STOP TB FIELD GUIDE

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TB CASE FINDING WITH KEY POPULATIONS

Stop TB Partnership

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StopTB Field guide 1: TB Case Finding with Key Populations

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STOP TB

FIELD GUIDE

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PURPOSE OF THIS DOCUMENT

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.

This document is not to be treated as guidance, but rather as a collection of considerations, tools, experiences and examples that highlight successes and challenges in implementing effective TB case-finding interventions and may assist in their planning. This field guide highlights approaches to strengthening TB case-finding and care services with key populations. Representatives of key populations are missed by routine health programming for a variety of reasons and need to be prioritized by implementers to close the gap on finding people with TB who are missed.

This field guide went through extensive peer review by the agencies and individuals acknowledged below. It presents a range of examples from peer-reviewed literature and implementation practice. Where not cited, examples are provided by TB REACH.

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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.

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Abbreviations

ART	Antiretroviral therapy
ASM	Artisanal and small-scale mining
CBO	Community-based organization
CHW	Community health worker
CSO	Civil society organization
CXR	Chest X-ray
DOTS	Directly observed treatment, short-course
DR-TB	Drug-resistant tuberculosis
DST	Drug-susceptibility testing
DS-TB	Drug-susceptible tuberculosis
ECDC	European Centre for Disease Prevention and Control
FBO	Faith-based organization
HIV	Human immunodeficiency virus
IDP	Internally displaced person
IOM	International Organization for Migration
LAM	Lipoarabinomannan
LGBTI	Lesbian, gay, bisexual, transgender and intersex
MDR-TB	Multidrug-resistant tuberculosis, defined as resistance to rifampicin and isoniazid
M&E	Monitoring and evaluation
MoH	Ministry of Health
MoU	Memorandum of Understanding
NGO	Nongovernmental organization
NTP	National TB programme
PLHIV	People living with HIV
PWID	People who inject drugs
PWUD	People who use drugs
SADC	Southern African Development Community
TB	Tuberculosis
TBI	Tuberculosis infection, also referred to as "latent tuberculosis infection"
TIMS	Tuberculosis in the Mining Sector in Southern Africa
TPT	Tuberculosis preventive therapy
TST	Tuberculin skin test
WHO	World Health Organization
Xpert	Xpert MTB/RIF assay, a cartridge-based nucleic acid amplification test (NAAT) for rapid tuberculosis diagnosis

1. INTRODUCTION

1. INTRODUCTION

1.1 Why focus on key populations

Key populations in the context of HIV, TB and malaria are those that experience a high epidemiological impact from one of the diseases, combined with reduced access to services and/or being criminalized or otherwise marginalized (1). TB "key populations" are people who are vulnerable, underserved or at risk for TB infection and illness. It is very likely that a large portion of the missing 4.2 million people with TB can be found among TB key populations, since these groups are usually the last to be reached by passive case-finding approaches that rely on individuals presenting at health facilities. Due to a range of social, economic, cultural and other barriers, TB key populations are unable to access health and other supportive services and thus benefit most from targeted TB interventions (2).

Rights: Evidence shows that many of the populations that are most at risk for TB continue to face unprecedented levels of stigma, which significantly hampers the TB response (3,4). It is important not only to address stigma and discrimination in health care settings, but also to eliminate or mitigate the impact of laws and policies that hamper TB interventions. TB programme implementers have a role to play in creating protective environments for key populations, documenting the impact of punitive laws and policies on those most affected by TB, and advocating for reform. In addition, implementers may also help to remedy the impact of these laws by creating protective environments and demonstrating approaches that work with key populations. Strategies for eliminating 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** (5), **Gender assessment tool for national HIV and TB responses: towards gender-transformative HIV and TB responses** (6), *a*nd **Data for action for tuberculosis key, vulnerable and underserved populations** (7). 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.

Epidemiology: Heightened rates of TB among key populations may impact the development of TB epidemics globally. There are 7 million people worldwide involved in industrial mining and an additional 100 million involved in artisanal and small-scale mining (ASM). The link between mining and TB has been well established. A study of mining and TB in 44 countries estimated that even a modest 10% increase in mining production would lead to a 33% rise in TB incidence in the overall population, not just among the miners (8). Globally, more than 10.2 million people are held in penal institutions at any one time and the number of prisoners with TB is estimated to be 4,500 for every 100,000; WHO considers 250 cases per 100,000 to be an epidemic (9). There is evidence that mass incarceration in the countries of Eastern Europe and Central Asia has been associated with an increase in TB prevalence in the general population (10).

Cost-efficiency: The key concern of many implementers is that the resources required to execute interventions for key populations are too significant to justify the low return on investment. This concern is unjustified. Modelling conducted by Stop TB Partnership in designing the Global Plan to End TB shows that investing in a rapid scale-up of interventions, including those for key populations, would have a potential return on investment of US$ 87 per every dollar invested (11, 12). The European Centre for Disease Prevention and Control (ECDC) also conducted a review of research on TB services for marginalized populations and concluded that service integration and early detection of TB would be cost-effective by preventing additional TB cases in the long run. Furthermore, modelling studies estimate that London's Find & Treat TB programme will contribute to a gain of 220 quality adjusted life years (13), while the London City authorities estimate that the programme costs less than treating the 20 drug-resistant (DR-) TB cases the intervention prevents yearly (14). Analyses of three active case-finding programmes among urban and rural populations in Cambodia demonstrate similar cost-effectiveness (15). The Partners in Health project Sputnik, which targets difficult-to-reach people with TB in Siberia, found that major programme costs were associated with the salaries of the mobile team (driver and nurse), but it still cost as little as US$ 6.50 per day to treat a patient with multidrug-resistant (MDR-) TB.

Cost of inaction: Ignoring TB in key populations presents a risk for communities and entire societies, halts social and economic development, and undermines the achievement of the 90-(90)-90 targets and Sustainable Development Goals. TB case finding with key populations can facilitate the access of marginalized communities to health and social services, which can ensure not only improved TB outcomes, but also improvements in health outcomes overall.

Stop TB Partnership's Global Plan to End TB, supported by the Global Fund, outlines the following targets to be achieved by 2020, or 2025 at the latest.

Reach at least

90%

OF ALL PEOPLE WITH TB

and place all of them on appropriate therapy — first-line, second-line and preventive therapy as required

As a part of this approach, reach at least

(90)%

OF THE KEY POPULATIONS

the most vulnerable, undeserved, at risk populations

Achieve at least

90%

TREATMENT SUCCESS

for all people diagnosed with TB through affordable treatment services, adherence to complete and correct treatment, and social support.

This field guide addresses the challenges that programme implementers may encounter when planning case-finding interventions with key populations and recommends solutions for addressing these challenges.

1.2 What we know about TB key populations

Who they are

The Global Plan to End TB describes key populations according to the conditions underlying their risk for TB: increased exposure to TB, limited access to TB services, or possession of certain biological or behavioural characteristics.

People who have **INCREASED EXPOSURE** to TB due to where they live or work

Prisoners, sex workers, miners, hospital visitors, health care workers and community health workers

PEOPLE WHO:

- live in urban slums
- live in poorly ventilated or dusty conditions
- are contacts of TB patients, including children
- work in environents that are overcrowded
- work in hospitals or are health care professionals

People who have **LIMITED ACCESS TO QUALITY TB SERVICES**

Migrant workers, women in settings with gender disparity. children, refugees or internally displaced people, illegal miners, and undocumented migrants

PEOPLE WHO:

- are from tribal populations or indigenous groups
- are homeless
- live in hard-to-reach areas
- live in homes for the elderly
- have mental or phyiscal disabilities
- face legal barriers to access care
- are lesbian, gay, bisexual or transgender

People at **INCREASED RISK** to TB because of **biological or behavioural factors** that compromise immune function

PEOPLE WHO:

- live with HIV
- have diabetes or silicosis
- undergo immunosuppressive therapy
- are undernourished
- use tobacco
- suffer from alcohol-use disorders
- inject drugs

It is understood that risks might vary among different populations depending on the setting. Nevertheless, special attention should be given to the following groups:

- Children
- People living with HIV (PLHIV)
- Health care workers
- People who use drugs (PWUD)
- Indigenous populations
- Prisoners
- Migrants and refugees[1]
- Urban and rural poor
- Miners

As indicated in the list above, Stop TB Partnership and other global health partners focus on prisoners, rural and urban populations, and children when discussing TB key populations. Since this series presents a separate field guide on managing TB case finding in prisons, prisoners are not profiled in detail in this particular guide, despite being a key population of high priority. Similarly, another field guide presents interventions to diagnose and treat childhood TB. There are also field guides on case finding in the community and on working with service providers outside the public health system (private, traditional, etc.). The community case finding field guide is particularly applicable to key populations and implementers are encouraged to review it.

This guide could be applied to any population with reduced access to TB services due to marginalization and/or criminalization. Garment workers, fisherfolk and truck drivers, among others, have been identified as key populations for TB in different settings, and programme implementers should analyse whether or not these and other groups are at heightened TB risk.

[1] *Including internal and external migrants and in some settings nomadic and pastoralist populations*

Data on key populations are lacking, with regional reports indicating poor outcomes

Despite an increasing focus on TB key populations, there is still a dearth of data on those groups that are most at risk for TB. Even though most National TB Programmes (NTPs) report disaggregated data by sex and age, there are no global efforts to collate the numbers of miners or prisoners with TB. In fact, PLHIV constitute the only TB key population for which data are known. In 2017, it was estimated that 920,000 or 9% of the total TB incidence could be attributed to PLHIV (16). However, only 51% or 464,633 of PLHIV were also diagnosed with TB and put on TB treatment in that year. Furthermore, only 41% (381,000) of all estimated PLHIV with TB were also on antiretroviral therapy (ART). Thus, in 2017, over half a million PLHIV coinfected with TB were either missed by NTPs or did not receive appropriate diagnosis and treatment (11, 12).

The ECDC and WHO EURO collect data on prisoners in Europe and Central Asia (17). In 2015, 1% or 13,845 of the region's 1.5 million prisoners developed TB, thereby contributing 5.9% to the regional TB incidence. This figure is drawn from reports of only 33 out of the 56 countries in the region. Based on these statistics, prisoners were 24 times more likely to develop TB than the general population, with worse treatment outcomes: 59.3% of prisoners on first-line treatment reported completion compared to 75.8% of those in the general population. In addition, in some prisons, up to 24% of individuals diagnosed with TB had MDR-TB (18).

For many other key population groups, such data are rarely collected. For example, many countries estimate the number of indigenous peoples, but none report on TB cases in this group. It is, however, thought that three quarters of the estimated 370 million indigenous peoples live in Asia and 14.2 million live in Africa. Rates of TB in these populations are alarmingly high in these regions, with prevalence rates 5.5–41.6 times those in the general population and incidence rates 14.3–155.5 times higher (19). The limited data reported by individual projects and studies show increasing TB burdens among miners, people who use drugs (PWUD), and urban and rural poor. However, efforts to collect more data or to improve outcomes for these populations have been fragmented.

Box 1. Data, human rights and gender considerations, and timely response to the needs of key populations

Data for population groups such as prisoners and miners should not be difficult to collect at the national level and report to regional health authorities. Similarly, data disaggregated by gender can also be reported throughout the TB diagnosis and care cascade. These data could provide crucial insights into the course of regional and national epidemics, the TB burden, and the prioritization of interventions along the TB screening and treatment cascade. For example, from the statistics provided to ECDC and WHO EURO, it is clear that TB treatment services in prisons must be scaled up across the region. In some TB REACH projects, gender-disaggregated data have indicated that more men who screen positively for TB do not reach diagnosis, while more women are lost to follow-up between diagnosis and treatment. This evidence has encouraged implementers to investigate and address the causes of drop-off.

In some cases, efforts to collect data might be complicated by the stigma, discrimination and legal status of the population groups that are being targeted for TB service scale-up. Individuals of foreign origin might not want to identify as such for the fear of being stigmatized or even deported. Indigenous peoples might hide their identities to obtain better services, and PWUD might not report drug use for fear of being prosecuted. At the national level, even discussing certain key populations or assigning individuals belonging to certain groups to key populations during diagnostic and treatment campaigns could be stigmatizing. That is why direct communication is crucial to expand the knowledge that TB programme implementers have about a particular group that might be at risk for TB.

Close collaboration with community leaders and representatives of key populations can provide invaluable insights. In most cases, in the absence of robust epidemiological data, the testimonies provided by key populations backed by data from similar settings may be enough to launch programming. Implementers should be careful not to cite the absence of data as a pretext for delaying interventions. For example, while data on newly organized camps for internally displaced persons (IDPs) or refugees might not exist, the conditions of the camps, testimonies of residents, and existing evidence on TB prevalence rates among IDPs and refugees might be sufficient to plan an intervention. On the other hand, data can drive funding streams and thus programme implementation could run parallel with strengthening size estimations and obtaining data through research. It is also critical to note that any biobehavioural data collected on individuals should respect confidentiality and privacy.


