



Best Practices on TB Case Finding and Treatment

Reflections and Lessons from West and Central Africa and Beyond

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LIST OF ABBREVIATIONS

ACF	active case finding
aDSM	active drugs safety monitoring
AEs	adverse events
AFB	acid-fast bacillus
ART	antiretroviral treatment
AUC	area under curve
BCC	behaviour change communication
BCPT	bacteriologically confirmed pulmonary TB
CB	community-based
CBC	complete blood count
CBO	community-based organization
CCM	country coordination mechanism
CDR	case detection rate
CHC	community health center
CHW	community health worker
CHV	community health volunteer
CME	continuing medical education
CNR	case notification rate
CPT	cotrimoxazole preventive therapy
CSF	cerebrospinal fluid
DOT	directly observed treatment
DOTS	directly observed treatment, short course
DQA	data quality assurance
DSM	drug supply management
DR-TB	drug resistant TB
DST	drug sensitivity testing
EPTB	extrapulmonary TB
FM	fluorescence microscopy
GDF	global drug facility
HC	health center
HCW	health care worker
HEW	health extension worker
HF	health facility
HLM	high-level meeting
HMIS	health management information system
HRH	human resources for health
IC	infection control
ICCM	integrated community care management
ICF	intensive case finding
IEC	information education communication
IGRA	Interferon Gamma Release Assay
IMNCI	integrated management of newborn and childhood illnesses
IPT	isoniazid preventive therapy
ITM	Institute of Tropical Medicine
LPA	line probe assay
MDR-TB	multidrug-resistant tuberculosis
M&E	monitoring and evaluation
MRC	Medical Research Council
MSAS	Ministry of Health and Social Action
MTB	mycobacterium tuberculosis
NGO	non-governmental organization
NTP	National Tuberculosis Program
NTLP	National Tuberculosis and Leprosy Program
NPV	negative predictive value
OPD	outpatient department
PLHIV	people living with HIV

PPV	positive predictive value
PQE	program quality and efficiency
PSM	procurement supply management
PSS	psychosocial support
QI	quality improvement
RR-TB	rifampicin resistant TB
RSSH	resilient and sustainable systems for health
SARA	service availability and readiness assessment
Se	Sensitivity
SDG	Sustainable Development Goal
SLD	second-line drug
SMC	seasonal malaria chemoprevention (SMC)
SOP	standard operating procedure
Sp	specificity
SPR	smear positivity rate
TB	tuberculosis
TST	tuberculin skin test
USAID	US Agency for International Development
VHW	village health worker
WHO	World Health Organization
WCA	West and Central Africa

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SUMMARY

1 INTRODUCTION

Tuberculosis (TB) remains the top infectious killer in the world. It is also the main cause of deaths related to antimicrobial resistance (AMR) and the leading killer of people with HIV. In 2016, an estimated 10.4 million people developed TB, but only 6.3 million (61 percent) were detected and put on treatment (WHO, 2017). Globally, TB case notification has remained flat for almost 10 years. In addition, 13 percent of TB patients are co-infected with HIV, and most of these cases are from Africa (WHO, 2017). In West and Central Africa (WCA)¹, critical gaps in TB case finding and treatment have contributed to a substantial burden of undiagnosed TB—with regional estimates² indicating that more than 50 percent of people with TB are unreported or ‘missing.’

Recognizing these challenges and leveraging the progress that has already been made in some countries, the Global Fund to Fight AIDS, TB, and Malaria and partners (WHO, STOP TB, TDR and WARN-TB, The Union, the Damien Foundation, USAID, NGOs, and other community actors) have joined forces to boost intensified case finding (ICF) for TB and improve treatment outcomes in the West and Central Africa sub-regions in 2018-2020. The aim of this collaborative initiative is to scale-up best practices to improve TB case finding and treatment outcomes in the WCA region.

As part of the launch of this initiative, a workshop was held from March 26 to March 28, 2018 in Cotonou, Benin that was designed to bring countries together to share lessons learned and best practices on TB case finding and treatment outcomes in the region and beyond and support their efforts to reach the common goal of ending TB by 2030. The three-day programme included a series of plenary sessions and country-level presentations, thematic working group sessions, country planning working group sessions, and expert panels—all aimed at supporting countries to think creatively about improving and/or deploying effective strategies to find missing people with TB, enhance treatment outcomes, and plan implementation of best practices based on the country context and available resources.

The WCA workshop aimed to enhance learning by providing participants with concrete lessons and best practices for improving TB case finding and treatment outcomes and supporting their respective countries to pilot or scale-up innovations within their unique contexts. This report provides a summary of its presentations, discussions, and outcomes.

2 SETTING THE STAGE: WHERE ARE WE NOW?

During Day 1 and 2 of the workshop, **introductory presentations** provided participants with an overview of global and regional TB progress—with a special focus on TB detection and treatment outcomes, TB/HIV co-infection, and paediatric TB.

Despite global progress, 40 percent of TB cases in Africa are under-detected or under-reported, with a critical gap in TB detection among 15 to 44 years old males. Additionally, more than 100,000 children and adolescents with TB are missed each year in West and Central Africa. Furthermore, the estimated mortality in TB/HIV co-infected patients in the WCA region is 50 percent higher than in the rest of Africa and RR/MDR-TB is underdiagnosed and under-treated—with currently only 20 percent of the patients suffering from DR-TB being diagnosed and treated. The large percentage of missing people with TB results from a combination of under-diagnosis and under-reporting—pointing to the critical need to improve TB case finding for improved TB control. A number of barriers and gaps in TB prevention and care in the region have been identified and include low operational capacity of laboratory networks, weak TB screening strategies in target groups, and inadequate involvement of all health care providers.

Decentralization and strategic integration of HIV and TB services will be crucial for bridging the case detection and treatment gaps, while health system barriers (e.g., M&E, PSM, and HR) should be addressed jointly to ensure functional integration and patient follow-up. At the same time, active screening to diagnose children early through contact investigation and integration of TB screening, diagnosis and treatment into other child health services; improving diagnostic capabilities, including promotion of clinical diagnosis when required; and provision of preventive therapy to young children exposed or infected with TB are three areas that have

¹ The West and Central Africa region as defined by the Global Fund includes Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, CAR, Chad, Congo Brazzaville, Gabon, Gambia, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Sao Tome & Principe, Senegal, Sierra Leone and Togo.

² According to WHO 2015 estimates and an analysis of key TB indicators from Global Fund grants

been identified as critical to scale-up the response to childhood TB. Finally, investments in health systems are a necessary complement to the core investments in TB control programs, and these investments can be leveraged to support high-quality TB service delivery.

In an effort to better understand the issue of missing people with TB within the region and facilitate **in-country discussion and analysis** of both possible barriers in finding missing people with TB and improving treatment outcomes for TB and MDR-TB patients, a template was sent to all participant countries prior to the workshop to encourage internal analysis of strategies already tried and other innovations that could be applied. Findings from this exercise revealed a number of insights. Countries identified rural and sparsely populated areas, prisoners, children, PLHIV, and people at risk of MDR-TB as the top five groups/areas with the worst case detection and treatment outcomes. They also identified the most common barriers to case notification and successful treatment outcomes, which included limited access to high-quality TB diagnostic services and screening; inadequate technical capacity; high out-of-pocket payment for health services and commodities; poverty and high economic burden; lack of adherence to guidelines; absence of guidelines and algorithms; and insufficient financial resources for NTP activities. Health system barriers, such as long consultation times, inadequate staffing, high staff turnover, high patient to health provider ratio, and infrastructure issues were also noted. Finally, participants reflected on some successful experiences in case notification and treatment outcomes, citing cases associated with DR-TB, PLHIV, and prisoners—although the scale of these positive experiences was quite small.

3 SHARING CURRENT PRACTICES: COUNTRY CASE STUDIES

Countries were invited to share their experiences and engage in an interactive discussion with colleagues through **presentations on key themes** during Day 1. Additional experiences from countries were presented and discussed with a smaller audience during the **poster sessions** held on Day 2. Opportunities for learning and engagement were amplified by current practices, lessons, and innovations shared through presentations from countries outside the region—including Uganda, Ethiopia, Tanzania, and Kenya. The main presentations were organized around country experience in four main areas:

- Boosting TB detection through community engagement and services decentralization: Ethiopia's experience with health extension workers (HEWs); Senegal's experience with community engagement; and TB care decentralization in the Ivory Coast.
- Active case finding at the facility level: Program quality and efficiency (PQE) improvement in Tanzania and Kenya; The RafaScreen Study to screen TB in PLHIV and diabetics in Senegal, Benin, and Guinea Conakry; and Challenges and opportunities in active case finding in Ghana.
- What are we doing to address TB in children?: Benin's experience with contact tracing and Decentralizing and integrating paediatric TB diagnosis and care in Uganda.
- Patients' case management and treatment outcomes: Delivering a comprehensive package of care for MDR-TB patients in Niger and Cameroon.

All of the presentations and posters followed a similar structure that included an introduction of the country context and the rationale for the intervention; an analysis of the barriers and the challenges, as well as the opportunities and enablers; the planning and implementation steps taken, including the stakeholders involved; the tools used to monitor and evaluate the intervention; the results, even if preliminary; and the lessons learned and relevance and/or applicability of the intervention to other contexts. Overall, participant feedback indicated that presentations reflected a number of innovative approaches (e.g. tools developed to screen patients for TB; integrated and decentralized models of care; progressive scale-up of MDR-TB care using short regimens; etc.) and a commitment to identifying and applying tailor-made and context-specific solutions. Furthermore, the positive results achieved thus far have contributed to increased momentum for scale-up, replication, and implementation in other countries and contexts.

4 WORKING TOWARDS TB SOLUTIONS: KEY INSIGHTS AND ACTIONS

A primary objective of the workshop was to provide an opportunity for participants to discuss challenges and identify solutions. On Day 2 of the workshop, an **update on four main thematic areas** strongly associated with health system strengthening was provided by experts. The four topics were then discussed in working groups where the participants shared with experts and partners their views about challenges and opportunities and agreed on at least three possible innovative solutions to address those areas. The thematic areas included:

- Thematic Area 1: TB laboratory diagnostics, with special focus on the operational aspects of rapid molecular tests;

- [Thematic Area 2](#): Procurement, supply, and management (PSM), with special focus on the importance of linking programmatic TB data to PSM aspects and on issues related to the introduction of new drugs and regimens;
- [Thematic Area 3](#): Monitoring and evaluation (M&E), with special focus on the use of data to inform policy, and to those groups and populations whose data are not routinely collected and easily available;
- [Thematic Area 4](#): Community engagement for TB control, with special focus on people-centered and community-driven responses to TB.

Feedback from the working groups indicated a strong interest and willingness to explore innovations, to engage more with communities, and to take advantage of existing and available resources. Participants indicated that this could be achieved through joint supervision and training for TB, HIV, and malaria, better coordination and integration among programs, common utilization of tools (e.g., GeneXpert platform, M&E tools, PSM channels), better utilization of available human resources, and by exploring additional funding opportunities (e.g., resilient and sustainable systems for health (RSSH) and HIV grants, other partners projects, etc.).

5 TAKING COUNTRY PLANNING FORWARD: WHERE ARE WE GOING? HOW ARE WE GETTING THERE?

After each session, individual participants were invited to complete a form that asked ‘**what about my country?**’ More specifically, they were requested to briefly take note of their immediate reactions to the presentations they attended and to reply to a set of questions on gaps, opportunities, and bottlenecks. With each bottleneck, participants were invited to come up with opportunities to improve the situation. Opportunities in some cases were the same as bottlenecks as some participants saw in the issue (for example funding) both the weakness in their program and the area that, if strengthened, could make a meaningful difference in their program’s success. Additionally, as this was a survey completed by 19 countries, where some saw one area as a strength, another did not (an example is the reported strength of the health system in some countries but not all). Overall, although several bottlenecks were noted, the most common included funding gaps, insufficient human resources, and challenges related to MDR-TB case management and treatment outcomes. The most important opportunity to build around was viewed as human resources, followed by funding, partner support, opportunities to scale-up pilots, and the strength of existing systems. A summary of the overall bottlenecks and opportunities is reported below. This information provides key insights on what actions countries will potentially take forward, building on their collective learning and reflection.

On Day 3 of the workshop, countries were invited to work on their own **country plans** as an opportunity to define in as much detail as possible what would be implemented, scaled, and/or piloted to improve TB case finding and treatment outcomes in their contexts and how this implementation would happen. Specifically, participants were given three guiding questions to answer in order to facilitate their focus upon returning to their countries. Country delegations worked individually through working groups to develop a plan based on the questions and were then able to discuss their draft proposals in real time with experts and through a peer review. Resources made available to countries during this process included a counterpart from the NTP of another country in the region and other partners who could offer additional guidance and possibly more formal TA or some small grants for the community component. Of particular note, participants were able to incorporate ideas that they learned through country presentations with the knowledge that it was tried and tested in a similar context. Some interventions proposed by countries in their plans included working with key populations that have difficulty accessing the health care system—including children, nomads, and prisoners; implementing active case finding in prisons and areas with indigenous populations; improving sputum transportation; and screening all symptomatic diabetic patients by chest x-ray with the aim to reduce mortality in this high risk population. Overall, the country planning process was a very useful exercise that helped to consolidate the experiences and learning that were shared and also allowed countries to receive some immediate feedback from other countries, explore technical support, and explore financial and technical opportunities for implementation.

