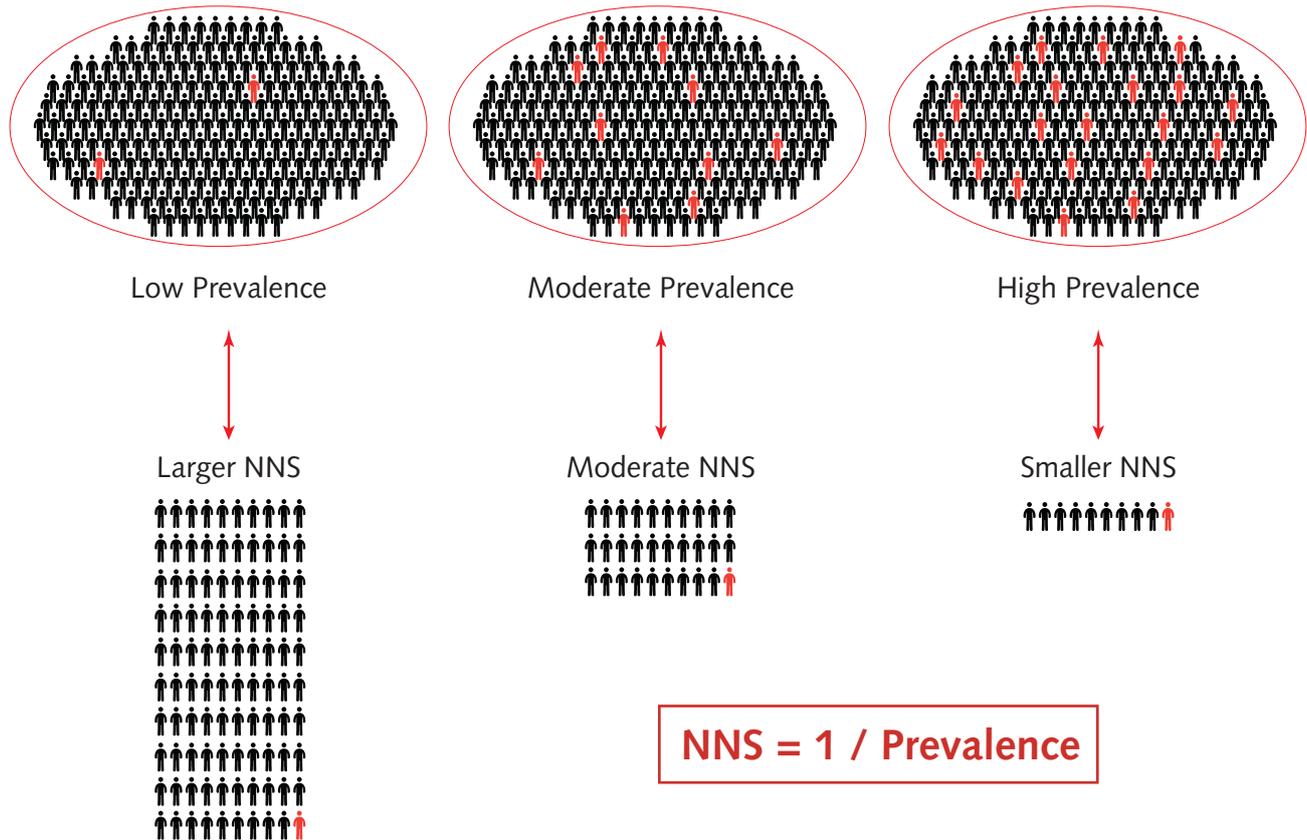
$$ NNS = 1 \, / \, Prevalence $$

Figure 7: Inverse relationship between NNS and prevalence (adapted from WHO, 2015)

2. Organize consensus meeting with relevant stakeholders
   - Prioritize high-risk groups and case-finding interventions (triaging, systematic screening including contact investigation) with optimal screening and diagnostic algorithms including chest X-ray (consider CAD4TB) and WHO-approved rapid diagnostics (WRD).

3. Select an appropriate screening and diagnostic algorithm
   - Review the possible screening and diagnostic test algorithms and balance the pros and cons of the various options, considering the feasibility, costs, NNS, % of true positive test results, and % of false-positive test results.

4. Select and set targets for suggested performance indicators

WHO recommends that "risk groups be prioritized for screening based on careful assessment of local TB epidemiology, potential benefits and risks of harm of screening, and alternative interventions to improve early TB detection. People with very high risk of TB or severe consequences of delayed TB diagnosis should be prioritized first" (Online WHO Screen TB tool)

TOOL
Online WHO Screen TB tool (see toolbox)

INFORMATION SOURCES
* Surveillance data
* Data collected for Chapter 3 of this Guide
* WHO Systematic screening for active tuberculosis: principles and recommendations, 2013 [45]
* WHO Systematic screening for active tuberculosis: an operational guide, 2015 [1]
* WHO Chest radiography in tuberculosis detection, 2016 [46]
* WHO Recommendations for investigating contacts of persons with infectious tuberculosis in low- and middle-income countries, 2012 [47]
* TB CARE I: Adaptation and Implementation Guide for Recommendations for Investigating Contacts of Persons with Infectious Tuberculosis in Low- and Middle-income Countries, 2015 [48]
* KNCV approach to implementation of effective contact investigation practices and preventive therapy.

IMPLEMENT

STAKEHOLDERS
NTP, other relevant health programs, District Council, DHMT, facility staff, funding partners, partner organizations, private sector active in TB prevention and care in the district and representatives of key populations. Buy-in from the NTP and other country and district-level key stakeholders is critical.

STEP 3:
Develop a plan to increase case-finding through triage and screening with stakeholders.

HOW
1. Use an existing multi-sectoral coordination mechanism or if no such mechanism exists, establish a case-finding task force comprised of all relevant stakeholders at all service levels. This task force will be responsible for:
   * Developing the terms of reference of the task force
   * Developing a case-finding plan that includes a combination of approaches and interventions, targeting the public and private sectors as applicable
   * Developing a case-finding protocol and SOPs, including tools as per national

> "The possible stigmatization of and discrimination against people screened for TB and people diagnosed with TB can create risks for people undergoing screening. These risks should be carefully assessed prior to initiating screening. For example, when specific occupational groups are screened, the legal protections of rights to care and the right to maintain employment must be considered." [46]

   policy guidance.
2. Plan and cost
   * HR, equipment, and commodity requirements
   * Partner and community contribution
   * Seek approval for a costed case-finding plan by appropriate authorities
   * Use the Online WHO Screen TB tool to estimate a flexible budget, keeping in mind the variation because of the assumptions used in the tool

- Identify available funds from government, primary recipients of Global Fund, and implementing partners
- Consider results based financing (RBF) mechanisms engaging dedicated local partner organizations.

3. Work towards sustainability
- Include budget allocation for case-finding activities in recurrent annual district implementation plans, based on actual expenditures and recalculations during the intervention
- Establish synergies with other decentralized health and social (protection) programs.

> Triage and systematic screening intervention design (how to) need contextualization and will depend on i) the targeted risk group, ii) the setting and iii) screening algorithm and iv) availability of funds. Specific interventions are well described in various global and national policies and technical guidelines for some of the current risk groups, less for some of the new risk groups.

TOOLS
- **Online WHO Screen TB tool** (see toolbox)
- Use district implementation planning and budgeting tools to cost the FTMP triage and screening interventions.

INFORMATION SOURCES
- District implementation planning manual
- Costed National Disease Strategic plans
- Global Fund grant
- Donor grants
- Manufacturers of tests and treatments
- National Case-Finding Strategy
- Findings from stage assess and prioritize.

STEP 4:
Develop the FTMP component to the district M&E framework.

HOW:
Develop the 'Triage and Screening' M&E component to the district M&E framework to monitor and evaluate this FTMP component of the annual District Plan of Action. See the FTMP M&E framework (Chapter 8) for more information.

STEP 5:
Implement case-finding interventions

HOW:
1. Engage local CSOs, CBOs, FBOs and private/informal service providers
- Representing and/or specialized in providing tailored services for key populations
- Providing integrated ambulatory community-based services.

2. Implement and/or scale-up case-finding interventions
- *Triaging* (see Annex 6.1)
- *Systematic screening* (see Annex 6.2)
- *Contact investigation* (see Annex 6.3)

KNCV has developed an **Operational Guide** '**KNCV approach to implementation of effective contact investigation and treatment of latent tuberculosis infection**' which offers more detailed information on conducting contact investigation. This resource is recommended.

3. Describe and replicate best practices:
   - Examples of effective, accessible, acceptable, and affordable case-finding approaches and service models
   - Pay attention to ethical considerations and stigma when tailoring the targeted intervention.

4. Integrate increased TB case-finding into existing service delivery models
   - Consider linking the tested intervention to existing community-based service delivery models such as home visits, outreach clinics for hard-to-reach and mobile populations, mobile MCH clinics, ICCM/IMNCI programs and Community Home Based Care and interventions such as *contact investigation*, referral for evaluation of symptomatic contacts, *isoniazid preventive therapy* (IPT) provision for eligible PLHIV or child contacts by CHWs and/or Village Health Workers (VHWs)
   - Integration of TB services into general primary health care (PHC) services
   - Public-private mix/private sector engagement (see also box on private sector engagement in Chapter 5, step 4)
   - TB services in workplaces
   - Ensure sufficient capacity regarding HR, transport, and commodities both at facility and community levels to ensure timely diagnosis and clinical follow-up

5. Build capacity on increased TB case-finding
   - Make use of training materials and e-learning programs to train district staff and relevant providers on:
     » Increased TB case-finding using the specified model(s)
     » *Key populations*/risk groups for TB
     » *Health seeking behavior* and stigma reduction.

6. Use the M&E framework developed in step 3 to monitor implementation of the plan. Monitor data on a regular (e.g. quarterly) basis.

TOOLS
Allies Approach (Stigma e-learning course)
'KNCV approach to implementation of effective contact investigation and treatment of latent tuberculosis infection'

INFORMATION SOURCES
- Stop TB Partnership: Improving tuberculosis case detection: A compendium of TB REACH case studies, lessons learnt and a monitoring and evaluation framework, 2014 [50]
- WHO: Ethics Guidance for the implementation of the END TB Strategy, 2017 [51]
- Stop TB Partnership: Briefs on Key Populations (e.g., indigenous people, healthcare workers, people living with HIV, children, miners, mobile populations, people who use drugs, prisoners, rural populations, urban populations)

STAKEHOLDERS
NTP, district M&E officer, project M&E staff, and consultants in epidemiology and M&E.

STEP 6:
Evaluate case-finding and revise policies and redesign or optimize interventions.

HOW
1. Analyze the data from the district M&E framework (developed in step 4 and monitored in step 5) on a quarterly basis

2. Analyze changes and trends in indicators against the baselines:
   • Evaluate which interventions work and which don't, and for what reasons
   • Communicate M&E findings (successes and failures) to all stakeholders
   • Discuss findings with the case-finding task force
   • Review interventions design if change/improvement is unsatisfactory:
     » Against preset targets
     » Advocate with national level where policy changes are needed.

3. Conduct operations or implementation research, and cost-effectiveness analyses (CEAs)
   • Formulate research questions, seeking assistance from researchers to develop a protocol, get protocol and ethics approval, collect and analyze the data and compile research reports
   • Discuss the findings with the relevant audience
   • Decision making on continuation or adaptation of policies or interventions including the algorithm used.

TOOLS
mHealth technologies e.g. WIFI-TB in Indonesia, a mobile phone app for referrals and notification, developed by the USAID-funded Challenge TB project in collaboration with the NTP. On notification the app sends a notice to the local TB coordinator who liaises with the health provider to ensure quality of diagnosis and care.

'KNCV approach to implementation of effective contact investigation and treatment of latent tuberculosis infection'

INFORMATION SOURCES
• Stop TB Partnership: Improving tuberculosis case detection: A compendium of TB REACH case studies, lessons learnt and a monitoring and evaluation framework; 2014
• TB CARE I. 2015. Adaptation and Implementation Guide for Recommendations for Investigating Contacts of Persons with Infectious Tuberculosis in Low- and Middle-income Countries [49]
• Publications
• Study reports
• Routine reports.

QUALITY PREVENTION AND CARE

It is well documented that many people with TB are missed, as they do not access appropriate care, or do so very late due to a lack of trust and confidence in the quality of the health services [52-55]. Of those who do seek care, some are not timely diagnosed because of inadequate staff performance, inadequate organization of the health services, and/or poor quality of diagnostic and treatment services. These quality gaps lead to a drop out of patients in the cascade of TB care.

To ensure quality (TB) services, sufficient, motivated, and competent staff are needed, who have the right tools to work with and a supportive facility management behind them. Quality TB prevention and care is part and parcel of quality health services in any clinic and should be part of general *quality improvement* (QI) interventions. If no overall quality system is in place at facility or district level, QI could start with TB services.

> In the era of the End TB Strategy, we need to think beyond coverage and start focusing on the quality of TB care that is routinely offered to patients in high burden countries, in **both public and private sectors**.
>
> Source: Quality of TB care in high burden countries, International Journal of Infectious Disease, October 2016

PURPOSE, OBJECTIVES, AND RESULTS

PURPOSE
To provide a step-by-step approach on why and how to improve the quality of TB prevention and care to ensure early and effective identification, diagnosis and care from the patients' and health workers' perspectives.

OBJECTIVES
Using this chapter of the guide, the reader will understand how to:
- Assess the need for quality TB prevention and care to better find and treat all persons with TB
- Determine the need for community and patient perspectives, and their confidence in service providers and systems, to ensure early and effective identification, diagnosis, and care
- Identify the steps in the TB QI approach
- Set (national) performance standards and benchmarks for TB identification, diagnosis, and care
- Select the districts and health facilities to participate in the TB QI Process
- Determine and understand the quality gap, prioritize, and implement TB QI interventions **at facility level**
- Monitor and evaluate the results of the TB QI interventions, learn lessons, and improve future interventions.

