

INTRODUCTION

I

STOP TB FIELD GUIDE

Stop TB Partnership

I

STOP TB
**FIELD
GUIDE**

INTRODUCTION



StopTB Field guide I: Introduction

Copyright © 2018
by the Stop TB Partnership, hosted by the United Nations Office for Project Services

Global Health Campus
Chemin du Pommier 40
1218 Le Grand-Saconnex
Geneva, Switzerland

All rights reserved. No part of this publication may be reproduced, in any form or by any means,
without prior permission of the Stop TB Partnership.

Design: Miguel Bernal
Photo credits: Shehzad Noorani

A digital version of this publication is available on stoptb.org/resources



STOP TB
FIELD
GUIDE

INTRODUCTION



Dr Lucica Ditiu,
Executive Director of the Stop TB Partnership

Foreword

Ending TB by 2030 is an ambitious global goal that calls for a concerted multi-stakeholder effort. While tremendous progress has been made in recent years, large gaps still remain. Millions of people who fall ill with TB every year are missed by routine health services. This is unacceptable. As a global community, we must address this gap to eliminate the suffering and loss experienced by individuals, families and entire countries due to TB.

It is time to be objective and critical and to accept that, in order to achieve TB elimination, we need new approaches at scale to reach all people with TB. Business as usual will not suffice, nor will incremental improvements to the same approaches we have been using.

Stop TB Partnership's flagship initiative TB REACH focuses on implementing new approaches to improve the numbers of people with TB detected and notified. Since 2010, TB REACH has provided more than 220 grants worth over US\$ 120 million and has been documenting these approaches with high quality monitoring and evaluation. Stop TB Partnership is also the lead partner, along with WHO, in the Global Fund's Strategic Initiative to Find the Missing People with TB. This Strategic Initiative is aimed at reaching and treating an additional 1.5 million people with TB in 13 target countries by 2020.

Capitalizing on the experiences of TB REACH and our partners and to inform the work of the Strategic Initiative, Stop TB Partnership has produced this series of guides to help national TB programmes, their partners and other stakeholders to plan, implement and evaluate innovations that will address the massive gap between the number of people who fall ill with TB each year and those who are treated.

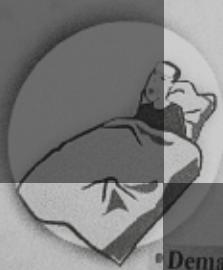
Our examples are mostly derived from the experiences of programmes, not from research studies under conditions that are unlikely to be replicated in the real world. These field guides provide deliberations and look at processes that can help adapt case-finding interventions to different circumstances. The guides acknowledge that what works well in one setting may not be useful in another and thus encourage analysis and creativity in the approaches.

While there are many global guidelines delineating "what" should be done in effective TB programmes, the "how" part is often lacking. These guides provide models and examples from diverse settings and supply the inspiration for TB programme implementers to radically change the status quo. I hope you can use these field guides to improve your programme's performance and make more progress on the mutual journey to end TB.

GEJALA TB PADA ORANG DEWASA



Batuk terus - menerus lebih dari 3 minggu



Demam meriang



Sesak napas dan nyeri dada



Berat badan menurun drastis



DINAS KESEHATAN NASIONAL

Juni 2011

SUNGAI	SENIN	SELASA	RABU	KAMIS	JUMAT
	1	2	3	4	5
	8	9	10	11	12
	16	17	18	19	20
	23	24	25	26	27

CONTENTS

Acknowledgements	8
INTRODUCTION	11
How to use this series	13
A change in the way TB case finding is approached	14
Linkages to treatment	14
Beyond epidemiology: human rights and gender	15
GETTING STARTED: PLANNING AND MANAGING CASE-FINDING STRATEGIES	17
Step 1: Identify and engage stakeholders	18
Step 2: Adopt a data-driven, people-centred framework to decide on the intervention	20
Step 3: Gather data	21
Step 4: Prioritize problems	25
Step 5. Root cause analysis	27
Step 6: Strategic intervention optimization	29
A note on budgeting	31
A practical look ahead	32
REFERENCES	33
APPENDIX A: SPECIFIC PRIORITIZATION TOOLS TO FIND MISSING PEOPLE WITH TB	36
MATCH: Mapping and Analysis for Tailored Disease Control and Health System Strengthening	36
PPA: Patient Pathway Analysis for TB Service Programming	36
KNCV's Find and treat all missing persons with TB operational guide	37
Complementarity of tools	37
APPENDIX B: CRITERIA TO CONSIDER WHEN DESIGNING CASE-FINDING INTERVENTIONS AND SCREENING AND DIAGNOSTIC ALGORITHMS TO USE	38

Acknowledgements

The production of these field guides represents a significant effort, bringing together more than 60 experts from over 30 different institutions globally in the spirit of partnership to help address a major barrier in the TB response: the fact that millions of people with TB are still missed by the current routine health systems.

The development of the guides was generously supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria as part of the Strategic Initiative on TB: Address specific barriers to finding missing tuberculosis cases, develop innovative approaches to accelerate case finding, and scale up tools and approaches. The Strategic Initiative is implemented by the Stop TB Partnership together with International Research and Development Global, Pakistan, and KIT Royal Tropical Institute, Netherlands

The writing of these field guides was coordinated by Marina Smelyanskaya, under the guidance of Jacob Creswell. The core writing team consisted of (in alphabetical order) Mirjam I Bakker, Lucie Blok, Andrew J Codlin, Jacob Creswell, Lisanne Gerstel, Ali Habib, Manjot Kaur, Liesl PageShipp, and Marina Smelyanskaya. Many others contributed to writing sections of different guides as well as reviewing them. A list of the writers and reviewers is presented below.

Many of the contributors attended a consultation in Amsterdam, Netherlands, in June 2018, to review and refine the draft of this guide. We thank the team at KIT Royal Tropical Institute for their support in organizing the consultation and review meeting and all participants for their time, ideas, and insights.

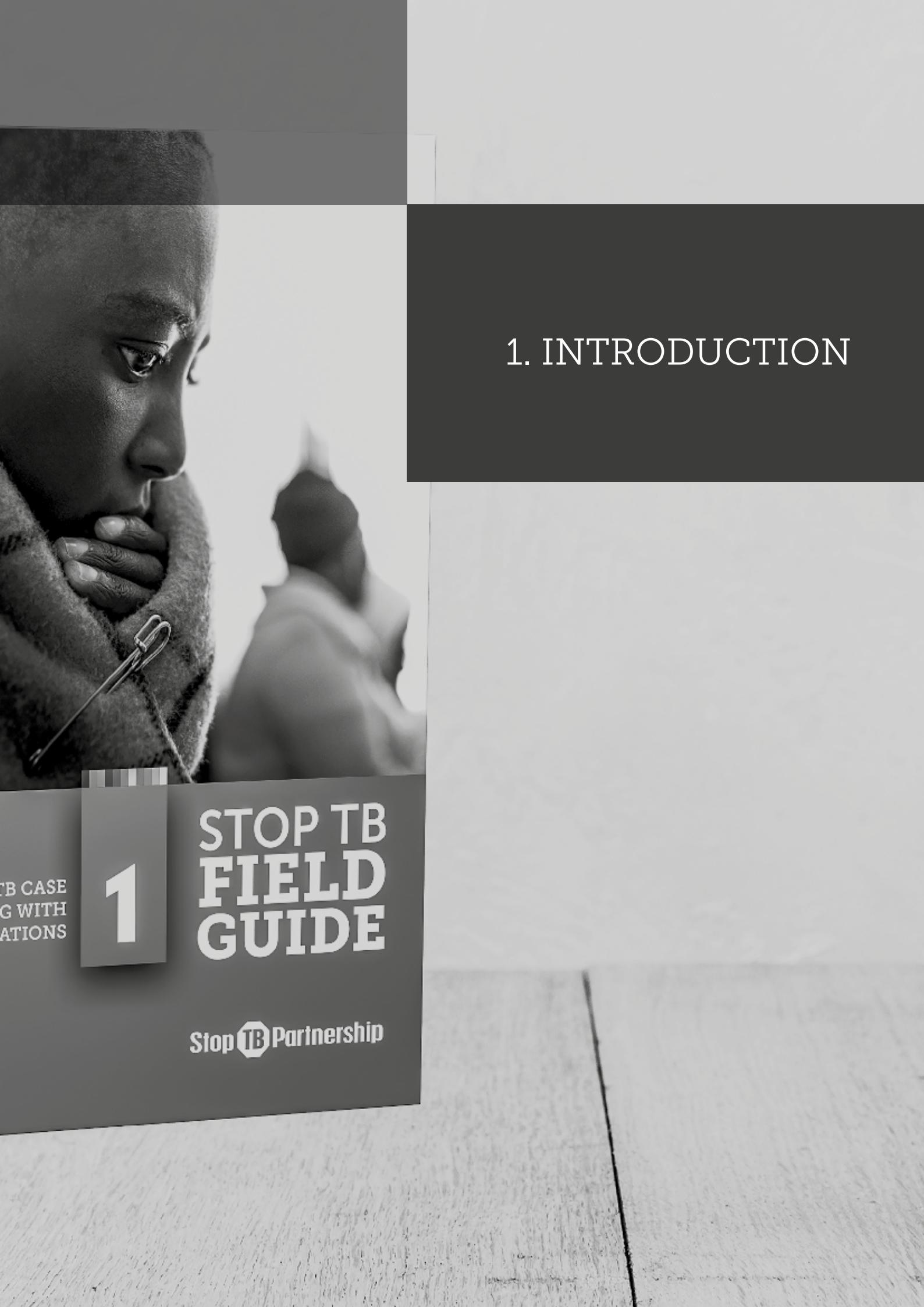
- Ramya Ananthakrishnan, REACH (Resource Group for Education and Advocacy for Community Health) India
- Sandra Alba, KIT Royal Tropical Institute, Netherlands
- Uliane Appolinario, The Global Fund to Fight AIDS, Tuberculosis and Malaria, Switzerland
- Mirjam I. Bakker, KIT Royal Tropical Institute, Netherlands
- Mercedes Becerra, Harvard Medical School, USA
- Stela Bivol, Center for Health Policies and Studies, Moldova
- Lucie Blok, KIT Royal Tropical Institute, Netherlands
- Frank Bonsu, National Tuberculosis Control Programme , Ghana
- E. Jane Carter, Warren Alpert Medical School, Brown University, USA
- Andre J Codlin, Friends for International TB Relief, Vietnam
- Jacob Creswell, Stop TB Partnership, Switzerland
- Luis Cuevas, Liverpool School of Tropical Medicine, UK
- Salah Edine-Ottmani, Morocco
- Carlton Evans, Innovación Por la Salud Y Desarrollo (IPSYD), Asociación Benéfica PRISMA, Perú
- Elizabeth Fair, Curry International Tuberculosis Center, University of California, San Francisco, USA
- Lisanne Gerstel, KIT Royal Tropical Institute, Netherlands
- Elmira Gurbanova, WHO, Azerbaijan
- Dr. Stephen John, Janna Health Foundation, Nigeria
- Peter Hansen, The Global Fund to Fight AIDS, Tuberculosis and Malaria, Switzerland
- Kyung Hyun Oh, Head, Korean Institute of Tuberculosis, Korea