UPENDO

2. KEY STEPS TO STARTING AN INTERVENTION WITH KEY POPULATIONS

2. KEY STEPS TO STARTING AN INTERVENTION WITH KEY POPULATIONS

Step 1: Identify human rights and gender barriers that prevent access to TB screening and care services in key populations

Step 2: Identify which barriers can be addressed with interventions

Step 3: Identify key stakeholders

Step 4: Foster partnerships and create management structures

Step 5: Identify a case-finding model that best suits the key population in question

Step 1

Identify human rights and gender barriers that prevent access to TB screening and care services in key populations

Even the most well-managed TB case-finding interventions will not succeed if they do not consider structural and rights-related barriers to care. To succeed, interventions should be:

- Participatory – engaging multiple stakeholders, particularly from affected populations, in design, implementation and monitoring;
- Evidence-driven;
- Human rights-based; and
- Gender-responsive.

In practice, this means that implementers need to consider:

- What barriers (individual-level and structural-level) to health care exist and how to address them;
- The perception of representatives of key populations regarding the acceptability, accessibility and quality of TB services, as well as perceived risks (for example, fear of arrest, discrimination, or diagnostic procedures, etc.) when accessing these services;
- What data might already exist to suggest that certain approaches may be working to eliminate/mitigate barriers to services and ensure that more people with TB are diagnosed and treated; and
- The ability of the health system to cope with an increased use of TB services, such as availability of a trained health workforce (which may include volunteers and peers), laboratory capacity and expanded TB treatment access (20).

While strengthening the health system (e.g. training staff, ensuring sufficient laboratory supply and laboratory technicians) is an important component of the intervention, addressing gender and human rights may be equally crucial for placing and maintaining patients in the cascade of care.

There are still major challenges posed by laws and policies that impact access to lifesaving TB diagnosis and treatment for key populations. In some settings, laws that criminalize drug use prevent PWUD from accessing services and create severe overcrowding in prisons; in others, failure to implement or enforce appropriate labour laws leaves workers unprotected and working while ill. In every setting, where there are missing people with TB, TB epidemics are fuelled by lack of effective poverty alleviation and social protection strategies, and persistent stigma and discrimination against those who reside in poverty or live on the margins due to their cultural, racial, ethnic or behavioural differences. While some of these challenges lie outside of TB programme implementers' scope of work, no programme aimed at finding missing people with TB should forgo a look at structural barriers that might impede its work. Contributing positively to shifting harmful laws and policies and demonstrating that eliminating legal barriers and/or creating opportunities for poverty reduction can improve case detection and treatment outcomes for vulnerable populations should be a part of TB programme efforts to find the missing people with TB.

In its technical brief on "Tuberculosis, Gender and Human Rights", the Global Fund recommends that countries invest in interventions that specifically address these barriers. It suggests such interventions as delivery of TB-related legal services, know your rights programmes for people with TB, sensitization of lawmakers, judicial officials and law enforcement agencies, training of health care workers on human rights and ethics, and programmes mobilizing and empowering community groups. The Global Fund also calls for avoiding medical detention and involuntary isolation, which should be used only as a last resort. As mentioned above, Stop TB Partnership also provides multiple tools for analysing, mitigating and eliminating the structural barriers to TB care (e.g. Legal Environment Assessments for tuberculosis: an operational guide (5), Gender assessment tool for national HIV and TB responses: towards gender-transformative HIV and TB responses (6), and Data for action for tuberculosis key, vulnerable and underserved populations (7)).

In the planning stage, consultations with key populations and at community level can also offer perspectives on the current level of acceptance of TB services and procedures. Engaging and empowering representatives of key populations will also facilitate the development of effective solutions to mitigate barriers to care.

These consultations could include topics such as:

1. Integrating services (for TB and HIV as well as for TB and drug and sexually transmitted infection [STI] treatment);
2. Creating accessible and potentially mobile diagnosis and treatment services for key populations;
3. Engaging peers, community health workers (CHWs), traditional healers and other low-threshold service providers (pharmacists, etc.) to participate in case-finding interventions;
4. Reducing the stigma faced by people with TB in the health workforce;
5. Addressing perceived risks of TB screening and diagnosis (e.g. job loss, loss of income);
6. Assessing gender-specific challenges to TB screening, diagnosis and care;
7. Providing linkages to treatment and treatment adherence support.

Some questions to provide a rights-based framework for these consultations and discussions at community and individual level are provided in Table 1 and Box 2.

Table 1. Assessing barriers to care to ensure community uptake

Barrier	What needs to happen	Questions to ask
Availability of TB services	A sufficient quantity of functioning health care facilities, goods and services for the diagnosis and treatment of TB should be available to the community.	Are services for key populations available? There might be a well-developed network of TB health service providers and laboratories, but are these available in the mining or rural communities, or in remote areas where a large proportion of the nation's indigenous peoples live? Are the TB services readily available to PLHIV or PWUD? These considerations will also guide the type of community case-finding approach that may be selected.
Accessibility of TB services	TB services should be accessible to all. While there are many ways to interpret accessibility, for health services it can be divided into four main pillars: non-discrimination, physical accessibility, economic accessibility and information accessibility.	**Non-discrimination** – Are the staff sensitized to the needs of communities? Would placing peers/interpreters/indigenous healers in the same location/soliciting their collaboration make individuals more comfortable when receiving services? **Physical accessibility** – Do individuals have to travel long distances and/or durations to obtain proper diagnosis and treatment? Are there many opportunities for pre-treatment loss to follow-up because the time required to test and obtain results is too long for populations who are mobile, discriminated against or criminalized? **Economical accessibility** – Are all services related to TB free? For example, are chest X-rays (CXRs) free along with sputum testing? Do health workers impose informal payments? Are services free, but transportation costs for individuals to get to health centres prohibitive? Are the health needs of women and children prioritized in the community at the same level as the needs of men, and if not, would economic considerations prohibit women and children from accessing services? Are operating hours prohibitive to community members who work? **Information accessibility** – Is information about TB transmission, sputum collection, and the process of diagnosis and treatment available in languages/via visual aids (such as flyers, posters, reminder cards, videos, etc.) that make it accessible to all members of the community? Are health and social services providers taking time to explain these procedures?
Acceptability of TB services	Health facilities, goods and services for TB must be respectful of medical ethics and culturally appropriate, as well as sensitive to gender and life-cycle requirements, and the particular needs of the communities most at risk for TB.	Are health workers receptive to the needs of affected communities of another gender (i.e. male health workers to the needs of women, and female health workers to the needs of men)? Are the services culturally appropriate for populations whose worldview and view of health may differ from those of the formal health system? Are health staff patronizing and punitive to patients who miss appointments, discriminatory towards behaviours, or demonstrating racial or ethnic biases? Can services be accessed without legal repercussions?
Quality	Health facilities, goods and services for TB must be scientifically and medically appropriate and of good quality.	Do all individuals receive the same quality of services? Because of stigma, might health staff not perform procedures or not be as diligent with some community members?

Box 2. Sample guide for focus group discussions with key population stakeholders

SAMPLE QUESTIONS FOR COMMUNITY NGOS WORKING WITH KEY POPULATIONS

- ☐ What barriers do people with TB or those vulnerable to TB commonly face in accessing health (TB) education? What measures are in place to eliminate these barriers?
- ☐ Are health services affordable to all? Are there any financial barriers to accessing health services, such as user fees? Are health services of an acceptable quality? How may the cost of services impact access to services for women vs. men?
- ☐ What service providers do key populations usually turn to with health issues or with TB (if known)? Are certain providers preferred by women or by men in the community?
- ☐ Are health services within safe physical reach for all? Do indigenous people, migrants and IDPs have equal access to TB services and information in their own languages?
- ☐ What diagnostic tools are used for identifying TB (if known)? Are people generally comfortable with these tools and do they understand X-ray/sputum collection procedures?
- ☐ How long do people generally wait to get test results? How are they informed of their results?
- ☐ What kind of support is provided to TB patients during treatment (e.g. social accompaniment, financial motivation, food packages)?
- ☐ How may stigma impact access to services? Are there any specific beliefs about TB that may be stigmatizing to women over men or the other way around (i.e. infertility in women or weakness in men)?
- ☐ Are there specific barriers for men, women and/or transgender people in terms of accessing diagnosis and treatment?
- ☐ Where are most people lost to follow-up? Does loss to follow-up vary between women and men?

SAMPLE QUESTIONS FOR FOCUS GROUPS WITH KEY POPULATIONS:

- ☐ What do you know about TB?
- ☐ If you had a health issue, where would you go? Why would you turn to this particular type of provider?
- ☐ How many people do you know in your group/community who have had TB or had a relative/friend with TB? Where did they receive services related to TB? How did they rate these services?
- ☐ What would be the most difficult part about getting TB (e.g. loss of job, fear of getting fired, family issues, going to a health facility, etc.)?
- ☐ What would be most helpful to you in terms of accessing health care (e.g. nicer staff, different office hours, lack of stigma, support with family issues, etc.)?
- ☐ Do you know how to access additional support if you feel discriminated against and/or are refused services on the basis of your occupation, legal status, or place of work, among others?

SAMPLE QUESTIONS FOR KEY POPULATION REPRESENTATIVES WITH TB

- ☐ Who provided you with your diagnosis/how did you get diagnosed?
- ☐ How long did it take you to get diagnosed (in weeks, clinic visits)?
- ☐ How were you treated at the clinic when you first received your TB diagnosis?
- ☐ How much did you pay for the tests? Were there any additional costs associated with the testing?
- ☐ How many times did you have to go to the clinic before you received your final diagnosis?
- ☐ What kind of information about TB and about treatment did you receive from your health care provider?
- ☐ What kind of support did you receive prior to and during treatment?
- ☐ What was the most difficult part of the diagnosis and treatment process for you?

Gender

It is recognized that TB impacts men and women differently and that men and women may face specific barriers when accessing TB services (see Figure 1). Implementers must identify the specific barriers that women and men in key populations might face when engaging with the intervention. These discussions should focus on the availability, acceptability, accessibility and quality of services, as specified in Table 1. When the intervention is ongoing, implementers may also add human-rights-focused and gender-disaggregated indicators in order to track how these issues might be impacting TB case detection.

It is also recognized that lesbian, gay, bisexual, transgender and intersex (LGBTI) people may experience specific barriers to TB services due to the extreme stigma, discrimination, criminalization and violence these communities face in certain settings. Implementers should be aware of these barriers and sensitive to the needs of LGBTI people in health settings. Section 3 includes some examples of eliminating barriers to TB services for LGBTI people, but implementers may consider expanding gender-responsive programming to include LGBTI individuals.

Figure 1. Examples of gender-specific TB risks

Men	Women	LGBTI people
• High TB risk occupations such as mining, which may be associated with crowded living conditions • Pressure to return to work as the primary income earner • Behaviours such as smoking, alcohol consumption and drug use • More likely to be incarcerated	• Work in garment industry and informal mining sector, residence in peri-mining communities and crowded factory dormitories • Health might be less valued than that of male family members • Possibly less likely to be asked to submit sputum for testing (21). • No childcare available and cannot forgo childcare and housework responsibilities to seek care • Greater cultural barriers associated with the need to be accompanied to health care facilities and stigma related to diagnosis and treatment • If incarcerated, even less likely to have access to TB services than male counterparts	• Unlikely to engage with routine health services due to stigma, safety concerns and other risks • Might be at high risk for TB due to other comorbidities and poverty

Step 2

Identify which barriers can be addressed with interventions

It is clear that TB programme implementers may not be able to address larger structural barriers, such as criminalization and poverty. However, as much as possible, programmes must work with policymakers and other national stakeholders towards eliminating or mitigating the impact of these barriers. In addition, implementing TB case-finding programmes with key populations can serve as a first step in highlighting and eliminating critical structural barriers and bringing about necessary change. Table 2 provides some examples of addressing the challenges presented in Table 1 through delivering people-centred, solution-oriented services.

Reviewing the barriers highlighted in Step 1 and devising solutions to these barriers will also allow implementers to identify the key stakeholders that must be engaged in the intervention in order to make it effective. For example, to launch TB screening services in mining communities, labour unions and/or mining company leadership might have to be contacted. To work with tribal and ethnic minorities and IDPs, community leaders might have to be engaged, along with the community structures and organizations that are already effectively serving these populations.