Aside from the country draft plans that were developed during Day 3 of the workshop, which were a key outcome of the workshop, another key result of this process was the **Cotonou TB Declaration**—a resolution made by participants. The declaration highlights the particular needs in the region and requests the level of support needed from governments and stakeholders to tackle the TB challenge, including seven areas that participants agreed were the most promising in terms of reversing the tide of the TB burden and that require additional focus and improvement (see Annex 1).

In conclusion, while the fight against TB remains a major global threat and the burden that TB places on health services and systems in sub-Saharan Africa is particularly significant, promising developments in the West and Central Africa region and beyond have provided an opportunity to reflect on progress, refocus capabilities, and apply lessons learned to accelerate interventions in TB control.

The best practices and experiences shared throughout this workshop demonstrate that a number of innovative and effective strategies to find missing people with TB and enhance treatment outcomes are possible. Among these promising examples, several key messages to consider have emerged not only for countries in the region, but also for TB actors across the continent and globally:

1. **Capitalize on community-based action for successful TB control efforts.** In communities across the region and continent, community health workers, community-based service providers, and local leaders have helped to pave the way in finding missing people with TB and improving TB outcomes. Leveraging and scaling-up these local resources to deliver local and context-specific TB solutions—and aligning capacity building investments accordingly—provides a unique opportunity to strengthen critical linkages between health services and local communities.
2. **Strengthen health systems to support successful TB prevention, detection, and management—particularly for children.** To this end, investments should be leveraged to reinforce the health system through both cross-cutting and disease-specific interventions. This includes addressing human resource gaps, strengthening technical and management capacity at all levels of the health care system, engaging primary health care facilities, and scaling-up TB-specific interventions that reinforce health systems (e.g. case management, laboratory capacity, HIS, PSM, etc.)
3. **Integrate services to increase access to TB diagnosis, care and improved outcomes.** For example, promising strategies emerged for collaboration and strategic integration of HIV and TB services—which is critical for bridging case detection and treatment gaps and reducing incidence, prevalence, and mortality due to TB and HIV. Field experiences have also shown the importance of using multiple entry points for TB detection (e.g., MCH) and securing the “buy-in” of NTPs and other programs (e.g., malaria, nutrition) in improving TB outcomes.
4. **Optimize use of existing tools and resources.** Exploring how existing competencies, tools, and resources (e.g. staff competencies and skills, HMIS, diagnostic platforms, etc.) in the health system can be applied to the implementation of TB interventions supports not only TB services but also sustainability.
5. **Maximize the scaling-up of successful pilots and dissemination of best practices.** A number of successful pilots were shared throughout the workshop for boosting TB detection, improving case finding, addressing TB in children, and improving treatment outcomes. Moving forward, countries can—and should—focus efforts on taking these lessons and experiences forward, implementing them nationwide where appropriate, and integrating them into routine practices. Increasing awareness among decision-makers and other key stakeholders of best practices and establishing further networks to communicate regularly and share experiences both within and outside of country settings should be prioritized.
6. **Finance efforts adequately and commit at government level.** The success of these national TB programs rests on each government’s willingness to place high importance on the fight to end TB and, consequently, equip programs with the necessary human and financial resources—along with support at the highest levels. This, coupled with continued international donor support, will be instrumental in reversing the trends seen throughout the region.

Through a focus on community-led efforts, paediatric TB, and other TB high risk groups—along with the inspiring experiences shared around scaling-up MDR-TB and the significant gains made by NTPs, committed partners, and in-country champions with limited resources—this workshop has highlighted both impressive advances and key areas where urgent actions are needed to get ahead of challenges. Not only have the countries that attended the workshop gained substantial momentum but their experiences offer important lessons for countries facing similar hurdles in TB control. Sustaining and expanding this progress—which includes establishing strong mechanisms for collaboration across sectors and services and strengthening implementation—will ensure that more missing people with TB are found, TB treatment outcomes in the region are improved, and, ultimately, a shared pathway is forged to achieve the End TB 2030 targets.

1 INTRODUCTION

1.1 Background and rationale

Despite significant progress in diagnosis and treatment of tuberculosis (TB) over the past twenty years, millions of patients go unreported every year. In West and Central Africa (WCA region as defined by the Global Fund)³, critical gaps in TB case finding and treatment have contributed to a substantial burden of undiagnosed TB—with regional estimates⁴ indicating that more than 50 percent of people with TB are unreported or ‘missing.’ Based on the most recent estimates, about 63,000 people with TB are missed in Central Africa (CA region as defined by the Global Fund)⁵, while over 55,000 are missed in West Africa (WA region as defined by the Global Fund)⁶. These represent 1.6 percent and 1.4 percent respectively of the estimated 4 million people with TB who continue to be a major driver of the epidemic globally. In Central Africa, Cameroon is the largest contributor, with more than 22,000 missing people (35 percent of those missing), followed by Chad (18 percent), and Central African Republic and Congo (14 percent). In West Africa, the largest number of missing people with TB are in Guinea, Senegal, and Niger—more than 9,000 people missing in each country, with each country representing approximately the 17 percent of the total. Treatment coverage (i.e., TB notified cases divided by the estimated incidence) is similar in the two regions, with 55 percent in Central Africa and 57 percent in West Africa.

Moreover, while HIV status is documented in over 75 percent of patients in much of the region, the estimated mortality rates of TB/HIV co-infected individuals is 50 percent higher than in the rest of Africa—indicating missed opportunities to scale-up TB screening among people living with HIV (PLHIV) and ensure clients diagnosed with TB are linked to care and treatment. Other challenges in the region include poor case finding among children and adolescents (e.g., approximately three quarters of children remain undiagnosed every year) and high rates of underdiagnosed and undertreated MDR/RR-TB (e.g., only 20 percent of patients with DR-TB are diagnosed and treated).

A number of barriers and gaps in TB prevention and care in the region have been identified and include the following:

- Low operational capacity of laboratory networks (e.g., GeneXpert implementation, sample transport and capacity building) and limited quality control;
- Weak TB screening strategies in target groups (PLHIV, children, detainees, etc.) and poor integration of services (e.g., TB/HIV); and
- Inadequate involvement of all health care providers (e.g., community, private, public).

Addressing these challenges and expanding TB diagnosis, treatment, and prevention services to reach those who need it will require a combination of approaches and innovations—led largely by national TB control programs and in close collaboration with government and non-governmental partners, donors, civil society organizations, and communities. Some countries and sites in the region have already developed promising approaches to intensified TB case finding and treatment practices, both at facility- and community-based levels. These experiences serve as valuable lessons learned and provide potential pathways for scaling-up and replicating best practices in other settings.

Leveraging these lessons and existing in-country networks, the Global Fund to Fight AIDS, TB, and Malaria (Global Fund) and other partners (WHO, STOP TB, TDR and WARN-TB, The Union, the Damien Foundation, USAID, NGOs, and other community actors) have joined forces through a collaborative initiative aimed at scaling-up best practices to boost intensified case finding (ICF) for TB and improve treatment outcomes in the West and Central Africa sub-regions in 2018-2020.

1.2 Workshop design and methodology

This workshop was part of the collaborative initiative designed to bring countries together to share experiences and support their efforts to reach the common goal of ending TB by 2030—in line with the WHO End TB strategy. Held from March 26 to March 28, 2018 in Cotonou, Benin, the workshop included more than

³ The West and Central Africa region as defined by the Global Fund includes Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, CAR, Chad, Congo Brazzaville, Gabon, Gambia, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Sao Tome & Principe, Senegal, Sierra Leone and Togo.

⁴ According to WHO 2015 estimates and an analysis of key TB indicators from Global Fund grants

⁵ The Central Africa region as defined by the Global Fund includes Benin, Burundi, Cameroon, Cape Verde, CAR, Chad, Congo Brazzaville, Gabon, Sao Tome & Principe, and Togo.

⁶ The West Africa region as defined by the Global Fund includes Burkina Faso, Gambia, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Senegal, and Sierra Leone.

40 participants from 19 countries⁷ and was part of a series of structured activities designed to support countries to implement better TB practices.

Specifically, the workshop aimed to support participants to:

1. Think creatively about improving and/or deploying effective strategies to find missing people with TB and enhance treatment outcomes through interactive engagement and discussion with other countries in the region on key issues in current TB management and case finding and;
2. Plan implementation of best practices based on the country context and available resources, including identifying the technical assistance and resources needed to scale-up.

Invited participants included national tuberculosis program (NTP) staff and representatives from Ministries of Health, the Global Fund, WHO, STOP TB, The Union, the Damien Foundation, USAID, NGO partners, and other community actors. Building on work and previous regional exchanges since 2016, planning of the design and format of the workshop started in earnest through discussions between the Global Fund Technical Advice and Partnership team (TB team and other teams) and Grants Management Department (Central and West Africa teams) in late September 2017—followed by monthly meetings and calls with partners to gain better insights into partners' roles, contributions, projects, and country experiences. While the larger partners' group agreed on the overall workshop objectives, timeframe, and content, a small working group comprised of representatives from the Global Fund and partners was established to further define workshop session content and develop the tools required to collect country-level experiences and input in preparation for the workshop.

The tools that were designed to solicit feedback from countries included a template that enabled participants to analyse their unique circumstances—especially within the context of missing people with TB and achieving favourable treatment outcomes—and allowed the working group to better understand both the barriers preventing case detection and the strategies that have been used to find and treat TB cases. Country responses were used to tailor workshop sessions to articulated needs, to identify successful experiences that could be shared with other participants, and to inform country planning at the end of the workshop. Furthermore, the tools encouraged countries to start an internal process of reflection and discussion in preparation for the workshop.

The three-day programme included a series of [plenary sessions and country-level presentations](#), [thematic working group sessions](#), [country planning working group sessions](#), and [expert panels](#). In order to enhance and enrich the sharing of experiences, some other countries from outside the WCA region were invited to the workshop. Plenary sessions and country-level presentations afforded individual countries the opportunity to share the lessons learned, best practices and innovations (interventions and outcomes presented and interactively discussed) from various projects and experiences implemented by NTPs, partners and NGOs from within and outside of the region, while the working groups that followed provided countries with time to further reflect on bottlenecks and opportunities, identify gaps, and brainstorm possible solutions. These discussions laid the groundwork for another set of working groups, which focused on drafting country plans and a blueprint for improving case finding and treatment outcomes for a specific population in a clear way.

1.3 Purpose of this report

This report provides a summary of presentations, discussions, and outcomes from the WCA workshop. The workshop aimed to enhance learning by providing participants with concrete lessons and best practices for improving TB case finding and treatment outcomes and supporting their respective countries to pilot or scale-up innovations within their unique contexts. It also aimed to support advocacy and decision-making efforts related to key TB-related priorities within the region.

This report aims to summarize the main findings and outcomes of the workshop, and make it available to a larger audience.