- Kekeletso Kao, FIND, Switzerland
 - Manjot Kaur, Interactive Research and Development, India
 - Aamir Khan Executive Director, International Research and Development Global, Pakistan
 - Amera Khan, Technical Officer, Stop TB Partnership, Switzerland
 - Daniele Chaves Kuhleis, Brazil
 - Daisy Lekharu, The Global Fund to Fight AIDS, Tuberculosis and Malaria, Switzerland
 - Lynette Mabote, AIDS and Rights Alliance for Southern Africa (ARASA), South Africa
 - Fariyah Malik, Pakistan
 - Anna Mandalakas, Baylor College of Medicine and Texas Children's Hospital, USA
 - Enos Masini, WHO, Kenya
 - Thulani Mbatha, Interactive Research and Development, South Africa
 - Christina Mergenthaler, KIT Royal Tropical Institute, Netherlands
 - Peter Mok, Independent Consultant, Malaysia
 - Monde Muyoyeta, Centre for Infectious Disease Research in Zambia
 - Sreenivas Nair, Stop TB Partnership, Switzerland
 - Sode Novatus Matiku, New Dimension Consulting (NEDICO), Tanzania
 - Drusilla Nyaboke, Republic of Kenya National Tuberculosis, Leprosy and Lung Disease Program, Kenya
 - Chidubem Ogbudebe, KNCV Tuberculosis Foundation, Nigeria
 - Madhukar Pai, McGill Global Health Programs, McGill International TB Centre, Canada
 - Liesl PageShipp, Interactive Research and Development, South Africa
 - Zhi Zhen Qin, Stop TB Partnership, Switzerland
 - Oriol Ramis, Spain
 - M. D'Arcy Richardson, USA
 - Ataulhaq Sanaie, UK
 - Melissa Sander, Tuberculosis Reference Laboratory Bamenda, Cameroon
 - Anna Scardigli, The Global Fund to Fight AIDS, Tuberculosis and Malaria, Switzerland
 - Simon Schaff, Desmond Tutu TB Centre, Department of Paediatrics and Child Health, Stellenbosch University, South Africa
 - Bogdana Shcherbak-Verlan, PATH, Ukraine
 - Marina Smelyanskaya, Stop TB Partnership, Switzerland
 - Robert Stevens, UK
 - Pedro Suarez, Management Sciences for Health, USA
 - Guy Stallworthy, USA
 - Ajaykumar Thirumala, Independent Public health laboratory consultant, India
 - Stephanie M. Topp, James Cook University, Australia
 - Pillar Uster, Switzerland
 - Brittney van de Water, Harvard Medical School, USA
 - Frank van Doren, CheckTB! Netherlands
 - Wayne van Gemert, Stop TB Partnership, Switzerland
 - Kristian van Kalmthout, KNCV Tuberculosis Foundation, Netherlands
 - Shibu Vijayan, PATH, India
 - Luan Vo Nguyen Quang, Friends for International TB Relief/Interactive Research and Development, Vietnam
 - Ashvini Vyas, Asha Kalp, India
 - Eliud Wandwalo, The Global Fund to Fight AIDS, Tuberculosis and Malaria, Switzerland
 - William Wells, USAID, USA
 - Mohammed Yassin, The Global Fund to Fight AIDS, Tuberculosis and Malaria, Switzerland
 - Ingrid Zuleta, KIT Royal Tropical Institute
- The field guides were edited by Fiona Stewart and Marina Smelyanskaya.
- Design was done by Miguel Bernal in coordination with Nina Saouter.
- Photography for the guides was contributed by Miguel Bernal and Shehzad Noorani.
- The time and expertise of all the contributors listed are gratefully acknowledged by the Stop TB Partnership.



STRA
EFFECT.
FINDING
AND CLOSE

T
FINDIN
KEY POPUL



1. INTRODUCTION

1

STOP TB FIELD GUIDE

TB CASE
G WITH
ATIONS

Stop TB Partnership

1. INTRODUCTION

The Stop TB Partnership, in collaboration with the Global Fund to Fight AIDS, Tuberculosis and Malaria, Interactive Research and Development Global (IRD), the Royal Tropical Institute (KIT), and multiple global experts and implementing partners, produced this series of TB case finding field guides. The field guides rely on practical experiences and expertise of implementers and are meant to help national TB programmes (NTPs) and their partners to develop, plan and monitor strategies for finding people with TB who are missed by routine health services.

Globally, TB programmes are missing people who:

- **Do not access care**, either due to vulnerability, stigma, poverty, remote location, or ongoing conflict;
- **Access care, but are not diagnosed** with TB due to deficient screening, diagnostic and referral systems, long waiting times, and overburdened health systems;
- **Are diagnosed, but may not be started on proper treatment and notified** to NTPs due to gaps in recording and reporting, and weak linkages to the private sector and other health service delivery modalities.

The success of the TB response could be accelerated by identifying where national programmes are missing the most people with TB within these three categories and devising targeted interventions to ensure access to diagnostics, support treatment adherence and prevent drop-out.

These field guides are organized around three broad gaps in TB case finding. While there may be some overlap in each area, these groups are meant to approximate the gaps described above.

Field Guides – Finding the People with TB Who Are Missed:

- Introduction: Planning and managing interventions to reach more people with TB

Addressing lack of access to care:

- Field Guide 1: TB case finding with key populations
- Field Guide 2: Strategies for TB case finding in prisons and closed settings
- Field Guide 3: Finding missing people with TB in communities

Addressing gaps linked to people accessing care but being missed by health systems:

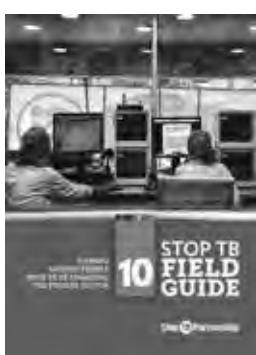
- Field Guide 4: Intensified case finding at facility level
- Field Guide 5: Scaling up interventions to find children with TB
- Field Guide 6: Using contact investigation to find the missing people with TB
- Field Guide 7: The role of laboratory systems in TB case detection
- Field Guide 8: The role of chest X-ray screening in TB case detection

Addressing linkages to care:

- Field Guide 9: Finding missing people with TB by engaging the private sector
- Field guide 10: Strengthening TB information systems and linkages to care

Similarly, the approaches, activities and recommendations provided in the other field guides of the series are not prescriptive; they are meant to be flexible and can and should be adapted to local circumstances. All implementers can use this series to develop or re-evaluate their strategies for finding the people with TB who are currently missed.