Table 2. Examples of addressing barriers to care through delivering people-centred, solution-oriented services

Barrier	Issue	What happens now	What TB case-finding interventions with key populations can change
Availability of TB services	**TB services do not reach many rural communities**	TB services do not have reach into artisanal mining and indigenous communities	• Engage existing/establish a new network of CHWs from affected communities to conduct TB screening • Incorporate TB screening into other routine health and/or social services provided in the community • Collaborate with private sector providers (e.g. small medicine vendors, traditional healers, etc.) to enable services in the community or to facilitate linkages to nearby health facilities
Accessibility of TB services	**Stigma**	Key populations are stigmatized by health care providers and do not feel comfortable presenting at routine health care facilities	• Identify drivers of stigma relevant to TB and to key populations, and reflect these in health education messages • Provide sensitization training to health care providers, including on human rights and medical ethics • Engage peers/CHWs • Engage traditional healers/providers key populations are comfortable with to conduct TB screening and support throughout the TB care cascade
	Distance	While TB services are available, distance to travel might still be an investment of time and money many key populations cannot afford	• Screen in the community • Provide travel allowances/devise sputum transportation schemes • Deliver health services in one place and via providers key populations are already comfortable with in the community/where they receive other services
Acceptability of TB services	**Stigma/Bias**	Representatives of certain key populations are considered "difficult to reach" and are largely ignored by routine health services	• Engage peers and community leaders • Conduct screenings where people with TB gather – informal meeting places, needle exchange programmes, drop-in centres, shelters, etc. • Provide education on TB to people with/vulnerable to TB and support their family members to access TB screening, treatment and care
Quality	**Underutilization of adequate diagnostics in many rural communities**	GeneXpert only available for diagnosis in urban centres and large hospitals, inaccessible in rural communities, IDP camp settings and other geographically challenging settings	• Introduce mobile laboratory services paired with community and peer interventions • Provide solar-powered storage facilities for sputum and expand transport networks

Step 3

Identify key stakeholders

Multiple government and nongovernmental entities and principal community structures may need to be involved in TB case-finding interventions. Multiple global health entities, including the Global Fund and Stop TB Partnership, refer to the engagement of affected community stakeholders as a cornerstone of their organizational strategies. Engaging and empowering individuals and communities is also at the core of the WHO Framework on integrated, people-centred health services (22). Thus, engagement of key populations in addition to other key stakeholders is crucial.

Key stakeholder engagement begins with:

- Identifying existing community structures that may already be serving key populations; and
- Conducting stakeholder mapping.

Community structures are existing entities that are of importance to community members. Such entities may include:

- Schools;
- Markets;
- Local volunteer/community organizations, including drop-in centres, shelters, self-help groups, clubs;
- Places of worship;
- Workers' unions;
- Tribal/ward/municipal/village/community councils; and
- Other structures, depending on the setting.

Key populations may already be linked to some of these structures or may be reached through them. For example, labour migrants might have informal gatherings/congregate at local markets, factory workers might have regular union and/or club meetings, PWUD might already utilize trusted drop-in centres, etc.

Stakeholders already involved in the community, such as nongovernmental organizations (NGOs), civil society organizations (CSOs) and faith-based organizations (FBOs), are likely connected to these community structures and may already be using them to deliver other health or social services. In addition, NGOs and CSOs run by key populations might already exist and may have prioritized certain interventions that can be expanded to TB screening.

In communities where NGOs, CSOs and other supportive services have little presence, **community structures** carry important weight and influence and will play a crucial role both in helping to launch the project and in influencing community members' engagement. These structures' spheres of influence and potential contribution to the intervention can be mapped out when interventions are being designed.

The Ministry of Health (MoH), NTP, and provincial and district health offices (specifically the TB coordinators) are also key stakeholders that need to be involved from the start. The national HIV programme should also be included as a stakeholder for discussing the alignment of TB and HIV screening efforts, especially in settings with high HIV prevalence. It may also be advantageous to link to other programmes directed towards key populations, for example, drug treatment programmes, interventions targeting labour rights, and nutritional support, depending on the setting.

Stakeholder mapping: To engage stakeholders, implementers may hold individual meetings with identified community structures and potential leaders, or facilitate community-level meetings to discuss the intervention and give stakeholders the opportunity to consider their roles, assess existing resources and map the steps of the intervention (see Table 3 for a sample stakeholder-mapping tool).

Mapping resources: An inventory of ongoing activities is useful to ensure engagement of all stakeholders that may be instrumental to the intervention and to understand what resources (financial or human) may be available and/or lacking (see Table 4 for a sample resource-mapping tool). Many stakeholders might already be working on activities and deliv-

ering services in the communities (e.g. disease-specific screening, immunization days, community education and empowerment activities), which could be extremely helpful in rolling out TB programmes. Implementers can make use of various items and infrastructures within the existing health system/community system and community-based organization (CBO)/FBO networks, e.g. bicycles for sputum transport or human resources for screening interventions.

Table 3. Stakeholder mapping

Stakeholder Groups	TB medical expertise	Respected by peers	Influence with TB stakeholders	Decision maker in their organization	Stakeholder access	Access to potential partners	Health programme development expertise	Influence with high-level policy-makers	Knowledge of TB programmes & services	Knowledge of TB rules and regulations	Meeting facilitation	Leadership skills
TB programme staff												
Tribal/informal and other leaders of key populations												
Professional organizations/ trade unions												
CBOs/NGO/FBOs working in the community/with key populations												
Peer support and other informal groups that may have influence over community members												
Employers of at-risk populations												
Formal health care providers												
Laboratory leadership												
Private sector												
Prison authorities												
Media/social engagement coordinators												
UN/human rights/emergency response agencies												

Table 4. Taking an inventory of existing services/resources to improve TB case finding in the community/among key populations

COMMUNITY RESOURCES	**Accessing the community to deliver the intervention**	**Utilizing existing health programming to deliver TB case finding**	**Capitalizing on existing human resources for screening**	**Transporting sputum and supporting lab infrastructures**	**Providing linkages to treatment and adherence**
[List organizations and funded projects, programmes, and initiatives.]	Health fairs Community celebrations Markets Religious gatherings Merchant association meetings Informal gatherings of interest/religious/other interest groups	HIV prevention activities Immunization Mother and child wellness Malaria eradication Health awareness campaigns Other health programming	Community health workers Community health volunteers/informal volunteer groups involved in delivery of routine health services/awareness Traditional healers Peer groups for people who use drugs and/or alcohol/other support groups	Commuter networks Community members in possession of motorbikes and bicycles Cars/vans and/or boats Solar panels/generators for uninterrupted electricity supply Cooling boxes Technology support	Family and community structures for support Traditional healers and community support groups Faith-based community volunteers/health volunteers mHealth and other tech resources

Step 4

Foster partnerships and create management structures

To ensure all stakeholders are in agreement on the key deliverables of the intervention and to keep the programme on track, it may be useful to establish a multisectoral **oversight** body and separate **coordinating** body to perform specific functions, as outlined in Table 5.

Table 5. Oversight and coordination functions

Oversight and governance	Coordination and implementation
Directing the implementer	Carrying out routine tracking of programme/project performance
Tracking implementation activities, ensuring independent audits	Troubleshooting to identify where changes in programmatic inputs can result in better outcomes
Providing strategic direction, ensuring adequate financial controls, policies and procedures, etc.	Periodically assessing changes in output as a result of programme intervention
	Conducting M&E activities and focusing on details

Step 5

Identify a case-finding model that best suits the key population in question

While considerations for TB service delivery for specific key populations are described in Section 3 of this guide, it is important to consider the main strategies that are effective in delivering TB screening, diagnosis and care with key populations.

TB interventions with key populations are likely to address a multitude of issues in addition to TB. These may include other comorbidities, mobility, stigma, cultural barriers, nutritional needs and others. Therefore, the concept of integrated care is important when considering these interventions. Integrated, people-centred health services are at the heart of WHO's strategy for ensuring access to universal health coverage (UHC) (22). There is no single approach to service integration. Moreover, integrated care for key populations does not necessarily mean combining services, but rather creating services tailored to the needs of individuals. Thus, implementers may adopt strategies for integrated care that already exist and/or build upon them to develop population-specific interventions.

TB screening services with key populations can be delivered:

- **At health facility level**, provided that "one-window" or "one-stop shop" approaches are utilized;
- Via provider **engagement** by involving providers who are already trusted by key populations, for example, traditional healers, herbalists, HIV and drug treatment doctors, sexual and reproductive health specialists, and others;
- **In the community**, through engagement of existing community structures, organizations working with key populations, and other existing health and social service providers;
- **In the community**, through outreach and utilization of multidisciplinary and mobile teams;
- Through **peer-to-peer contact investigation** by engaging peers who can help educate and identify others with TB within their peer group or in the community.

The choice of model will depend on:

- The key population involved in the intervention;
- Availability of community structures accessible to the key populations and the willingness of these structures to engage in TB case finding;
- Availability of a trained cadre of health workers or CHWs and/or peers who are able to deliver client-centred services to a particular key population, or availability of resources/ability to create such cadres.

The field guide on community case finding in this series provides a comprehensive description of how to identify, train and manage a workforce for community case-finding interventions. Implementers are encouraged to review Step 5 in Section 2 of that guide and analyse which approaches might apply.

MODELS OF DELIVERING TB SERVICES FOR KEY POPULATIONS

For interventions with key populations, three models of engaging the existing or newly created workforce may be beneficial:

Multidisciplinary teams

Multidisciplinary teams have been shown to be effective for increasing TB diagnosis and treatment adherence in populations who might present with a range of comorbidities, such as PWUD and chronically homeless individuals. However, multidisciplinary teams can also be effective in reaching indigenous peoples, remote communities and many other key populations, as they allow for a diverse team of health and social services professionals and peers to triage the needs of individuals at risk for TB.

Multidisciplinary teams may vary in composition and may include:

- TB physicians/nurses
- Lab technicians
- X-ray specialists
- Peers/native healers/CHWs
- HIV physicians/nurses
- Drug treatment doctors/support staff/peers
- Social workers/therapists

Oversight of multidisciplinary teams may be complicated by the fact that they may be comprised of professionals who report to different entities (e.g. local TB clinics, laboratories and/or NGOs). Consequently, it is necessary to provide a unified reporting and oversight structure for multidisciplinary teams. The teams could provide monthly reporting to the multi-stakeholder project oversight committee or, better yet, hold regular weekly meetings that also include members of the oversight committee or other governance body. These meetings can be used to devise weekly plans, coordinate efforts, and report on results and challenges.

Multidisciplinary teams may work out of a facility (i.e. public or NGO-run clinic), have visiting hours and be hosted by a community structure (i.e. a drop-in centre or church), or perform outreach in the community. The goal of a TB case-finding multidisciplinary team is to conduct screening and diagnosis, and either refer patients for treatment or facilitate treatment and treatment support. Alternatively, screening could be performed by CHWs or peers working with a specific key population group, and individuals could be referred to or accompanied to the multidisciplinary team for further support.

"One-stop shop" or "one-window" approaches

Similar to multidisciplinary teams, "one-stop shop" or "one-window" approaches either engage multiple health and social services professionals and peers in delivering diagnostic and treatment services to people with TB or expand the capacities of some health professionals to carry out tasks that they otherwise would not, thus ensuring co-location of services.

These approaches function similarly to multidisciplinary teams and may sometimes even engage such teams. "One-stop shop" approaches should be initiated where individuals representing key populations already receive services, for example, drug treatment facilities, needle exchange sites, shelters, pharmacies that serve as the only medical facilities in many rural areas and/or are frequented by urban dwellers in a particular district, places where traditional healers receive patients, etc. These locations can also serve as places where multidisciplinary teams can deliver treatment support services on a weekly basis and conduct regular screenings.

Peer-to-peer interventions

In some settings, peer interventions work through recruiting people with TB who then identify and screen other people with TB, either by recognizing symptoms or by conducting educational workshops in the community. This model fosters community support and engagement and fights stigma. In other settings, peers are engaged as educators, hosting community gatherings in safe spaces and ensuring the privacy and trust of key populations. They may also function as testing and treatment supporters, accompanying peers to diagnosis and providing support during treatment to ensure that loss to follow-up does not occur.

Key principles of delivering services for key populations

All service delivery models working with key populations should pursue the following:

Empowerment: Peers, CHWs and CSOs should be empowered to take part in TB case-finding interventions and collaborate as equals with health, law enforcement and other authorities. Peers, CHWs, and CSOs are also essential to ensuring treatment linkages and adherence, which is critical to the success of TB programmes with key populations. Empowerment is only possible when peers and communities have ownership and share responsibility for actions that promote social and political change. Community and key population empowerment is a process that aims at going beyond TB interventions. These interventions can foster such empowerment by ensuring the inclusion of community members, strengthening the work of community organizations, engaging key affected populations in programmatic work and demonstrating the impact that community action can have on health outcomes (23). In practice, community mobilization has also been shown to be effective, as support groups, networks and associations of key population representatives have been able to advance the interests of their communities.