RESULTS
TB Quality prevention and care interventions should lead to the following results:

1. **Increased client confidence in TB prevention and care services**
- High level of community and patient confidence in the health system and its service providers
- Increased self-reporting of symptoms and demand for screening
- High level of client satisfaction about TB prevention and care services

> Client confidence in the quality of the healthcare system and its service providers is an essential determinant for health seeking behavior

2. **Increased technical performance of TB prevention and care services:**
   - Improved patient-centered care
   - Intensified *triaging*/systematic screening in health facilities and community outreach
   - High level of diagnostic accuracy (for both bacteriologically confirmed, clinical diagnosis, and DR-TB)
   - Low levels of diagnostic and treatment initiation delays
   - High levels of correct regimen prescription
   - High levels of successful treatment completion.

3. **Increased TB programmatic performance**
   - Increased number of diagnosed patients notified
   - No medicine and consumables stockouts
   - Quality quarterly TB reports available on time.

To reach the above results the intermediate results are:
- Facility QIP developed and implemented
- High level of staff satisfaction
- High level of staff retention.

More detailed information on the Quality TB Prevention and Care M&E framework, including suggested indicators, can be found in Chapter 8.

QUALITY IMPROVEMENT APPROACH

Quality improvement in TB and health care is a systematic approach to making changes that lead to better patient outcomes and stronger health system performance. It requires a multi-disciplinary, systematic and continuous effort to identify and tackle the causes of poor quality in healthcare, which can extend far beyond TB services. There are several dimensions of quality: technical performance, access, effectiveness, interpersonal relations, efficiency, continuity, safety, physical infrastructure and comfort, and choice. Quality of TB care also can be viewed from different perspectives: from the patient, the healthcare provider and the facility manager. All perspectives need to be considered to get buy in of all the stakeholders and having successful and sustained results.

The *quality improvement* approach is based on the following principles:
1. **District level leadership:** The District Health Office (DHO) should guide the quality improvement process. DHO staff, supervising health facilities, should put into practice quality management and quality supervision.
2. **Integration with other programs and services:** All services and all layers of staff should be involved: quality improvement is not limited to the TB clinic and includes other clinics where TB patients can be found e.g., IMNCI, Nutrition, Diabetes Mellitus, ART.
3. **Patient involvement in all steps at all levels:** Patients and ex-patients are actively involved in all the steps of the Quality Improvement Approach; from informing service needs, over setting the standards, to performance evaluation.
4. **All levels of the district health care system are involved**, including the community level (e.g., performance of community health workers and DOT providers).

5. **Inclusion of all type of providers:** Private, NGO and public facilities are included.
6. **Formal engagement of relevant stakeholders:** patients, community members, healthcare workers at different levels, facility management. They will talk the same "quality language" and build ownership for quality improvement

APPROACH

Assess & Prioritize		Implement		Build Evidence
STEP 1	**STEP 2**	**STEP 3**	**STEP 4**	**STEP 5**	**STEP 6**
Set the national performance standards for quality TB prevention and care	Select facilities to participate in the QI process	Build project team and develop district M&E framework	Assess quality in HFs and develop facility QI plan(s)	Implement and monitor the facility QIP(s)	Evaluate and revise/optimize based on evaluations and lessons learnt

ASSESS AND PRIORITIZE

1. Set the (national) performance standards for TB prevention and care
2. Assess the TB prevention and care quality gaps in the district
3. Select the priority interventions to improve the quality of prevention and care.

STEP 1:
Set the (national) performance standards and benchmarks for quality TB prevention & care.

STAKEHOLDERS
- NTP technical officers: (DR)-TB care, laboratory, drugs stores, M&E, supervision and training
- Ministry of Health: Quality and accreditation department, HMIS, HRM department, Health Promotion, Community Health
- Region/State: Regional or State TB coordinators
- District Health Officers and TB coordinators
- (Ex) Patients
- NGOs, CBOs, FBOs
- Private Sector (private facilities, professional associations including formal practitioners and pharmacies).

HOW
At national level set the key performance standards and benchmarks for quality TB prevention & care (see Annex 7.1), focusing on technically sound and patient-centered identification, diagnosis and treatment. These standards are based on (1) The International Standards for TB Care (ISTC) [56], (2) The best practice for the care of patients with TB [57] and (3) The national TB guidelines.

The TB key performance standards are divided in four broad categories (Figure 8) covering the full range of diagnostic and treatment activities as well as management functions and infrastructural aspects creating the enabling environment.

> The *ISTC* aimed to unify approaches to clinical care of persons with TB symptoms or disease, irrespective of the country or setting in which care is taking place. The *ISTC* was conceived as a critical bridge between public health officials and clinicians, especially those in the **private health care setting**

Countries can also choose for a bottom-up approach: in one or more districts TB/QI interventions will be developed, implemented, monitored and evaluated. Lessons learned from these district QI practices will be used to agree on the national TB/QI approach including the standards and benchmarks.

A. TB IDENTIFICATION AND DIAGNOSIS Screening, diagnostic testing, test results, contact investigation, HIV testing, patient-centered approach, rights and responsibilities	B. TB TREATMENT Regimen, treatment support, ART for HIV patients, patient-centered care, patients' literacy, rights and responsibilities
Categories of TB Quality Prevention and Care Performance Standards	
C. MANAGEMENT Staff member and staff competence, TB program management, TB recording and reporting, infection prevention and control	D. FACILITY INFRASTRUCTURE Laboratory services, radiology, pharmacy, waiting areas, consultation rooms

Figure 8: Categories of TB Quality Prevention and Care performance standards

TOOLS
Template for TB key performance standards and benchmarks (Annex 7.1)
International Standards of TB Care (ISTC)

Information sources
- National TB guidelines
- TB NSP
- Safe Care Standards [58]
- The Union: Best practice for the care of patients with TB a guide for low income countries. 2017 [57]
- Community KAP studies implemented in country, providing community & patients perspective on needs, confidence & barriers.

STEP 2:
Select the health care facilities to participate in the quality improvement process.

STAKEHOLDERS
District Health Officer, District TB Officer, District Laboratory Officer, Managers of public and private facilities, patient representatives

HOW
1. At national level identify the districts where FTMP interventions will take place based on the existing gaps identified to seek care. Utilize the existing public and private health services and provision of quality TB diagnostic and treatment services as presented in Figure 9. Available routinely collected data, or data collected during the steps described in Chapter 3 ("Determine gaps and prioritize interventions") and Chapter 5 ("Matching the services to the patients' pathways") will be used and discussed.

Patient care seeking delay
Symptoms recognized
Patient taken action

Access Delay
Utilization of health services

Health Services Delay
Correct and timely diagnosis
Correct and timely treatment
Adquate adherence support

Figure 9: Delays in patient' pathways for TB care

2. Select per district the health facilities to implement the TB quality improvement (QI) activities based on the following criteria:
   - In catchment areas with high risk populations e.g. urban slums, migrants, high HIV prevalence
   - Information about insufficient quality of TB prevention and care in specific health facilities based on TB data and supervision results: notification, treatment outcomes, EQA data, CI data
   - Volume of the facilities: start with the high-volume facilities (facilities with high staff numbers and/or high head counts and those that are expected to find and treat high numbers of TB patients)
   - Commitment from facility management to participate in a QIP
   - Staff continuity to ensure that staff capacity can be built.

   - Include private healthcare facilities in QI activities
   - Implementing QI activities might result in accreditation of private health facilities to provide basic TB services.
   - Include TB diagnostics and treatment quality as part of the accreditation system for facilities and medical doctors (health insurance remuneration, continuing medical education (CME), etc).

TOOLS
Tool to select health facilities (Annex 7.2)

IMPLEMENT

This stage aims to (1) build a district QI project team, (2) develop the district QI M&E framework, (3) develop the facility quality improvement (QI) plans, (4) build the capacity at facility level to implement this QI plan, and (5) implement and monitor the implementation of the QI plan.

STAKEHOLDERS
District Health Officer, District TB Officer, facility management, unit managers, Facility Quality Team, HCWs that are responsible for the implementation of the QI plan, patients and community members.

STEP 3:
Build your project team(s) at district and facility level and develop your district Quality Improvement M&E framework

HOW
Work with the existing QI teams that are in place at district and facility level and strengthen these.

If QI teams are not existing in the district, encourage their installment and build their capacity:

1. **Train a team at the District Health Office as QI Facilitators**. This team of QI facilitators will introduce the QI process at facility level and coach the facility level team.

2. **Create buy in of facility management and facility staff for QI for TB prevention and care:** have a meeting with facility management to advocate for the QI process and agree on the QI process and requirements. Facility management organizes a meeting with representatives from all departments.

3. **Build a project team at facility level:** Select a team for the Facility Quality Team (FQ-Team) and include one or two trained staff members from the District Health Office, to facilitate the QI process in this health facility. **Annex 7.3** presents the Terms of Reference and the selection criteria for the FQ team. Organize a one-day workshop in the facility to familiarize the FQ Team with the QI process, tools, and their tasks and responsibilities. **Annex 7.4** presents information on the content areas of this workshop.

4. **Develop a district Quality Improvement M&E framework:**
   Develop the 'Quality Improvement' M&E component to the district M&E framework to monitor and evaluate this FTMP component of the District Annual Plan of Action. See the FTMP M&E framework (Chapter 8) for more information.

STEP 4:
Assess quality in healthcare facilities and develop the facility Quality Improvement Plan(s)

1. Assess quality performance in healthcare facilities:
At the start of the Quality Improvement trajectory the FQ team:
- Reviews the available TB data in the HF to identify the gaps in the patient cascade (e.g., screening, OPD, lab TAT, initiation treatment etc.) to prepare information for the planning meeting.
- Facilitates group discussions with a selected number of (former) patients and a representation of staff on the quality of TB prevention and care in this facility and the areas for improvement. A list of key topics for the group discussions will be derived from the *"template for TB key performance standards and benchmarks"* (Annex 7.1). Discuss also the patient-centeredness of the care provided, including topics as opening hours, waiting time, patient-provider communication, stigma and staff confidence.
- For more in-depth information about patients' perspectives on the quality of care, we suggest using **Quote TB Light** (see toolbox)
- Facilitates interviews and discussions with staff from other units (e.g. MCH, ANC, etc.) on the TB quality standards relevant for their work, using the TB benchmarking tool (Annex 7.5). The team decides together on the performance level for each benchmark standard and the areas for improvement.

> **Stigmatizing TB patients**
> Stigmatizing behavior and attitudes have been frequently observed at health facilities among healthcare workers of different professional levels. Stigmatizing attitudes of health care workers during TB treatment can lead to treatment interruptions with increased risk for the acquisition and spread of DR-TB.
>
> Source: Allies, KNCV Stigma reduction toolbox

2. Develop a facility Quality Improvement Plan (QIP):
   • The FQ-Team develops the Facility QIP, based on the outputs of the team discussions and the interviews/FGDs with staff and patients. Present the QI plan to Facility Management Team who will share this with the team managers.

TOOLS
• **QUOTE TB Light** (see toolbox)
• Template for TB key-performance standards and benchmarks (see Annex 7.1)
• TB benchmarking tool (see Annex 7.5)
• Template for the facility QIP (see Annex 7.6).

STEP 5:
Implement and monitor the facility Quality Improvement plan(s).

HOW
1. **Implementation of QI plan** is guided by responsible staff. They brief the FQ-Team and Facility Management on progress of activities.

2. **Monitor implementation of QI activities through:**
   • Monthly briefing on progress to FQ Team and Facility Management (see also section "build evidence")
   • Clinic visits
   • Collecting data monthly as per the QI M&E framework.

3. **Communicate successes:** every month the FQ-Team presents a "Quality Success" to facility staff and patients.

Make optimal use of the supervision system
If time and resources don't allow this comprehensive QI approach, it is suggested using the existing TB supervision system to improve the quality of TB prevention and care. TB/HCWs, facility management and TB district supervisors agree on the TB performance standards, discuss the quality gaps in the facility and agree on QI actions. During (quarterly) supervision visits facility staff and supervisor assess and discuss the current TB program performance, the implementation of QI actions, and agree on QI actions for the next quarter.

INFORMATION SOURCES
• Practical Guide to improve the quality of TB patient care: a participatory approach [59]
• Best practice for the care of patients with TB, a guide for low income countries, The Union, second edition, 2017 [57]
• Quality Improvement Handbook for TB and MDR-TB Programs [60]

BUILD EVIDENCE

1. To evaluate the implementation of the Facility QI plans
2. To use the lessons learned to (a) improve the Facility QI plans and interventions; (b) document the Quality Improvement Approach for scaling-up to other facilities and sharing with other districts/technical areas.

STAKEHOLDERS
From the District: District M&E Officer, District Health Officer District TB Officer,
From the Facility: Facility Quality Team, Management, Patients, and Community Members.

STEP 6:
Evaluate Quality Improvement M&E data and redesign or optimize quality interventions based on results and lessons learnt.

HOW
1. **Analyze QI data** per facility and at district level.
   - The FQ-Team presents and discusses the facility M&E results with facility management, staff, and patients. Conclude lessons learned and define the interventions for the next year.
   - The FQ-Teams share the facility QI results with each other, discuss practices, lessons, results, and challenges.
   - The district QI facilitators discuss the facility QI results and lessons learnt
   - The district QI facilitators support facilities to revise their QIPs based on the M&E results

2. **Annually** the FQ team:
   - Facilitates a discussion with (former) patients about the quality of TB care, the progress made, and suggested improvements
   - Reviews together with facility representatives the TB benchmarking (BM) tool from the previous year, updates the BM tool, and the QI plan.