How to use this series



This series of field guides aims to help implementers through the process of designing appropriate, effective interventions, monitoring progress, and making adjustments as needed. The introductory guide discusses a planning process that can be used to prioritize and develop interventions; however, the guide does not provide a prioritized list. There are many additional tools to aid in the selection and prioritization of activities (1,2).

The success of any TB case-finding strategy depends on adapting approaches to fit local circumstances, which requires looking at data at subnational levels and within different subgroups of the population. The TB burden within a country is not homogeneous across geographies or populations. Therefore, an intervention that works in one place may not be successful in another, and strategies need to respond to local conditions. Efforts to find the people with TB who are currently missed should be prioritized so as to focus on the greatest benefit for the most people. Nevertheless, a plan to reach **all** those in need is critical so that implementers can act as soon as resources become available.

Once implementers have come to a decision on the prioritized intervention areas, they can use the stand-alone field guides on the specific case-finding strategies. A few key points are of note:

- Most countries are already implementing some interventions to find people with TB and may have case-finding objectives that are part of their current national strategic plans. Successfully improving TB case detection means continually monitoring and re-examining approaches and adjusting them as needs change. Therefore, the processes described here can be applicable and useful for all countries, whether they are introducing new case-finding interventions, trying to improve ongoing successful activities, expanding to new geographic areas or engaging different populations.
- While success can be achieved at project level, there are often challenges to scaling up approaches and/or integrating them sustainably within national programmes. In addition to the potential of an intervention to yield cases from a technical perspective, it is also important to consider how these interventions can be sustained within the health system as part of the planning process. Implementers must consider how interventions can best be structured to fit within existing health system structures – not resorting to “business as usual,” but being realistic about the ability of the intervention to be absorbed into the work of TB and other programmes.

A change in the way TB case finding is approached

Passive case finding (PCF) has been the traditional approach to TB case detection, constituting a key component of early DOTS programmes. To identify and hopefully diagnose a person with TB, PCF places the onus on the sick individual to present at health care facilities complaining of TB-related symptoms. Although, as a strategy, PCF has reached a large proportion of people who are sick, it has become evident that PCF is not sufficient to reach all people in need or achieve the global targets set by the TB community. It is likely that a large part of the current gap in detecting and treating people with TB has been caused by a historical over-reliance on this approach, as PCF not only misses opportunities to diagnose TB and initiate treatment, but also contributes to increased disease severity and mortality among those who are missed (3).

Intensified, enhanced and active case finding describe different approaches to improving TB case detection. In this series, we define active case finding (ACF) as activities that are conducted outside of health facilities. Intensified or enhanced case finding is often used to describe activities within health facilities that move beyond a passive approach. In contrast to PCF, these strategies place the onus of case finding on the health system, not on the patient. While these approaches require greater levels of investment of health care resources, studies analysing the relative cost-effectiveness of TB detection strategies indicate that substantial ACF on a wide scale is necessary to achieve global prevention and control of TB (4).

Improved TB case finding is critical for effective TB programmes and may include community-based case finding, contact tracing and private sector engagement. Improving TB case finding also requires an expansion of lab systems, utilization of new diagnostics, and effective reporting and recording systems. This array of interventions may be labour-intensive, but necessary to find the people with TB who are missed by the current systems. These field guides provide examples and models of different approaches that can help TB programmes and their partners work with these different approaches to bridge the current case detection gap.

Linkages to treatment

While it is critical to find people with TB who are missed, the ultimate goal of any TB intervention should be to link people to treatment and successfully treat them. Appropriate treatment combined with accelerated case finding has the potential to prevent more deaths, reduce TB incidence and break the cycle of transmission in communities (5,6). Programmes targeting people with TB who are missed must ensure that every person found is linked to treatment. While the focus on case finding and diagnosis is important, pre-treatment loss to follow-up (i.e. the drop-out rates of people who are diagnosed with TB but do not present for treatment) ranges from 4% to 38% in high-burden TB countries (7). There is evidence that mortality is highest among individuals in this group (8), which reinforces the importance of planning referral systems and linkages to treatment when rolling out case-finding interventions. As many of the approaches listed in the series involve case finding outside of public health facilities, these linkages may be more labour-intensive for implementers. Each individual guide provides discussion around approaching linkages to treatment. Implementers will need to work closely with NTPs to ensure that medications are readily available and with other stakeholders to ensure capacity for treatment support.

Beyond epidemiology: human rights and gender

Because TB, inequality and poverty are so interlinked, human rights have everything to do with formulating an adequate TB response. Individuals who experience poverty, migration or incarceration, individuals who are of indigenous status or live a traditional lifestyle, and individuals who might be criminalized for belonging to a particular population group or engaging in a particular behaviour do not forfeit their human rights. Nevertheless, they face unprecedented levels of stigma, discrimination and persecution that significantly hamper the TB response (9,10). It is also recognized that TB may impact individuals differently based on gender and that women, men, lesbian, gay, bisexual, transgender and intersex (LGBTI) people may face specific barriers when accessing TB services.

Analysing the root causes of shortcomings or gaps in the TB care cascade (described later in this Introduction) should always include an analysis of human rights and gender barriers. TB programme implementers have a role to play in creating protective environments for people with TB and TB key populations, documenting the impact of punitive laws and policies on those most affected by TB, advocating for reform, and demonstrating approaches that work. In doing so, implementers can help to mitigate the impact of these laws. Strategies for analysing and eliminating/addressing human rights and gender barriers to TB care are described in various Stop TB Partnership tools, such as the Legal Environment Assessments for tuberculosis: an operational guide (11), *Gender assessment tool for national HIV and TB responses: towards gender-transformative HIV and TB responses* (12), and *Data for action for tuberculosis key, vulnerable and underserved populations* (13). Stop TB Partnership is currently working to combine these tools into a unified assessment approach that national stakeholders can use to evaluate barriers to TB health services at the community level. Implementers are encouraged to utilize these tools in the context of programme planning to ensure that structural, human rights and gender barriers are addressed in interventions. More information on addressing root causes of poor TB service access can also be found in several guides in these series.





GETTING STARTED: PLANNING AND MANAGING CASE-FINDING STRATEGIES

Reaching people with TB who are missed by routine health programmes requires input and action from a number of different stakeholders. Engaging them early in the process can help to strengthen buy-in and ensure that different perspectives have been taken into account when developing a strategy for improving case detection and notification. The stakeholders may vary depending on the geography, populations of interest, and types of interventions. As a rule, engaging representatives from the following groups is essential to the success of the intervention, but others may also be included if deemed pertinent:

- NTPs (at national and local levels)
- Other Ministry of Health programmes/divisions (at national and local levels)
- Other government ministries (depending on where the intervention is implemented or a focus group involving the Ministry of Justice, Agriculture, Interior, etc.)
- Affected communities and patient organizations
- Technical partners (previous and current TB programme implementers)
- Non-governmental organizations and community-based groups
- Private health services/private providers
- Professional associations (nurses, mining unions, etc.)
- Academic institutions
- Frontline providers (doctors, nurses, community health workers, etc.)
- Donors

Table 1 describes factors that may be considered when constituting a stakeholder group. In addition, below are some overall considerations on the stakeholder selection process:

- Representatives of affected communities and key populations should be part of all advisory groups in order to help design interventions that meet community needs and enter communities that routine health and social services might not be able to reach.
- Stakeholders outside TB and health systems should be encouraged to contribute to discussions, as they can bring valuable insight into data and socio-economic issues and offer broader views on issues such as gender equality and poverty reduction, among others.
- To improve efficiency and sustainability, implementers should use existing structures where possible, such as national Stop TB Partnerships or Global Fund Country Coordinating Mechanisms.
- Clear terms of reference for the stakeholder group, and roles and responsibilities for each member of the group should be outlined.
- A stakeholder group should have an advisory function to help conduct situational analysis, plan the response, monitor progress, and critically analyse results.

The stakeholder selection process should adhere to the following principles:

- Inclusion:** Stakeholder selection should be inclusive and take into consideration TB epidemiology and TB's impact on particular communities and populations. Stakeholders should represent the people most affected by TB and also those already involved in the delivery of services to affected communities. Gender equity and equality should also be considered in the selection process.

- Ownership and Accountability:** Stakeholders should be selected on the basis of whether they are invested in the TB response and already have or want to have ownership over the intervention(s). Stakeholders must be accountable for the decisions that are made and for the integrity of selected strategies and interventions.