The report is structured into five sections:

- [Section 1](#): Background and rationale for the initiative and the workshop
- [Section 2](#): A summary of TB data and key progress in the region
- [Section 3](#): Case studies, lessons learned, and best practices from specific country contexts

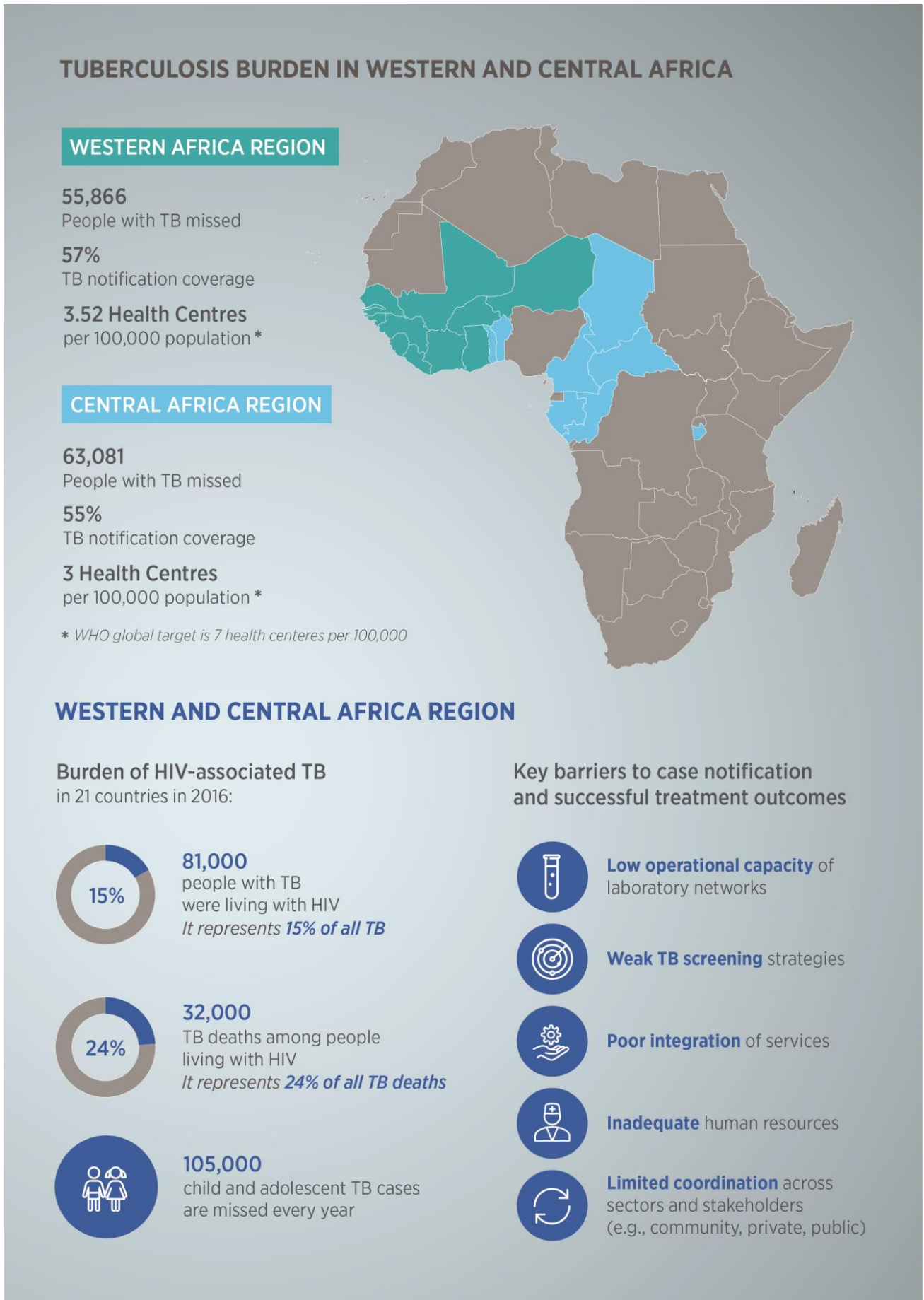
⁷ The West and Central African countries present at the workshop included Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Cote d'Ivoire, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Sao Tome and Principe, Senegal, Sierra Leone and Togo.

- [Section 4](#): Key insights on challenges, opportunities, and innovations in TB diagnosis, procurement and supply management, M&E and community engagement for TB control
- [Section 5](#): Country planning and final messages on the way forward

The report also contains four annexes:

- [Annex 1](#): Cotonou TB Declaration
- [Annex 2](#): Agenda and a full list of participants and speakers
- [Annex 3](#): Country template used for the workshop planning and preparation exercise
- [Annex 4](#): Summary of findings from the participants' workshop evaluation

Figure 1.1 Regional snapshot of the TB burden in West and Central Africa



2 SETTING THE STAGE: WHERE ARE WE NOW?

During Day 1 and 2 of the workshop, introductory presentations were made to provide participants with an overview of global and regional TB progress—with a special focus on TB detection and treatment outcomes, TB/HIV co-infection, and paediatric TB. In addition to these introductory presentations, a summary of the main bottlenecks and opportunities identified by the participant countries prior to the workshop, which either constrain or enable notification of missing people with TB and the achievement of successful treatment outcomes within their settings, was presented.

2.1 TB and MDR-TB case finding and treatment outcomes

Despite global progress, 40 percent of TB cases in Africa are under-detected or under-reported, with a critical gap in TB detection among 15 to 44 years old males. Additionally, more than 100,000 children and adolescents with TB are missed each year in West and Central Africa.

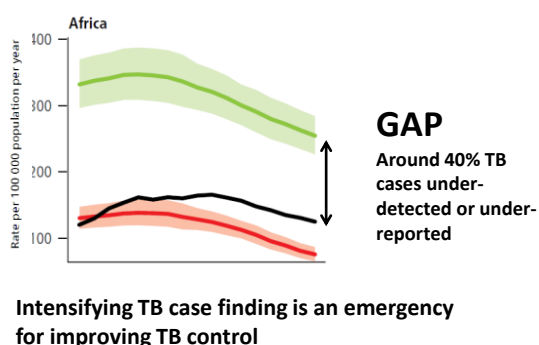
There is a huge gap in finding missing people with TB among males aged 15 to 44 years

The gap in missing people results from a combination of under-diagnosis and under-reporting, pointing to the critical need to improve TB case finding for improved TB control. While DR-TB is estimated to be relatively low in the region, there is a lack of reliable data for several countries. In Africa, on average only around 25 percent of DR-TB patients are diagnosed and treated, indicating that most cases remain undetected and untreated. Furthermore, there is a 55 percent gap between the number of notified new and relapse TB cases known to be HIV-positive and the estimated number of incident HIV-positive TB cases meaning that 45,000 people with TB and HIV were missed in 2016 in WCA countries. Another gap highlighted was the limited ART coverage for TB/HIV co-infected patients.

Treatment outcomes for new and relapse TB cases (Cohort 2015) indicate that African countries, on average, achieve 83 percent of successful outcomes, but in a few countries the successful treatment rates are much lower. Treatments outcomes in the WCA region are the poorest in the cohort of patients co-infected with HIV (e.g., 14 percent versus 5 percent of mortality compared to HIV negative), and they are even worse than those reported in other reported African countries (e.g., 9 percent versus 5 percent). This highlights the need to increase and quickly expand access to TB/HIV diagnosis and TB/HIV treatment and care in co-infected patients. It is also important to note that not all countries are currently reporting TB treatment outcomes data disaggregated by HIV status.

Figure 2.1 TB incidence estimation and TB notification

TB incidence estimation and TB notification



Global TB report - 2017

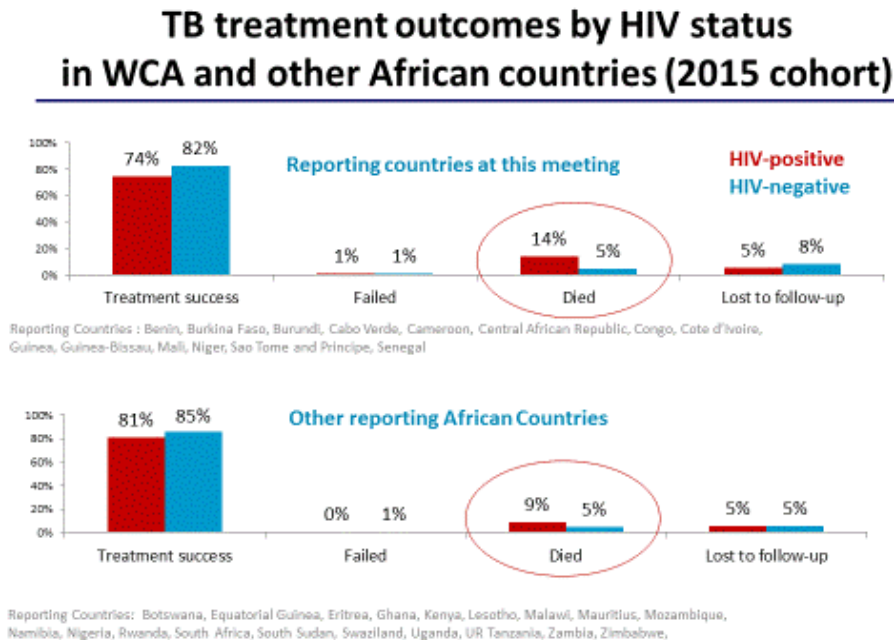
Figure 2.2: TB incidence est.: SR Male / Female



2.2 HIV-associated TB

In light of the 55 percent gap between the number of notified new and relapse TB cases known to be HIV-positive and the estimated number of incident HIV-positive TB cases within the 21 countries participating in this workshop—along with the 14 percent mortality rate in the TB/HIV co-infected group (compared to 5 percent in the HIV negative group) and key gaps in ART initiation among TB/HIV co-infected individuals—HIV cannot be ignored and there is an urgent need to scale up TB/HIV interventions in the region.

Figure 2.3: TB treatment outcomes by HIV states in WCA and other African countries



Integration provides an opportunity to expedite diagnosis of TB among people living with HIV and to scale up HIV testing and ART for TB patients

Decentralization and strategic integration of HIV and TB services will be crucial for bridging the case detection and treatment gaps, while health system barriers (e.g., M&E, PSM, and HR) should be addressed jointly to ensure functional integration and patient follow-up. In addition, further research and integrated M&E is needed to identify and address the gaps and barriers preventing scale-up.

Considering the commitment towards the target of reducing TB-related deaths among PLHIV by 75 percent (General Assembly 2016 resolution), various tools, guidelines, and opportunities have been proposed and include the following:

- **Algorithm.** Updating HIV-associated TB algorithms was suggested in line with the existing diagnostic resources available in each given context. This includes updating national diagnostic algorithms to include Xpert MTB/RIF testing for more population groups.
- **GeneXpert.** Strategic placement of Xpert MTB/RIF in HIV settings is a vital opportunity. It is particularly recommended for the diagnosis of pulmonary TB (for adults and children with suspected HIV-associated TB), and as the initial diagnostic test for CSF specimens for patients with extrapulmonary TB suspected of TB meningitis. GeneXpert may also be used as a replacement test for specific non-respiratory specimens such lymph nodes and other tissues for patients suspected of having extrapulmonary TB.
- **Integration.** Given that most partner countries have more TB services than HIV services, integrated TB/HIV services and diagnostic platforms offer an opportunity to expedite diagnosis of TB among PLHIV. Additionally, integration offers an opportunity to scale-up HIV testing and ART among TB patients. Countries should select integrated TB and HIV services delivery models that are best-suited to their contexts.
- **TB preventive therapy.** New guidance on TB preventive therapy focuses on risk group identification, algorithms to rule out TB, testing options, and treatment options—including the combination of Rifamycin and Isoniazid. Recent evidence has also shown positive results from preventive therapy (e.g.,

the Temprano study, which showed 37 percent reduction in TB mortality in PLHIV with high CD4 counts after 6 months of IPT, independent of ART). It was also noted that there is an important gap in the provision of latent TB infection therapy for eligible HIV-positive individuals globally, and that 15 out of the 19 countries present at the meeting did not report IPT among PLHIV.

- **Monitoring and evaluation of TB/HIV.** The 2015 revision of the WHO guide to monitoring and evaluation for collaborative TB/HIV activities supports analysis of the cascade of care and includes new indicators. It was noted that analysis of the delivery of the cascade is critical to ensure quality service delivery. Operational research is also vital for identifying and addressing gaps in the cascade of care.

2.3 Child and adolescent TB

2.3.1 Quick facts

At least one million children under the age of 15 are estimated to fall ill with TB every year (Global TB Report 2017). Children usually represent approximately 10 to 11 percent of all cases, but this estimate may be higher (i.e., 15 percent) in high burden countries.

Moreover, while TB in children can be treated and prevented and the majority of children tolerate treatment very well, children are still dying from TB. In 2016, 253,000 children reportedly died of TB—including 52,000 TB deaths among children who were HIV-positive (Global TB Report 2017). In Africa alone, in 2016, 102,000 children under 15 years of age died of TB, including 43,000 children who were living with HIV (i.e., 280 per day). Data on TB among adolescents aged 10 to 19 years is difficult to analyse as countries currently report on two age groups—0 to 4 years and 5 to 14 years—and reporting mechanisms need further refinement.

Approximately 105,000 children and adolescents with TB are missed every year in West and Central Africa

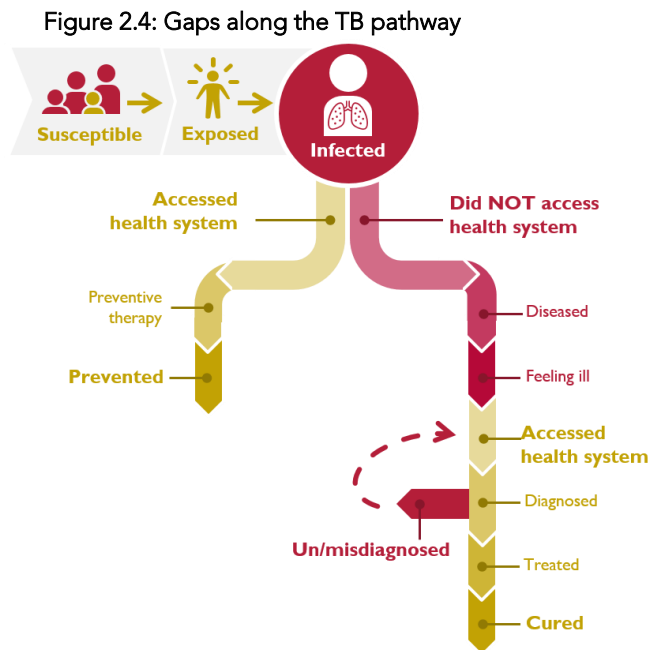
Worldwide, only about 40 percent of the one million children with TB under 15 years of age are notified to national TB programmes, and therefore to WHO. In the WHO Africa region, out of the 317,014 estimated cases among children under 15 years of age, only 105,335 were reported to WHO in 2017, suggesting that about 211,679 people with TB are being “missed.” Of these missed people, 66,867 and 39,070 are estimated to be from countries in the West Africa and Central Africa region, respectively. Either these children were not diagnosed at all or they were diagnosed with TB but not reported, in which case what happened to them is unknown.