The FTMP M&E logical framework presents per implementation area the objectives, activities, and key results as presented in Chapters 4-7 (Table 3). This FTMP M&E Framework also includes suggested indicators per implementation area. Some of these indicators are listed under multiple implementation areas because they apply to more than one. More details about the indicators and how to measure them is outlined in Table 4. The M&E framework supports the monitoring and evaluation of the district FTMP annual plan (part of the District Annual Plan) on a quarterly basis. Districts can make use of this framework to develop their own FTMP M&E framework, which is part of the District M&E framework.

In general:
1. Select relevant indicators for quarterly (or more/less frequently if indicated) monitoring
2. Develop process indicators as appropriate
3. Add additional facility level indicators (if appropriate or deemed necessary by the project team)
4. Strengthen recording and reporting/surveillance systems for reporting of data:
   - Develop/adopt user-friendly data collection tools
   - Develop an integrated reporting system to ensure non-NTP programs (e.g., HIV, PMTCT, MCH, nutrition, NCDs) report data
   - Ensure routine reporting by non-public providers (for example through mandatory reporting and/or the use of simplified and/or electronic notification systems).
5. Establish baselines for the indicators
6. Set SMART (specific, measurable, achievable, relevant and time-bound) targets
7. Monitor the progress towards the targets each quarter.

TABLE 3: FTMP M&E LOGICAL FRAMEWORK

Implementation area	Objectives	Activities	Results	Suggested Indicators
Community engagement	• To assess the role of the community in TB prevention and care in the district and how they contribute to find and treat all missing persons with TB • To assess the gaps in TB knowledge, skills, attitudes, and health seeking behaviors • To assess TB stigma in the community • To engage community stakeholders to support activities related to TB literacy and stigma, early health seeking behavior, systematic screening, and quality of TB care • To prioritize and implement community engagement interventions • To monitor and evaluate the results of the community engagement interventions, and understanding and utilizing lessons learned to improve future interventions	**Step 1: Conduct a joint gap analysis of:** a. The TB situation in the district b. Community involvement and resources c. TB-related knowledge, attitudes, practices and (health seeking) behavior including TB stigma among community members including TB patients d. TB-related stigma in the community **Step 2: Prioritize the actions needed and develop the community M&E framework.** **Suggested intervention areas:** a. Strengthen involvement of CBOs/CSOs/FBOs in TB prevention and care b. Increase community's TB literacy c. Reduce TB stigma d. Increase referral of presumed TB patients by CHWs and CVs e. Strengthen community support during treatment f. Improve access to quality patient-centered TB care g. Develop the community M&E framework **Step 3: Further engage and mentor communities to** implement the community TB action plan: a. Provide technical assistance and mentor CBOs/CSOs/FBOs to implement the action plan b. Promote sharing and learning among CBOs/CSOs/FBOs c. Optimize linkages among the community organizations and the health facilities to share results, problem solving, develop innovative ideas, build trust and commitment d. Develop the community level TB awareness raising and health education program e. Develop guidelines, tools and job aids for CHWs, CVs, DOT providers etc. to do their specific tasks f. Develop training packages for CHWs, CVs etc, plan and implement TOT and trainings for the defined target group g. Collect and monitor community TB data as per the M&E framework **Step 4: Evaluate and redesign or optimize community TB interventions based on lessons learned.** a. Evaluate the District Community Annual Plan quarterly b. Discuss the community M&E results, lessons learned and agree on improvements c. Annually discuss the community M&E results, lessons learned and agree on improvements	• Increased number of TB patients seeking care at an earlier stage of the disease • Increased number of persons with TB symptoms, referred by CHWs/CVs • Increased number of TB patients receiving treatment adherence support by CHWs/DOT providers/ community volunteers (CVs) • Improved TB treatment outcomes including reduce percentage of Lost to Follow-Up (LTFU)	• Number and percentage of patients who seek care within 4 weeks of developing TB related symptoms • Number and percentage of diagnosed and notified TB patients that were referred by CHWs and CVs • Number and percentage of TB patients who receive community treatment adherence support • Difference in number and percentage of Lost to Follow-up between TB patients who received community treatment support and those who did not. • Difference in number and percentage of treatment success (cured and completed) between TB patients who received community treatment support and those who did not Note: All patients diagnosed should be recorded in the TB register (notified); and if they did not start TB treatment will be evaluated and reported as Lost To Follow-Up (LTFU).

Implementation area	Objectives	Activities	Results	Suggested Indicators
Matching the services to the patient pathways	• To assess current capacity/utilization of diagnostic and treatment centers (supply) in their district against epidemiological situation and current patients' needs (demand) • To match supply (health service capacity) with demand (patients' needs and epidemic) • To monitor and evaluate the performance of the diagnostic and treatment networks	**Step 1: Identify patients' needs regarding diagnostic and treatment services:** a. Conduct an analysis of the key factors that influence patient health seeking behavior (in both the public and the private/informal sectors), through patients interviews and/or focus group discussions **Step 2: Assess current capacity and service gaps of diagnostic and treatment centers (public and private) in the district, capitalizing on the data from the TB diagnostic and care delivery systems and services national assessment (See Chapter 3):** a. Conduct a situational analysis of selected diagnostic and treatment centers in the selected district(s) b. Based on the findings of the situational analysis, set targets for KPIs and other indicators (see Chapter 8) **Step 3: Based on the assessment of the availability and capacity of TB diagnostic and treatment delivery systems and services in the district, establish a project team, choose optimization approach and develop a plan for interventions:** a. Create a diverse team b. Based on 1) the epidemiology data, 2) patients' needs (step 1), 3) diagnostic and treatment centers' capacity (step 2) and 4) available funding for interventions, decide which basic priority intervention(s) will be followed for the optimization. c. Discuss and agree with stakeholders d. Develop a plan of interventions that will be included in the District Action Plan. e. Develop an operational plan using the selected optimization approach, detailing the overall goal, objectives, activities to address the identified gaps, responsibilities, time-frames, indicators with targets and budget f. Cost the plan and identify funding sources **Step 4: Develop the M&E Framework** **Step 5: Implement the interventions** a. Implement the costed intervention plan b. Use the M&E framework to monitor implementation of the plan **Step 6: Evaluate and revise policies and redesign or optimize interventions based on evaluations and lessons learnt:** a. Analyze the data from the district M&E framework (developed in step 4 and monitored in step 5) b. Strengthen the TB recording and reporting system c. Analyze changes and trends d. Review interventions design if change/improvement is unsatisfactory	• Improved laboratory sample transportation systems • Improved diagnostic connectivity, and rapid feedback of lab examination result to requesting clinician • Improved utilization of diagnostic networks • Diagnostic delay reduced • Loss to follow-up reduced (initial and during treatment) • Increase of patients tested for DR-TB	• Diagnostic capacity utilization rate • Drug susceptibility testing (DST) coverage for TB patients (including Xpert MTB/RIF) • Number and percentage of notified TB patients who initiated treatment whom were diagnosed through a WRD • Number and percent of presumptive TB patients tested for TB, stratified by tests used if available • Initial loss to follow-up • Percentage of notified TB patients who were successfully treated • Medicine and consumables stockouts

Implementation area	Objectives	Activities	Results	Suggested Indicators
Triage and Screening	• To assess which risk groups should be prioritized for TB case-finding • To select and implement the appropriate interventions: triaging, systematic screening and/or contact investigation • To monitor and evaluate the TB case-finding interventions	**Step 1: Identify and map populations at high risk, key stakeholders, and partner organizations for TB care and prevention:** a. Conduct a desk review b. Organize consultative stakeholders meeting c. Mapping **Step 2: Prioritize in which populations to intervene and how** a. Prioritize key populations and affordable case-finding interventions b. Organize consensus meeting with relevant stakeholders c. Select an appropriate screening and diagnostic algorithm d. Set targets for key performance indicators **Step 3: Develop a plan to increase case-finding through triage and screening with stakeholders:** a. Use an existing multi-sectoral coordination mechanism or establish case-finding task force comprising all relevant stakeholders at all service levels, if no such mechanism exists. This task force will be responsible for: a. Plan and cost a. Work towards sustainability **Step 4: Develop the M&E framework for triage and screening** **Step 5: Implement case-finding interventions:** a. Engage local CSOs, CBOs, FBOs and private/informal service providers b. Implement and/or scale-up case-finding interventions c. Describe and replicate best practices d. Integrate increased TB case-finding into existing service delivery models e. Build capacity on increased case-finding f. Use the M&E framework developed in step 3 to monitor implementation of the plan **Step 6: Evaluate case-finding and revise policies and redesign or optimize interventions:** a. Analyze the data from the district M&E framework (developed in step 4 and monitored in step 5) on a quarterly basis b. Analyze changes and trends in KPIs and process indicators against the baselines	• Increased triage and screening interventions with optimal screening and diagnostic algorithms • Planned cost-effective triage and screening interventions among well prioritized key populations • Systematic monitoring and evaluation of triage and screening interventions	• Number and percentage of people identified with presumptive TB among those triaged or systematically screened in health facilities or among key populations • Number and percentage of TB notifications through triaging and systematically screened in health facilities or among key populations • Number needed to screen to find 1 diagnosed TB patient by intervention • Index patient coverage • Contact investigation coverage • Number and percentage of notified TB patients who initiated treatment whom were diagnosed through a WRD used in the context of triage or screening

Implementation area	Objectives	Activities	Results	Suggested Indicators
Quality prevention and care	• To assess the need for quality TB prevention and care to better find and treat all persons with TB • To determine the need for community and patient perspectives and their confidence in service providers and systems to ensure early and effective identification, diagnosis and care • To identify the steps in the quality improvement approach • To set national performance standards and benchmarks for TB identification, diagnosis and care. • To select the districts and health facilities to participate in the TB Quality Improvement (QI) Process • To determine and understand the quality gap, prioritize and implement quality improvement interventions at facility level • To monitor and evaluate the results of the TB QI interventions, learn lessons, and improve future interventions.	**Step 1: Set the national performance standards and benchmarks for quality TB prevention & care** **Step 2: Select the health care facilities to participate in the quality improvement process:** a. At national level identify the districts where FTMP interventions will take place based on the existing gaps identified to seek care b. Select per district the health facilities to implement the quality improvement (QI) activities **Step 3: Build the project team(s) at district and facility level and develop the FTMP component of the district M&E framework:** a. Train a team at the District Health Office as QI Facilitators. b. Create buy in of facility management and facility staff for QI for TB prevention and care c. Build a project team at facility level: d. Develop a the FTMP component of the district M&E framework **Step 4: Assess quality in healthcare facilities and develop the facility QI Plan(s) (QIP)** a. Assess quality performance in healthcare facilities b. Develop a facility QIP **Step 5: Implement and monitor the facility QIPs** a. Implementation of QI plan is guided by responsible staff b. Monitor implementation of QI activities c. Communicate successes **Step 6: Evaluate Quality Improvement M&E data and redesign or optimize quality interventions based on results and lessons learnt:** a. Analyze QI data per facility and at district level b. Annually the FQ team facilitates a discussion with (former) patients about the quality of TB care and review together with facility representatives the TB benchmarking (BM) tool	**Increased client confidence:** a. High level of community & patient confidence in the health system and its service providers b. Increased self-reporting of symptoms and demand for screening c. Increased number of patients self-referred or referred by community health worker d. High level of client satisfaction about TB prevention and care services **Increased technical performance:** a. Improved patient-centered care b. Intensified triaging/systematic screening in health facilities and community outreach c. High level of diagnostic accuracy (for both bacteriologically confirmed and clinical diagnosis and DR-TB) d. Low levels of diagnostic and treatment initiation delays e. High levels of correct regimen prescription f. High levels of successful treatment completion **Increased TB programmatic performance:** a. Increased number of diagnosed patients notified b. No medicine and consumables stockouts c. Quality quarterly TB reports available	**Client confidence** • Number and percentage of clients systematically screened among those attending facilities in the public and non-public sector • Number and percentage of people identified with presumptive TB among those attending facilities in the public and non-public sector • Number and percentage of presumptive TB confirmed as TB among those screened and identified with presumptive TB **Technical performance** • Percentage of clients with an average turn-around-time (TAT) from specimen collection to delivery of results <3 days (stratified by microscopy, Xpert) • Percentage of laboratory facilities showing adequate performance in EQA • Percentage of TB patients diagnosed in <5 days from first presentation to facility • Number and percentage of diagnosed initiated on correct treatment • Index patient coverage • Contact investigation coverage • Percentage of diagnosed patients notified • Percentage of notified TB patients who were successfully treated **Programmatic performance** • Increased number of diagnosed patients notified • No medicine and consumables stockouts • Quality quarterly TB reports available in time

Some indicators are routinely collected under programmatic conditions, while others would have to be collected under operations research activities.