- Influence and Absence of Conflict of Interest:** Stakeholder selection should keep in mind stakeholders' spheres of influence and any conflict of interest stakeholders may have that will impact the integrity of the intervention.

Stakeholder Groups	TB medical expertise	Respected by peers	Influence with TB stakeholders	Decision maker in their organization	Stakeholder access	Potential partner access	Health programme development expertise	Influence with high-level policy makers	Knowledge of TB programmes and services	Knowledge of TB rules and regulations	Meeting facilitation	Leadership skills
TB Programme Staff												
Leader of Key Populations												
Professional Organizations/ Trade Unions												
CBOs/NGOs												
Employer of At-Risk Populations												
Formal Health Care Providers												
Lab Leadership												
Private Sector												
Prison Authorities												
Media/Social Engagement Coordinators												

FOR MORE INFORMATION: Resources on creating effective partnerships

Stop TB Partnership's *Guide to building partnerships*:

http://www.stoptb.org/assets/documents/countries/partnerships/building_partnerships_guide.pdf

Partnership brokering initiative:

<http://www.partnershipbrokers.org/>

Stop TB Partnership's *Partnering process handbook: good practices*:

<http://www.stoptb.org/assets/documents/countries/partnerships/Partnering%20Process%20Nov%202011%20Final.pdf>

CDC's *Forging partnerships to eliminate tuberculosis: a guide and toolkit*:

<https://www.cdc.gov/tb/publications/guidestoolkits/forge/default.htm>

Step 2

Adopt a data-driven, people-centred framework to decide on the intervention

There are different ways of conceptualizing gaps in the pathway for people with TB to be diagnosed, notified and treated, and to evaluate possible solutions. The focus of this series of field guides is on helping to operationalize the interventions that are selected to improve case detection and not on the process of making those decisions. However, the assessment and decision-making around how to intervene are critical and will help to determine the success of a chosen intervention. To improve the number of people being diagnosed and notified to NTPs, a proper analysis of the situation must be performed. Steps 3, 4 and 5 presented here can facilitate this process, along with several tools.

With a global focus on reaching people with TB who are missed, there are many data sources, tools and approaches for programme planners to use. Too often, however, data are used to help drive politically motivated decisions, rather than focusing on evidence-based planning. Countries or organizations can easily fall into the pattern of persisting with similar activities or approaches even if they are not necessarily producing the desired results, simply because these approaches have been used in the past and there is experience and comfort surrounding their use. Furthermore, the data and decisions around how to use those data are too often focused on high-level epidemiology without considering the preferences and needs of people with TB. Finally, competing donors and funders often request country plans without allowing for critical questions to be developed and evaluated by NTPs.

Collective effort among partners has yielded a white paper (1) to promote country-led, data-driven, people-centred decision-making and planning in order to specifically address the issues described earlier. At a high level, the approach described in the paper rests on three pillars:

1. Problem Prioritization
2. Root Cause Analysis
3. Strategic Intervention Optimization

First, the framework recommends assessing the magnitude and scope of the problems across a country's epidemiology, patient behaviour, and health and social systems, so that countries can identify main priority focus areas. Once the main programmatic areas of focus have been prioritized and the landscape of missed opportunities to reach people with TB described, it is necessary to analyse the root causes contributing to these problems. The root causes identified will inform the focus of the strategic interventions described in this series.

What data should be considered for gap analysis?

At the outset of intervention planning, data collection should be an all-encompassing activity that engages all stakeholders. Implementers should keep in mind that the actual interventions should not be informed by the data alone, but by the analysis of those data by stakeholders and contributions from affected communities.

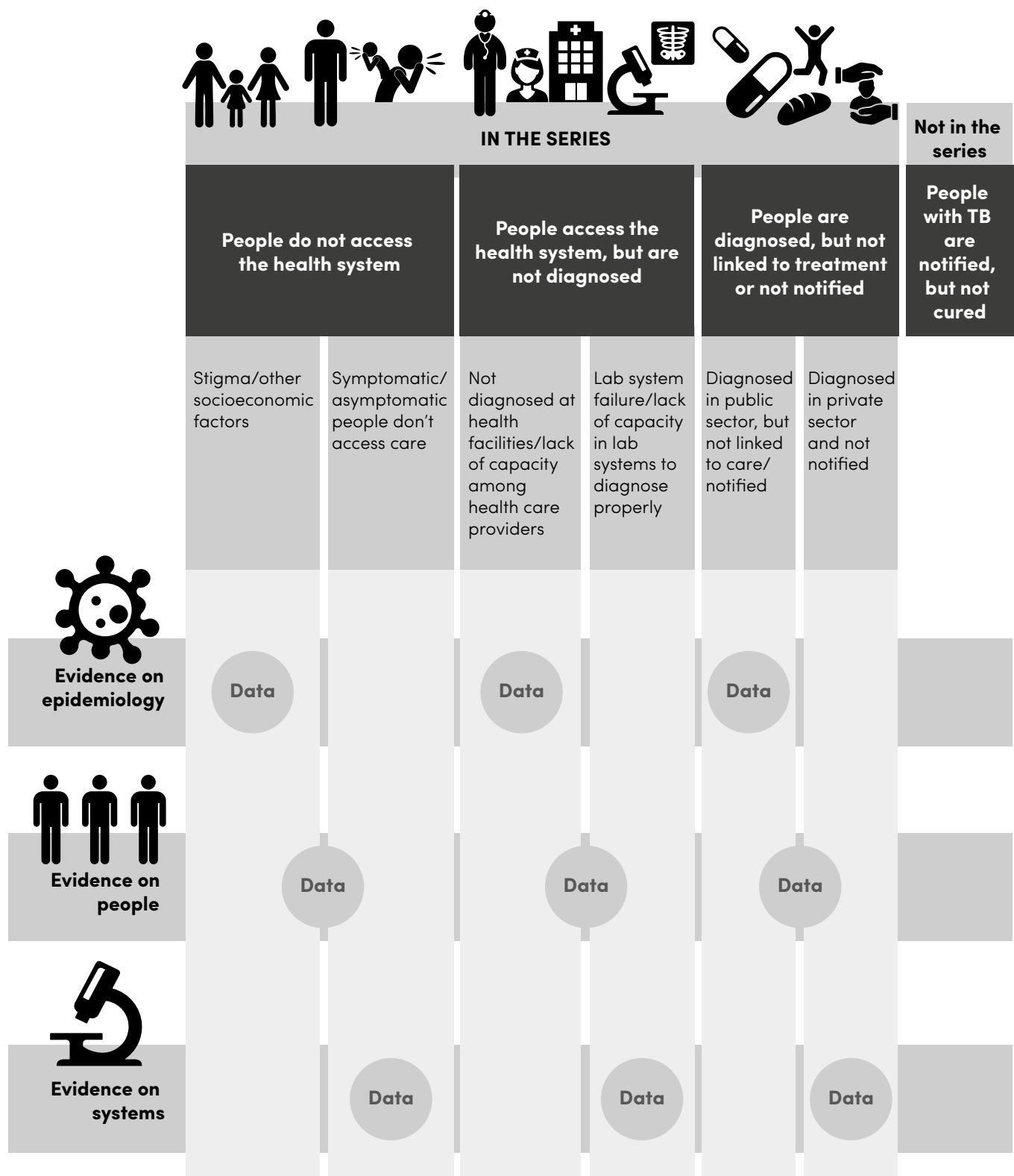
It is known that globally TB programmes are missing people who:

- **Do not access care**, either due to vulnerability, stigma, poverty, remote location, ongoing conflict, or other barriers;
- **Access care, but are not diagnosed** with TB due to lack of proper screening, diagnostic and referral systems, long waiting times, overburdened health systems, or poor screening and diagnostic tests;
- **Are diagnosed, but may not be started on proper treatment and notified** to NTPs due to deficiencies in recording and reporting, and/or weak linkages to the private sector or other health services.

Thus, data analysis should focus on these three areas, be patient-centred, and analyse systemic and epidemiological gaps.

Figure 1 presents a framework for data analysis along the TB case finding and linkage to treatment cascade. Data and evidence can be derived from various assessments, surveys and other national TB-specific or general health system documents, and organized into three categories: epidemiology, people and systems. It should be noted that, while this series focuses on TB case finding, the TB care cascade of course does not stop with notification; thus, if treatment completion is an issue, implementers should also consider the data and problems associated with that area.

Figure 1. A framework for a people-centred approach to analysing data and understanding gaps



Where to get these data?

When considering all potential data sources, implementers should be guided by the question that is included also in the next step: **What are our biggest problems?** Focusing on this specific question can help to shed light on the differences between, for example, looking only at national data, looking at subnational data, and looking at data on specific population groups, etc.