Collaboration/Equal partnership: All stakeholders should be equal partners in designing, planning and executing the case-finding work and as they may carry forward the brunt of the interventions. Allowing community partners, peers and CHWs adequate space to voice ideas and concerns and report challenges is crucial for the success of the intervention. In addition, the role of peers and community partners in securing commitment and collaboration of all relevant public institutions at the local level (e.g. prison authorities or law enforcement) is also essential, especially since it might take time to get local approval for interventions approved by national authorities. In order to ensure acceptance and alignment of all relevant stakeholders, it is beneficial to engage them from the outset and ensure that commitments and Memoranda of Understanding (MoUs) are obtained in writing.

Education: While some health and social services providers might already be effectively engaging with TB key populations, they might not be TB experts. It is important to eliminate any knowledge gaps that providers might have in terms of diagnosing TB and/or providing supportive services around TB diagnosis and treatment adherence, through additional training and educational programmes for providers. When it comes to educating CHWs, traditional healers, and peers, approaches should be collaborative rather than patronizing, and implementers should ensure that community and traditional healing perspectives are taken into consideration. Where needed, education should also target decreasing stigma and discrimination and patient-centric approaches to TB diagnosis and treatment.

Service integration: The importance of integrating services for key populations cannot be overemphasized. The integration of TB and HIV services is a prime example of how national-level stakeholders can drastically improve TB services. But even this integration is not maximized in most settings. Service integration and making multiple services available to key populations in one place eliminates barriers, conserves resources and often allows for multiple concurrent programmes to achieve their desired results.

Treatment linkages and adherence: Emphasized throughout this document is the importance of linking successful case finding with key populations to treatment. Diagnosing TB among individuals who shy away from routine health programmes due to stigma and discrimination and ensuring treatment adherence is absolutely achievable. However, treatment linkages and adherence support are crucial links that are often omitted from interventions.

3. IMPLEMENTING TB CASE-FINDING INTERVENTIONS WITH KEY POPULATIONS

3. IMPLEMENTING TB CASE-FINDING INTERVENTIONS WITH KEY POPULATIONS

3.1 Awareness-raising and key population community buy-in

Because of stigma, discrimination, criminalization, cultural norms and beliefs, and different socioeconomic factors, many representatives of TB key populations might not accept TB screening interventions. Therefore, it may be necessary to conduct awareness-raising and educational activities to normalize TB screening, explain the benefits of treatment and eliminate stigma.

Awareness-raising

Awareness can be raised through the use of social media, plays, events in the community, informational booths and distribution of leaflets where representatives of key populations congregate (e.g. markets, bars, drop-in centres, support group community spaces). In key population groups that are marginalized and stigmatized, awareness may be raised through providers, peers and leaders who have earned community trust.

Continued buy-in and long-term commitment to key populations

While organizing a one-off screening event for key populations might be a manageable task, ensuring continued TB screening, diagnosis and care among key populations requires continuous buy-in that can only be achieved by demonstrating results, course correction, eliminating structural barriers to care and empowerment. Interventions with key populations require a long-term commitment on the part of TB and multiple other stakeholders. As shown in the examples below, such interventions are capable of reducing TB incidence and improving TB outcomes.

This field guide presents approaches to services with selected key population. These approaches by no means constitute an exhaustive list, and only a few of the interventions highlighted have been sustained over the long term. As such, implementers must be proactive not only in delivering interventions, but also in continuing advocacy and communicating impact.

3.2 TB case finding with key populations

Miners and mining communities

The World Bank estimates that over 100 million people globally depend either directly or indirectly for their livelihoods on artisanal and small-scale mining (ASM) and 7 million on industrial mining (24). The link between mining, lung disease and TB has been well established. Silica exposure in mines causes silicosis, which in turn increases the risk for TB 30-fold. In South Africa alone, TB incidence among miners was estimated to be 2,500–3,000 cases per 100,000 individuals. In all countries of the Southern African Development Community (SADC), where the impact of mining on TB spread has been most documented, TB incidence rates are over 300 per 100,000 population (25). In many settings, mining communities also experience concurrent epidemics of both HIV and TB. ASM is also on the rise in high TB and high TB/HIV burden countries, such as Brazil, Ethiopia, Pakistan, and Mozambique. number of ASM operations are in Asia. These developments pose concerns over the large migrant and otherwise marginalized workforce that is at high risk for TB and HIV (26).

Direct TB risks for miners include silica dust exposure, living in crowded dormitories, and lack of access to respiratory protection. Poor labour laws for industrial mining and the haphazard nature of artisanal mining not only puts miners in unsafe conditions, but also makes obtaining sick leave and compensation impossible. These conditions force many miners into not disclosing their symptoms. Many industrial and artisanal miners are migrants, which further complicates their access to health and social services. In addition, when sick, they might be forced to move back to their communities, where TB also spreads. ASM and industrial mining also have a documented impact on the spread of HIV both in the rural communities that supply the migrant labour force and in the peri-mining communities that spring up around the mines (27).

How to implement case finding with miners and mining communities

Multiple stakeholders have attempted to address TB in the mines. Most notably, Tuberculosis in the Mining Sector in Southern Africa (TIMS) is a regional Global Fund-supported project that has been running in Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Kingdom of Eswatini, Republic of Tanzania, Zambia and Zimbabwe since 2016.

The lessons and experiences of TIMS have been well documented on the initiative's website, and implementers in relevant countries should consult the initiative to assess whether there are specific geographical areas in their setting where additional interventions could be beneficial. However, according to a TB REACH Wave 5 grantee in Tanzania, new mines, especially ASM operators, spring up in remote areas. This prompts migration and the appearance of settlements where health risks are high and access to health services extremely poor. Thus, additional work in settings where TIMS operates, and especially outside of these settings, may lead to increased case finding. Implementers are encouraged to consider the following when rolling out projects:

HIGHLIGHTS

- Secure collaboration with employers in order to engage miners and discuss sick leave provisions/dispel myths about miners' inability to work if diagnosed with TB;
- Engage communities to understand whether miners are working for industrial and/or small-scale mines and to identify who might be affected in the community and where to screen;
- Understand that miners and residents of peri-mining communities may be transient populations, making it challenging to ensure communication of test results and treatment adherence. These aspects, therefore, need to be planned upfront. Similarly, interventions focusing solely on contact investigation might encounter challenges in tracking miners' families and thus should possibly pursue other routes, such as mass community mobilization and screening;
- Interventions targeting miners and peri-mining communities must provide concurrent HIV screening and testing and provide linkages to treatment;
- Focus on specific settings to design gender-responsive programming; while male miners might have specific challenges and needs with respect to services, peri-mining communities might host women who are engaged in sex work and/or lack resources and agency to seek health care.

Stakeholder engagement

Engaging members of the mining community is essential to any intervention that involves miners. However, involving mine operators (in the case of industrial miners) and collaborating with mine owners (in the case of ASM) may prove even more beneficial, especially if the project anticipates screening miners where they work. Projects have previously collaborated with health services provided by mining companies and secured the necessary permits prior to the intervention. Deferred pay and sick leave for the period when miners might be unwell must be negotiated during these meetings with mine operators, so that individuals are not afraid of coming forward for screening. Engaging community leaders who may have influence over community members, miners and mine operators could also be beneficial for mobilization and screening.

A TB REACH project in Lesotho established a private–public partnership between The Employment Bureau of Africa (TEBA; the primary recruiter of miners in Lesotho), Lesotho's NTP and the implementer. Screening for TB was conducted in TEBA offices as part of pre-employment health check-ups. Diagnosis and treatment were also conducted at TEBA offices, and miners received deferred pay if they had to take time off for treatment. In addition, TEBA supported contact investigation in the community and provided screening, diagnosis and treatment to former miners and their families.

Engaging community stakeholders can also shed light on where and who to screen. A TB REACH project in Ghana had to adjust its target population descriptions after implementers realized that, in addition to industrial miners, a large population of informal miners was underserved. If many people in the community are also employed (not in the mines, but in service or other industries), screening at home is best scheduled after work hours, on market days, or in schools if children are targeted.

Screening

The project in Lesotho mentioned above found that one of the key reasons preventing miners from engaging in screening activities was the perceived inability to work due to a TB diagnosis. Therefore, clear messaging about diagnosis and treatment should be prioritized and negotiations with key stakeholders around sick leave should be conducted and communicated to the miners. The need for screening must also be communicated in the peri-mining communities where residents, including children, might be at increased risk. When attempting to estimate a target population for screening, implementers need to take into account the fact that miner and peri-mining community residents are often a transient population, moving from work site to work site.

The timing of screening should consider working hours, shifts and bus schedules (i.e. when miners might have to leave to return to the community). A TB REACH project in Ghana was successful in screening and testing informal miners on a mobile van that arrived at the sites of the mines. Workers were motivated through clear messaging around TB signs and symptoms and through the involvement of community chiefs.

Screening in mining communities should consider similar factors. A TB REACH project in South Africa that focused on miners and peri-mining communities found that they could not reach miners' families for screening through home visits during the day, as many family members were employed. Therefore, screening had to be scheduled after work or on weekends through community activities.

COMMUNITY-CENTRED APPROACH TO TB IN THE MINES IN TANZANIA

In Tanzania, a community organization conducted TB case finding targeting small-scale miners and members of the peri-mining communities. The project delivered interventions through trained peer educators (PEs) and CHWs, while engaging multiple stakeholders – from the local TB programme and health facilities already serving the key populations to community structures where community members congregated.

In the communities, CHWs conducted door-to-door visits to screen adults and children, while the PEs reached miners and female sex workers (FSWs) working near the mines in bars and in other community spaces where they could be easily accessed. The organization utilized the following algorithm for screening: Either PEs and CHWs conducted the screening. PEs referred individuals for sputum collection and/or accompanied individuals to link up with CHWs. CHWs were trained to collect sputum and transport it to diagnostic facilities by bike. They also facilitated referrals to health facilities for treatment initiation and provided adherence support to people with TB via home visits, engaging peer support and other approaches. To reach a broader audience, the project also initiated "moonlight" events in which evening entertainment was mixed with messages about TB, community members were screened, and sputum was collected. A community empowerment campaign engaging PEs, TB survivors and PLHIV was implemented to raise awareness about TB services and promote self-referrals to health facilities. Regular community dialogues were held on stigma and gender barriers to TB care, and treatment adherence support groups were established as a result of the campaign.

PEs provided TB education to 95,683 individuals, and PEs and CHWs screened 81,496 individuals (including 17,555 children, 10,444 miners, and 11,332 FSW). Adjusted for a 3-year historical trend, the project detected an additional 447 bacteriologically-confirmed TB cases and 589 all forms TB cases in the evaluation population, representing an increase of 96.5% and 55.2% from baseline, respectively.

Diagnosis and treatment

Successful interventions to test miners have ensured the provision of same-day test results/fast linkages to care. A TB REACH Project in Ghana utilized a mobile van that was able to provide testing with GeneXpert machines on site. This is how the grantee described the van:

"A Toyota Hiace van (14 seater) was converted to a custom-made mobile TB diagnostic van. The van had a working station, a bench, storage drawers, a refrigerator, a sink and a vent. To ensure power supply, the van had an in-built electrical system where a portable generator can be connected externally to provide power to the two GeneXpert machines." For more information on mobile laboratories and X-rays, please see the relevant field guides in this series.

In the TB REACH project in Lesotho, testing was followed by treatment initiation, usually on the same day. Miners and families received directly observed therapy (DOT) through the existing health clinic home visit programme. Communicating results and ensuring treatment adherence can be complicated for mining communities, given that many miners are labour migrants. As a result, they might either be forced (through loss of income due to illness) or choose to move back home for the duration of their treatment. It is crucial to clarify these issues when discussing treatment/communication of test results. The TIMS project is attempting to establish better communication pathways and electronic records capable of following miners cross-border. A TB REACH project targeting small-scale miners and peri-mining communities in Tanzania ensured treatment adherence by engaging CHWs and forming support groups and clubs.

HIV screening and linkages

HIV risks are heightened for miners and peri-mining communities. Therefore, interventions targeting these populations must provide either parallel HIV testing services or linkages to such services. Linkages to HIV treatment should also be considered.

Contact investigation and TB preventive therapy (TPT)

When attempting to conduct contact investigation in peri-mining communities or follow-up with diagnosed miners' families, similar considerations should apply: If miners are migrant labourers, their families might be located elsewhere; if community residents are engaged in work and other activities, home visits should be scheduled accordingly. Thus, peri-mining community interventions based solely on contact investigations might not be ideal. A TB REACH project in South Africa found that an excessive focus on contact investigation prevented the implementing team from effectively monitoring treatment. Even though provision of TB preventive therapy (TPT) was found to be ineffective among South African gold miners in high HIV prevalence settings, it could still be beneficial for peri-mining communities, especially children. The TB REACH project in Tanzania has attempted to provide TPT to miners and children in the community, focusing on HIV-positive, sputum-smear-negative individuals.