Implementation area	Indicator	Numerator	Denominator	Expressed as
Community engagement	Number and percentage of patients who seek care within 4 weeks of developing TB related symptoms	Number of patients who seek care within 4 weeks of developing TB-related symptoms	Total number of patients who seek care for TB-related symptoms	Number and Percentage
	Number and percentage of notified TB patients that were referred by CHWs and CVs	Number of notified TB patients referred by CHWs and CVs	Total number of notified TB patients	Number and Percentage
	Number and percentage of TB patients who receive community treatment adherence support	Number of TB patients who receive treatment adherence support from CHWs/DOT providers	Total number of TB patients	Number and Percentage
	Difference in number and percentage of lost to follow-up between TB patients who received community treatment support and those who did not.	a1. Number of patients lost to follow-up who received community adherence support b1. Number of patients lost to follow-up who did not receive community adherence support	a2. Total number of TB patients who received community adherence support b2. Total number of TB patients who did not receive community adherence support	Number and Percentage (a1/a2) – (b1/b2)
	Difference in number and percentage of treatment success (cured and completed) between TB patients who received community treatment support and those who did not	a1. Number of successfully treated patients who received community adherence support b1. Number of successfully treated patients who did not receive community adherence support	a2. Total number of TB patients who received community adherence support b2. Total number of TB patients who did not receive community adherence support	Number and Percentage (a1/a2) – (b1/b2)

Implementation area	Indicator	Numerator	Denominator	Expressed as
Matching services to the patient pathways	Diagnostic capacity utilization rate	(Example for Xpert MTB/RIF) Number of Xpert MTB/RIF tests performed over a given period of time	(Example for Xpert MTB/RIF) Possible number of Xpert MTB/RIF tests which could be done over the same period of time in the district. As a guidance, use 3 tests per module per 265 working days per year. That is a maximum of 795 tests per year per module. (Note: This indicator should be obtained for each facility in the district where Xpert MTB/Rif is done. In case if facility provide multiple diseases' diagnostics using GeneXpert this should be taken in to consideration)	Percentage
	Drug susceptibility testing (DST) coverage for TB patients (including Xpert MTB/RIF)	Number of TB patients with RR/MDR-TB results (Note: DST coverage includes results from molecular (e.g., Xpert MTB/RIF) as well as conventional phenotypic DST results)	Total number of notified patients in the same year	Percentage, stratified by new and previously treated patients
	Number and percentage of notified TB patients who initiated treatment whom were diagnosed through a WRD	Number of notified TB patients who initiated treatment whom were diagnosed through a WRD test through triage or screening	Number of notified TB patients whom were diagnosed through a WHO recommended Rapid diagnostic test	Number and Percentage

Implementation area	Indicator	Numerator	Denominator	Expressed as
Matching services to the patient pathways	Number and percent of presumptive TB patients tested for TB, stratified by tests used if available	Number of presumptive TB patients tested for TB	Total number of presumptive TB patients identified	Number and Percentage
	Initial loss to follow-up	Number of TB patients diagnosed who were not started on TB treatment	Total number of TB patients diagnosed	Percentage
	Percentage of notified TB patients who were successfully treated	Number of TB patients who were successfully treated (sum of cure and treatment completion)	Total number of TB patients notified	Percentage\nThe target is for drug-susceptible and drug-resistant TB combined, although outcomes should also be reported separately.
	Medicine and consumables stockouts	Number of health facilities that experienced a stockout of one or more required consumables during a defined period	Total number of health facilities using the consumables	Percentage\nExample for the district level:\n*Number of health facilities that experienced a stockout of one or more required consumables during a defined period divided by the total number of health facilities using the consumables.*\nStratify by consumable type and critical/non-critical (first- and second-line anti-TB drugs, cartridges, X-ray films, reagents, etc.)

Implementation area	Indicator	Numerator	Denominator	Expressed as
Triage and Screening	Number and percentage of people identified with presumptive TB among those triaged or systematically screened in health facilities or among key populations	Number of patients with presumptive TB	Number of persons triaged or systematically screened	Number and Percentage
	Number and percentage of TB notifications identified through triaging and systematic screening in health facilities or among key populations	Number of TB notifications through triaging and systematic screening	Total number of TB notifications	Number and Percentage
	Number needed to screen to find one diagnosed TB patient by intervention	Number of diagnosed TB	Number of people screened	Number
	Index patient coverage	Number of index patients of whom the contacts have been investigated	Total number of index patients	Percentage
	Contact investigation coverage	The number of contacts of people with bacteriologically confirmed TB who were evaluated for TB	Total number of eligible contacts identified	Percentage
	Number and percentage of notified TB patients who initiated treatment out of those diagnosed through a WRD used in the context of triage or screening	Number of notified TB patients who initiated treatment after diagnosis were diagnosed through a WRD used in the context of triage or screening	Number of notified TB patients whom were diagnosed through a WRD used in the context of triage or screening	Number and Percentage

Implementation area	Indicator	Numerator	Denominator	Expressed as
Quality prevention and care	Number and percentage of clients systematically screened for TB among those attending facilities in the public and non-public sector	Number of patients with presumptive TB	Number of persons triaged or systematically screened	Number and Percentage
	Number and percentage of people identified with presumptive TB among those screened for TB while attending facilities in the public and non-public sector	Number of patients with presumptive TB among those screened for TB while attending facilities in the public and non-public sector	Number of persons screened for TB while attending facilities in the public and non-public sector	Number and Percentage
	Number and percentage of presumptive TB confirmed as TB among those screened and identified with presumptive TB	Number of presumptive TB patients confirmed with TB among those screened and identified with presumptive TB	Total number of presumptive TB patients among those screened while attending facilities in the public and non-public sector	Number and Percentage
	Percentage of clients with average turn-around-time (TAT) from specimen collection to delivery of results <3 days (stratified by microscopy and Xpert)	Number of clients with average TAT from specimen collection to delivery of results <3 days	Total number of results delivered	Percentage
	Percentage of laboratory facilities showing adequate performance in EQA	Number of laboratory facilities showing adequate performance in EQA	Total number of laboratory facilities	Percentage
	Percentage of TB patients diagnosed in <5 days from first presentation to facility	Number of TB patients diagnosed in <5 days from first presentation to facility	Total number of TB patients diagnosed	Percentage

Implementation area	Indicator	Numerator	Denominator	Expressed as
Quality prevention and care	Number and percentage of diagnosed initiated on correct treatment	Number of diagnosed initiated on correct treatment	Total number of diagnosed patients on treatment	Number and Percentage
	Index patient coverage	Number of index patients of whom the contacts are investigated	Total number of index patients	Percentage
	Contact investigation coverage	The number of contacts of people with bacteriologically confirmed TB who were evaluated for TB	Total number of eligible contacts identified	Percentage
	Percentage of diagnosed patients notified	Number of diagnosed patients notified	Total number of diagnosed patients	Percentage
	Percentage of notified TB patients who were successfully treated	Number of TB patients who were successfully treated (sum of cure and treatment completion)	Total number of TB patients notified	Percentage The target is for drug-susceptible and drug-resistant TB combined, although outcomes should also be reported separately.
	Medicine and consumables stockouts	Number of health facilities that experienced a stockout of one or more required consumables during a defined period	Total number of health facilities using the consumables	Percentage Example for the district level: *Number of health facilities that experienced a stockout of one or more required consumables during a defined period divided by the total number of health facilities using the consumables.* Stratify by consumable type and critical/non-critical (first- and second-line anti-TB drugs, cartridges, X-ray films, reagents, etc.)

Implementation area	Indicator	Numerator	Denominator	Expressed as
Quality prevention and care	Quality quarterly TB reports available in time	Number of health facilities that report into the relevant HMIS system within one month of the end of the reporting quarter	Total number of health facilities	Percentage Example for the district level: *Number of health facilities that notify their patients by cohort and report on their treatment outcome within one month of the end of quarter.*

ALLIES APPROACH: INTERACTIVE LEARNING

SOURCE
Allies Approach
www.end-stigma.com (Access from June 2018)
This self-learning course is part 2 of the KNCV Stigma reduction toolbox. Part 1 is the self-learning course.

PURPOSE
This interactive course is developed for health workers working with TB patients and providing people centered care. The course allows participants to explore, question, clarify and affirm their values and beliefs about (DR-) TB stigma, meet with their peers, challenge themselves, improve their environment and move for change, such that they develop self-awareness and comfort with the provision of people-centered (DR-) TB treatment and care.

USE
Interactive workshop for HCWs. The workshop can also be organized for TB advocates, managers, advocates, community members and people from the media.
The toolbox provides exercises and other training materials that will be used to customize the workshop to the needs of the target audience.
The toolbox includes five modules:
(1) Countering stigmatization of health workers; (2) Heart-feelings-affective– empathy building exercises; (3) Head-thinking-cognitive; (4) Communication/counseling; (5) Hands-actions-solutions. Each proposed activity has a specific objective, methodology and duration so activities can be carefully selected.

RESULTS
The participants should be able to:

1. Appreciate their own value to the fight against (DR-) TB
2. Define and identify (DR-) TB related stigma
3. Empathize with patients
4. Serve patients in a non-judgmental manner regardless of who they are
5. Understand and uphold patient-provider confidentiality
6. Address stigma in the context of service provision.

TIME
1 – 2 days.

BUDGET
Costs depend on the workshop duration and number of participants (20–30).

EVIDENCE/EXPERIENCE
This tool is under development and needs to be piloted.

ALLIES APPROACH (STIGMA SELF-LEARNING COURSE)

SOURCE
Allies Approach
www.end-stigma.com (Access from June 2018)
This self-learning course is part 1 of the KNCV Stigma reduction toolbox. Part 2 is the Interactive learning.

PURPOSE
This e-Learning course is developed for health workers working with TB patients and providing people centered care. The course aims to raise awareness of stigmatization of TB patients in health care facilities and to provide the basic information needed to enable participants to provide dignified and respectful care without risking TB transmission.

USE
Self-learning for health care workers. The course can also be used for TB advocates, managers, advocates, community members and media.

RESULTS
Learners who complete this e-learning course, will know:
- What (DR-) TB stigma is
- What the causes of TB stigma are
- Why it is important to address stigma
- Basics to reduce stigma in your health facility, including:
  » Knowing the rights to decent work as a health worker
  » Strategies for improving health worker's working conditions
  » The impact of transmission control measures upon patients
  » The rights and responsibilities of patients with TB
  » Which TB terminology to use to avoid stigma.

TIME
1 hour.

BUDGET
The course is free and can be done in participants' own time.

EVIDENCE/EXPERIENCE
This tool is under development and needs to be piloted.

**Building the Capacity
of Civil Society Organizations
in TB Control - An Approach**

1. Capacity Building Approach
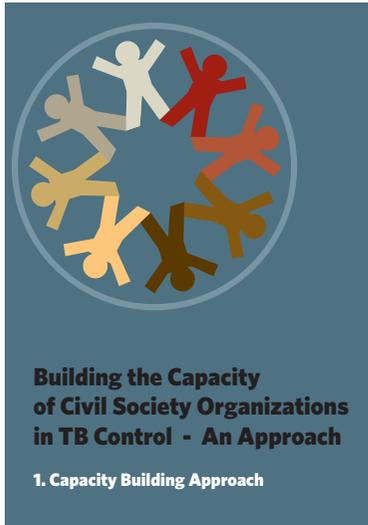
BUILDING THE CAPACITY OF CIVIL SOCIETY ORGANIZATIONS IN TB CONTROL

SOURCE
TB CARE I. Building the capacity of Civil Society Organizations in TB control
http://www.challengetb.org/library/hss

PURPOSE
To provide a methodology and tools to build the capacity of junior CSOs through training, mentoring, inclusion in the TB network and a learning M&E approach.

USE
The guide provides **capacity building approach**, **facilitator's and participants' manuals** to facilitate:
- 4 days training for junior CSOs in community TB prevention & care and how to strengthen the performance of their organization
- One-day mentoring workshop for mature CSOs on how to mentor the young CSOs
- One-day Stakeholders Meeting to strengthen the collaboration among stakeholders in the field of community involvement in TB

The **M&E framework** provides guidance on how to measure the results of the capacity approach and to learn from the data.

RESULTS
CSOs have gained competencies to work in community TB prevention and care. They have an activity workplan including plans to further strengthen their organizational performance. Mature CSOs have competencies and plans to mentor the young CSOs.

TIME
For training, workshop and meeting: 1 month. Mentoring for a period of 1 year.

BUDGET
For 4 days of training, a one-day workshop and a one-day stakeholders meeting. Budget may be needed to transport mentoring CSOs.

EVIDENCE/EXPERIENCE
Piloted in Indonesia, Nigeria and Ethiopia by KNCV, FHI 360 and ATS. Positive experiences with the approach documented the source document. In Ethiopia, Addis Ababa, female headed NGOs were engaged and started supporting case-finding and LTFU tracing in the poorest neighborhoods through their network and using coffee ceremonies at members houses as gathering places.

National Guidelines for Community Engagement in TB Prevention and Care

National TB Programme, Ministry of Health and Child Care, Zimbabwe
Harare 2014
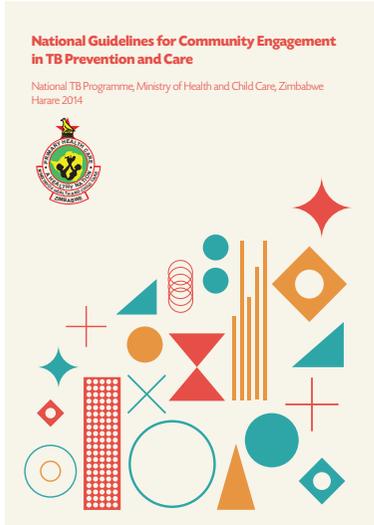
COMMUNITY REFERRAL FORM (EXAMPLE FROM ZIMBABWE)

SOURCE
Zimbabwe National Guidelines for community engagement in TB prevention and Care, 2014, TB CARE I, http://www.challengetb.org/library/country.

PURPOSE
Inform the health facility staff about the presumptive TB patient who is referred by the CHW or CV.

USE
The Community referral form will be used by the CHW or CV when referring a presumptive TB patient to the health facility. The form provides patient data, TB related signs and symptoms and by whom the patient is referred. The referral process is elaborated.

### RESULTS
Appropriate community referral.

TIME
10 minutes to fill the form.

BUDGET
N/A.