Evidence on epidemiology

Data on epidemiology for the national and subnational levels are usually found in:

- Most recent prevalence survey data, if available, and WHO national incidence estimates
- NTP notification data (especially at the subnational level)
- National TB Strategic Plan
- Any available mapping data (e.g. GIS data) showing the distribution of notified cases
- Research data from published (and unpublished) literature reviews
- Project data from specific interventions, TB REACH, Global Fund, Challenge TB or others that focus on TB case detection

To look at data on specific populations, implementers can review:

- National programme notification data disaggregated by gender and by age group
- Notification data for any available key populations, if available
- Project data from prisons, mines and other settings or that concern other specific populations
- Published (and unpublished) literature

To begin analysing the root causes (addressed in the next steps) and to focus data review efforts on prioritizing the main problems, the following questions may be useful:

- What is known about how the burden of TB is distributed across the regions of the country?
- How does case notification vary across the country?
- Are there geographic areas where notification is lower than expected?
- Are there gender differences in case finding?
- Are there age differences in case finding?
- What is known about the TB burden and case notification in specific subgroups of people, including key populations?
- What is known about the barriers to accessing care?
- What is known about the barriers to receiving quality diagnostic testing?
- Where do people first enter the TB care and treatment cascade and where do they drop out?
- Which are the key populations that could be missing out on TB care and treatment?

Various tools exist to support implementers in analysing the data and providing answers to these and other important questions. These tools are summarized in Appendix A of this guide.

Evidence on people

Data on people with TB and their experiences are most pertinent, as this information can help implementers tailor interventions to the specific needs of certain populations. If the data indicate that most people with TB obtain care in the private sector, it is futile to invest in the expansion of public sector interventions. If many people tend to seek care at primary health care facilities where diagnostic tests are not available, the focus could be on improving the laboratory infrastructure or sputum transport system, rather than on creating better facilities at the district level.

Some of these questions can be answered by:

- Conducting a full patient pathway analysis (see Appendix A) and looking at:
 - » Health expenditure and utilization surveys,
 - » DHS care-seeking data,
 - » Living standards measurement surveys;
- Reviewing pilot and project data from interventions and data that are specific to the experiences of people with TB;
- Reviewing qualitative assessments in published and unpublished literature on patient experiences in TB service access;
- Working through [Stop TB Partnership's Data for action for tuberculosis key, vulnerable and underserved populations;](#)
- Holding consultations with communities and focus groups with key populations.

Evidence on systems

The structures, preparedness and networks within public and private health systems play an important role in defining the success of case-finding interventions and in ensuring an adequate TB response overall. Thus, it is important to analyse issues within these systems to ensure that they can accommodate the needs of people with TB along the case-finding and treatment and care cascade.

Evidence on systems may come from conducting exercises or reviews in the context of:

- [Patient pathway analysis;](#)
- [GLI Practical Guide to TB Laboratory Strengthening;](#)
- [Health facility master lists;](#)
- National health accounts¹;
- Health expenditure and utilization surveys²;
- Patient cost surveys;
- National TB lab databases;
- Analysis of TB drug sales (15).

Adequate health system staffing and strong laboratory networks guarantee the effectiveness and suitability of TB responses, and therefore these topics should be discussed during the initial steps of programme planning. Each guide in the series contains some reference to staffing and a separate guide on laboratories is also included.

¹ This data should be available from national stakeholders and also available through the WHO database at: http://www.who.int/nha/database/country_profile/Index/en

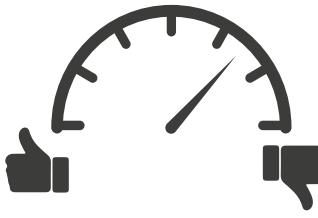
² Increasingly available as countries engage in these surveys

Step 4

Prioritize problems

Priority setting can help identify opportunities to reach more people with TB who are missed by current approaches. Table 1 offers a way to categorize, identify, and prioritize problems.

Table 1. Problem prioritization

Question	People not accessing services	People are accessing services, but are not diagnosed	People are diagnosed, but not notified
What is the problem?	<input type="checkbox"/> People who are at high risk of developing TB or TB infection are not accessing services <input type="checkbox"/> People seek care in the private sector	<input type="checkbox"/> There is a lack of diagnostic testing availability at the level where people first access care <input type="checkbox"/> There are significant delays in obtaining diagnosis <input type="checkbox"/> The majority of people do not go to public services, instead preferring the private sector	<input type="checkbox"/> People with TB are diagnosed and treated in the private sector, but are not notified <input type="checkbox"/> People accessing care in large hospitals are not being tracked from the diagnostic results to start of TB treatment
What data to review?	<ul style="list-style-type: none"> • Patient pathway analysis • Focus groups with communities affected by TB • Published and unpublished research • Health system utilization surveys • Private sector drug sales data 	<ul style="list-style-type: none"> • Studies/analysis/mapping of availability of TB diagnostic and care services • TB laboratory data • Health service utilization surveys • Private sector drug sales data 	<ul style="list-style-type: none"> • National and subnational survey notification data • Private sector drug sales data • Service utilization data
How important are problems in this category?			

For each identified problem, implementers will consider the magnitude of the problem (i.e. how many people are accessing services in the private sector, how many are not presenting at health facilities at all, etc.), the progress already made in addressing the problem, and major gaps that still exist. These gaps, once identified, can then be prioritized.

What is being done already?

When prioritizing problems, it is important not to lose sight of what is working and what course correction might be needed. Unfortunately, this is rarely done. Thus, taking an inventory of all activities and their effectiveness in addressing the gaps identified is part of this exercise.

What case-finding interventions have been attempted thus far, and how have they performed in terms of addressing existing gaps?

a. What worked, and why?

b. What did not work, and why?

How to answer

- Collect available information (published and unpublished) on case-finding results.
- Conduct a critical analysis of the results of these efforts with the help of technical experts, academics, implementers, affected community members, and other stakeholders.
- Document findings or hypotheses and use these to guide prioritization.

Data and other resources

- Published papers on national case-finding activities in the country of implementation or similar settings
- Unpublished project reports
- TB REACH project data, Challenge TB efforts, Global Fund investments with data reports

The prioritization example exercise shown in Table 2 demonstrates a simplified approach to prioritization as gaps, problems and the efforts to address them are established.

Table 2. Example of a prioritization exercise, adopted from the white paper (1)

Question	People access services in the private sector, but are not diagnosed	People have symptoms, but are not presenting at health facilities
How big is this problem within the context of the overall TB burden?	5	5
How significant is progress towards eliminating this challenge with existing interventions?	3	4
What level of priority should be given to the gaps that still remain?	4	2

Once major problems are identified and priorities set, stakeholders should explore the root causes of these problems to identify the factors contributing to the persistent gaps. There are multiple ways to conduct root cause analysis (also see the white paper (1)), one of which is called the “The 5 Whys Approach.” The 5 Whys inquiry technique is used to establish a cause and ef-

fect relationship between a problem and its root cause. This technique is frequently used for problem-solving in various industries and allows for iterative inquiry into a particular problem. By the end of the 5 Whys process, programmes should have a clearer idea or action plan for tackling a particular problem.³ Please see an example of the 5 Whys approach below:

There are significant delays in obtaining diagnosis in rural areas. WHY?

The majority of people residing in rural areas prefer traditional healers as their first point of contact for any health complaint.

WHY?

Traditional healers are not educated about TB and do not refer individuals to health care facilities in a timely manner.

WHY?

Even when people are referred to health facilities, they are not motivated to go/cannot access facilities due to remote location/ inconvenient opening times.

³ For more information on how the 5 Whys approach can be implemented to provide public health solutions, see Health COMpass. 5 Whys: getting to the root of a problem quickly. Baltimore, MD: Health Communication Capacity Collaborative. Available from: <http://www.thehealthcompass.org/sbcc-tools/5-whys-getting-root-problem-quickly>; and Health COMpass. 5 Whys template. Baltimore, MD: Health Communication Capacity Collaborative. Available from: <http://www.thehealthcompass.org/sbcc-tools/5-whys-template>.

When going through the root cause analysis, expert opinion, including focus group inputs from people with TB and health providers, may be essential. A data-driven root cause analysis will help implementers to identify why certain problems persist and begin to narrow down the scope of possible interventions. Importantly, such an approach can also challenge long-standing biases and assumptions, as it requires persistently probing into the potential causes of an issue.

It will likely emerge that there are multiple factors contributing to any specific gap, which may differ across geographical regions or sectors of care. Conducting root cause analysis at the subnational level is

critical and requires the interpretation of local TB programme staff working in both programme management and monitoring and evaluation (M&E). Assuming that interventions can be designed in direct response to the more visible problem might result in addressing the symptoms, rather than the underlying causes. This may lead to the implementation of suboptimal or irrelevant interventions. Performing a root cause analysis cannot be automated, as no single tool can provide the critical analysis necessary to identify all the factors contributing to a problem. Rather, this step requires that national and local planners work through the prioritized problem in a rational way, while considering all relevant data.