Gender

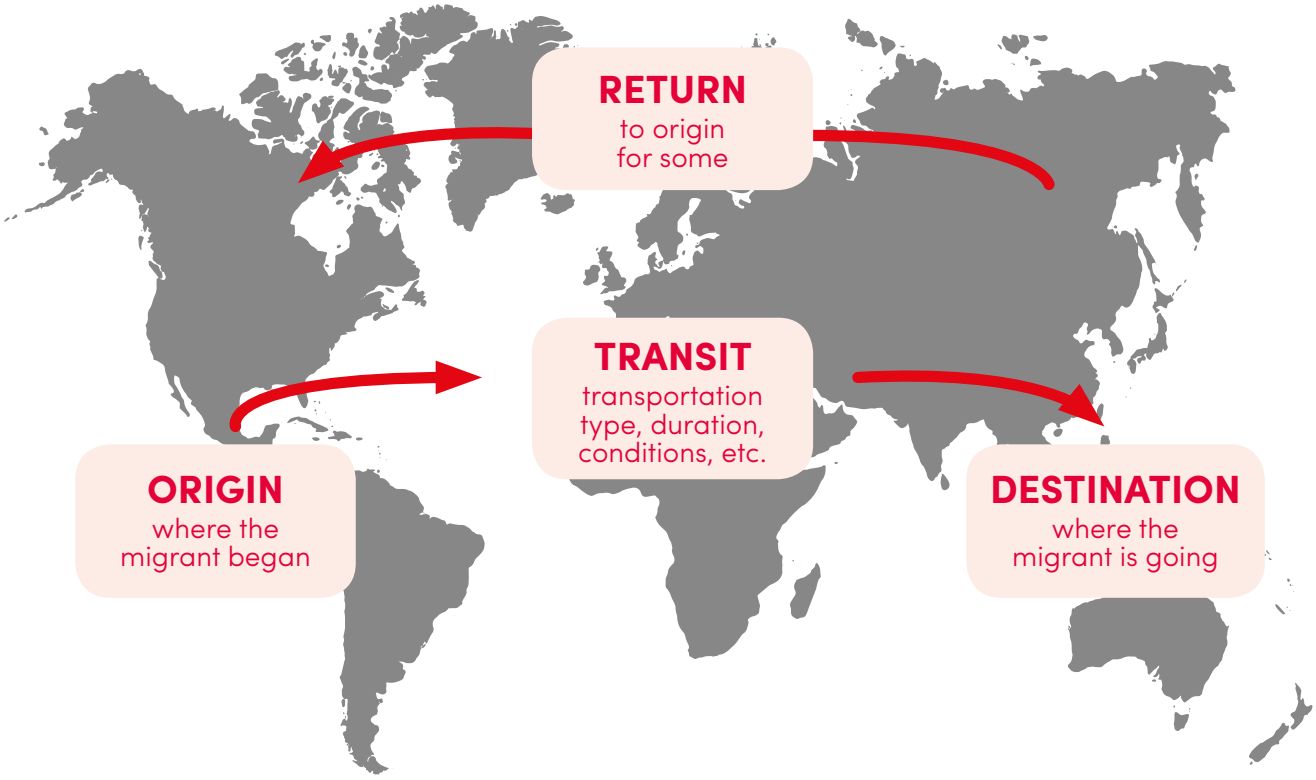
The majority of miners are male. Therefore, to make interventions gender responsive, considerations should be made for perceptions of masculinity and responsibilities miners may feel in terms of supporting their families with financial and other resources. In Tanzania, discussions at the community level brought to light some of these concerns along with miners' attitudes towards obtaining health services for themselves and their families. Women residing in peri-mining communities might be at risk for both HIV and TB, be involved in transactional sex, and lack agency and resources to seek health care for themselves and their children. Early findings from the project in Tanzania indicate high rates of TB among sex workers in a peri-mining community and high rates of pre-treatment loss to follow-up in this group. This indicates that further setting-specific considerations should be made to ensure that interventions are targeting all the potentially marginalized groups in peri-mining and mining community settings.

Mobile populations – migrants (external and internal) and refugees

UNHCR estimates that there are 40 million IDPs and 25.4 million refugees globally (28). Globally, the rates of displacement are the highest they have been. In 2017 alone, there were 30.6 million new displacements associated with conflict and disasters (29). In addition, voluntary economic and rural–urban migration is also prevalent, pushing the estimated number of migrants to almost 1 billion (30).

Migrants face a variety of health risks, which include risk for TB. Labour migrants and refugees may live and/or travel in overcrowded conditions. They may also experience stress and malnutrition, which puts them further at risk for TB (31). Lack of legal status, language barriers, lack of knowledge of the local health services, stigma and health worker attitudes towards migrants may prevent this vulnerable population from seeking services (32). TB services may also be absent in camps as delivery of other services is prioritized.

Figure 2. Migration process and TB



Recognizing the impact that TB may have on migrant and host communities, organizations such as the International Organization for Migration (IOM) have zeroed in on cross-border interventions targeting refugees and migrants.[2] IOM recommends the following four steps for addressing TB among migrants:

ADDRESSING TUBERCULOSIS AMONG MIGRANTS:
FOUR KEY BUILDING BLOCKS FOR ACTION

1 MEASUREMENT AND ANALYSIS OF TB BURDEN AMONG MIGRANTS

2 ROBUST MIGRANT-SENSITIVE HEALTH SYSTEMS FOR AN EFFECTIVE TB RESPONSE

3 INTERSECTORAL POLICY & LEGAL FRAMEWORKS "HEALTH-IN-ALL" POLICIES APPROACH

4 NETWORKS & MULTI-COUNTRY PARTNERSHIPS WITH COMMON GOALS

[2] *See https://www.iom.int/human-mobility-tuberculosis for updates*

Interventions implemented by IOM include:

- Screening migrants for TB prior to resettlement and immigration;
- Providing a comprehensive range of services, including clinical diagnosis, radiological investigation, sputum smear and culture, and drug-susceptibility testing (DST) in line with partner government protocols;
- Providing TB treatment either directly or through a referral system in partnership with NTPs;
- Providing access to TB services within health promotion and emergency health programmes.

As part of its catalytic funding efforts, the Global Fund has also recently supported several regional proposals to promote cross-border collaboration and devise effective interventions to address TB. While results of these initiatives are still forthcoming, there are several considerations that implementers may wish to discuss when planning interventions.

HIGHLIGHTS

- Experiences of multiple projects working with internally displaced persons and refugees have shown that these populations are often intermixed with host communities and that interventions should address the needs of both;
- Programmes should consider other agencies (resettlement, services and returnees, etc.) that might already have access to and trust of these communities;
- Legal and structural barriers to care, especially for labour migrants, should be eliminated.

Stakeholder engagement

When considering which stakeholders to involve, implementers must understand the realities of migration, i.e. whether the populations they are aiming to work with are in the host country legally or illegally, and whether the populations are most likely to engage with public health services (which might be required to report them), private clinics, NGOs, or natural/tribal healers from their own community. Even when migration is internal (e.g. urban–rural), such knowledge is useful.

If the planned programming is with returnees, it may be worth engaging specially designated migrant support centres. Interventions in Tajikistan and Zimbabwe successfully worked with such entities to increase the access of returning labour migrants to TB services. When working in IDP and refugee camps, TB care services could potentially engage/collaborate with other service providers to streamline interventions.

Delivery of rapid diagnostics and provision of linkages to treatment are especially crucial for mobile and transient populations. As such, stakeholders responsible for laboratory networks and treatment delivery should be engaged at the very outset of the intervention.

Screening

The setting for the screening is key, since target populations should feel comfortable with the environment where they are being screened. For example, TB REACH projects have worked with monasteries and nunneries to engage Tibetan refugees in Nepal and India.

It is also crucial to inform migrant/IDP/refugee and host communities about the TB case finding activities. Implementers should ensure that screening and engagement activities are not limited to migrant populations but extended to communities as well. In a project in Kyrgyzstan, screening and community sensitization occurred in new housing developments where migrant labourers resided alongside other populations. In Zimbabwe, labour migrants returning from South Africa and Botswana were screened in host communities. In Nigeria, a project targeting IDPs and refugees also focused on communities where these populations were settling.

Especially for IDPs and refugees, screening and information materials should be in the language that the intervention population can understand. In Kyrgyzstan, materials were disseminated in the Kyrgyz language, as it was preferred over Russian by the intervention population.

Projects have experimented with recruiting screeners from the nomadic, labour migrant and IDP communities in order to increase these populations' trust in the services. While some of these approaches have been successful, other projects saw high attrition rates among community volunteers, which led to interruptions in screening activities. Implementers should review considerations for working with peers and community volunteers mentioned in the community case finding guide.

HIV screening: While concurrent screening for HIV should be conducted in all TB case-finding settings, this screening can be especially beneficial for interventions with mobile populations.

TB CASE FINDING IN CHALLENGING ENVIRONMENTS IN NIGERIA

In Nigeria, a project targeted IDPs and host communities in three north-eastern states where heightened Boko Haram activity has caused displacement of over 1 million people. To ensure the support of multiple stakeholders, proper mapping of and access to communities and camps, and integration of services, the project engaged the NTP, State Agencies for Control of AIDS, various CBOs and humanitarian partners working in the camps and host communities. They also engaged laboratories and national and state emergency management agencies.

By utilizing trained community volunteers, the project conducted door-to-door screening in the camps and in the community, working to find both adults and children with TB. Volunteers did verbal screening and provided HIV screening and linkages to testing and ART. Volunteers collected sputum and helped transport samples to project-supported laboratories, where Xpert MTB/RIF testing was utilized to identify TB. Volunteers then communicated results to people with TB, confirmed patients to DOTS centres and provided treatment adherence support.

The project screened 283,556 IDPs and host community members and identified 1,253 people with drug-susceptible (DS-) and 38 people with DR-TB; 48,341 people also received HIV screening, with 223 identified as HIV-positive. Through collaborative activities and the use of solar power, the project also managed to reactivate three previously non-functional GeneXpert machines. The project also reactivated two basic medical units (BMUs) that had halted TB service delivery due to the Boko Haram insurgency over 2 years prior.

Diagnosis and treatment

Diagnosis done through mobile and community outreach is most appropriate for mobile, transient and displaced populations, since time lags from screening to diagnosis to treatment may cause significant loss to follow-up. In Afghanistan, a mobile multidisciplinary TB team consisting of a doctor, a nurse and a lab technician conducted door-to-door visits in IDP camps. They screened IDPs and returnees for TB and collected sputum from individuals who reported symptoms. They delivered samples to the laboratory and collected results within 24 hours. The team was also responsible for starting and following the treatment of people with confirmed TB and informing camp dwellers about TB. In Nigeria, trained CHWs collected sputum in IDP camps and host communities. They delivered sputum samples to the collaborating health facilities in order to rapidly inform people of their results.

Legal and structural barriers to diagnosis and treatment should also be eliminated. In some settings, individuals can only obtain treatment where they are registered and may be ineligible for free health services when migrating for jobs or internally displaced. These issues need to be resolved at the outset of programme planning and negotiated with the NTP.

Gender

In 2017, there were slightly more men (50.44% vs. 49.56%) than women among refugees and displaced persons (33), with women comprising a slightly lower proportion (48.4% vs. 51.6%) of international migrants (34). These data, however, may vary by region. For example, male migrants are slightly more prevalent in Asia and Africa, while female migrants comprise a larger proportion in North America, Europe, Latin America and the Caribbean. The multiple challenges and disparities for refugees and migrants may vary by gender. For example, migrant men might be engaged in jobs in mining or other sectors that put them at higher risk for TB, while low-paying menial job options for migrant women might put them in situations where they are unable to seek health care. These challenges need to be further explored. In Nigeria, a TB REACH-funded organization took the initiative to analyse the gender aspects of case finding among IDPs. While results are not yet available, it is crucial that interventions working with these vulnerable populations tailor programming to address their specific needs.

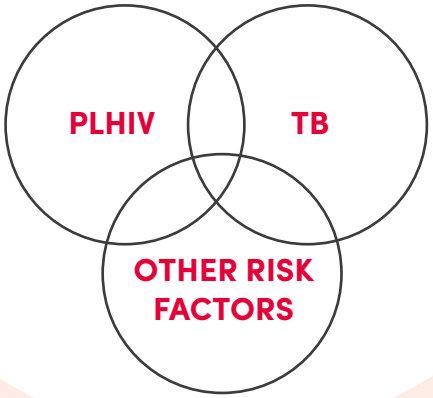
People living with HIV (PLHIV)

In 2017, PLHIV made up 9% of the total estimated TB incidence and 80% of TB mortality (35). TB is the most common condition among PLHIV, including those on ART, and the most common cause of death. For PLHIV, a multitude of barriers are present. While these challenges are characteristic of all other groups susceptible to TB, they are amplified by the additional stigma and discrimination associated with both HIV and TB, and the need for multiple well-integrated health and social services.