EVIDENCE/EXPERIENCE
This guide, including the community referral form has been guiding HCWs, CSOs and other stakeholders in Zimbabwe to implement an effective community TB care program. The simplicity of language used in the guidelines helps non-clinicians to understand and apply the concepts effectively in their day to day community work.
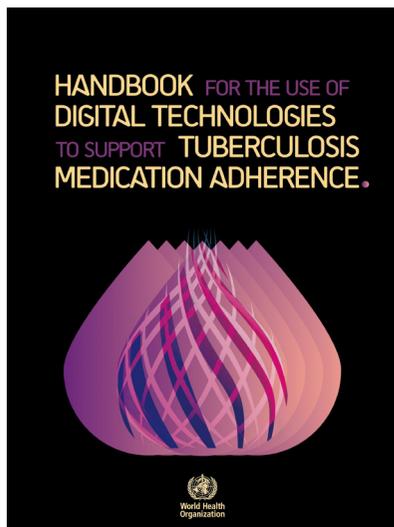
DIGITAL ADHERENCE TECHNOLOGY FOR TREATMENT SUPPORT

SOURCE
Handbook for the use of digital technologies to support tuberculosis medication adherence http://www.who.int/tb/publications/2018/TB_medication_adherence_handbook_2018/en

PURPOSE
Provide (from a distance) patient support through digital technologies.

USE
Use mobile phones, SMS, Video-supported treatment for TB (VOT), Electronic Dose Monitors and 99DOTS to provide treatment adherence support to patients. These low-cost technologies allow patients and health care workers to be connected, monitor patients' treatment, provide dosing instructions and differentiate care based on adherence data. Some of these adherence technologies will be piloted by KNCV for use in TB care from 2018-2020.

RESULTS
Increased patient treatment adherence and increased treatment success rates.

TIME
Estimated 1½ years to set up and pilot the digital application in-country.

BUDGET
5 weeks consultancy support over a period of 12-15 months including needs assessment, workshops for introduction of the technology and data utilization, technical support during the development and piloting of the digital adherence technology.

EVIDENCE/EXPERIENCE
The handbook describes several country level experiences with adherence technologies:
- Use of SMS in Kenya for TB and HIV treatment support (Page 14 -Box 2.1)
- Electronic dose monitors and 99DOTS for both DS-TB and DR-TB patients in India (Box 2.2, page 17)
- VOT for TB patients in the USA and Mexico (Box 2.3, page 21)

FOTOVOCES TB
UN PROYECTO DE COMUNICACIÓN AL SERVICIO DE LA SALUD

FOTOVOCES (PHOTOVOICES)

SOURCE
Fotovoces (Spanish)
(TB CARE l)

PURPOSE
TB patients create a photo exhibition to explore their strengths, priorities, and worries related to their life and to the disease. The photo documentary is used to dialogue with community members, health care workers and policy makers about TB patients lives, the disease and the quality of care.

USE
The Community referral form will be used by the CHW or CV when referring a presumptive TB patient to the health facility. The form provides patient data, TB related signs and symptoms and by whom the patient is referred. The referral process is elaborated.

RESULTS
The images can reduce stigma and misconceptions around TB in the community and catalyze improvements in the quality of care from patients' perspectives.

TIME
Production of the set of images takes 2-3 months, through weekly sessions with patients training them as photographers using photodocumentary.

BUDGET
For TOT, coach and printing of the photos, around 35,000 USD depending on local costs.

EVIDENCE/EXPERIENCE
The images and patient experiences produced by the group of involved patients are still used in the Dominican Republic (since 2012 TB CARE I) as a rotating exposition as well as in specific developed audiovisual materials in order to reduce stigma.
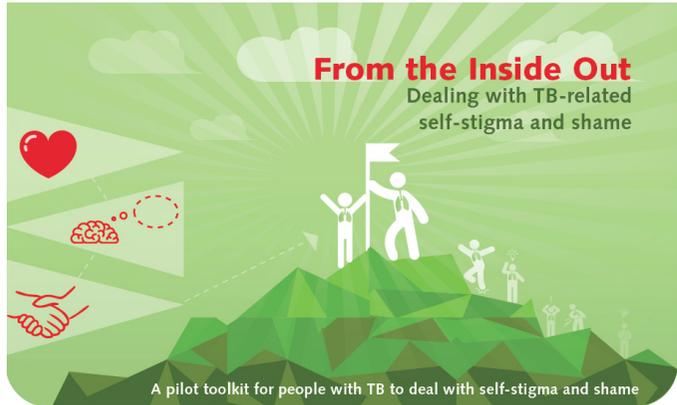
TIME
3 days.

BUDGET
For 3 days of training for a group of 15-20 people.

EVIDENCE/EXPERIENCE
The tool will be piloted in 2018.

FROM THE INSIDE OUT

SOURCE
KNCV and The Work for change
www.end-stigma.com (Access to site in June 2018)

PURPOSE
Provide a thorough evidence-based and holistic approach to addressing self-stigma in people affected by TB or DR-TB.

USE
Training groups of 15-20 people with TB, using a participatory and adult learning approach.

RESULTS
Partici¬pants will experience empowerment from the inside out and the possibility of living a life realising their full potential.
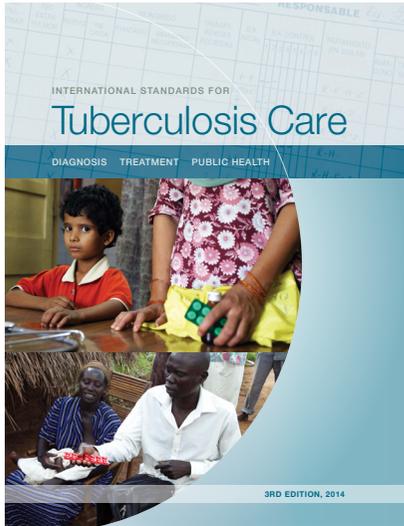
INTERNATIONAL STANDARDS FOR TUBERCULOSIS CARE (ISTC)

SOURCE
TB CARE I. 2014. International Standards for Tuberculosis Care, Edition 3.
http://www.who.int/tb/publications/ISTC_3rdEd.pdf

PURPOSE
To describe a widely accepted level of care that all practitioners, public and private, should seek to achieve in managing (presumptive) TB patients.

USE
National TB programs use the international standards to communicate with private and public providers, with patients and community organizations about the quality of TB diagnosis and care. These common standards are necessary to promote the effective engagement of all providers in delivering high quality care. Having generally agreed-upon standards will empower patients to evaluate the quality of care they are being provided. Good care for individuals with TB is also in the best interest of the community. The ISTC include standards for diagnosis, treatment, and public health responsibilities .

All people involved in TB control can use these standards to review and improve the quality of TB diagnosis and care by different stakeholders and the national TB guidelines.

RESULTS
Engagement of all care providers in providing quality TB care and empowerment of TB patients and communities to require quality care.

TIME
N/A.

BUDGET
N/A.

EVIDENCE/EXPERIENCE
The standards in the ISTC are all supported by existing WHO guidelines and policy statements, many of which had recently been developed using rigorous methodology, including systematic reviews.
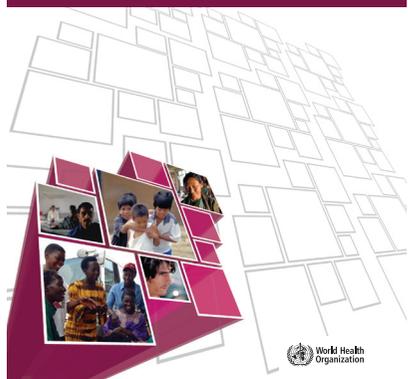
INVENTORY STUDY

SOURCE
WHO (2012). Assessing tuberculosis under-reporting through inventory studies:
http://www.who.int/tb/publications/inventory_studies/en/

PURPOSE
To measure the extent to which diagnosed TB patients are notified, as a basis for certification or strengthening of TB surveillance, improved estimates of TB incidence and better diagnosis and treatment of TB patients.

USE
Inventory studies compare the number of TB patients meeting standard case definitions in all or in a sample of public and private health facilities with the records of TB patients notified to local and national authorities. Comparisons are made through a process called record-linkage, in which duplicate and unique records are identified. Depending on existing systems for data management, records can be linked either using existing databases or linkage may need to be preceded by special efforts (for a limited time period) to collect data on the number of patients diagnosed by all health-care providers in the country, or by all health-care providers in a random sample of well-defined geographical areas. In certain circumstances, the results from inventory studies can be combined with a type of modeling called capture–recapture analysis to estimate TB incidence.

RESULTS
A measurement of under-reporting in a geographical area

TIME
6 months.

BUDGET
US$ 120,000-300,000

EVIDENCE/EXPERIENCE
Several countries have conducted national inventory studies to measure TB under-reporting during the last decade, including the Netherlands (61), the UK, French Guiana (62), Egypt (63), Yemen (64), Iraq (65), Pakistan (66) and Kenya (67).

systematically set up, implement and M&E their CI policy and practice.

RESULTS
Countries committed to implement and improve CI practices will benefit from a practical approach and tools to develop, implement and step up CI practices, monitor implementation and assess the impact of CI at district level.

TIME
N/A.

BUDGET
N/A.

EVIDENCE/EXPERIENCE
This tool is under development and needs to be piloted. The approaches recommended by KNCV are based on published literature and WHO guidelines and referenced in the document where applicable.

'KNCV APPROACH TO IMPLEMENTATION OF EFFECTIVE CONTACT INVESTIGATION AND TREATMENT OF LATENT TUBERCULOSIS INFECTION'

SOURCE
KNCV Tuberculosis Foundation
connie.erkens@kncvtbc.org
(Document will be available in June 2018)

PURPOSE
To provide an operational guide to countries and KNCV consultants advising countries on the implementation and evaluation of CI policy and guidelines and best practices.

USE
Many TB programs incorporate CI as an important element of their care and prevention strategy in their national TB strategic plan . However few high burden countries implement the CI policy widely or systematically. This operational guide support national TB programs to

TIME
6-months to develop and pilot training content.

BUDGET
Technical support from a training specialist.
Leap support to install and use the mhealth technology.

EVIDENCE/EXPERIENCE
Leap is being used in Kenya for the training and mentoring of CHWs. An evaluation showed that the mLearning training is complementary to F2F learning in enhancing the skills and knowledge of CHWs. Source" Effectiveness of mobile learning and face-to-face approaches in training community volunteers in Kenya; a comparative study".

LEAP MHEALTH TOOL

SOURCE
AMREF
www.leaphealthmobile.com

PURPOSE
Build capacity of community healthcare workers and mentor them on the job through mobile phone application.

USE
Leap is an mHealth platform, that is used to train CHWs and CVs, mentor them, and chat within the peer group to support each other. Leap provides training content, case studies, job aids, and reporting tools. Every country needs to develop its own training content for Leap.

RESULTS
The capacity of CHWs and CVs is built enabling them to perform better.

MATCH

SOURCE
KIT (2017). Mapping and Analysis for Tailored Disease Control and Health System Strengthening
https://www.kit.nl/health/service/kit-match-approach-enhancing-tb-care-coverage/

PURPOSE
To identify most pertinent groups of missing TB patients throughout the pathway of care at sub-national level.

USE
MATCH employs existing data, makes it available to NTPs and other stakeholders for usage, builds capacity to analyze these data and supports the development of sub-national differentiated responses. Three components have been identified within the approach: (1) collating multiple sources of data linked to geographical areas; (2) analyzing these data to identify program weaknesses and challenges; (3) development of differentiated responses.

RESULTS
TB managers and coordinators can use this tool to gain insights into their data as well as analytical considerations required to better exploit available data which are routinely collected by the program. The stepwise analytical framework described will allow them to move beyond the common practice where a single national TB program strategy is used to mitigate the TB epidemic towards a more tailored and locally adaptive response strategy, fitted to the locally contextual needs and possibilities.

TIME
1-3 months.

BUDGET
$US 20,000-50,000.

EVIDENCE/EXPERIENCE
This tool was launched in October 2017 and is built on the wide experience og KIT. Since it has just been launched there is no systematic documentation of results.

TIME
The time needed for the use of specific tools is mentioned under each section describing the tool.

BUDGET
Costs indications are mentioned under each specific tool.

EVIDENCE/EXPERIENCE
Different tools have been used in different countries, but there is no systematic documentation of results.
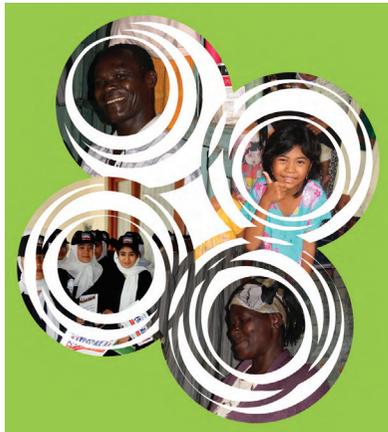
PATIENT-CENTERED CARE PACKAGE

SOURCE
TB CARE I
http://www.challengetb.org/library/hss

PURPOSE
Tools that enable TB patients and communities to have their voices heard for patient-centered care.

USE
The package includes the PCA booklet defining the concepts of patient centered care and the principles of patient-centered care. The package includes also tools that assess, implement and M&E patient centered care: Quote TB Light, Patient Costing Tool, TB literacy toolkit.

RESULTS
Patient-centered care is an important aspect of quality TB prevention and care.

PATIENT PATHWAY ANALYSIS (PPA)

SOURCE
Dena Seabrook, Christy Hanson et al. (Linksbridge, Bill & Melinda Gates Foundation, KNCV Indonesia, Kenya MOH). Patient Pathway Analysis: How-to Guide. Assessing the Alignment of TB Patient Care Seeking & TB Service Delivery
http://www.stoptb.org/assets/documents/global/awards/tbreach/TB_Patient%20Pathways%20Guide.pdf

PURPOSE
The patient pathway analysis (PPA) methodology was developed to better understand the alignment between patient care seeking and TB service availability.

USE
The PPA aims to describe the steps TB patients take from the initial point of seeking care to the point of being cured. At the same time, the analysis reviews the availability of TB screening, diagnosis, and treatment at various levels of the health system.