Table 2. Root cause analysis

Question	People not accessing services	People are accessing services, but are not diagnosed	People are diagnosed, but not notified and/or cured
What is the problem?	<input type="checkbox"/> People who are at high risk of developing TB or TB infection are not accessing services.	<input type="checkbox"/> There is a lack of diagnostic testing availability at the level where people first access care and testing numbers are low.	<input type="checkbox"/> People with TB who are diagnosed in the private sector are not notified.
What is the root cause?	<ul style="list-style-type: none"> • Stigma and discrimination prevail in the public TB system. • There is evidence that people with TB in urban areas are accessing services from traditional healers and medicine vendors (pharmacies). • In the north of the country where the population is rural, access to services is limited due to the distance needed to travel to a clinic. 	<ul style="list-style-type: none"> • In large parts of the country, microscopy is only done at larger health facilities and only district hospitals have access to GeneXpert. • Many people are not being screened for TB symptoms when they arrive at health facilities. • In urban areas, there are shortages of lab staff. 	<ul style="list-style-type: none"> • Despite mandated reporting, private providers find the NTP's processes for notification to be too cumbersome and therefore do not report. • Focus groups with urban populations also indicate that, after being diagnosed, people "shop" for other care, thus making it challenging for providers to find them and notify/place them on treatment.
Where to look for solutions?	<p>It is evident that interventions at community level and work with the private sector might impact these gaps that are not adequately addressed.</p>	<ul style="list-style-type: none"> • Procuring more microscopes could be one solution. • Developing a sputum transport network is another possible approach. • Restructuring the lab workforce to place people where most diagnostics occur is another. 	<p>Working with an interface agency to help link the private and public sectors, and making linkages between public and private health care sectors and the communities can help solve these issues.</p>
Where to look in these series?	<ul style="list-style-type: none"> • Field guide on community case finding • Field guide on working with the private sector to find people with TB • Field guide on chest X-ray 	<ul style="list-style-type: none"> • Field guide on laboratories • Field guide on facility-based screening 	<ul style="list-style-type: none"> • Field guide on working with the private sector to find people with TB • Field guide on strengthening information systems and linkages to care

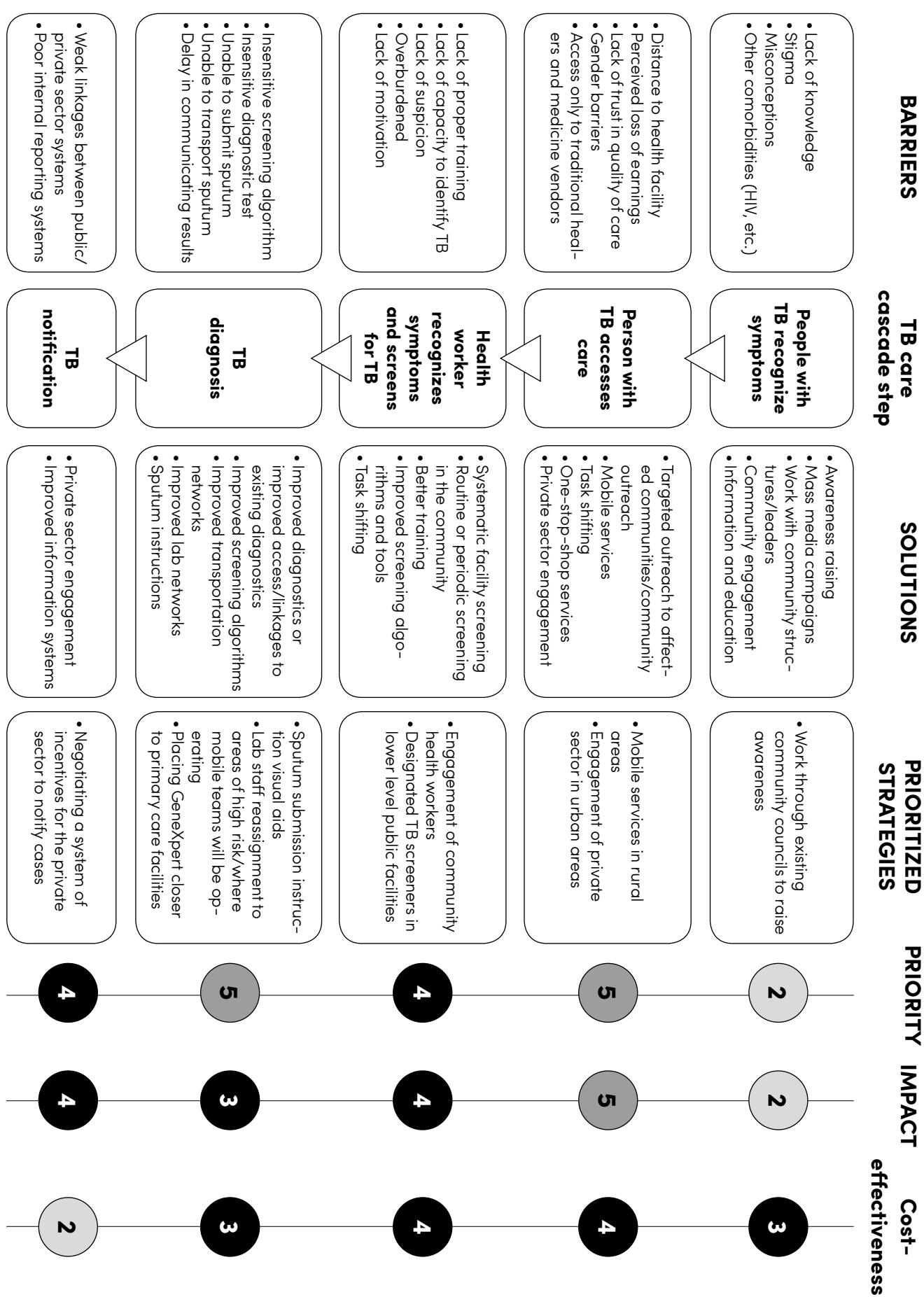
By using all of the information gathered in previous steps, programmes can identify specific barriers along the stages of the process and, in response, develop specific solutions to address these barriers. The findings from the root cause analysis can help programmes to identify interventions that aim to effectively address the factors contributing to the problem, as well as interventions that are already working and should be sustained. Because resource limitations will likely require tradeoffs, it is important to assess which root causes have the biggest impact on the priority area.

Proposed solutions may also test new innovative programmes grounded in evidence. To continue learning and iterating on these innovations and prioritized activities, implementers must devise robust M&E systems to evaluate impact. Along with selecting interventions with the best potential for impact, stakeholders need to decide who is best positioned to carry out the implementation. Relevant stakeholder engagement and the creation of M&E systems to track the impact of case-finding interventions are described in individual guides in these series.

The figure below summarizes a series of considerations that implementers might take into account when seeking to improve their case-finding interventions. While strategies and their prioritization, impact and cost-effectiveness are only cited as examples, a similar chain of decision-making may be used for real target-setting.

It often happens that the cost of what is planned exceeds what is budgeted. It may also be that the interventions that are most prioritized and effective are also extremely costly at the outset. It is thus key to consider all these factors and decide on what will have the most impact, considering existing services, potential interventions/innovations and available financial resources.

Figure 2. Putting it all together: optimizing interventions



A note on budgeting

Standardized information on budgeting interventions to improve case detection is beyond the scope of this introduction and beyond the scope of the individual field guides, given the heterogeneous nature of costs and considerations globally. However, to help plan allocation of sufficient resources, a short list of questions is provided below. These questions apply to activities in their initial stages, as well as to existing activities being expanded. The field guides on specific areas of intervention provide additional information to consider depending on the type of activity being planned and conducted.

Some questions to consider to help plan and budget for case-finding interventions:

1. What is the proposed activity? (If multiple activities are planned, review each one.)
2. What are the general methods for implementing the activity?
3. Where will the activity be implemented?
4. What is the timeframe for implementation?
5. Who will be involved in implementation, and will they need incentives to participate?
6. What is the target population(s) for this activity?
7. How many people will be reached with this approach?
8. How many additional people with symptoms will be tested for TB as a result of this activity?
9. How many additional people with TB will this activity find and treat? Out of these, how many will be diagnosed and treated for MDR-TB?