Despite major progress—including the availability of global policy and national guidelines; assessment tools and training materials; child-friendly TB fixed-dose combinations with over 70 countries currently ordering from the Global Drug Facility; and availability of donor funding to scale up the response—implementation of actions to address child and adolescent TB is lagging behind.

2.3.2 Scaling up the response to childhood TB: what would make a difference?

Thus, there are three areas in which action urgently needs to take place:

1. **Active screening:** Active screening to diagnose children early through contact investigation and integration of TB screening, diagnosis and treatment into other child health services such as MCH, HIV, nutrition, and adolescent health should be scaled-up.
2. **Improved diagnosis:** The majority of children with TB are not diagnosed and most of the children who die from TB are young and have never accessed treatment. Therefore, improving diagnostic capabilities, including promotion of clinical diagnosis when required, should be prioritized.
3. **Access to preventative therapy:** Children exposed to TB do not access preventative therapy. In Africa, in 2016, only 74,348 children under 5 years of age representing 16 percent of those 460,000 who were



eligible received preventive treatment (Global TB Report, 2017). Provision of preventive therapy to young children exposed or infected with tuberculosis is critical (Jenkins et al, The Lancet, March 2017).

A number of ongoing projects and initiatives in the WHO Africa region show that decentralization and integration are possible and some of them have been presented during the workshop (see country presentations and posters in section 2). The challenge is to move from pilot projects to routine services. To this extent, political commitment is essential. Moving forward, a few recommendations include:

- **Diagnosis:** In the absence of an affordable and sensitive diagnostic test that does not require sputum, a reliable diagnosis can be made through careful history taking and clinical examination if health workers are trained to this extent. A new UNITAID investment (TB-SPEED by University of Bordeaux 2017-2021) aims to further improve diagnosis of TB specifically in children with severe pneumonia, children with severe malnutrition, and children who live with HIV. It also aims to compare the use of different specimens that are less invasive (e.g., NPA and stool) and to develop a diagnostic approach that can be used at lower levels of the health system.
- **Prevention and treatment:** TB prevention is critical but currently under-prioritized. The WHO updated and consolidated guidance for programmatic management of Latent TB Infection (2018) recommends expanding: (a) TB testing and treatment beyond all PLHIV and children under 5 years of age to HIV negative children above 5 years, adolescents and adults who are contacts of TB patients, as well as contacts of patients with MDR-TB, as additional high risk groups; (b) testing options in all countries: TST or IGRA (active TB should always be ruled out before prescribing preventive treatment); and, (c) treatment options with two new shorter regimens as alternatives to 6H: 3HP for adults and children and 3RH for children and adolescents below 15 years of age. Sekadde et al. (2018) list caregiver-, health provider- and health systems-related factors that hamper implementation of preventive actions argue that ownership, scale up and sustainability are needed to provide TB preventive treatment under programmatic conditions and propose that the WHO building blocks are used to prioritize critical interventions.
- **Integrated response:** WHO and partners are currently in the process of updating the *Roadmap for Child and Adolescent TB: Towards Zero Deaths* originally launched in 2013. WHO and partners at global, regional, and country level are available to assist countries to find ways to mobilize resources and provide advice on how to best move from projects to a programmatic and more integrated response to child and adolescent TB.

2.4 Health system challenges and opportunities in the WCA Africa region

2.4.1 Rationale for investing in health systems

Investments in health systems are a necessary complement to the core investments in TB control programs, and these investments can be leveraged to support high-quality TB service delivery. The primary care platform at community and facility level is ideally placed to address the pathway of care for the TB patient every step along the way. Successful detection of TB, particularly for key and vulnerable populations such as children and adolescents, requires strong health systems with a robust community response for empowerment and social mobilization. It also requires governance and service re-organization, such as decentralization and integrated service delivery. Together, these address barriers that impede efficient case finding.

2.4.2 Enhancing case detection, treatment and surveillance

Intensifying community engagement, developing strategic approaches to reach vulnerable populations, addressing recording and reporting gaps through M&E strengthening, strengthening mandatory notification, engaging with private sector, ensuring adequate and competent health workforce, and making better use of appropriate screening tools are strategic approaches at all levels of the health system that must be considered.

Cross-cutting interventions to ensure a national procurement and supply chain system and holistic plans for national HMIS and laboratory systems—rather than parallel disease-specific plans—can and should be leveraged to address the gaps in service coverage for TB. Finally, strengthening referrals systems must remain a high priority. Inadequate linkages with private practitioners, hospitals, laboratories, or NGO services and the absence of mandatory case notification, or enforcement, continue to serve as bottlenecks.

Figure 2.5: Specific actions for strengthening health systems to support TB

	NATIONAL	DISTRICT	COMMUNITY
Governance and Leadership	<ul style="list-style-type: none"> High level political commitment and policies 	<ul style="list-style-type: none"> Coordination with stakeholders and joint planning 	<ul style="list-style-type: none"> Empower community leaders to hold other levels accountable Establish/strengthen committee at local level and work with CHWs
Health Information	<ul style="list-style-type: none"> Few defined indicators for action Improved data use and analysis for decision making 	<ul style="list-style-type: none"> Human resources for data analysis 	<ul style="list-style-type: none"> Empowering communities to use information Patient level record keeping
Finance	<ul style="list-style-type: none"> Sufficient funding allocation Move away from vertical funding Less dependence on donor funding 	<ul style="list-style-type: none"> Buy in by the political leaders (Mayors and governors) 	<ul style="list-style-type: none"> CHWs to become part of the formal health system, being paid/incentives Include TB in benefits packages for UHC
Health Workforce management	<ul style="list-style-type: none"> Revise/update the roles/responsibilities/tasks of HCWs at all levels Need for clear policies on task shifting Robust HCW retention strategy 	<ul style="list-style-type: none"> Leadership mechanisms (district management teams) that recognise how the healthcare workforce should be organised Quality improvement mechanisms 	<ul style="list-style-type: none"> Review the incentive package for CHWs at the community level Institutionalise the position of CHWs as part of the frontline healthcare system Ensure capacity of HCWs providing primary/outreach services
Supply Chain Management	<ul style="list-style-type: none"> Quantification Evaluating policies around drug access 	<ul style="list-style-type: none"> Ensure reporting at national system and that distribution channels reflect this 	<ul style="list-style-type: none"> Ensure drug availability where children are accessing care Integrated reporting and recording systems that are linked across levels (EMR)
Expanded Partnerships	<ul style="list-style-type: none"> Coordination of partners/planning/regulations Establish strategic/smart partnerships 	<ul style="list-style-type: none"> Bring key stakeholders together Define roles/responsibilities 	<ul style="list-style-type: none"> Social mobilisation with partners coordinating with district and national level
Referral	<ul style="list-style-type: none"> Determine the level of care that can be provided at each level and ensure appropriate referrals Create common referral pathway for all diseases 	<ul style="list-style-type: none"> Ensure that district level hospitals can manage all referrals Communication across levels 	<ul style="list-style-type: none"> Empower communities to manage TB and other conditions (cross-referral) Introduce simple and user-friendly referral documents
Training	<ul style="list-style-type: none"> Pre-service training Distance training 	<ul style="list-style-type: none"> District level mentors to support healthcare workers Integrated training materials 	<ul style="list-style-type: none"> Innovative training methods (contextual) Ensure access to the materials

Source: Adapted from UNICEF, [https://www.unicef.org/health/files/2016_UNICEF_Strengthening_PHC_systems_for_TB_FINAL_report_\(Web\).pdf](https://www.unicef.org/health/files/2016_UNICEF_Strengthening_PHC_systems_for_TB_FINAL_report_(Web).pdf)

Countries can *do more with less* by taking a systems approach

2.4.3 Health systems challenges and opportunities

Understanding both the health systems challenges specific to West and Central Africa that are impeding progress in case finding and care of TB and the opportunities for more strategic support and investment in health systems is critical. They include the following:

- Service Delivery:** The global target for the number of health centers per 100,000 population is set by WHO at 7 health centers per 100,000, but the regional medians fall short at 3 for Central Africa and 3.52 for West Africa, respectively (WHO HFA). A majority of countries in this region fall below the WHO benchmark of 3 in-patient hospital beds for acute and chronic care per 1,000 population, with a

median of 1.45 beds per 1,000 in Central Africa, 0.4 in West Africa, and 0.8 in Ghana, Ivory Coast, DRC, and Nigeria, respectively (WHO Service Availability and Readiness Assessment). Regional medians fall significantly short of the global target set for the number of health centers for the population. A majority of countries in WCA also fall below the benchmark set for the number of in-patient hospital beds for acute and chronic care.

- **Laboratory and Diagnostic Services:** Low operational capacity of laboratory networks and limited quality control also significantly impact ability to deliver diagnostic and treatment services, particularly for TB. However, there are opportunities for strengthening GeneXpert implementation, sample transport, and capacity building in the region. Integrated systems need to be in place in WCA to support services and for laboratory services to support individual patient care or programs. In addition, strengthening regional diagnostic capacity and networking, and enhancing access to diagnostics for TB and occupational health targeted interventions is necessary for improved diagnostic capacity and disease surveillance.
- **Human Resources for Health (HRH):** There are regional HRH challenges to the scale-up and quality improvement of health services. It is the area of weakest performance in the WCA region with specific challenges including: shortages, inequitable distribution, high turnover, inadequate education and training, poor working conditions, and lack of reliable health workforce data. The links between HRH, service coverage, and health outcomes are well established and TB services – including case finding – will not be able to be provided without an adequate health workforce. Building a community health workforce by strengthening community health cadres, standardizing training and addressing remuneration and retention concerns to meet coverage needs will be critical. It will also be necessary to address issues around increasing the number of qualified health personnel at the facility-level to both provide essential services and to manage the community health workforce. This can be done through labour market assessments and development of national HRH policies.
- **National PSM Systems:** Significant regional investments have been made in PSM, and this is a better performing area of the health systems in WCA overall. Yet, piecemeal approaches have not necessarily led to strengthened national strategies. Stock-outs are still frequent and weaknesses in the monitoring of PSM data quality and analysis in addition to the poor translation of information into management decisions remain. A shift in strategy with an integrated approach in WCA by strengthening governance for stronger national PSM systems and last mile support to ensure the delivery of essential health productions for comprehensive care and treatment will help address some of these challenges.

2.5 Country-level reflections on barriers and opportunities in TB case finding and treatment

In order to better understand the issue of missing people with TB within the region (see additional data in Section 2.1) and facilitate in-country discussion and analysis of both possible barriers in finding missing people with TB and improving treatment outcomes of TB and MDR-TB patients, a template was sent to all participant countries prior to the workshop. The template was designed to encourage internal analysis of the strategies already tried and other innovations that could be applied. It also allowed participants to be well-prepared to share insights, lessons, and innovations with the larger group. Overall, information collected through this process helped to: 1) better structure the workshop in response to countries' needs 2) identify countries to present their experiences in addressing TB case detection and treatment; and 3) initiate country-level discussions of current practices related to TB case detection and treatment, barriers, and opportunities.

A synthesis of this information is presented here:

2.5.1 WHO is missing? WHO has poorer treatment outcomes? WHERE are they?

Countries identified the populations, groups, and geographical areas that show lower case notification and poorer treatment outcomes. Rural and sparsely populated areas, prisoners, children, PLHIV, and people at risk of MDR-TB were the top five groups/areas with the worst case detection and treatment outcomes. These were followed by urban and overcrowded areas, migrants, the general population, people with diabetes or other co-morbidities, occupational risk groups, private facilities, and contacts of TB and MDR-TB cases (see figures 2.6 and 2.7 below).