RESULTS
The results can inform programmatic priority setting and planning for more patient-centered availability of services.

TIME
The process for completing a PPA is likely to require between 0.5 and 0.75 FTE staff between three to five weeks, depending on data availability.

BUDGET
US$ 7,500-12,000
(depending on staff needed, e.g., TB manager, epidemiologist, junior researcher etc.)

EVIDENCE/EXPERIENCE
In the Philippines, national and regional PPAs were undertaken with this methodology using existing national survey and NTP data [68]. The authors concluded that the PPA identified opportunities for strengthening access to care for all forms of TB and for accelerating the time to diagnosis by aligning services to where patients initiate care. Similar assessments were done in Kenya [69], Pakistan [70], and Indonesia [71].
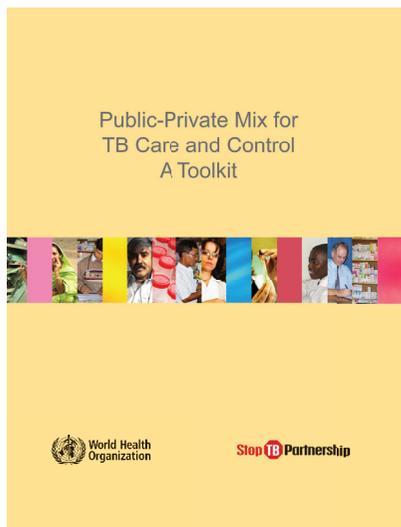
PPM TOOLKIT

SOURCE
Challenge TB/Stop TB partnership/WHO
http://www.challengetb.org/publications/tools/ua/PPM_Toolkit.pdf

PURPOSE
The toolkit consists of 14 tools (the first 7 tools on basic aspects of PPM implementation, the other 7 tools on engagement of specific types of care providers):
1. Rationale and generic approach
2. National situation assessment
3. Operational guidelines
4. Advocacy, communication and social mobilization
5. Monitoring and evaluation
6. International Standards for Tuberculosis care
7. Resources and budgeting
8. Engaging private practitioners
9. Engaging hospitals
10. Engaging nongovernmental organizations
11. Engaging workplaces
12. Engaging social security organizations
13. Engagement for TB/HIV collaboration
14. Engagement for programmatic management of drug-resistant TB

USE
The WHO policy on engaging all care providers in TB care and control provides guidance on practical steps that countries should undertake to involve various providers in TB control efforts. There is no one-size-fits all PPM approach. PPM should be planned based on a national situation assessment.
Main steps in the generic PPM approach:
1. A national situation assessment
2. Creating national resources for PPM
3. Developing national operational guidelines on PPM
4. Local implementation
5. Supervision and monitoring

RESULTS
- Enhanced quality of diagnosis, treatment and patient support
- Increased case detection and reduced diagnostic delays
- Improved and equitable access
- Reduced cost of care and financial protection for the poor
- Ensured gathering of essential epidemiological data
- Improved management capacity

TIME
For full assessment and development of guidelines and PPM operational plan: up to 1.5 years

BUDGET
Consultant(s) for PPM and costing

EVIDENCE/EXPERIENCE
No information available.
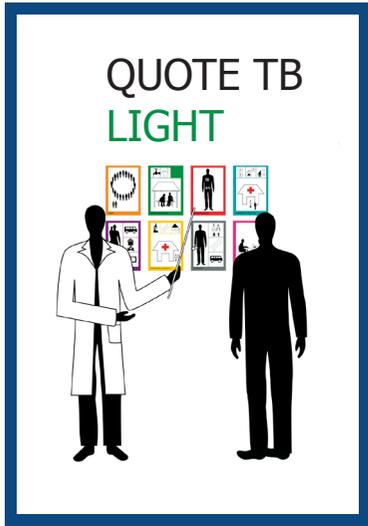
QUOTE TB LIGHT

SOURCE
TB CAP- QUOTE TB Light: https://www.challengetb.org/publications/tools/ua/Quote_TB_Light.pdf

PURPOSE
To assess the quality of TB/HIV Care through the eyes of patients and based on the results develop a plan for improvement of the quality of TB care in a district or region.

USE
Quote-TB Light is a qualitative standardized research method including Focus Group Discussions (FGDs) and individual interviews. The FGDs aim to rank the importance score on the nine quality dimensions of TB services (Professional competence, availability of TB services, patient-provider interaction and counseling, support, affordability, communication and information, infrastructure, TB/HIV, and stigma). The performance of these services is assessed through individual interviews resulting in a **performance score**. Multiplying the **importance score** by the **performance score** results in the **Quality Impact score**, indicating which are the highest priorities to act on so that TB services can be improved.

RESULTS
Reports describing the Quality Improvement Assessment Results, These results are discussed at facility, district and national level to develop plans for improvement.

TIME
1 year for protocol development, ethical approval, train researcher teams and district TB coordinators, research, reporting and feedback meetings.

BUDGET
Consultant for protocol development, training and mentoring of researchers.
Team of 2 researchers for each region involved for a period of 3 weeks.

EVIDENCE/EXPERIENCE
The quality dimensions were qualitatively tested and validated through statistical analysis. The tool was used in Nigeria, Ethiopia, Tanzania, Indonesia, Cambodia and Tajikistan.

WITHIN OUR REACH:
STOPPING TB TOGETHER

A TB Literacy Toolkit for Use by
Community Health Educators, Outreach Workers,
Counselors, and Healthcare Providers
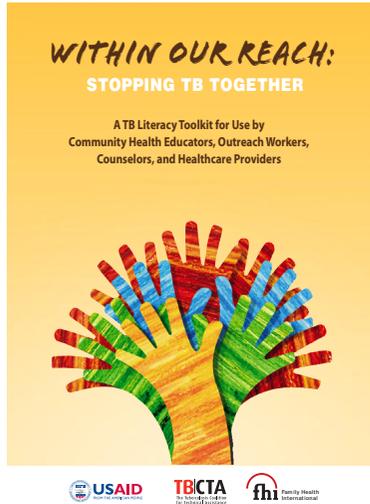
TB LITERACY TOOLKIT

SOURCE
TB CARE I. TB Literacy Toolkit.
http://www.challengetb.org/library/hss

PURPOSE
Increase awareness on TB, treatment and what it takes to complete treatment.

USE
The TB Literacy toolkit comprises multimedia resources and materials for use by community health educators, outreach workers, counselors and health care providers for educating their communities about how to control TB. The tools are designed to educate TB and HIV patients, their care givers and their communities about TB and what it takes to complete TB treatment. Included in the kit are patient video stories and TB/HIV informational brochures.

RESULTS
TB patients and community members are aware about the TB disease, the treatment and their rights and responsibilities.

TIME
Depends on the scope, target groups and intensity of the education activities.

BUDGET
Health education specialist to review and revise the current education program and providing the Training of Trainers.

EVIDENCE/EXPERIENCE
The toolkit was widely used in Mozambique and the acceptance of the tool was high.

Training TB Prevention and Care for
Community Health Workers in Zimbabwe

Training Curriculum
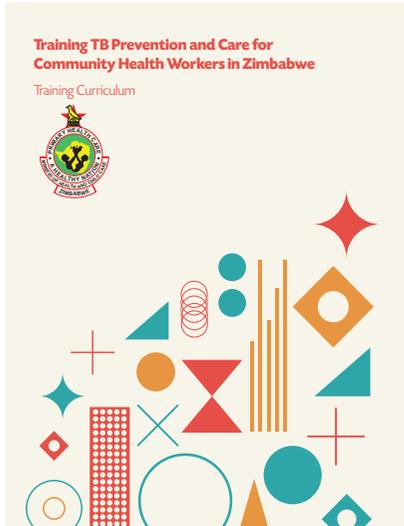
TRAINING TB PREVENTION AND CARE FOR COMMUNITY HEALTH WORKERS IN ZIMBABWE

SOURCE
Training on TB prevention and care for community health workers in Zimbabwe
http://www.challengetb.org/library/country

PURPOSE
Build the capacity on TB prevention and care of CHWs, health promoters and community volunteers working at community level and for their mentors

USE
The training package on TB prevention and care includes the training curriculum for a 4 days training and manuals for the facilitator and participants. This skills-building training is particularly about how to prevent TB among the most vulnerable in our community and how to support both patients and affected families. The training also covers topics on how to empower communities to become healthy communities, health education, patients' rights and advocacy for patient centered care.

RESULTS
CHWs are better equipped to play their role in community TB prevention and care and contribute to strengthen community systems for TB control.

TIME
5 days Training of Trainers and 4 days training

BUDGET
5 days Training of Trainers with 2 trainers and 25 participants.
4 days Training for CHWs with 3 trainers and 25 participants.

EVIDENCE/EXPERIENCE
Developed and piloted in Zimbabwe and used as the national training curriculum for CHWs in tandem with the Community Guidelines. A total of 640 CHWs were trained using the training curriculum. The trained CHWs apply the skills obtained in the trainings to conduct effective awareness raising activities, health education as well as looking for potential TB cases in the communities. All this contributed to **increased community contribution in TB case-finding** (In 2016, community contribution was 9% of all notified TB cases, increasing to 17% in 2017) **and case holding** (The TB treatment success rate in 2016 was 81%, a significant proportion of patients (52%) were reported to have been supervised by trained CHWs for adherence support)

UNDERSTANDING AND CHALLENGING TB STIGMA, TOOLKIT FOR ACTION

SOURCE
Understanding and challenging TB stigma, toolkit for action;
International HIV/Aids Alliance and Zambart
http://targets.lshtm.ac.uk/resources/Publications/TB_and_Stigma_
Eng2.pdf

PURPOSE
To help trainers plan and organize participatory educational sessions
with community leaders or organized groups to raise awareness and
promote practical action to challenge HIV and TB stigma and
discrimination.

USE
The toolkit provides 8 training modules, exercises and background
information to organize and facilitate stigma workshops for different
groups.

RESULTS
Community leaders and other community groups have increased
awareness and knowledge about TB stigma and willingness and skills to
reduce TB stigma in their communities.

TIME
1 – 2 days.

BUDGET
One or two days' workshop.

EVIDENCE/EXPERIENCE
No information available.
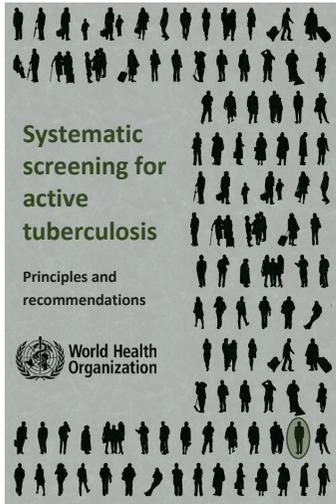
WHO TB SCREENING TOOL

SOURCE
WHO. Online Screen TB tool.
https://wpro.shinyapps.io/screen_tb/

WHO (2015). Systematic screening for active tuberculosis: an operational guide.
http://apps.who.int/iris/bitstream/10665/181164/1/9789241549172_eng.pdf?ua=1&ua=1

PURPOSE
This tool is designed to aid in the design and prioritization of systematic TB screening programs among populations and groups of people at higher risk for TB. The tool uses the best available data in order to generate estimates of the size, yield, and cost of screening programs, specific to the group targeted for screening and the testing algorithm used.

USE
The tool is meant to be used as a preliminary prioritization activity, rather than for detailed planning. A head to head comparison of costs and yields of different screening and diagnostic approaches in different risk groups can be conducted using the tool. Users can vary some or all of the inputs to understand which strategies provide the best cost-benefit for a given country. Unlike other tools, this one makes the ethical risk of over-diagnosis transparent.

RESULTS
Estimates are generated of the size, yield, and cost of screening and diagnostics, specific to the group targeted for screening and the testing algorithm used.

TIME
1-3 days.

### BUDGET
$US 500-1,000.

EVIDENCE/EXPERIENCE
The tool has been used in several countries such as Indonesia, DR Congo, and Botswana to inform NTPs on estimated false positive and negative patients, and numbers needed to screen to diagnose 1 patient simulating different screening algorithms. The modeling exercise guided in prioritizing risk groups, interventions and screening algorithms.
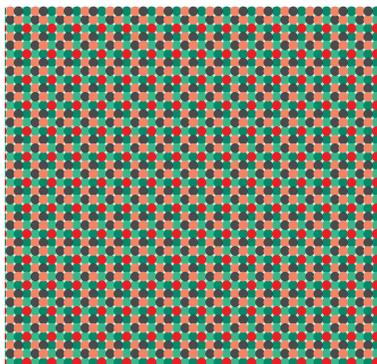
WHO TB EPIDEMIOLOGICAL REVIEW

SOURCE
http://www.who.int/tb/advisory_bodies/impact_measurement_
taskforce/meetings/tf6_background_2c_epidemiological_reviews.pdf
WHO Standards and Benchmarks for tuberculosis surveillance
and vital registration systems: http://www.who.int/iris/
bitstream/10665/112673/1/9789241506724_eng.pdf?ua=1

PURPOSE
The TB epidemiological review aims to provide necessary background
information to help understand the burden of TB disease and the
characteristics of the TB epidemic in the country. It also seeks to
provide an overview of the TB surveillance system and Monitoring
and Evaluation (M&E) activities that are necessary to strengthen
surveillance and measurement of TB burden.

USE
A wide variety of data are needed to complete the epi review, some of
which are available from the NTP and some of which are available from
open-access sources online. The epi-review is usually led by external
consultants independent to the NTP, such as from WHO, CDC, KNCV,
The Union or other organizations. Every national epi review team
should involve key decision-makers, TB program managers and TB
M&E staff.

RESULTS
It is best if a TB epi-review is scheduled before the development or
revision of the National Strategic Plan or the Global Fund Concept Note
(e.g., during a TB Program Review), as the review generates important
evidence to support data-driven decision making and provides specific
recommendations along with an investment plan to strengthen the
M&E system.