Helpful resources

- [WHO. Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies](#)
- [WHO. Contributing to health system strengthening: guiding principles for national tuberculosis programmes](#)
- [WHO planning and budgeting tools](#) (WHO Planning and Budgeting Tool and OneHealth tools)
- [Global Fund. Strategic support for human resources for health technical brief](#)
- [Global Fund. Strategic support for integrated laboratory services technical brief](#)
- [Global Fund. Building resilient and sustainable systems for health through Global Fund investments: information note](#)
- [Global Fund. Maximizing impact by strengthening community systems and responses: technical brief](#)

A practical look ahead

This series focuses on practicalities and offers examples to aid in the planning and implementation of effective interventions. Stakeholders will need to understand the possible implications of each selected strategy. More precise indications of this can be found in the individual field guides. Appendix B summarizes considerations for general case-finding intervention planning, provides deliberations around what screening and diagnostic algorithms to consider, and highlights the associated impact and costs of these algorithms. These considerations may be helpful to review.

As implementers begin revising their existing interventions and planning new ones, we encourage them to approach the process with innovative, practical and flexible thinking. Tackling TB may take many attempts, but these efforts should put people first and be driven by data and evidence.





REFERENCES AND APPENDICES

1. Improving the use of evidence for TB programme planning: a framework for people-centered data consolidation and policy translation. Geneva: World Health Organization; 2018. Available from: http://www.who.int/tb/advisory_bodies/impact_measurement_taskforce/meetings/tf7_background_5a1_white_paper.pdf
2. The KIT MATCH approach for enhancing TB care coverage. Amsterdam: KIT Royal Tropical Institute; 2017. Available from: <https://www.kit.nl/project/the-kit-match-approach-for-enhancing-tb-care-coverage/>
3. den Boon S, Verver S, Lombard CJ, Bateman ED, Irusen EM, Enarson DA, et al. Comparison of symptoms and treatment outcomes between actively and passively detected tuberculosis cases: the additional value of active case finding. *Epidemiol Infect.* 2008;136(10):1342–9. doi:10.017/S0950268807000106
4. Golub JE, Mohan CI, Comstock GW, Chaisson RE. Active case finding of tuberculosis: historical perspective and future prospects. *Int J Tuberc Lung Dis.* 2005 Nov;9(11):1183–203. PMID:16333924
5. Lönnroth K, Castro KG, Chakaya JM, Chauhan LS, Floyd K, Glaziou P, et al. Tuberculosis control and elimination 2010–50: cure, care, and social development. *Lancet.* 2010;375(9728):1814–29. doi:10.1016/S0140-6736(10)60483-7
6. Churchyard G, Kim P, Shah NS, Rustomjee R, Gandhi N, Mathema B, et al. What we know about tuberculosis transmission: an overview. *J Infect Dis.* 2017;216(suppl_6):S629–35. doi:10.1093/infdis/jix362
7. MacPherson P, Houben RM, Glynn JR, Corbett EL, Kranzer K. Pre-treatment loss to follow-up in tuberculosis patients in low-and lower-middle-income countries and high-burden countries: a systematic review and meta-analysis. *Bull World Health Organ.* 2014;92(2):126–38. doi:10.2471/BLT.13.124800
8. Squire SB, Belley AK, Kashoti A, Salaniponi FM, Mundy CJ, Theobald S, et al. ‘Lost’ smear-positive pulmonary tuberculosis cases: where are they and why did we lose them? *Int J Tuberc Lung Dis.* 2005;9(1):25–31. PMID:15675546
9. de Vries SG, Cremers AL, Heuvelings CC, Greve PF, Visser BJ, Bélard S, et al. Barriers and facilitators to the uptake of tuberculosis diagnostic and treatment services by hard-to-reach populations in countries of low and medium tuberculosis incidence: a systematic review of qualitative literature. *Lancet Infect Dis.* 2017;17(5):e128–43. doi:10.1016/S1473-3099(16)30531-X
10. Cremers AL, de Laat MM, Kapata N, Gerrets R, Klipstein-Grobusch K, Grobusch MP. Assessing the consequences of stigma for tuberculosis patients in urban Zambia. *PLoS ONE.* 2015;10(3):e0119861. doi:10.1371/journal.pone.0119861
11. Stop TB Partnership, United Nations Development Programme. Legal environment assessments for tuberculosis: an operational guide. Geneva: Stop TB Partnership; 2017. Available from: http://www.stoptb.org/assets/documents/communities/StopTB_TB%20LEA%20DRAFT_FINAL_Sept%202027.pdf

12. Stop TB Partnership, Joint United Nations Programme on HIV/AIDS. Gender assessment tool for national HIV and TB responses: towards gender-transformative HIV and TB responses. Geneva: Stop TB Partnership; 2016. Available from: http://www.stoptb.org/assets/documents/resources/publications/acsm/Gender_Assessment_Tool_TB_HIV_UNAIDS_FINAL_2016%20ENG.pdf
13. Data for action for tuberculosis key, vulnerable and underserved populations [working document]. Geneva: Stop TB Partnership; 2017. Available from: <http://www.stoptb.org/assets/documents/communities/Data%20for%20Action%20for%20Tuberculosis%20Key,%20Vulnerable%20and%20Underserved%20Populations%20Sept%202017.pdf>
14. Forging partnerships to eliminate tuberculosis: a guide and toolkit. Atlanta: Centers for Disease Control and Prevention; 2007. Available from: <https://www.cdc.gov/tb/publications/guidestoolkits/forge/default.htm>
15. Arinaminpathy N, Batra D, Khaparde S, Vualnam T, Maheshwari T, Sharma L, et al. The number of privately treated tuberculosis cases in India: an estimation from drug sales data. Lancet Infect Dis. 2016 Nov;16(11):1255–60. doi:10.1016/S1473-3099(16)30259-6

APPENDIX A: SPECIFIC PRIORITIZATION TOOLS TO FIND MISSING PEOPLE WITH TB

MATCH: Mapping and Analysis for Tailored Disease Control and Health System Strengthening

Through its work supporting NTPs in strengthening their TB case detection efforts, KIT Royal Tropical Institute has developed the MATCH approach (**M**apping and **A**nalysis for **T**ailored **D**isease **C**ontrol and **H**ealth **S**ystem **S**trenghthening)¹. MATCH integrates KIT's experience in TB programme strengthening and advising, and extensive expertise in TB monitoring and evaluation, together with its mapping and spatial analytical expertise. Essentially, the approach aims to identify precisely which groups of people are being missed, where they are located, why they are being missed, and how this can be amended through geographically targeted programmatic interventions and active case-finding strategies.

The MATCH approach builds upon the understanding that national-level TB case-finding strategies are failing to reduce the transmission and burden of TB to meet the targets set by the WHO's End TB Strategy and Stop TB Partnership's Global Plan to End TB. Although one-off active case-finding interventions have revealed a great deal about how to find the individuals with TB who are missed by health systems, these will not lead to a sustained reduction of the TB epidemic without continued investment. MATCH describes an analytical framework and planning approach to strengthen TB case detection at the local level that can be used by staff working at every level of the NTP.

PPA: patient pathway analysis for TB service programming

The patient pathway analysis (PPA)² provides an analytical framework seeking to highlight how well patient care-seeking behaviours align with TB service delivery. The PPA has been developed primarily by Linksbridge and the Bill & Melinda Gates Foundation to ensure that TB services are delivered where they are most patient-centred, whether in the public, private or informal sector.

The PPA relies on two general categories of data: patient care-seeking patterns collected from TB prevalence surveys and DHS reports, and TB service availability, collected through TB programme facility lists and information on which types of diagnostic and treatment services are provided in those facilities. Data are analysed and presented according to the care sector (public, private, informal) and level of initial care seeking. For each of these categories, the proportions of all facilities providing TB diagnosis and treatment services are calculated. The location of notification by care sector as well as treatment outcomes are calculated over the estimated incidence. A PPA visual is produced for every level at which data are analysed (national, if only national-level data are available; regional, if regional-level data are available / have been analysed). This interpretation points to where there is misalignment between the services being provided and the preferences of the population seeking care, and is able to suggest improvements accordingly.

1. http://213ou636sh0ptphd141fqeil-wpengine.netdna-ssl.com/health/wp-content/uploads/sites/4/2017/10/MATCH_Manual_Version_1.0_05102017.pdf

2. http://linksbridge.com/wp-content/uploads/2017/10/TB_Patient-Pathways-Guide.pdf

LSHTM: Indonesia tool³

The TB modelling group from the London School for Hygiene and Tropical Medicine has developed an Excel-based tool that can be used to estimate subnational TB incidence rates. Essentially, a model is constructed that distributes regional burden estimates over all districts by generating district-weighted scores. (In other words, the burden estimates from higher administrative levels are distributed over lower administrative levels according to the outputs of a modelling exercise.) These updated sub-national incidence estimates can then be used to update subnational case detection rate at the same level. These outputs can be used to inform prioritization of case-finding activities within and between districts or regions.

Inventory and capture-recapture studies^{4,5}

The purpose of a TB inventory study is to quantify the degree to which TB registers may be under-reporting the number of detected TB cases to the NTP.