In many settings, the highest HIV incidence is found among groups already at risk for TB (such as prisoners and miners) and among groups who are already marginalized (such as PWUD, urban and rural poor, migrant and indigenous populations). As a result, HIV- and TB-related stigma intersects with social inequality. In addition to pervasive stigma, PLHIV with TB experience challenges in obtaining diagnoses, carry a dual financial burden, and struggle with adherence to multiple, often initially toxic regimens. Persistent lack of service integration and failure to deliver preventive interventions, including early ART initiation, contribute to the severity of the TB epidemic among PLHIV. Figure 3 below depicts composite challenges for PLHIV with TB.

Figure 3. PLHIV and TB: Additional barriers to diagnosis, treatment and care

- Tolerance for medications, drug interactions, and pill burden
- Adherence support (social, family, etc.)
- Nutritional support



- Distance to clinic
- Cost of associated tests
- Comfort with health care providers

Stigma related to TB and HIV + additional stigma related to belonging to a marginalized group

ART for prevention and treatment

Preventive therapy for TB infection

TB treatment

TB diagnosis

There are specific challenges in screening and diagnosing TB in PLHIV: Both conditions have similar symptoms and HIV immunosuppression renders chest radiographs and sputum smears incapable of indicating lung abnormalities or identifying TB bacilli (36). The Xpert MTB/RIF assay and next-generation Ultra assay are both recommended by WHO as the preferred tests for diagnosing TB in PLHIV (37). A urine lipoarabinomannan (LAM) test is also recommended for PLHIV with CD4 counts below 100 cells/μL for whom sputum sampling might be impossible (38). Nevertheless, both diagnostic tools have their shortcomings for diagnosing TB in PLHIV and new point-of-care tests are urgently needed. Inconsistencies in TB screening and lack of integration in HIV and TB services also present challenges. Thus, securing full collaboration between HIV and TB programmes is the first step in TB screening interventions.

Populations at the highest risk for HIV and stigma

Communities at the highest risk for HIV might also be subjected to stigma, discrimination and persecution and face other barriers in accessing TB and TB/HIV services. Case-finding interventions with HIV key populations are most successful when services are integrated, safe, low-threshold and delivered with support from the affected populations.

REACHING TRANSGENDER PEOPLE AND MALE SEX WORKERS IN PAKISTAN

A TB REACH project in Karachi, Pakistan worked with local transgender and male sex worker (MSW) communities to recruit influential representatives from each group and begin educational and informational gatherings. Through the work of these community influencers, the project was able to establish screening for PLHIV in these populations, performing both HIV and TB screening and diagnosis and delivering treatment services. Community stakeholders, including transgender individuals, MSWs, and representatives of community organizations also made an impact in sensitizing doctors to work with transgender and MSW patients. The project found extremely high rates of HIV and TB in the transgender and MSW communities and expanded its reach to other cities in Pakistan as a result (39).

In its 15 months of operation the project identified 625 people with TB and linked 613 of them to treatment services. Eighteen months after project inception 462 people completed treatment.

Integration of HIV and TB services

Perhaps the biggest challenge in effectively addressing concurrent HIV and TB epidemics is the successful integration of HIV and TB services. This integration and collaboration between HIV and TB programmes, both in the community (40) and at facility level (41), has been found to increase TB case detection among PLHIV, reduce TB burden in communities, and significantly reduce TB-related mortality among PLHIV.

There are three basic models for TB/HIV service integration (42):

1. Standalone HIV and TB services that are linked through a strong system of referrals;
2. Partially integrated services, wherein TB and HIV facilities may still be located separately, but provide cross-disciplinary services (e.g. HIV testing at a TB clinic or TB screening and diagnosis for PLHIV at the HIV clinic);
3. Fully integrated services or a "one-stop shop" delivery point, usually for people with TB and PLHIV with TB.

To effectively address the concurrent HIV and TB epidemics in most settings, at least partial service integration, as in the second model, should be attempted. However, active TB case finding in settings with high HIV prevalence with strong referrals to HIV services (as in the first model) can significantly reduce rates of TB in the community. This has been demonstrated by the DETECTB study in Harare, Zimbabwe, for which TB community screening every 6 months in a high HIV prevalence (21%) setting led to a 40% reduction in TB prevalence over the 3 years of implementation (40). Screening was delivered via mobile vans with linkages to facility-based follow-up, including HIV testing and referrals.

TB/HIV collaborative activities may require partnering with community organizations and task-shifting to ensure that nurses and health workers other than TB and HIV doctors (potentially even CHWs) can initiate and/or deliver treatment regimens and make decisions and referrals. Task-shifting could amplify the impact of case-finding interventions and help to diagnose and treat TB in PLHIV earlier. National policies and facility-based regulations may need to be revised in order to accommodate such task-shifting. This may be beyond the scope of certain interventions, but something worth considering. Precautions should be taken if PLHIV are to be involved in peer-counselling and providing support to PLHIV with TB, as those in support roles may still be vulnerable to TB.

HIGHLIGHTS

- Ensuring multi-stakeholder engagement and ensuring involvement of affected populations is crucial to the success of TB case-finding interventions with PLHIV;
- Screening algorithms for PLHIV have to be extra-sensitive. Repeated screenings at each medical encounter and Xpert as a screening test could be implemented for particularly vulnerable PLHIV and/or upon enrolment in care;
- Timely provision of ART and TB treatment is essential to the survival of PLHIV with TB, and linkages to treatment for both conditions must be provided; implementers should also consider TPT for PLHIV;
- Nutritional support may be needed in programmes servicing PLHIV in order to ensure tolerance of multiple treatment regimens.

Stakeholder engagement

Securing commitment from both HIV and TB services at district, regional and national level should be prioritized. In addition, community organizations already working with PLHIV and/or specific marginalized populations affected by both HIV and TB should be involved in the decision-making on the interventions. In Moldova, a project working with PLHIV and PWUD attributed its success to the involvement of multiple NGOs already working with these populations. However, the project noted that it took some time to acquire consensus among all stakeholders and get permissions from municipal authorities for NGOs to work on a particular intervention, indicating the need for additional planning.

Screening and diagnosis

Existing screening algorithms that look for cough or other common symptoms generally fail PLHIV. According to one study, clinical screening missed approximately 25% of laboratory-confirmed TB cases among all PLHIV and more than 70% among pregnant women with HIV (43). Study implementers recommended screening PLHIV, especially pregnant women, with Xpert MTB/RIF testing upon enrolment in HIV care. In 2018, WHO recommended Xpert as a first diagnostic test for PLHIV who demonstrate one of four TB symptoms or an X-ray abnormality (44). In a TB REACH project in Uganda, the testing of 7,551 PLHIV undetected by smear microscopy with GeneXpert diagnosed 1,043 (13.8%) with TB, signifying that these recommendations, when tested in field conditions, can show results.

Because PLHIV remain at heightened risk for TB even after ART initiation, TB screening should be routine in this population. While there is no optimal frequency for TB screening in PLHIV, WHO recommends that initial TB screening upon enrolment in HIV care should be ideally followed by TB screenings at each clinical encounter (45). Although this recommendation can be difficult to implement in resource-depleted settings, experience from South Africa shows that adding a TB screening questionnaire to an HIV clinical record supports health care workers in screening more frequently (46).

NEPAL:
PEER NETWORKS AND TB CASE FINDING AMONG PLHIV

In Nepal, an NGO implemented TB case finding by engaging PLHIV and PWUD peer volunteers. The NGO run by PLHIV and PWUD had contacts with patient self-help groups and their leaders across a region and requested that these leaders identify interested volunteers. Using a five-question screening tool to assess TB risk, volunteers referred friends and contacts for Xpert testing. Volunteers also collected sputum from those individuals who did not want to encounter the formal health system at their place of preference. Over a 15-month period, 30 volunteers screened 6,642 people, 5,430 of whom were PLHIV; 6,046 were tested for TB, 5,402 of whom were PLHIV and 331 active PWUD; and 287 were diagnosed with TB. The project was also successful in initiating people on TB treatment. However, it had a hard time following some people through to completion, as they moved in and out of the districts where the intervention was being implemented. Treatment follow up should be strengthened in future interventions (47).

TPT and access to antiretroviral therapy (ART)

Collaborative and integrated activities are especially important given that the early initiation of ART is the most effective method for preventing TB and TB-related mortality among PLHIV. There is a significant body of evidence indicating that early access to ART is protective against TB in PLHIV (48), serves to reduce TB prevalence in communities (49,50), and may prevent extrapulmonary TB in PLHIV (51, 52). WHO recommends ART for all PLHIV diagnosed with TB, regardless of CD4 count and within 8 weeks of starting TB treatment for those with higher CD4 counts. For PLHIV with CD4 count <50, ART should be started within 2 weeks of initiating TB treatment (53). Similarly, to protect against active TB in PLHIV, WHO recommends providing TPT to PLHIV with an unknown or positive tuberculin skin test (TST) and for whom active TB is unlikely. However, significant gaps remain. Only 41% of PLHIV with TB received ART in 2017 (16), and only 25% of PLHIV in care received TPT (54). Thus, provision of ART and TPT for PLHIV should be considered by TB case-finding interventions. A TB REACH project in Tanzania working on TB case finding in high HIV prevalence peri-mining communities has been successful in both identifying TB in PLHIV and getting access to TPT for PLHIV for whom active TB was ruled out. The project was not without its challenges in terms of patient and provider education on TPT, medicines stockouts and others.

Access to TB treatment

Considering the risk that TB poses to PLHIV, case-finding interventions targeting this population must ensure timely access to TB treatment. As per WHO recommendations, TB treatment should commence in ART-naïve PLHIV prior to HIV treatment. Combining the delivery of both HIV and TB treatment services can improve TB treatment outcomes and reduce mortality (55). In a TB REACH project in South Africa, involvement of a mobile HIV counselling and testing team that also conducted TB screening in populations at risk for both HIV and TB increased the TB cure rate from 71% to 81% in the intervention area and decreased the death rate by 2%.

MDR-TB

Because PLHIV are generally more at risk for TB, this group might be particularly at risk in high-burden MDR- and XDR-TB settings. There is also some evidence that PLHIV might generally be at an increased risk for MDR-TB. Therefore, case-finding programmes with PLHIV and people in high-burden HIV settings may need to consider including plans for expanding DST (56).

Nutritional support

Several global health agencies recommend nutritional support for PLHIV with TB, particularly at the outset of treatment when individuals might still be recovering from opportunistic infections, undernutrition and loss of income due to illness and unemployment (57, 58). Implementers may consider different support scenarios in different settings and populations (e.g. mothers and children with HIV, adolescents, housing-insecure PLHIV, etc.) and potentially collaborate with programmes targeting hunger, food insecurity and malnutrition.

Gender

According to UNAIDS, "Gender inequality and the disempowerment of women remain formidable barriers to progress against the [HIV] epidemic" (59). In sub-Saharan Africa, women aged 15 and older still represent over 59% of new HIV infections. Implementers must ensure gender-responsive programming that addresses stigma and gender-related barriers for women living with HIV in accessing TB services. In many settings, the TB diagnosis is said to "flag" an individual's HIV status in the community, resulting in stigma and other negative consequences for both women and men living with HIV. Consequently, raising community awareness about both conditions and working to overcome other human rights and gender barriers are particularly important activities in this population.

People who use drugs (PWUD)

Globally, PWUD remain stigmatized and criminalized, which contributes to significant health disparities, including extremely high rates of TB often combined with HIV and viral hepatitis. In 2016, some 31 million people used drugs and almost 11 million of them were injectors (60). Globally, one in eight people who inject drugs (PWID) are living with HIV. In Eastern Europe and Central Asia, the Middle East and North Africa, PWID still account for more than one third of all new HIV infections (59, 60). While HIV increases the likelihood of TB in communities of PWUD, PWUD are more likely to have TB infection (TBI) and active TB irrespective of their HIV status (61, 62, 63). The inability to access TB treatment in a timely manner combined with the heightened prevalence of TBI may contribute to the high frequency and severity of TB and MDR-TB outbreaks in communities of PWUD (61). A growing body of evidence suggests a link between HIV, MDR-TB and injecting drug use, particularly in Eastern Europe (56)¬¬. Due to being criminalized in many settings, PWUD are also vulnerable to TB through experiences with prisons and custodial settings, where TB risk is marginally higher. PWUD are also susceptible to Hepatitis C and B (64). The combination of health disparities and multiple legal, logistical and health system barriers to treatment, perpetuated by the widespread criminalization and stigmatization of PWUD, make it especially difficult to address TB in PWUD.