TIME
1 month 1 FTE external staff (2 weeks field assessment, 2-3 weeks
preparation and report writing), 2 weeks 1 FTE NTP M&E staff.

BUDGET
US$ 20,000-30,000.

EVIDENCE/EXPERIENCE
This tool has been used for epidemiological reviews in numerous
countries. In 2017, KNCV used this tool in Nigeria, Swaziland, and
Tanzania.

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ANNEX 1: KEY POPULATIONS

Table 5: different categories of key populations

| People with **increased exposure** to TB due to where they live or work	People at **increased risk** of (progression to) active disease due to social, behavioral, physical and biological factors	People with **limited access** to quality TB prevention and care services:
a. Urban poor b. Miners and ex-miners c. Migrants from high burden countries d. Close *contacts* e. Prisoners f. Healthcare workers	a. People living with HIV b. People living with diabetes mellitus c. People with silicosis d. People with immunosuppressant conditions/medication e. People <5 and >55 years of age f. People who are undernourished g. People who inject drugs (PWID)	a. Refugees/internally displaced persons b. Cross-border populations c. Geographically hard-to-reach communities d. Tribal or indigenous populations e. Homeless f. Communities with gender disparity g. People with mental or physical disabilities h. People with legal barriers to access care

Prioritization of key populations must be driven by vulnerability, high risk and high impact which is shown in Figure 10.
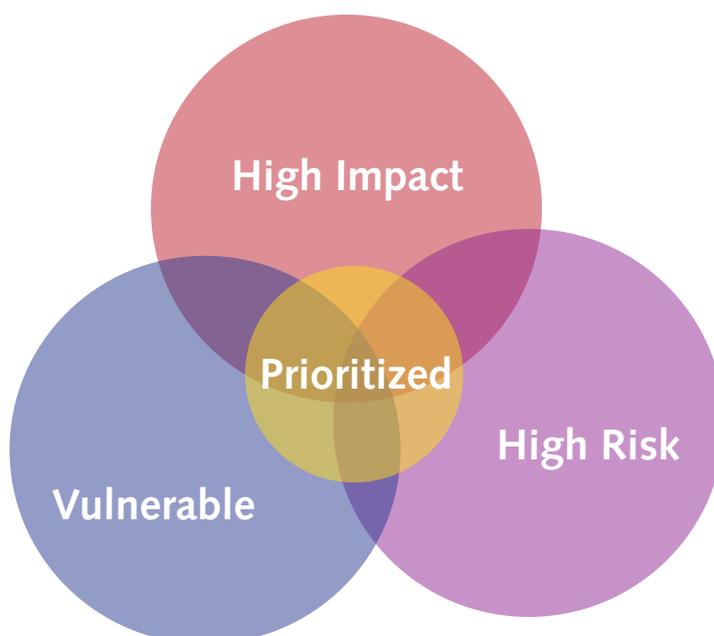
Figure 10: Prioritizing key populations

ANNEX 3.1: EXAMPLE OF PATIENT PATHWAY ANALYSIS VISUAL

No. of Facilities	1 — Place of Initial Care Seeking by Facility Sector and Level	2 — Coverage of Microscopy Services Among Health Facilities	3 — Dx Access at Initial Care Seeking	4 — Coverage of Treatment Services Among Health Facilities	5 — Tx Access at Initial Care Seeking	6 — Notification Location	7 — Treatment Outcome — Among Estimated Incidence
INFORMAL PRIVATE (6%)		Assumed that "Informal Private" did not have related treatment services		Assumed that "Informal Private" did not have related treatment services			
100,273	LEVEL 0 — 6%						
PRIVATE (43%)						24%	24%
409	LEVEL 2 — 10%	78%		79%		14%	8%
4,041	LEVEL 1 — 33%	36%		47%		62%	68%
PUBLIC (51%)							
68	LEVEL 3 — 5%	84%	20%	95%	24%		
455	LEVEL 2 — 11%	68%	24%	74%	30%		
3,748	LEVEL 1 — 33%	35%		51%			
42,976	LEVEL 0 — 2%	3%		13%			

Legend: ● Microscopy ■ Treatment Initiation ● Missing ● Private ● Public ● Missing ● Tx Unsuccessful ● Tx Successful

Patient Pathway Description: The PPA visual shows several steps along a patient's journey for TB care. Read from left to right, the PPA starts by showing the number of health facilities in each sector and level of the health system, included for additional context. Column 1 shows the % of TB patients that initiate care in each sector and level. Column 2 shows the % of facilities at each sector and level that are equipped with a diagnostic tool (in this example, microscopy). Column 3 shows the estimated % of all TB patients that access a facility with a diagnostic tool at initial care seeking. For each health sector and level, the % of patients that seek care at that sector and level (Column 1) is multiplied by the % of facilities at that sector and level that are equipped with a TB diagnostic tool (Column 2) to obtain the estimated % of patients that access TB diagnosis at that sector and level. Column 3 shows the total estimated % of TB patients that access diagnosis at initial care seeking in each sector. Column 4 shows the % of facilities in each sector and level that offer TB treatment. Column 5 shows the estimated % of patients that access treatment at initial care seeking. Column 5 is the sum of the products of Columns 1 and 4 just as Column 3 is the sum of the products of Columns 1 and 2. The PPA finishes with Columns 6 and 7, showing notification by location and treatment outcomes among patients notified to the NTP (both as a % of the estimated incident TB patients at the national level).[7]

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6   Source: Patient Pathway Analysis: How-to Guide. Assessing the Alignment of TB Patient Care Seeking & TB Service Delivery. Available: http://www.stoptb.org/assets/documents/global/awards/tbreach/ TB_Patient%20Pathways%20Guide.pdf

ANNEX TO CHAPTER 4: COMMUNITY ENGAGEMENT

ANNEX 4.1: COMMUNITY TB PERFORMANCE ASSESSMENT TOOL

Purpose: Get insight in the involvement of CHWs and CVs in District TB case notification and treatment results in the previous 2 years and define improvements needed.

Sources: Quarterly and annual TB district reports, District community health reports, Reports of CSOs, FBO's.

Methodology: Collect the information and discuss this in a team including the District Medical Officer, District TB coordinator, Facility TB coordinators, CSOs and FBOs active in TB control.

Key Questions:
a. What are the TB case notifications and treatment results in the district? (e.g., # presumptive patients/quarter, # patients/quarter, % successful treatment, % defaulters, % loss to follow-up)
b. What are the trends in TB case notifications and treatment results in the previous two years?
c. What facilities (and their respective coverage areas) are reporting the majority of TB patients? What facilities are reporting the least?
d. Which type of TB patients (age, gender, comorbidities and other key populations (KPs)) are missing or are reporting late?
e. Which type of TB patients (age, gender, comorbidities and other KPs) do not complete their treatment successfully?
f. Are there any communities from which more presumptive and diagnosed TB patients report at facilities? What is the coverage of CHWs/CVs in these communities?
g. Are there any communities from which less presumptive and diagnosed TB patients report at facilities? What is the coverage of CHWs/CVs in these communities?
h. What could be contributing factors to these trends?
i. How are the data trends and gaps compared to other districts?
j. If other districts are performing better, what are the reasons?
k. What improvements can be made?

Not all information is available from the TB reports, however, professionals will have assumptions based on their experiences. It is important to share and discuss these assumptions.

ANNEX 4.2: DISTRICT COMMUNITY STAKEHOLDERS' MAP

Purpose: Map the community stakeholders and their role in community TB prevention and care in the district

Methodology: Discuss the key questions below in a team including the District Medical Officer, District TB coordinator, Facility TB coordinators, CSOs and FBOs active in TB control, representatives of CHWs, DOT providers and informal providers.

Key Questions:
a. Which stakeholders are involved in community health initiatives, including TB prevention and care in the district? How are they organized? How are they supported or sustained?
b. In which communities do they work? Complete Table A.
c. What are the activities of these stakeholders in community TB prevention and care? Complete Table B.
d. What involvement do these stakeholders have in other programs (e.g., malaria, HIV, child health, WASH, other)?
e. Are community health care workers and other stakeholders (CSOs, FBOs, volunteers) sufficiently trained, equipped and mentored to perform tasks in community TB prevention and care?
f. Do the different stakeholders sufficiently connect to and/or share information and experiences among themselves, and with the health facility staff and the District Health team, including the TB officer?
g. What improvements are needed to strengthen the role the different stakeholders in TB prevention and care?

TABLE A: STAKEHOLDERS INVOLVED IN COMMUNITY TB CARE

Community	Stakeholders						Supervised by
	CSOs/FBOs involved in TB activities	Name(s) of CHWs/CVs	Name(s) of Informal provider	Name of TB Patient groups in this community	Names of other community groups involved in TB	CSOs/FBOs involved in community health activities other than TB	
A							
B							

TABLE B: ACTIVITIES OF STAKEHOLDERS INVOLVED IN COMMUNITY TB CARE

Name of Community	Prevention	Early Detection	Referral	Treatment adherence support	Social and livelihood support	Advocacy	Stigma reduction
	Awareness raising, health education	Screening, contact tracing, sputum collection, sputum transport	Linking with clinics, transport support and facilitation	Home-based DOT, adherence counseling, home-based care and support	Cash transfers, insurance schemes, nutritional support, income generation	Ensure availability of supplies and services, working with community leaders	Drama, patient/ peer support groups
	Name of stakeholders	Name of stakeholders	Name of stakeholders	Name of stakeholders	Name of stakeholders	Name of stakeholders	Name of stakeholders
A							
B							

ANNEX 4.3: PATIENT-CENTERED CARE MODEL

This tool consists of a choice of one of two visual aids and can be used to address question a and b of the District Community Stakeholders' mapping tool (Annex 4.2).

Purpose: Map the activities of community stakeholders in the different stages of TB prevention and care in the district.

Methodology: Discuss key questions below in a team including the District Medical Officer, District TB coordinator, Facility TB coordinators, CSOs and FBOs active in TB control, representatives of CHWs, DOT providers and informal providers.

Key questions
a. Which community stakeholders are involved in each of the four stages of the patient-centered care model or in each of the six steps of the "cough to cure" patient pathway?
b. What are the activities of these stakeholders in TB prevention and care?

The Patient-Centered TB Care Model (Figure 11) facilitates the assessment and planning of patient-centered activities throughout the continuum of TB care. The four stages are:
1. **Early Care Seeking:** TB health education and stigma reduction, linking the patient to the facility level for diagnosis
2. **Active Case-finding & Early Diagnosis:** access to affordable, quality, client-friendly and respectful treatment and care services, tailored to needs and possibilities of each patient.
3. **Treatment and Care:** the patient; community treatment support, socio economic support, health education, stigma reduction, contact tracing
4. **Care, Engagement and Advocacy:** community treatment support, stigma reduction, empowered patient advocates
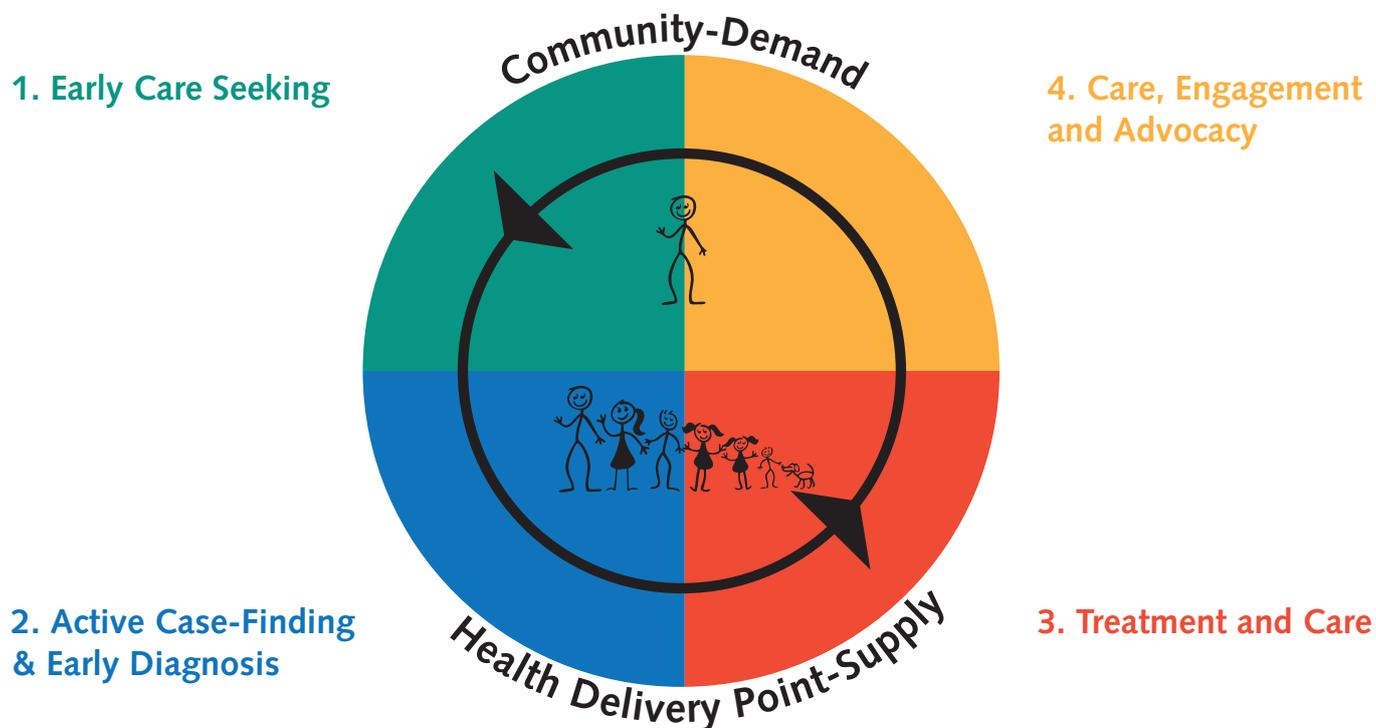

Figure 11: Patient-centered care model

| Seek Care	Go to Clinic	Complete Diagnosis	Begin Treatment	Continue Treatment	Complete Treatment
Patient recognizes symptoms and decides to seek care	*Patient has decided which clinic to go to for care*	*Patient is diagnosed and has received the diagnostic tests and results*	*Patient gets, treatment, health education, counseling and patient support*	*Patient continues treatment, gets treatment support, diagnostic tests and medical checks*	*Patient completes treatment* *Patient might support other TB patients*

Figure 12: Patient Cough to Cure Pathway

Adapted from: "From cough to cure": a pathway of ideal behaviors in Tuberculosis Control, AED and Stop TB Partnership

The **patient cough to cure pathway** (Figure 12) summarizes, from a patient point-of-view, the steps taken from recognizing TB symptoms and making the decision to seek care, to completing a full course of TB treatment.