Figure 2.6: Identified groups and populations with lower case notification and poorer treatment outcomes and analysis in West Africa

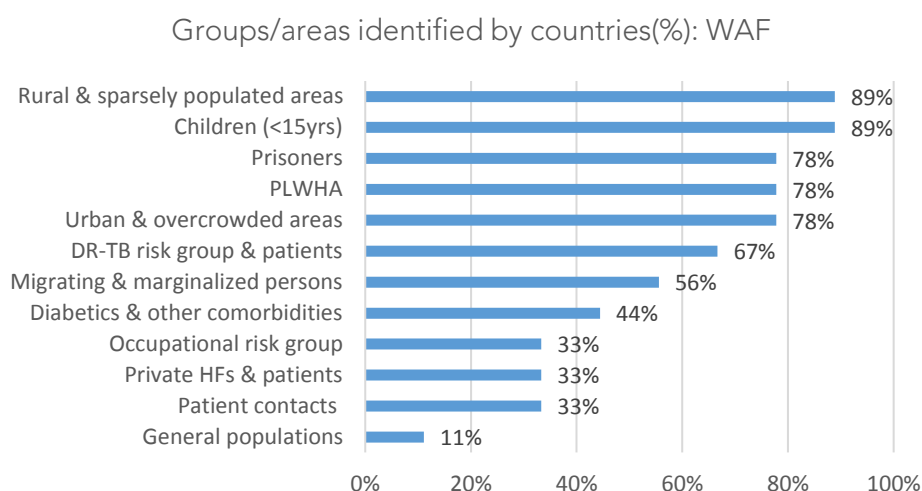
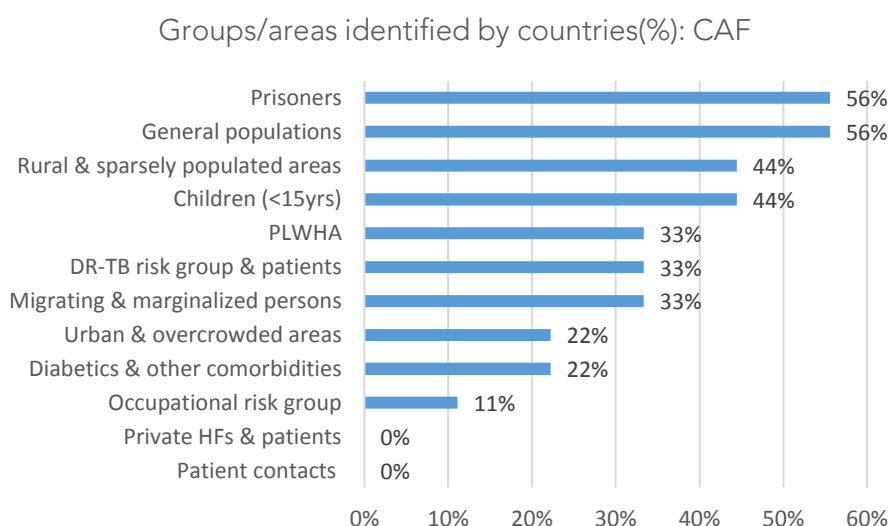


Figure 2.7: Identified groups and populations with lower case notification and poorer treatment outcomes and analysis in Central Africa



2.5.2 WHY are people with TB missing? WHAT are barriers to successful treatment outcomes?

Countries also identified the most common barriers to case notification and successful treatment outcomes (see figures 2.8 and 2.9 below). The top five barriers reported by countries—although with different frequency in the two regions—were:

1. Diagnostic and treatment coverage barriers, such as (limited access to high-quality TB diagnostic services and screening);
2. Inadequate technical capacity;
3. Financial barriers for patients, including high out-of-pocket payment for health services and commodities, poverty and high economic burden, malnutrition etc.;
4. Programmatic barriers, such as lack of adherence to guidelines, poor implementation, absence of guidelines and algorithms, and insufficient financial resources for NTP activities; and
5. Health system barriers, such long consultation time, inadequate staffing, high staff turnover, high patient to health provider ratio, lost-to-follow up, poor communication between health workers and patients and infrastructure issues.

Other barriers included weak referral systems (including access-related issues, such as mobility of patients, nomads, released prisoners); poor integration of services; weak collaboration among stakeholders; gender and human rights barriers; stigma; limited knowledge and awareness; and M&E and PSM/logistics issues (e.g., weak sample transport systems). Participant countries also indicated challenges in the treatment of TB/HIV co-infected patients in particular—due largely to delays in the diagnosis of the co-infection and in accessing appropriate care.

Figure 2.8: Identified barriers and analysis in West Africa

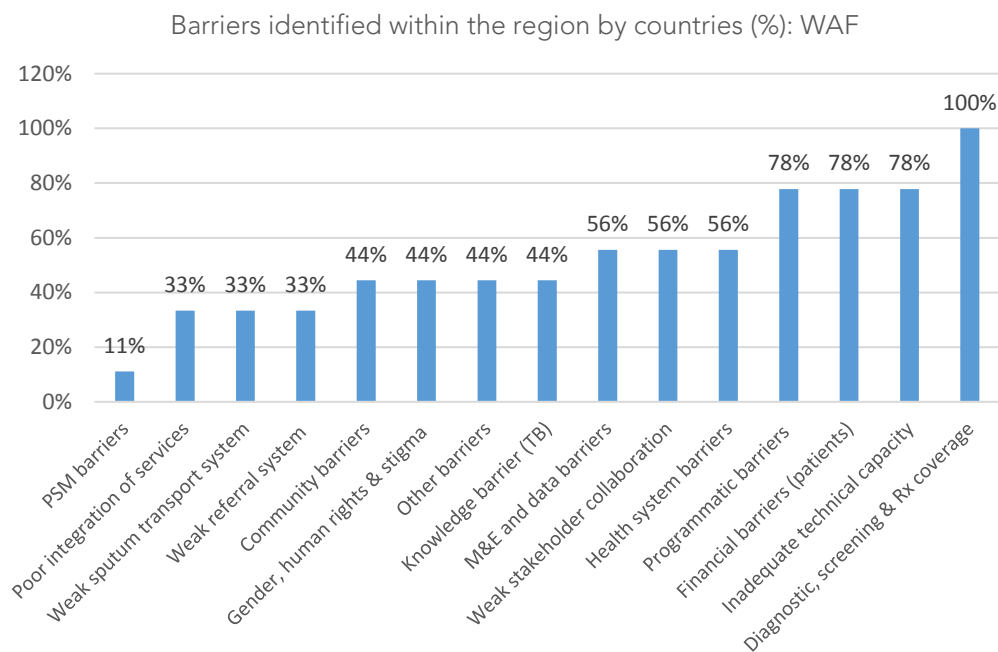
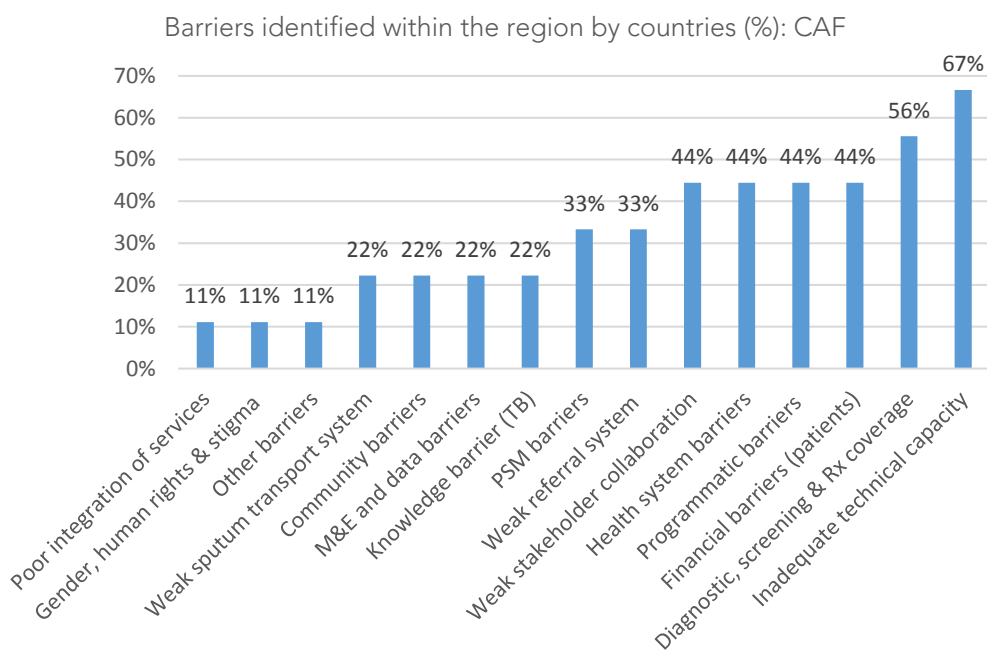


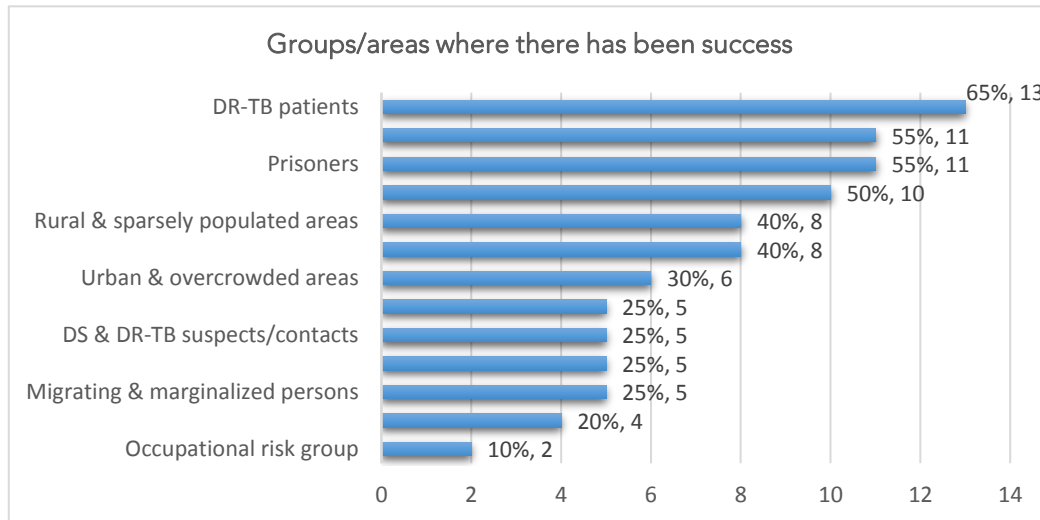
Figure 2.9: Identified barriers and analysis in Central Africa



2.5.3 WHAT has worked to improve case notification? WHAT has worked to improve treatment outcomes?

Finally, participants reflected on successful experiences in case notification and treatment outcomes. The most frequently cited successes included cases associated with drug-resistant TB, PLHIV, and prisoners—although the scale of these positive experiences were quite small.

Figure 2.10: Areas where there have been success in case notification and treatment outcomes



3 SHARING CURRENT PRACTICES: COUNTRY CASE STUDIES

Countries were invited to share their experiences and engage in an interactive discussion with colleagues through presentations on key themes during Day 1. Additional experiences from countries were presented and discussed with a smaller audience during the poster sessions held on Day 2. Opportunities for learning and engagement were amplified by current practices, lessons, and innovations shared through presentations from countries outside the region—including Uganda, Ethiopia, Tanzania, and Kenya. The main presentations were organized around country experience in four main areas:

- [Boosting TB detection through community engagement and services decentralization](#): Ethiopia's experience with HEWs; Senegal's experience with community engagement; and TB care decentralization in the Ivory Coast.
- [Active case finding at the facility level](#): Program quality and efficiency (POE) improvement in Tanzania and Kenya; The RafaScreen Study to screen TB in PLHIV and diabetics in Senegal, Benin, and Guinea Conakry; and Challenges and opportunities in active case finding in Ghana.
- [What we are doing to address TB in children](#): Benin's experience with contact tracing and Decentralizing and integrating paediatric TB diagnosis and care in Uganda.
- [Patients' case management and treatment outcomes](#): Delivering a comprehensive package of care for MDR-TB patients in Niger and Cameroon.

Posters included the following:

- [Guinea-Bissau](#): Detection and case management of MDR-TB
- [Guinea](#): MDR-TB scale-up
- [Sierra Leone](#): MDR-TB scale-up
- [Togo](#): The contribution of community health workers in the detection and treatment of TB. A case of the Lomé-Commune region from 2008 to 2012
- [Cameroon](#): Optimizing TB case detection among PLHIV using Xpert MTB/RIF
- [Guinea, Senegal and Benin and Warn-TB](#): Paediatric TB screening and chemoprophylaxis malaria campaign
- [Burkina Faso](#): Paediatric contact investigations and IPT
- [Mali](#): TB diagnosis in children under 15 years of age
- [Gambia](#): Pilot on children contact tracing and ACF in prisons and new ACF interventions being developed (at health facility, children and among PLHIV)

All of the presentations and posters followed a similar structure that included an introduction of the country context and the rationale for the intervention; an analysis of the barriers and the challenges, as well as the opportunities and enablers; the planning and implementation steps taken, including the stakeholders involved; the tools used to monitor and evaluate the intervention; the results, even if preliminary; and the lessons learned and relevance and/or applicability of the intervention to other contexts. Considerable emphasis was placed on the "process" aspects of each intervention.