Three-source capture-recapture studies can be performed subsequent to the completion of, and depending on the results of, the inventory study. These are meant to assess the quality of the national TB surveillance programme by providing an estimation of under-detection and under-notification in the registers that are capturing TB data.

KNCV's Find and treat all missing persons with TB operational guide⁶

3. More information is available through a webinar here https://www.lshtm.ac.uk/news/events/modelling_tb-burden-subnational-level-applications-south-africa-and-indonesia

4. Assessing tuberculosis under-reporting through inventory studies. Geneva: World Health Organization; 2012. Available from: https://www.who.int/tb/publications/inventory_studies/en/

5. https://www.who.int/tb/advisory_bodies/impact_measurement_taskforce/meetings/ie_oct09_capture_recaputer_studies.pdf

6. https://www.kncvtbc.org/en/what-we-do_trashed/find-and-treat-all-missing-persons-with-tb/

This tool helps to plan a practical district-level approach to find, diagnose and treat people with TB. The guide focuses on how to systematically assess the local situation and translate the outcomes of this analysis into affordable, effective and patient-centred strategies to increase access to high-quality TB diagnosis and care.

Complementarity of tools

A wide variety of analytical tools are available and are in the process of being developed to gain insights into the gap between TB case notification and estimated burden, and to measure coverage and access to care at the subnational level. While these tools function well on a stand-alone basis, combining their outputs can lead to even richer analyses, particularly in identifying subnational areas for prioritization of case-finding activities and programme strengthening. Several of the tools described above and many others can be combined to provide for richer data and to devise guidance.

APPENDIX B: CRITERIA TO CONSIDER WHEN DESIGNING CASE-FINDING INTERVENTIONS AND SCREENING AND DIAGNOSTIC ALGORITHMS TO USE

Criteria to consider in designing case-finding interventions:

- Target population size(s)
- Anticipated yield of additional cases notified
- Relative number of people needed to screen to find one additional case
- Relative timeframe for implementation
- Additional resources or training needed to implement
- Relative cost
- Potential burden on or disruption to the health system versus potential benefit
- Feasibility and sustainability
- Relative contribution to ensuring equitable access to care for key populations and/or marginalized groups
- Acceptability in the affected communities

Helpful resources

- Stop TB Partnership Improving Tuberculosis Case Detection. A compendium of TB REACH case studies, lessons learned and a monitoring and evaluation framework
- Stop TB's Data for action for tuberculosis key, vulnerable and underserved populations
- WHO's Screen TB tool
- KNCV's Operational guide: find and treat all missing persons with TB

Deciding on what screening and diagnostic algorithms to use in case-finding activities

Irrespective of the activities selected to improve TB case finding, implementers will have to decide what algorithms to use for screening and diagnostic testing. Most NTPs have developed national diagnostic algorithms, but these might need to be modified for a targeted case-finding intervention. In general, the most appropriate algorithm is the one that makes the most efficient use of available resources and has the potential to find the most people with TB, but this will vary by setting and by population.

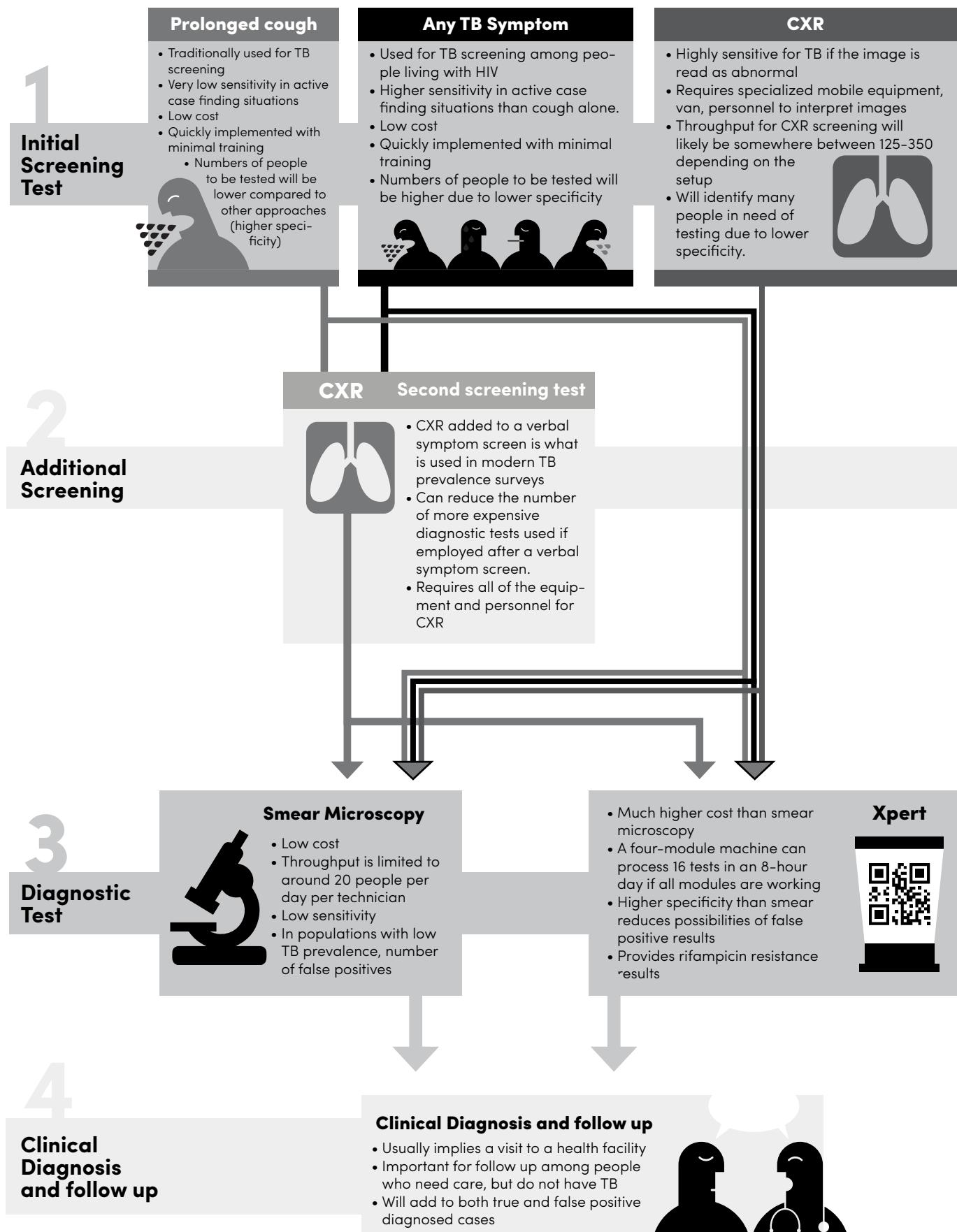
To decide what algorithms to use for screening and testing, consider the following questions:

- What population(s) are being targeted?
- Where will screening be conducted? How will people be screened?
- Who will be conducting the screening?
- Who will be performing the diagnostic tests?
- What diagnostic technologies are available already?
- What is the prevalence of TB in the target population (if known)?
- What proportion of true positives (people who have TB) will likely be found based on the screening and testing algorithm?
- What are the chances of false positives and false negatives using this algorithm in this population?
- How many people will have to be screened to find one person with TB?
- What is the cost of using this algorithm, and what is the budget?

For more guidance on how to target interventions and decide on screening and diagnostic algorithms, please see:

- WHO's Systematic screening for active tuberculosis: principles and recommendations
- [WHO's Screen TB tool](#)
- Field Guide 7: The role of laboratory systems in TB case detection
- Field Guide 8: The role of chest X-ray screening in TB case detection
- van't Hoog AH, Onozaki I, Lönnroth K. Choosing algorithms for TB screening: a modelling study to compare yield, predictive value and diagnostic burden. BMC Infect Dis. 2014;14:532. <https://doi.org/10.1186/1471-2334-14-532>

REVIEW OF ALGORITHM OPTIONS FOR CASE FINDING INTERVENTION



This document is one in a series of 11 field guides produced by Stop TB Partnership in collaboration with the Global Fund to Fight AIDS, Tuberculosis and Malaria, Interactive Research and Development Global (IRD), KIT Royal Tropical Institute, and multiple global experts and implementation partners. The field guides rely on practical experiences and expertise of implementers and are meant to help national TB programmes and other TB programme managers to identify the best strategies for finding people with TB who are missed by routine health services.



Global Health Campus
Chemin du Pommier 40
1218 Le Grand-Saconnex
Geneva, Switzerland



Realizing the full potential of the internet, along with universal access to research and education, fully participating in culture, to drive a new era of development growth, and productivity; this plan may be freely copied and reproduced, provided that it is not done so for commercial gain and the source is mentioned.