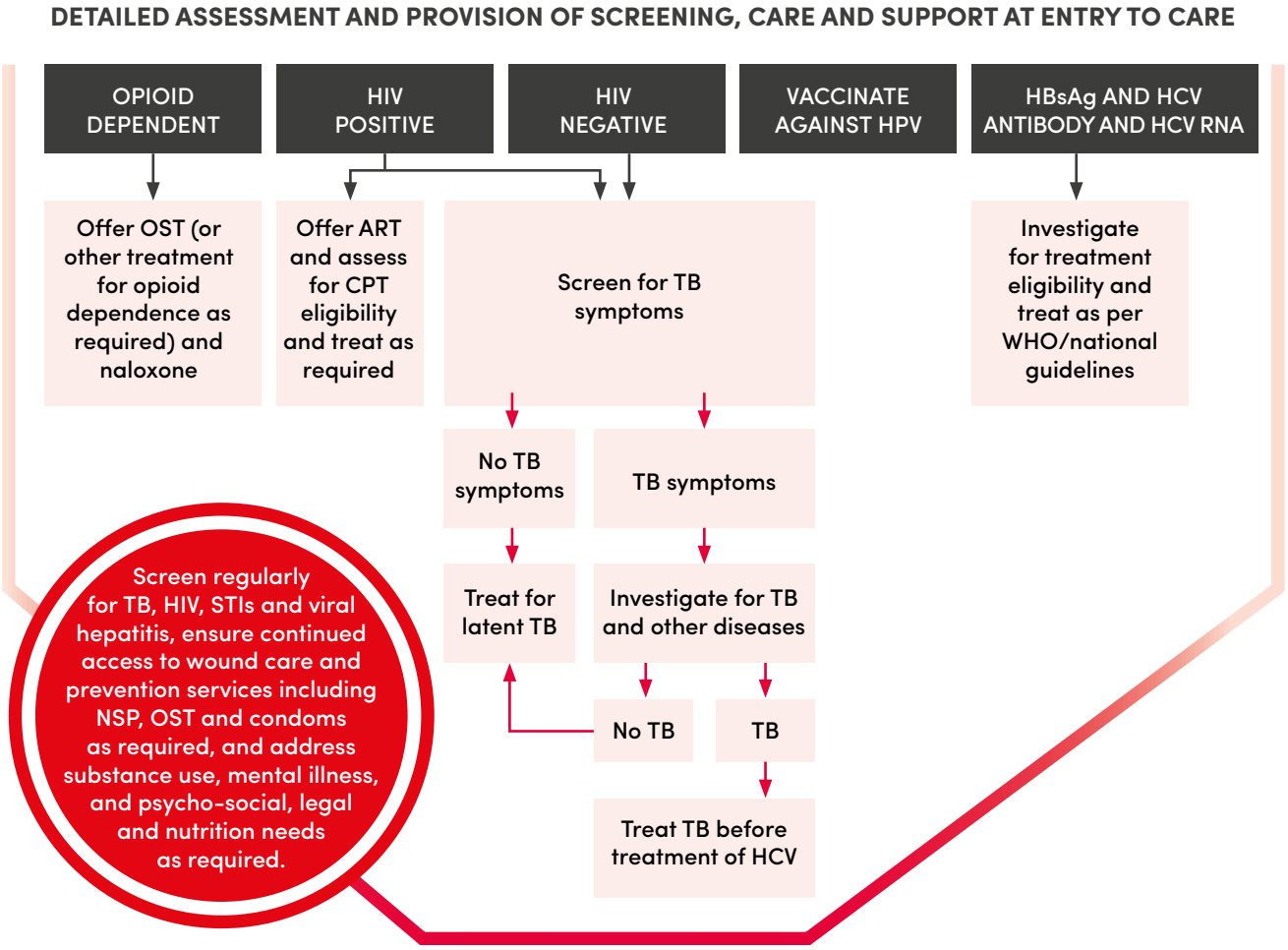
The scope of these challenges and the necessity of prompt, collaborative actions to reduce preventable mortality among PWUD have urged WHO to issue consolidated guidelines on integrating TB and HIV services within a comprehensive package of care for PWID (65). This document describes step-by-step processes for establishing effective integrated TB/HIV services for PWUD and discusses human rights, community and patient-centric approaches. Figure 4 presents the key algorithm for providing comprehensive care to PWUD, as described in the consolidated WHO guidelines.

Of particular importance to TB case-finding programmes are the models of integrated care that can be provided either:

- At the facility; or
- Through outreach services.

Both of these models require coordination among services and significant collaborative activities. Involvement of non-profit organizations, patient groups and peers in counselling and support should also be considered, as this has shown to be effective in delivering TB screening and care to PWUD.

Figure 4. Algorithm for providing comprehensive health care to PWUD



UKRAINE: INTEGRATING FACILITY-LEVEL CARE

Facing concurrent epidemics of HIV, TB and drug use, Ukraine suffered from disjointed vertical health systems that bounced individuals from one service to the other without providing essential care. The country began to experiment with integrated or "one-window" service approaches for PWUD in 2005, and in 2009 adopted the approach as part of its national AIDS programme. The approach was centred around the provision of substitution therapy to assist individuals' adherence to ART for HIV and TB medications. Collaborative activities between HIV and TB facilities provided access to TB treatment at locations where PWUD also received HIV treatment. Implementing changes to the system required either collaboration between facilities and health providers splitting time between facilities (i.e. TB doctors and nurses spending time in HIV and drug treatment clinics) or expanding the capacities of staff to be able to administer different medications. In Simferopol (formerly in Ukraine), coordination of HIV, TB and drug treatment providers and the introduction of multidisciplinary teams led to the identification of 37 additional cases of TB among PWUD in the first 6 months of collaborative activities. As funding dwindled, however, there was no longer dedicated support for the team meetings. Nevertheless, the link between the different services had been established and providers kept up the necessary level of communications to manage the challenges of different patients (66).

RUSSIA: OUTREACH AND CASE MANAGEMENT OF PWUD LIVING WITH HIV

In Saint Petersburg, a non-profit organization delivering needle exchange and HIV testing and support services to PWUD began targeting HIV-positive PWUD for TB screening. The organization provided PWUD with an educational consultation and used WHO screening algorithms and risk assessment questionnaires to screen them for TB. Those identified with symptoms/with greater risks were advised to submit sputum for testing and assigned a case worker to accompany them to a facility for the testing. Over the course of the year, the project screened 734 PWUD living with HIV, identified 243 at risk for testing, accompanied 191 people to submit sputum and identified 51 individuals with TB (67). In order to support the treatment adherence of those PWUD identified with TB, the project also provided case management and a "one-window" approach wherein PWUD could receive both needle exchange and TB treatment services from a mobile outreach unit. In pursuing similar work in Kaliningrad, another organization highlighted the necessity of "brokers" or case managers due to PWUD's overall distrust of formal health services. The project in Kaliningrad also facilitated patient group meetings for PWUD to encourage treatment adherence. Group work was successful in monitoring side effects and in letting individuals voice the challenges they faced in TB and HIV diagnosis and in the absence of accessible drug treatment (68).

HIGHLIGHTS

- There is a need to engage stakeholders that might be crucial to the provision of services and ensure collaboration with and respect for peers;
- Screening considerations might be similar to those of PLHIV;
- Diagnosis should be delivered rapidly;
- Service integration is crucial for PWUD and already trusted service providers should be utilized over establishing new services.

How to implement TB case-finding interventions with PWUD

Stakeholder engagement and peers

As the above examples indicate, effective TB case finding and the continuum of TB care for PWUD involve a multitude of stakeholders. Given that trust in formal health systems is often lacking in communities of PWUD, peer outreach and support models and engagement of CSOs run with and by PWUD could be crucial to the success of TB programming for this population. Law enforcement can be a crucial stakeholder to engage and educate in many settings where PWUD are targeted by police. Some programmes have ensured the collaboration of law enforcement through education and through special agreements between the ministries of health and the interior to collaborate on public health initiatives.

In Moldova, PWUD were a part of the outreach team assigned to conduct screening, testing and follow-up among PWUD communities. The project found that, while peer involvement was crucial for successful outreach to PWUD, the collaboration of facility-based health workers was necessary to ensure timely testing and treatment initiation, yet health workers displayed stigma towards peers. This indicated the need to establish stronger and better regulated relationships between all stakeholders involved in case-finding activities with PWUD.

Screening

Across settings, PWUD report high rates of HIV, suggesting that the same concerns as for PLHIV apply when screening PWUD for TB. In addition, evidence suggests that, since opiates serve as cough suppressants, it may be more difficult for PWUD and individuals on opiate substitution therapy (OST) to identify and report symptoms (61). Individuals who use pharmaceutical grade drugs containing opiates might also be susceptible to this delay in producing symptoms. Inhalant users are also at an increased risk of TB; however, because they face a range of other respiratory conditions, such as bronchitis, asthma and others, they might not readily identify the need to address TB. Thus, when screening PWUD, questionnaires should be adapted and/or used in such a way that the possibility of TB is not missed (69).

For example, a TB case-finding intervention among methadone patients in Tanzania used a five-symptom screen (cough >2 weeks' duration – with or without sputum, with or without haemoptysis; fever >1 month's duration; night sweats; weight loss; and change in appetite). Anyone with one or more symptoms was referred for screening. Those presenting with a cough under 2 weeks' duration but no other symptom were asked to return 2 weeks later to see whether the cough had persisted or if any other symptoms had appeared (63). Screening might have to be delivered regularly in order to sufficiently reduce the TB burden in communities of PWUD.

Diagnosis, results communication and treatment

WHO recommends (64) the use of Xpert MTB/RIF as a first diagnostic test for individuals:

- Suspected of MDR-TB;
- Living with HIV who have signs and symptoms of TB; or
- With unknown HIV status presenting with strong clinical evidence of HIV infection.

Examples from the field also demonstrate that diagnosis can be performed with support of clinicians and utilizing CXRs where available. Both diagnosis and results communication should be performed in a supportive manner and with awareness of additional barriers PWUD might encounter in obtaining diagnosis (e.g. stigma, additional costs associated with travel and informal/formal payments, the need to travel to multiple locations, etc.).

Treatment regimens should follow nationally approved protocols; however, providers should be aware of the higher risks of hepatotoxic reactions to TB medications among people with a history of hepatitis. Considerations should be made to monitor these reactions and support adherence to treatment through complications. Once treatment regimens are prescribed, all efforts should be made to ensure that treatment is ambulatory. Treatment adherence and outcomes among PWUD have been found to significantly improve when opiate substation therapy is provided and when services are integrated so that individuals are able to receive needle exchange/drug treatment, TB treatment and ART (if needed) in one place. This "one-window" approach combined with peer support and case management can be transformative for PWUD communities.

TPT

If active TB is ruled out, TPT is recommended for PWUD, as they are at a higher risk of progressing to active TB disease. TPT delivery ideally should be performed through similar "one-window" approaches and through additional case management support, if necessary.

Gender

Interventions targeting PWUD must be attentive to gender, as women and LGBTI PWUD may encounter additional barriers in accessing services and be at an even greater risk of HIV through engagement in sex work, lack of education about safe injection and other factors. Meanwhile, men who use drugs are at risk through incarceration and being in police custody and because of overall distrust of health and social services. Programmes should analyse these barriers with the community and devise which approaches work best (e.g. working with female outreach workers, sexual and reproductive health care providers to engage women, with trusted physicians to engage LGBTI people, or with trusted PWUD community leaders to engage more men).

Indigenous peoples and ethnic and tribal minorities

Globally, an estimated 370 million indigenous peoples reside in 90 countries (70). These populations are among the world's most marginalized, and they are further isolated politically and socially by the geographical location of their communities, their culture, language and traditions (71). Indigenous peoples are also among the world's poorest. In settings where information about these populations is available, they report a significantly higher TB burden (19, 71). High TB prevalence has also been noted in ethnic and tribal minorities, with studies showing elevated rates of TB in Indian Saharia tribes (72), Uighur ethnic minorities in China, and Roma communities across Europe (73). However, in many settings, there is a lack of population estimates and information on health, social and other indicators among indigenous peoples and ethnic and tribal minorities, which makes interventions challenging to plan and deliver.

Many barriers may be common across settings. Crowded homes, lack of access to food, comorbidities, and cultural beliefs and worldviews that do not align with those of formal health services are issues that are as pertinent to the Maasai populations of Kenya as they are to Saharia in India and Inuit in Canada. Health access is further compromised by years of discrimination, displacement, loss of livelihood through loss of land, remote location and traditional worldviews, which may all foster indigenous peoples' and ethnic and tribal minorities' distrust of the formal health systems (75). In all settings, working with communities to devise interventions that are acceptable and supportive, and that do not interfere with community beliefs and practices will be necessary for interventions to be effective.

In developed settings, the incidence of TB among Inuit in Canada is more than 300 times higher than in the Canadian-born. With a push from local advocates, Canada has developed an Inuit-Specific TB Strategy. This strategy attempts to address the key challenges to conquering TB among Inuit. These challenges are linked to inadequate 1) housing; 2) food security and nutrition, with proper nutrition being unavailable or too expensive; 3) mental wellness, with issues like unemployment and chemical dependencies serving as determinants of high risk for TB; and 4) access to health care, with the presence of language and cultural barriers and a lack of health staff working in Inuit regions (73). In the face of these challenges, the National Representational Organization Protecting and Advancing the Rights and Interests of Inuit in Canada and multiple other partners have developed an ambitious TB elimination strategy, the Action Plan of which envisions the following five components (73):

- Community education and mobilization;
- Intersectoral partnership for addressing the social determinants of Inuit health;
- Evidence-based, Inuit-appropriate TB prevention, control and care programmes;
- Surveillance and research;
- Evaluation and reporting.