Overall, participant feedback indicated that presentations reflected a number of innovative approaches (e.g. tools developed to screen patients for TB; integrated and decentralized models of care; progressive scale-up of MDR-TB care using short regimens; etc.) and a commitment to identifying and applying tailor-made and context-specific solutions. Furthermore, the positive results achieved thus far have contributed to increased momentum for scale-up, replication, and implementation in other countries and contexts.

3.1 Boosting TB detection through community engagement and decentralized service provision

Ethiopia: The role of HEWs in TB detection

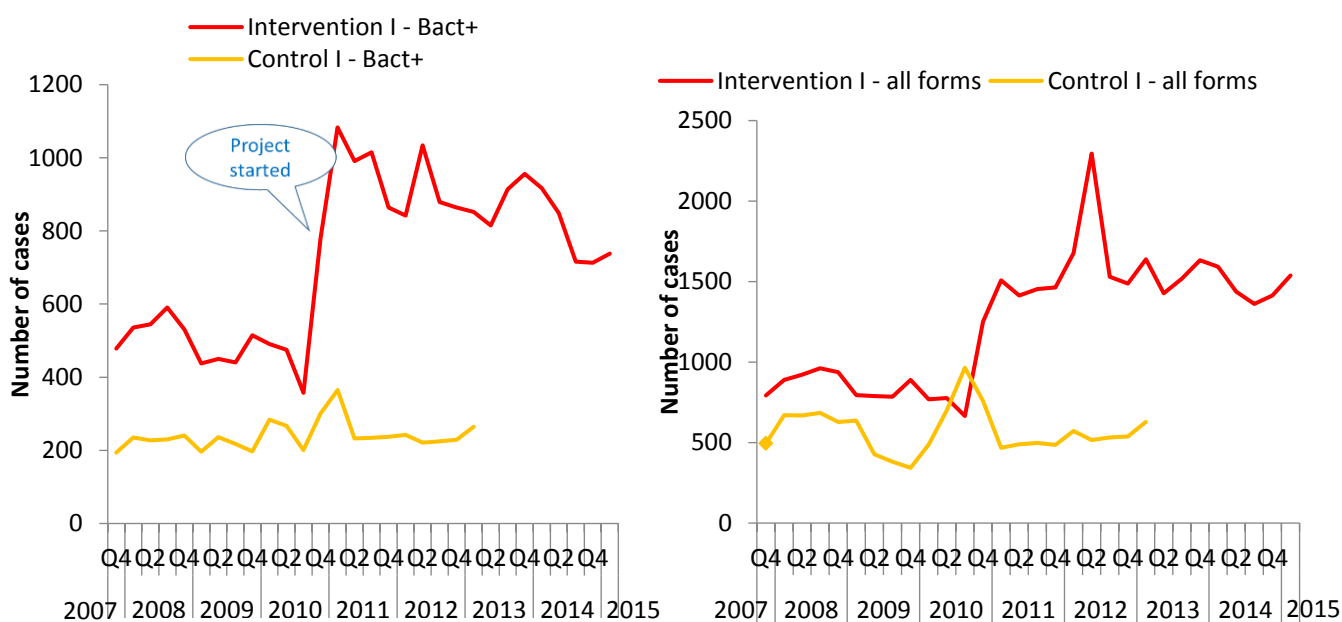
What was the challenge? Ethiopia has a high burden of TB, TB/HIV and MDR-TB, along with low case detection (e.g., 45 percent of missing people with TB in 2008 with flat trend). Through its decentralized community-based services, 38,000 community health extension workers (HEWs) were deployed across the country. HEWs regularly visit households and conduct health education—identifying people with TB symptoms, collecting sputum samples, preparing smears, and sending samples to laboratories for testing. HEWs have been successful in finding many missed people with TB and supporting patients during treatment, thereby saving lives and transforming communities.

What actions were taken? All patients identified by HEWs are registered by supervisors at the nearest health centre providing TB treatment. HEW supervisors also maintain a duplicate TB register in order to classify patients identified by the intervention and those who attend the health centres. Data from the control zone is collected from routine surveillance quarterly reports and used for secondary data analysis.

What were the results? The results of this TB REACH-funded collaborative project showed that a total of 216,174 (i.e., an average of 4,003/month) individuals with TB symptoms were identified by HEWs—with a total of 27, 918 TB cases registered over 4.5 years in the intervention zone. This was equivalent to a mean of 517 TB cases registered per month, which was higher than the mean of 330 TB cases per month in the baseline period ($p < 0.001$). This had led to the **doubling of TB notification from the districts supported by the project** from 64 to 127/100,000 people. In addition, TB treatment success rates in the same sites have improved from 76 percent to 96 percent.

What was learned? This case highlights the potential contributions that interventions that are integrated into existing health systems and community-based approaches can make to the delivery of universal and equitable TB diagnostic and treatment services for all populations, including those who are vulnerable or disadvantaged. This approach could be considered in high burden countries using community health workers in rural settings and it is being scaled up throughout the country through Global Fund support.

Figure 3.1: Number of TB cases registered over 4.5 years in the intervention zone



Ivory Coast: The process of decentralization for TB control

What was the challenge? In the Ivory Coast, access to TB services is difficult due to insufficient national coverage of TB diagnosis and treatment facilities (e.g., in one third of health districts, a single diagnostic facility provides services to between 400,000 and 500,000 people, and sometimes patients have to travel 200 km to the nearest center). The country decided to increase the coverage of TB services due to insufficient coverage and high mortality rates (e.g. ≥ 12 percent) in patients under treatment.

What actions were taken? Various

steps were taken, including the establishment of a steering committee; health site rehabilitation (e.g. containers were used to develop sites at lower costs); integration of TB services within existing health facilities; dissemination workshops and adoption of decentralization by stakeholders; and training of various levels of health providers, including traditional practitioners. Concurrently, at the community level, an ENGAGE-TB approach was taken, which included a situation analysis, the development of operational guidelines for community activities, training of community health workers (CHWs), and increased involvement of NGOs.



Repurposed shipping container used to build a treatment facility

What were the results? One year after the start of decentralization, integration, and increased community engagement, the data showed an improvement in TB treatment outcomes—from 81 percent in early 2016 to 83 percent in early 2017—and an increase from 12.5 percent to 23.4 percent in the TB cases detected by CHWs in the overall population. **Detection rates among key affected populations notably increased from 37 percent of the total cases identified by CHWs to 63.4 percent.**

What was learned? A number of lessons were learned, including the importance of integration of TB control into regional and departmental directorates of health plans and the benefits and effectiveness of strong partnerships: the Global Fund, Government, WHO, USAID, and The Union focused efforts around the same project through public-public and public-private partnerships and 14 private companies were involved in the fight against tuberculosis. Strong community involvement (for referral of suspected cases, awareness raising, home visits, collection and transport of samples, search for irregular treatment) and the involvement of practitioners of traditional medicine were also noted as key.

Table 3.1: Decentralization Results at the community level

Results at the community level	2016	2017
TB patients (news and relapses) referred by community health workers (CHWs)	2,668/21,357 (12.5%)	4,894/20,939 (23.4%)
TB patients (news and relapses) received community supports	10,757/21,357 (50.4%)	16,903/20,939 (80.7%)
TB patients (news and relapses) successfully treated (cured plus completed treatment) who received support for treatment adherence from CHWs	4,194/5,178 (80.9%)	8,752/10,757 (81.4%)

Senegal: Community contributions in the fight against TB

What was the challenge? Senegal reported that more than one third of its TB cases remain undetected. A number of reasons have been attributed to this, including lack of accurate knowledge about TB, limited access to TB control services, low attendance at health centres, limited involvement of communities and key actors responsible for TB control before 2012, and high levels of stigma. The country's TB treatment success rate also remains below WHO standards.

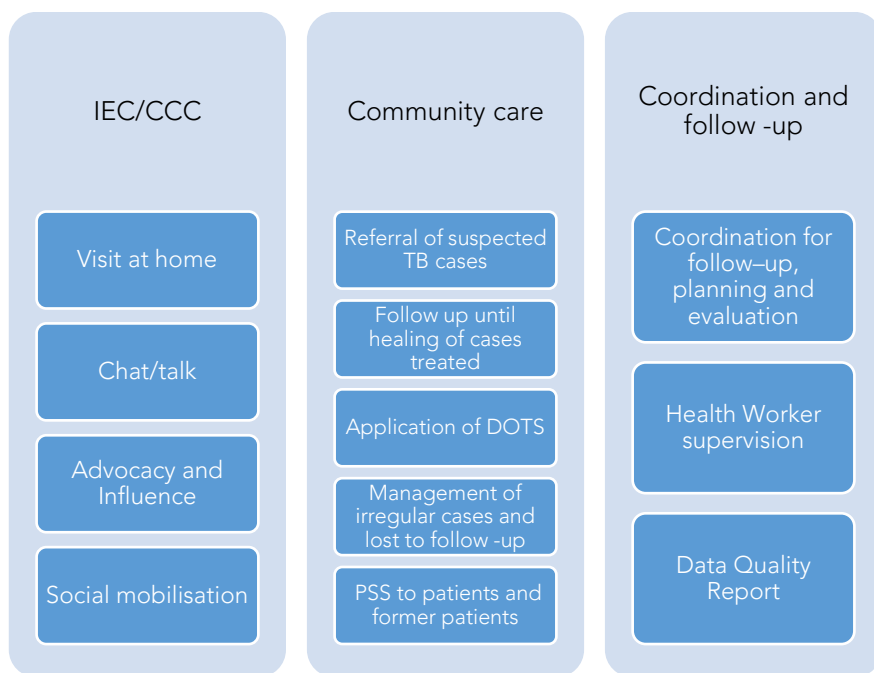
What actions were taken? In order to address these issues, the country extended community support by involving the Ministry of Health and Social Action (MSAS), National TB Program, and Global Fund country coordination mechanism (CCM) in the process. Various factors allowed for the implementation of a package of community TB care, including a strong institutional framework for community health; regional networks of versatile community relays; vibrant CBO networks; country-wide coverage by a network of national and international NGOs; an active network of associations for patients and persons affected by TB and HIV; and previous experiences piloting projects to combat TB at community level. Key components of this community package included a referral and follow-up mechanism for suspected and confirmed TB cases; application of DOTS; management of irregular cases and those lost to follow-up; and psychosocial support (PSS) for current and former patients. Recent innovations (since 2018) include modifications to the package of community TB care according to the region (e.g. cross border areas) and the epidemiological context.

What were the results? After scaling-up community activities, the country reported the involvement of 463 CBOs, more than 50,000 "informal conversations" organized, and more than one million people reached by sensitization activities. The cases of presumptive TB referred by communities progressively increased, reaching 13, 675 in 2017, along with the proportion of TB cases detected by CBOs (e.g., 15 percent of the total cases reported nationwide). The country also noted that the M&E system allows for close monitoring and documentation of the community activities at different levels.



Young participants during a community sensitization session

Figure 3.2: Key activities in the package of community TB care



What was learned? Several lessons were learned from the country's experience. Community involvement in the scale-up of TB care is achievable, but it requires a robust partnership with other NGOs and CBOs. Community involvement also significantly contributes to the detection of TB cases and to their successful treatment. Other key lessons include the importance of regular supervision of health workers and validation of data by the health system. The provision of regular technical support and capacity building is also critical and activities must be supported by the health system to promote integration of results in the national reporting system and sustainability. **The need for specific strategies targeting key populations, at-risk groups, and hard-to-reach communities, and the importance of taking into account local realities and local epidemiology to better guide community interventions was also stressed.**

Participants highlighted the importance of integrating community results in the national reporting system. Also, the importance of cross-border collaboration in the fight against TB was emphasized using the example of patients that start their treatment in Mali and finish in Senegal and vice versa.

3.2 Active case finding at the facility level

Tanzania: PQE for case finding at facility level

What was the challenge? Tanzania’s first national prevalence survey for TB—completed in 2013—revealed a much higher TB burden compared to previous years. It also revealed that many people with TB are missed even after patients visit health facilities.

What actions were taken? In light of these findings, the country focused on efforts to improve efficiency and quality of the TB program and created a comprehensive plan to offer TB screening to all patients who visit health facilities. In order to achieve this, several changes were implemented—all centered around organizational and management improvements. The goal was to improve TB screening and services in health facilities and increase access to diagnosis and outreach activities. Tanzania followed a very methodical process, starting with a national assessment to identify barriers and best practices for TB case detection. Identified barriers included a low TB suspicion index in TB case detection among health workers, low usage of diagnostic algorithms, weak referral and linkages, and unequal distribution of TB laboratory diagnostic services. To overcome these challenges, Program Quality and Efficiency (PQE) was introduced. This included development of a Toolkit for Quality Improvement (QI) in TB case detection along with a training package, tools and job aides (e.g., paediatric scoring charts); comprehensive screening at health facilities; the inclusion of active case finding in continuous medical education; and intense monitoring of facilities and presumptive TB registers.