The community should be engaged in every stage of the cycle or pathway. This will ultimately lead to early recognition of symptoms and appropriate care-seeking, speedy and correct diagnosis and the right patient centered treatment in health facilities, and a satisfied and empowered patient willing to support other patients and encourage others to seek timely care.

ANNEX 4.4: KNOWLEDGE, ATTITUDES, PRACTICES, BEHAVIOR (KAPB) FOCUS GROUP DISCUSSION TOOL

Purpose: to get insight into community members' knowledge, attitudes (including stigma), practices, and behavior about TB, as well as skills and practices to prevent TB.

Methodology: Focus group discussions with homogeneous groups (male, female, young people, specific *key populations*) in selected communities that are representative for the district populations.

Key questions:
a. **What do you know about TB?**
- Symptoms of the disease
- How is TB spread?
- How is TB prevented?
- How can TB be cured?
b. **Do you think you can get TB?**
- What would be your reaction if you had TB?
- Where would you go first to seek care? Why?
c. **How do you feel when you meet somebody with TB?**
d. **What would you do if your friend tells you they have TB?**
e. **What would you like to learn more about TB?**
- Where can you get this information?

ANNEX 4.5: TEMPLATE: PLAN OF ACTION TO STRENGTHEN TB COMMUNITY ENGAGEMENT

With all relevant stakeholders, develop your "plan of action to strengthen TB community engagement" (proposed template in Table 6), defining the priority actions strengthening and targeting community engagement to better find and treat the missing patients.

Table 6: Community TB Action Plan

	Intervention area	Activities	In which communities	Responsible	Timelines
1	Strengthen involvement of CSOs/FBOs in TB prevention and care				
2	Increase Community's TB literacy				
3	Reduce TB stigma				
4	Increase referral of presumed TB patients by CHWs and CVs				
5	Strengthen community support during treatment				
6	Improve access to quality patient-centered TB care				

Per intervention area: discuss and agree on the priority and feasible activities that will be implemented to achieve this goal. Define the communities in which these activities will take place and set timelines. Plans will be further elaborated upon in the implementation stage.

ANNEXES TO CHAPTER 6: TRIAGE AND SCREENING

ANNEX 6.1: TRIAGING

For the purpose of this document, the WHO definition of *triaging* will be used. "Triaging is defined as the processes of deciding the diagnostic and care pathways for people seeking healthcare, based on their symptoms, signs, risk markers, and test results". Triaging involves assessing the likelihood of various differential diagnoses as a basis for making clinical decisions. It can follow more- or less-standardized protocols and algorithms and may be done in multiple steps. Effective triaging that helps to rapidly identify TB is important both for optimizing care for the individual and for ensuring good infection control.

Triaging protocols should be adapted to the disease's epidemiology in a given setting because the prevalence of different diseases determines the predictive values of symptoms, signs, risk markers, and test results.

Triaging is different from systematic screening in that it focuses on the clinical management of a person seeking healthcare for one or several unexplained complaints or concerns, while *systematic screening* normally is initiated by a provider and targets apparently healthy individuals with or without risk markers for a given disease".

The WHO produced a guidance document how chest X-ray could be used for triaging. This document includes reflections on the usefulness of computer aided detection software, such as *CAD4TB*. KNCV has developed a triaging approach, which starts with *presumptive TB* patients and aims to ensure that all patients get the right diagnostic tests and the right treatment rapidly.[7]

Triaging Algorithms

Different triage algorithms for patients with respiratory complaints are presented (up to the point of ordering an initial bacteriological test for TB) and compared to help guide the choice of an appropriate algorithm for different situations. The algorithms are displayed schematically, together with indications of the yield of true positives and false positives for TB and the cost per true TB patient detected, based on modeled yields and costs in a hypothetical scenario in which the prevalence of TB is 0.5% (500 cases/100,000 population) among persons entering the triage algorithm.

Source: WHO. 2016. Chest radiography in tuberculosis detection. Summary on current WHO recommendations and guidance on programmatic approaches. Page 14.

Available: http://apps.who.int/iris/bitstream/10665/252424/1/9789241511506-eng.pdf?ua=1

	Cost per true case detected	Yield of true-positive results	Yield of false-positive results
1. Cough followed by microscopy	$	+	+ +
2. Cough followed by CXR, followed by microscopy	$ $	+	+
3. Any TB symptom followed by microscopy	$ $	+ + +	+ + + + +
4. Any TB symptom followed by CXR, followed by microscopy	$ $ $	+ + +	+
5. CXR followed by microscopy	$ $ $ $	+ + +	+ + + +
6. Cough followed by Xpert MTB/RIF testing	$ $	+ +	+
7. Cough followed by CXR, followed by Xpert MTB/RIF testing	$ $	+ +	+
8. Any TB symptom followed Xpert MTB/RIF testing	$ $ $ $	+ + + +	+ + +
9. Any TB symptom followed by CXR, followed by Xpert MTB/RIF testing	$ $ $	+ + + +	+ +
10. CXR followed by Xpert MTB/RIF testing	$ $ $ $ $	+ + + + +	+ + +

CXR = Chest X-ray

Figure 13: Triage Algorithm

7   https://www.kncvtbc.org/en/what-we-do/the-kncv-patient-triage-concept/

ANNEX 6.2: SYSTEMATIC SCREENING

The WHO defines systematic screening as the "systematic identification of people with suspected active TB in a predetermined target group, using tests, examinations or other procedures that can be applied rapidly. Unlike the evaluation of those who actively seek care for respiratory symptoms (triaging), the systematic screening of individuals for TB is typically initiated by a provider and offered in a systematic way to an apparently healthy target group that has been determined to have a high-risk of TB. Systematic screening can be implemented within and outside ("*active case-finding*") health facilities". The WHO developed two guidance documents: Systematic screening for active tuberculosis: principles and recommendations and Systematic screening for active tuberculosis: an operational guide (see references 45 and 46). These guidance documents include several diagnostic scenarios tailored to the specific objectives and target populations of the intervention.

ANNEX 6.3: CONTACT INVESTIGATION

The systematic testing for active TB and/or latent TB infection of *contacts* of a pulmonary TB patient, is a specific and well-evidenced form of *active case-finding*. It is regarded as an effective strategy for early TB case-finding in those most vulnerable. In low and moderate burden settings *contact investigation* (CI) should be prioritized above other active case-finding strategies. CI is highly recommended for close contacts of index patients with *bacteriologically confirmed* pulmonary TB, i.e. including GeneXpert® positive patients, and recommended for other index patients as recommended by WHO (2012) such as childhood TB patients (<5 years) when the source patient is not identified, PLHIV, and M/XDR-TB patients. CI is ideally performed through community-based approaches linked to DOT and routine community-based health care services, providing at least TB symptom screening and sputum collection among close contacts.

KNCV has developed a guidance document with the essential steps for the identification and screening of contacts. This document is based on evidence from the literature and KNCV's longstanding experience with CI in a low-prevalence/high-income country. The steps apply to the performance of CI in all settings, but for each setting, the triage/screening algorithm needs to be adjusted to the local possibilities and affordability in the country. Training and support of community health workers and other healthcare workers involved in performing the CI - including the identification of active TB and those eligible for *preventive therapy* - is an essential component of the approach. KNCV aims to apply innovative approaches and explore the utility of digital media for e-learning for healthcare workers, support of and communication with patients, and monitoring and evaluation. For every step different scenarios should be attuned to the local situation and health infrastructure.

ANNEXES TO CHAPTER 7: QUALITY PREVENTION AND CARE

ANNEX 7.1: TEMPLATE FOR TB KEY PERFORMANCE STANDARDS AND BENCHMARKS

	Standard	Benchmarks
A.	**TB identification and diagnosis**	
1	*Example:* *All persons presenting at the OPD with unexplained productive cough lasting two–three weeks are evaluated for TB*	*Example:* *1. Patients with cough at the OPD are referred to a special waiting area* *2. Patients with cough are screened for TB* *3. Patients' waiting times for diagnosis are not more than 2 hours*
2		
B.	**TB treatment**	
1	*Example:* *The clinician prescribes an appropriate treatment regimen for DS-TB according to national TB guidelines*	*Example* *1. The patient is put on treatment the same day when receiving the positive diagnostic results.* *2. Adult DS-TB patient receive the DS-TB treatment regimen according to national guidelines* *3. Pediatric DS-TB patients receive the pediatric DS-TB regimen according to national guidelines*
2		
C.	**Management**	
1	*Example:* *Staff members working in TB control are orientated and inducted to their specific job responsibilities*	*Example:* *1. New clinical staff members are oriented to the TB guidelines* *2. All clinical staff are updated on new development in TB diagnosis and care*
2		
D.	**Facility infrastructure**	
1	*Example:* *The health facility has an appropriate stock of quality TB drugs and commodities for all patients on treatment*	*Example:* *1. The TB drugs and commodities are stored in a clean and well ventilated store room at appropriate temperature* *2. The TB drugs and commodities are ordered quarterly* *3. The LMIS report is de quarterly*
2		

Instructions for completing the table above:
- *Define your national TB key performance standards for each of the categories and the benchmarks (performance indicators) per standard.*
- *Examples have been indicated in red italic font and can be replaced with your own text as relevant.*

ANNEX 7.2: TOOL TO SELECT HEALTH FACILITIES FOR QUALITY IMPROVEMENT

Health Facility	1. HFs in catchment area with high number of key populations High (3) Medium (2) Low (1)	2. Performance of HFs as outcome of the situation analysis Low (3), Medium (2), High (1)	3.Volume of the HFs High (3) Medium (2) Low (1)	4.Commitment from facility management to participate High (3), Medium (2), Low (1)	5.Staff Continuity Stable (3), Regular staff changes (2) Many staff changes (1)
A					
B					
C					
Score					

Instructions for completing the table above: Assess per health facility (1) The presence of key populations (low-high) (2) the performance of HFs (low – high), (3) volume of HFs (high-low), (4) commitment of management to participate in Quality Improvement activities (High-Low) and facility's staff continuity (range 1-3).

Fill the scores in the table and discuss these and come to consensus to prioritize facilities for QI activities. The in-depth discussion and consensus building is crucial for a full understanding of the situation and for buy in of the prioritization result.

ANNEX 7.3: FACILITY QUALITY TEAM

Terms of Reference:
1. Facilitate teams to assess the quality of their unit
2. Advocate among staff for quality of prevention and care in the Facility
3. Develop the Facility's QI Plan
4. Support team to implement the Facility's QI Plan
5. Monitor progress of the Facility's QI Plan's implementation
6. Discuss and communicate results of the Facility's QI Plan's implementation

Selection Criteria:
- A representation of functions in the health facility (e.g., nurse, doctor, pharmacist, administrator, cleaner, and receptionist)
- Higher management is member of the FQ Team
- Members practice quality prevention and care.

ANNEX 7.4: WORKSHOP FOR FACILITY QUALITY TEAMS

A one-day workshop in the facility that aims to build the capacity of the FQ Team.
Topics to be included are:
1. Introduction to the Quality Improvement Methodology and Process
2. Key performance standards for quality (TB) care.
3. Assessing quality performance in a participatory manner
4. Analysis of performance results
5. Development of a Quality Improvement (QI) plan
6. Monitoring the implementation of the QI plan
7. Evaluation and documentation including lessons learned for further improvement and sharing experiences with other facilities

ANNEX 7.5 TEMPLATE FOR TB BENCHMARKING TOOL

	Standard	Benchmarks	Description of the current situation 1 (met) 2 (partially met) 3 (not met)	Benchmark:	Areas for improvement
A. TB identification and diagnosis					
B. TB treatment					
C. Management					
D. Standards for facility infrastructure					

Instructions for completing the table above:
- Fill in the standards and benchmarks (from the table on page 102)
- Discuss the standards and benchmarks with the team:
  - » For each standard, assess with the team if the facility is currently able to satisfy the associated benchmark(s)
  - » Indicate 'Met', 'Partially met', "Not met" in the Conclusions column. Indicate 'Met' for a standard if all associated benchmarks are satisfied
  - » Indicate 'Partially Met' if not all but at least one benchmark is satisfied
  - » Indicate 'Not Met' if none of the associated benchmarks is satisfied
  - » If a standard is 'Not Met' or 'Partially Met', please describe actions for improvement.

ANNEX 7.6 TEMPLATE FOR QI PLAN

Quality Improvement Plan From (date) XX-XX-XXXX To XX-XX-XXXX			
Benchmark	Activity	Responsible Person	Due date

INSTRUCTIONS FOR COMPLETING ANNEX 7.6:

Per benchmark, fill in the activities to be planned to achieve the set benchmark.

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