Implementers in other settings can adopt these components, acknowledging that case-finding projects with indigenous peoples and tribal and ethnic minorities will require:

- Community buy-in and participation; and
- Engagement of multiple stakeholders/sectors (including but not limited to tribal/community leaders, traditional healers, formal health systems, community outreach workers, etc.).

Such projects may help to build:

- Evidence and data resources for future interventions and support.

How to implement TB case-finding interventions with indigenous peoples and ethnic and tribal minorities

Stakeholder engagement

Ensuring engagement of multiple stakeholders, including the representatives of affected communities, is key for interventions with indigenous peoples and ethnic and tribal minorities. Lifestyles and preferences of the community in question need to be considered. For example, ministries of agriculture/livestock might have to be involved to provide cattle route maps if engagement of pastoralists is planned. Similarly, tribal leaders and community members might provide insight into where health care is usually sought (e.g. from traditional healers, herbalists in the private sector, etc.) and what cultural taboos might be preventing individuals from successfully being screened and testing for TB (e.g. beliefs about TB, fear/distrust of Western medicine). Engaging CHWs from the affected community who speak the same language and who have a deep cultural understanding of the affected populations could be extremely beneficial. There is evidence that the engagement of Roma health mediators (76) and training of Maori health care providers (77) has helped to improve access to health care among these populations. TB REACH projects have also benefited from engaging San tribe and Saharia tribe community representatives to deliver TB interventions.

Screening and diagnosis

Interventions focused on screening indigenous peoples and ethnic and tribal minorities need to take into account language and cultural beliefs of the affected communities and ensure that educational materials are sensitive to their needs. In Namibia, sputum submission videos in the San language were very popular in the community, helping to promote TB education and destigmatize the process of TB diagnosis. In some programmes, traditional healers have been successfully engaged to screen individuals, refer them for diagnosis and provide treatment support. These and other models should be further explored.

TB CASE FINDING WITH INDIA'S SAHARIA COMMUNITIES

India's Saharia tribes live in villages that are only accessible by foot, over 40km from the closest government health facility. In addition to geography, stigma and language barriers prevent the Saharia from accessing services, leading to a TB prevalence in Saharia communities that is 10 times higher than India's national average.

To address these inequities, an NGO has been working with Saharia tribes since 2014 to train and maintain a network of CHWs who screen tribespeople, collect sputum and deliver samples to nearby laboratories via motorbike. Although the CHWs were initially salaried, due to limited resources, their salaries were lowered; instead, the programme devised an incentive scheme that provided rewards to CHWs for each patient started on treatment. In its final 15 months of operation, the programme screened 228,087 people and started 2,626 on treatment. The persistent advocacy work of the group and engagement with the Saharia tribes earned the recognition of the state government, which is now funding and continuing the intervention. The government will provide nutritional packages for Saharia peoples to support treatment tolerance and adherence. The project is also advocating for the engagement of local and peer screeners and CHWs sourced from the Saharia people.

Supporting treatment adherence

The entire TB diagnosis and treatment cascade also needs to be sensitive to other cultural aspects, such as the frequent mobility of certain indigenous populations and seasonal activities (e.g. hunting, herding or harvesting) that might interfere with the TB care process. Notably, the Kenya TB manyatta model of building small homes reminiscent of those used by Kenya's pastoralists provides representatives of this mobile indigenous group TB treatment for 4 months with the help of a family member (78).

Other key population groups

Based on the setting, there could be multiple other populations that are at greater risk for and/or are affected by TB and that might need population-specific interventions. TB REACH programmes have engaged with factory workers in Bangladesh, fisherfolk in the Niger delta, police and military personnel, street children, monastery dwellers, and truck drivers, among others. Implementers are encouraged to analyse where particular population groups might be affected by TB and what specific stakeholders and approaches to screening, diagnosis and treatment adherence may be considered.

FINDING TB AMONG FACTORY WORKERS IN BANGLADESH

A TB REACH project in Bangladesh aimed at scaling up case finding among the country's garment factory workers. Two studies have reported the TB notification rates among garment factory workers to be up to four times higher than the national average. The Centre for Woman and Child Health (CWCH) aimed to work closely with factory nurses to screen workers and then direct them to CWCH for testing. It quickly became apparent that the nurses would not be able to do the screening because of all the other duties assigned to them; furthermore, the factory workers would not go to CWCH for diagnosis. The project had to change course rapidly and, instead of nurses, trained a team of 15 project screening workers who would enter a factory and screen all of its workers and personnel in a single day. Accompanied by a TB doctor, the team screened and examined workers, and referred those with suspected TB for sputum collection. Sputum was collected on site and a mobile X-ray bus was deployed, purchased with money saved from the training of nurses. Over a year of operation, the project screened 309,152 workers in 259 factories. Out of those screened with 11 screening questions, 10,000 (3.2%) were identified with suspected TB, 9,074 were examined by a doctor, 6,308 had a CXR, 5,277 had at least one sputum specimen tested by LED microscopy, and 149 had a fine needle aspiration biopsy. Out of the 10,000 individuals with suspected TB, 477 were confirmed for all forms of TB, equating to a 154 per 100,000 notification rate – 1.5 times the national average at the time. While the project did not find the same amount of people with TB as predicted by previous studies, it did demonstrate that the successful deployment of trained lay personnel for screening and the utilization of a mobile team could deliver rapid results when screening individuals in a factory environment. The project also demonstrated that productive relationships are possible between community organizations, TB programmes and private sector stakeholders (factory owners).

3.3 Ensuring linkages to treatment and providing support for treatment adherence

While the review of particular key populations has already stressed this point, it is worth emphasizing the importance of linkages to treatment and support for treatment adherence. TB case-finding interventions with key populations should not stop with timely diagnosis, particularly since treatment access and treatment adherence could be particularly challenging for members of key populations for the same reasons that diagnosis is (e.g. legal, behavioural, cultural challenges, loss of employment). Therefore, it is essential to design an effective follow-up and support structure to ensure that people with TB complete treatment. Treatment follow-up and support can be conducted by the same multidisciplinary teams or peer educators and supporters who have assisted with diagnosis. However, these tasks might require additional effort, such as locating the individuals, ensuring treatment adherence and providing encouragement, motivation, incentives and support. These strategies should be considered and discussed prior to programme implementation.

3.4 Ownership and accountability

Programme implementers working on finding the missing people with TB in key populations are first and foremost accountable to the populations that they service. Therefore, to gauge the success of these interventions, one must consider not only the additional missed persons found, but also the overall improvement to the health services received by representatives of key populations. The same principles of inclusion, human rights, gender responsiveness, and evidence-based programming apply to accountability frameworks. When interventions for key populations are not working, implementers are encouraged to analyse the barriers and bottlenecks that might be preventing people from engaging.

- Have all the stakeholders been consulted?
- What barriers might individuals be facing in accessing the interventions (consider legal, behavioural, cultural, employment-enforced and other barriers)?
- Are interventions offered with the understanding of the local gender dynamics?
- What evidence might have been missed that could guide improvements to the interventions?

Answering these and other questions that can be sourced from affected communities could help foster further ownership and demonstrate accountability.

Section 4 below addresses monitoring and evaluation (M&E), which can help implementers to proactively respond to challenges and course correct. However, ensuring that TB interventions are able to contribute to the elimination of overall systemic barriers to care among key populations can be a true testament to whether or not the intervention can succeed in the long term.

CHECKLIST FOR DESIGNING CASE-FINDING INTERVENTIONS WITH KEY POPULATIONS

Population Size Estimation and Prioritization

- ☐ Key populations prioritized
- ☐ Estimates conducted at local level
- ☐ Consultations with affected populations conducted around estimations and prioritization
- ☐ Programme planned using data estimations and feedback from affected populations

Programme Management

- ☐ Training of staff – additional and/or continuous
- ☐ Coordination of all stakeholders involved
- ☐ Reporting and regular meetings
- ☐ Technical support

Key Population Engagement and Empowerment

- ☐ Members of key populations engaged at all levels of programme design, planning and implementation
- ☐ Create a system for representatives of key populations to provide oversight/report on the quality of services received

Programme Design

Staffing Considerations

- ☐ Health workers
- ☐ Peers

Linkages to labs and hospitals through staffing or structure designs

- ☐ Training
- ☐ Responsibility/ Coordination
- ☐ Motivation/ Compensation
- ☐ Expanding capacity of staff
- ☐ Safety

Monitoring and Evaluation

- ☐ Develop data collection tools with key-population-specific indicators
- ☐ Ensure the quality of data collection
- ☐ Ensure regular review of data to adjust programming if needed

Structural Considerations

- ☐ Multidisciplinary teams
- ☐ One-stop shop approaches
- ☐ Peer-to-peer and community engagement approaches
- ☐ Timing
- ☐ Mobility
- ☐ Responsibility/ Coordination

Linkages to Treatment

- ☐ Multidisciplinary team/peer approaches to initiate and support treatment
- ☐ Co-location of services for individuals with comorbidities (TB/HIV, TB/drug dependency, etc.)

4. MONITORING AND EVALUATION OF TB CASE-FINDING INTERVENTIONS WITH KEY POPULATIONS

4. MONITORING AND EVALUATION OF TB CASE-FINDING INTERVENTIONS WITH KEY POPULATIONS

While standard TB screening and care cascade indicators apply to TB key populations, additional indicators must look at the acceptability and accessibility of services, as well as treatment adherence and outcomes, which are a true concern for these groups.

Indicators might also have to be specific to key populations and analyse factors linked to the barriers to care identified in the initial steps of planning the intervention.

When devising project indicators, implementers should utilize key indicators from the TB care cascade, such as:

- Number of people screened
- Number of people identified with TB symptoms
- Number of people tested positive for TB
- Number of people started on treatment
- Number of people who have completed treatment

In terms of the accessibility and acceptability of services, these indicators might provide programmatic insights:

- Number of people reached per day in a particular area (could demonstrate how difficult/easy it is to reach people from a group)
- Number of people reached per day per peer worker/multidisciplinary team (to identify performance of peers/teams in reaching a particular group)
- Number of people reached with a specific screening method (to identify if a particular screening method works best for a particular group)
- % of people identified as having symptoms by peer screeners/multidisciplinary teams that tested positive for TB (to identify the effectiveness of the screening)

To assess the challenges that people have previously encountered in accessing services or to establish a baseline among key populations, these indicators may also be introduced:

- Number of people previously diagnosed with TB who have not completed treatment
- Number of people previously tested for TB who have not received results
- Number of people with previous abnormal X-ray results who never received follow-up testing

Treatment adherence and outcomes are crucial for key population interventions. While screening by peers and in the community may be working, it is an additional challenge to convince marginalized and stigmatized populations to initiate treatment. Thus, the following should be monitored:

- Number of times peer/multidisciplinary teams had to follow up with individuals before treatment was initiated (to analyse the persistence with which individuals were engaged)
- % of people on treatment of those identified as having TB
- % of people on treatment of those who initiated treatment X months ago
- % of people completing treatment

A key consideration for monitoring interventions with key populations is also understanding how to interpret the results. While case finding among key populations may not contribute significantly to population-level data and overall notifications, it may identify unprecedented TB prevalence rates in a particular population. For example, the TB REACH project in Pakistan identified an 8% TB prevalence rate among transgender women and male sex workers in Karachi. These data, despite not showing an increase in overall notifications, demonstrate a systemic lack of access to TB services among key affected populations due to stigma and exclusion and underline the need for targeted services. In another project among Saharia tribes in India, case finding in Saharia demonstrated significant spikes in overall TB notifications, suggesting that a large portion of a state's population was being entirely missed by routine TB programming. While one project identifies stigma and exclusion as a barrier, the other also introduces remote location and poverty as factors preventing access for a large portion of a national population. Both projects highlight the need for additional services or adaptation of existing services to the needs of key populations, but data need to be interpreted carefully to come to this conclusion.

M&E frameworks can also contribute to analysing whether something about the intervention is not working or not accounting for vital structural barriers. For example, if there are large numbers of people being verbally screened, but only a few identified with suspected TB: Are the screeners trained properly or are the communities not admitting to symptoms because of stigma? Are screening numbers down because of challenges faced by criminalized and marginalized populations in accessing services? Where interventions are challenged by human rights and structural barriers to care, these need to be identified in order to change the situation. For this, the emphasis should be placed on ensuring that there is engagement of key population representatives in the oversight and M&E of the projects that are aiming to serve them.

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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.

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