What were the results? After 18 months of implementation, the key results of the intervention were increased notification in facilities that implemented PQE compared with the control facilities; increased notification of child TB; and increased index of suspicion of TB among health care workers.

What was learned? Key lessons include securing both leadership involvement and commitment both at national and facility level and ensuring that facilities have targets for presumptive TB cases and for TB case notification. Furthermore, the use of score charts for TB case detection among children increased number and proportion of childhood TB cases.

Figure 3.3: Trends in TB notification in 10 PQE intervention facilities in Dodoma region

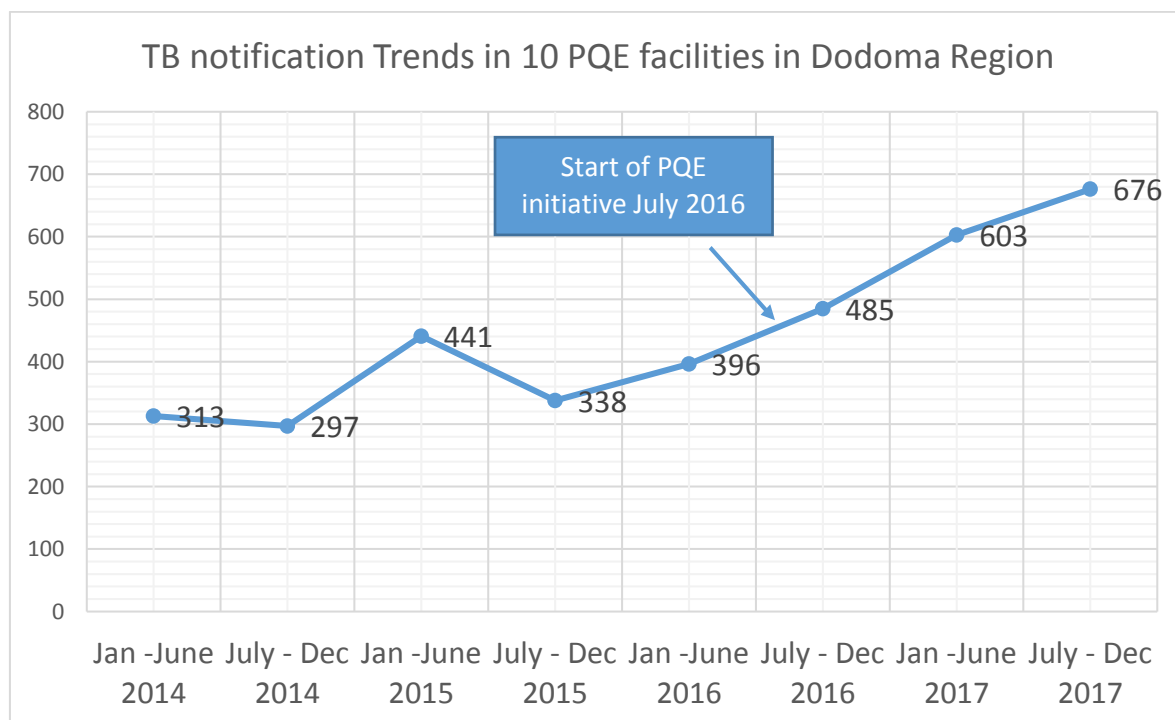
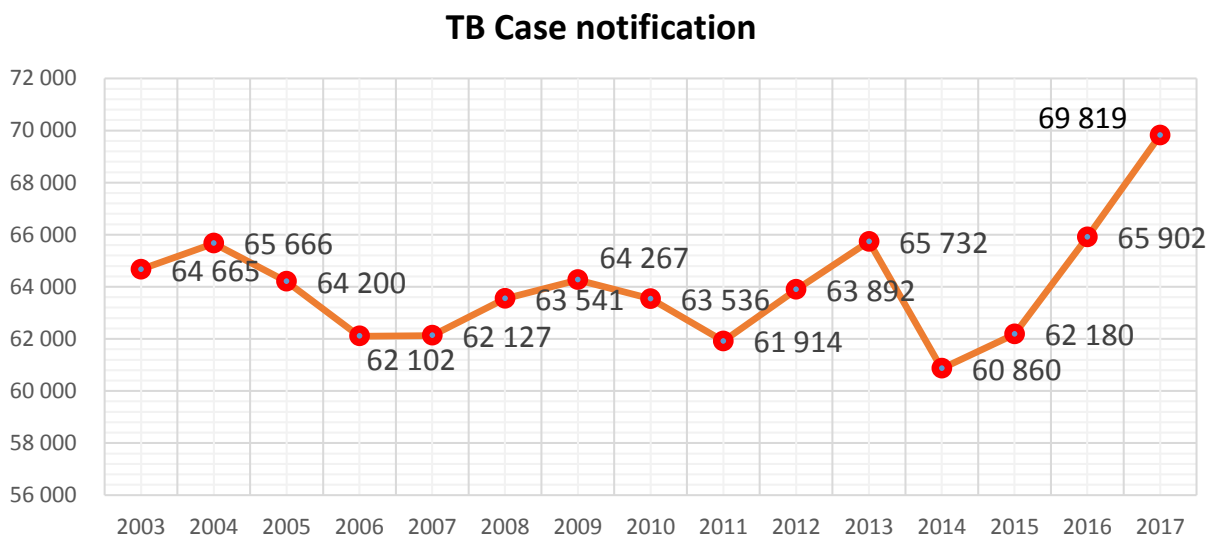


Figure 3.4: Tanzania TB Case Notification (2003 – 2017) – All Cases



Kenya: PQE for case finding at facility level

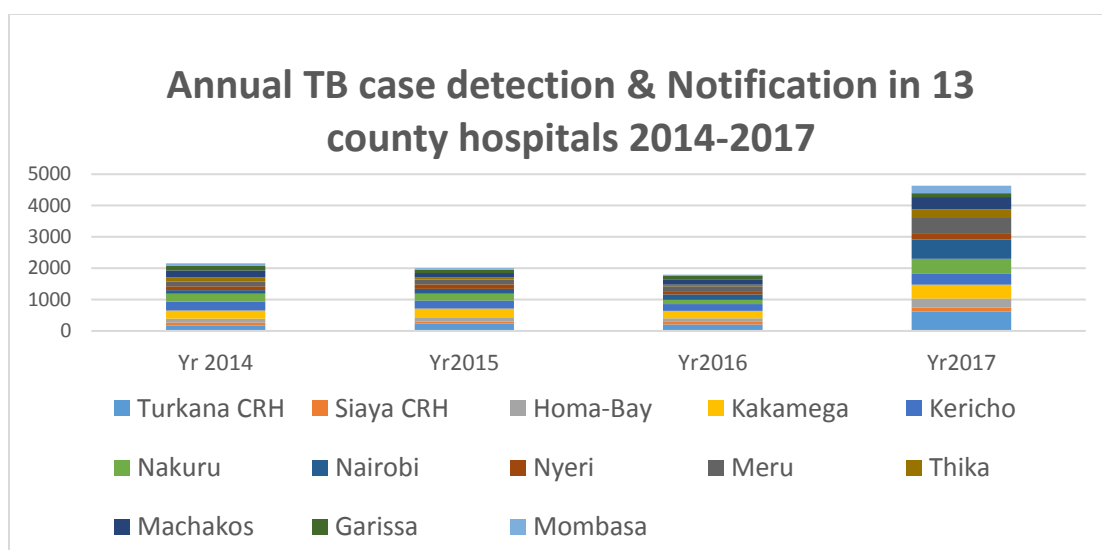
What was the challenge? Informed by the preliminary findings of the 2015-2016 TB prevalence survey, the NTP in Kenya was alarmed by the high percentage of missing people with TB (more than 40 percent or approximately 40,000 persons). As a result, the country was interested in identifying innovative approaches to finding and reaching people who were being missed by the health care system. The PQE methodology fit their need. Moreover, challenges with limited hospital managers' and health care workers' involvement in TB case detection and treatment, weak referral systems, and low diagnosis in children could be addressed through staff training and follow up in PQE.

What actions were taken? Hospital managers and senior doctors were trained to train other staff on TB diagnosis. A TB focal clinician who was not part of the NTP was selected to keep TB on the agenda in regular discussions and meetings. The other significant change that took place was the circulation of a memo from the Minister of Health directing the practice of active TB screening and diagnosis in all hospital departments, special clinics, and inpatient wards. The monthly peer mentorship visits that followed the original trainings helped ensure fidelity in following the diagnostic protocols and aided in documenting and addressing challenges that were encountered during these visits.

What were the results? The results after one year clearly showed that the 13 country hospitals included in the project benefited from these changes. Overall, there was an **increase of 158 percent in case detection**.

What was learned? A key lesson learned was that **management support is essential**. Some of the pilot hospitals demonstrated no improvement due to lack of management participation in the sensitization and training, with staff not changing their practices and citing work overload as an impediment to carrying out additional responsibilities from the TB program.

Figure 3.5: Annual TB case detection and notification in 13 county hospitals 2014-2017



Participants questioned the use of children scorecards to identify TB. It was highlighted that identifying asymptomatic TB cases was not the focus as it is too difficult, rather the intervention focused on identifying symptomatic cases that visit a health facility and following up on contacts

Benin, Guinea, and Senegal: The multi-country RafaScreen study

What was the challenge? Within these three countries, there was no clear algorithm to detect TB in HIV-positive and diabetic patients. Therefore, the multi-country RafaScreen Study involving Benin, Guinea and Senegal aimed to identify the best (cost-effective) algorithm for detecting TB and estimating the prevalence of TB in these populations.

What actions were taken? The study compared different approaches to TB screening using clinical evaluation, microscopy, X-rays, and GeneXpert in different combinations, and compared them against the gold standard: a positive culture and/or positive GeneXpert or clinical diagnostic confirmed by experts. Financial aspects were also considered such the cost of algorithm from the program perspective (cost per activity, mix of published and local costs). Parameters of comparison such as the Sensitivity (Se), Specificity (Sp), Positive Predictive Value (PPV), Negative Predictive Value (NPV), and Area under Curve (AUC) were used to identify the best algorithm in diabetics, in PLHIV receiving ART, and in PLHIV not receiving ART.

What were the results? The results shared during the workshop were preliminary and showed a high prevalence of TB in HIV-positive and diabetic patients (risk +++). The study also indicated that the most cost-effective algorithm includes (Clin) + GeneXpert systematic, while the least effective is microscopy and x-rays.

What was learned? Considering the high risk of TB +++ in PLHIV ART naive patients about to start ART, GeneXpert was proposed as possible test included in tests package before ART.

Table 3.2: Estimated prevalence per 100 000

	General population	Diabetic patients	PLHIV naïve ART	PLHIV on ART
Benin	59 [38 - 84]	691 [400 - 1200]	4 061 [2500 - 6500]	2 564 [1600 - 4100]
Guinée	176 [114 - 252]	2 458 [1900 - 3300]	13 605 [10700 - 17100]	4 934 [3500 - 7000]
Sénégal	140 [95 - 193]	2 792 [2200 - 3600]	7 273 [4200 - 12300]	1 361 [700 - 2700]

Clarification was provided to participants that the cost estimation has been done per patient. A suggestion was also made to separate the study results to compare between stable diabetic patients and unstable diabetic patients (as was done for patients on ART treatment and ART naïve).

Ghana: Challenges and opportunities in implementing ICF

What was the challenge? In Ghana, the 2013 national TB prevalence survey revealed a disease burden four times higher than previously estimated (290/100,000). As result of the new estimate, the case detection rate dropped from 88 percent to 33 percent, indicating that more than 67 percent of people with TB are missed annually. The survey's results also provided interesting information on the proportion of TB cases that are smear negative versus those that are detected by X-rays or based on symptoms alone.

What actions were taken? Given these estimates, the country aimed to accelerate efforts to find missing people with TB and revised the symptom screening tool to increase sensitivity. It also recommended GeneXpert as a first line test and included digital x-rays to detect asymptomatic TB cases. In addition, as a result of low index of suspicion of TB cases by health workers, intensive case finding was introduced. The approach was prioritized in selected districts where baseline capacity assessments were conducted and was followed by capacity building of districts/facilities based on identified gaps. Key activities included provision of financial support, staff recruitment, staff training on the revised TB screening and diagnosis algorithm and ICF, onsite coaching and supportive supervision, and monthly reporting and feedback on ICF.

What were the results? Tables 3.3 and 3.4 below indicate the results of the ICF cascade at different entry points in 2016 and 2017. Notably, the proportion of presumed TB cases (eligible for TB testing) increased between the two periods from 48.1 percent in 2016 to 71.7 percent in 2017. This was especially evident in some entry points, such as ART clinics (from 50.3 percent to 90.2 percent), but also in antenatal care clinics (from 48.4 percent to 81 percent, general OPD (from 49.5 percent to 71.9 percent) and diabetics (from 42.5 percent to 71.1 percent). However, a large proportion of patients who attend these entry points are still not screened for TB (first two columns of table 3.4), but when they are screened and are suspected to have TB, most of them receive further investigation and most of those diagnosed with TB receive TB treatment.

What was learned? Several challenges and lessons learned were documented. First, more than 25 to 50 percent of presumed TB cases screened using ICF did not receive lab testing, while more than 15 percent of patients under ICF were not initiated on treatment in a timely manner. Other challenges included a heavy work load at the out-patient department (OPD) and laboratories, slow uptake of ICF, resistance from some clinicians, demands for additional payments from health professionals, and misperceptions about the importance of TB case finding in non-prioritized districts. Among the steps planned as a way forward by the NTP, the following were identified as priorities: intensive supportive supervision, establishing a tracking system for all presumed TB cases to ensure they get tested, enrolling all diagnosed TB cases on anti-TB treatment in a timely manner, deploying more task shafting officers to reduce workload at the OPD, scaling-up ICF to all districts, integrating TB screening as part of taking vital signs at the OPD, and engaging facility administration units to take the lead on ensuring ICF implementation in their respective facilities.

Table 3.3: Results of ICF implementation, 2016

Health service delivery point	New attendants	Number with respiratory symptoms	Number of presumed TB cases	% Presumed TB of new attendants	Number of presumed TB tested	% Tested of eligible (presumed TB)	Number diagnosed with TB	% diagnosed with TB of those tested	Number initiated on TB treatment	% initiated on TB treatment
General out-patients clinic	5,848,430	569,178	52,769	0.9	26,109	49.5	4,831	18.5	4,375	90.6
Antenatal clinic	556,767	71,653	4,060	0.7	1,965	48.4	58	3.0	40	69.0
Others	340,802	41,528	8,384	2.5	3,244	38.7	812	25.0	579	71.3
Pediatric clinic	195,607	17,676	1,471	0.8	596	40.5	171	28.7	147	86.0
ART clinic	139,539	47,822	6,182	4.4	3,112	50.3	466	15.0	419	89.9
Female Ward	135,324	27,050	2,878	2.1	1,456	50.6	422	29.0	338	80.1
Diabetic clinic	134,718	27,698	2,017	1.5	857	42.5	60	7.0	25	41.7
Male Ward	99,938	17,994	2,709	2.7	1,488	54.9	552	37.1	486	88.0
Contact Inv.	25,895	14,860	2,077	8.0	863	41.6	131	15.2	99	75.6
Total	7,477,020	835,459	82,547	1.1	39,690	48.1	7,503	18.9	6,508	86.7

Table 3.4: Results of ICF implementation, Jan to June 2017

National	Attendants/ registrants	Number screened for TB	Number presume d TB	% of presumed TB among attendants	Number tested	% of tested from eligible	Number diagnosed TB	% Diagnosed with TB of those tested	Number initiated treatment	% Initiated treatment
General OPD	3,698,088	681,696	46,255	1.3	33,241	71.9	3,376	10.2	2,805	83.1
ART Clinic	88,344	35,068	5,803	6.6	5,237	90.2	333	6.4	282	84.7
Reproductive Health (ANC)	381,108	56,268	2,686	0.7	2,175	81.0	15	0.7	10	66.7
Diabetic Clinic	89,415	19,921	1,821	2.0	1,294	71.1	17	1.3	16	94.1
Household Contact Investigation	18,063	13,446	4,877	27.0	1,210	24.8	54	4.5	69	127.8
Pediatric Clinic/Ward	114,584	19,273	1,344	1.2	1,067	79.4	99	9.3	88	88.9
Female Ward	69,225	12,287	2,260	3.3	1,900	84.1	259	13.6	209	80.7
Male Ward	52,279	10,604	2,101	4.0	1,790	85.2	373	20.8	300	80.4
Others: Laboratory +Prison	26,284	5,646	1,207	4.6	1,110	92.0	54	4.9	51	94.4
Total	4,537,390	854,209	68,354	1.5	49,024	71.7	4,580	9.3	3,830	83.6

3.3 What do we do for children?

Benin: Experiences with contact tracing for children

What was the challenge? With a low adherence rate (27 to 50 percent) and lack of systematic documentation of the process, Benin aimed to improve adherence of IPT in children.

What actions were taken? A pilot study was conducted to improve adherence of IPT in children under 5 years of age who were contacts of Bacteriologically Confirmed Pulmonary TB (BCPT) in the two largest health facilities in the country. An algorithm was developed to identify, evaluate, and follow-up children contacts of sputum positive TB cases; a register for IPT was created to keep track of the contact tracing and preventive therapy interventions; and a stamp was created to remind workers to perform the contact tracing for each index case. After this pilot, Benin started implementing the IPT register at country level, integrating IPT on the treatment card of the patients and in the supervision of the BMUs, integrating IPT indicators in the quarterly reports of notification and treatment, and adopting the 6 months IPT regimen instead of 9 month. Benin then took part in the TITI project, an implementation study coordinated by The Union to evaluate the tools and conditions needed to implement systematic children contact evaluation under NTP conditions in the Central Africa Republic, Cameroon, Burkina Faso, and Benin.



Job aid to remind health workers to perform the contact tracing for each TB index case and follow up children placed on preventive therapy

What were the results? Through the pilot project, the number of children on IPT increased progressively (although still remains below expectations), along with their completion of the IPT course. Among index cases questioned, 24 percent declared to have children < 5 y in the house (2 in average). The total number of children identified was 1047, with 1036 (99 percent) of children commencing IPT. Nine active TB cases were identified, out of which 7 were diagnosed before IPT starting and 2 after IPT starting (0,8 percent or 860/100000). A total of 7 deaths occurred during IPT

What was learned? Through the TITI project, various lessons learned have been noted. These include increased detection of contacts through the "door to door" home visits approach (visits are very well accepted by families) and increased detection of contacts (4 percent TITI vs <1 percent in the pilot study) through the use of a systematic approach for diagnosis (clinical algorithm + Chest X-rays). Also, it became **clear that an onerous medical screening process discouraged families (among the "lost to follow-up," many were symptomatic)**. Ultimately, Benin's progress illustrated that investigation of TB contact in children and IPT implementation are feasible, and with good adherence. **Additional work remains in better defining how to reach all children under 5 years of age at a lower cost and ensuring good TB screening before IPT initiation.**

Participants raised questions about the cost, feasibility, and sustainability of the "door to door" approach. The importance of following up children after IPT to evaluate the protection of the preventive therapy after its end and the challenge of addressing TB exposure outside the household were also noted.

Uganda: Decentralizing and integrating paediatric TB diagnosis and care

What was the challenge? The rationale for improving childhood TB case finding and prevention in Uganda was based on low childhood TB notification (2.5 percent of bacteriologically confirmed cases and <6 percent of all incident cases), and on the results of a baseline assessment performed in 112 health facilities. This assessment highlighted a number of findings: lower case notifications in children in the lower levels of care were observed, highlighting the centralization of these services; lower cadre health workers were shouldering paediatric TB diagnosis; only 18 percent of these workers reported implementation of contact investigation; and limited capacity for sample collection at all levels.

What actions were taken? The NTP defined various steps to be taken at national level aimed to strengthen capacities to manage paediatric TB (see figure 8 below). Among them, they offered integrated training for health care workers at all levels in a cascade manner starting with national training of trainers (TOTs)—followed by regional TOTs and facility based training/mentorship. In collaboration with The Union, Baylor-Uganda, and Mildmay, the NTP also successfully implemented the DETECT Child TB project, which decentralized health services so that healthcare workers could diagnose and manage TB—mainly through training and mentorship—and deployed community health workers to trace children who had come into contact with adults suffering from TB.

What were the results? The DETECT Child TB project improved child TB notification from 8.8 percent to 15 percent in the two implementation districts. Another approach involved the integration of TB, HIV and nutrition services into integrated community care management (ICCM), which was implemented with support from UNICEF and WHO. Positive results have been registered with the overall national childhood TB case notification increasing from 7.5 percent in 2014 to 9.3 percent in 2017.

What was learned? Various lessons were learned from the implementation of these projects in Uganda. First, the projects demonstrated that decentralization of child TB services is feasible, although **adequate capacity (infrastructure, human resources, and logistics) and good referral mechanisms should be ensured before implementation and scale-up**. Other key lessons include the importance of decentralizing TB services at the secondary level of health facility; providing continuous mentorship; engaging district teams (including setting district targets); and strengthening stakeholder coordination. Additionally, the importance of addressing stigma through continued community sensitization and education and the need to enhance inter-programs involvement for integration of interventions (e.g. maternal and child health) were emphasized.

Figure 3.6: Training cascade

Innovation 1: Competence based capacity building – Training Cascade

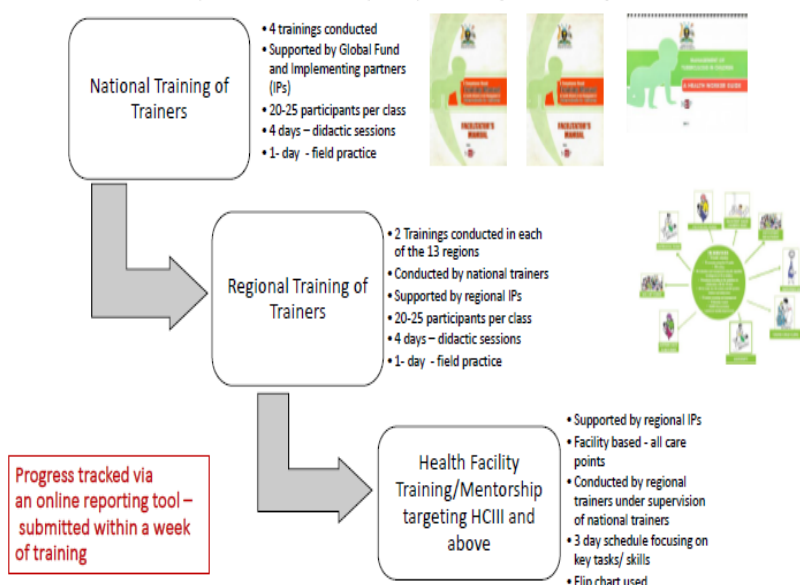
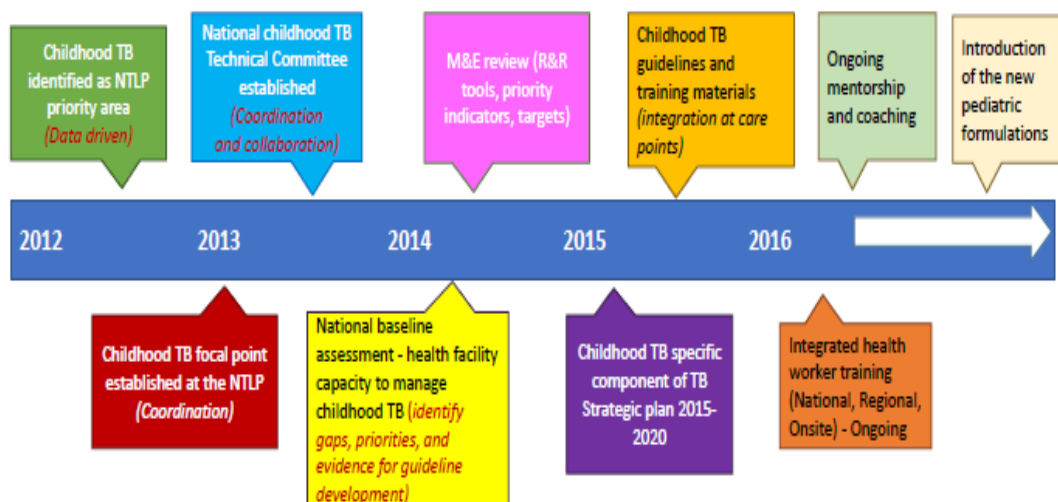


Figure 3.7: Strengthening capacity to manage TB in children – National level



The discussion highlighted the importance of involving the community in searching for contacts to identify TB in children and the importance of using all useful entry-points (e.g. maternal-child health). It was highlighted the difficulty of diagnosing TB in children as they have primary TB disease and most of them are smear negative so the focus on clinical diagnosis. On task shifting to nurses, it was clarified that nurses don't make the final decision, rather the decision is made as a team.

3.4 TB and MDR-TB case management and treatment outcomes

Niger: A comprehensive package for MDR-TB management

What was the challenge? Before 2008, MDR-TB cases were exclusively recruited among failures and relapses of Cat2, cultures and DST were not performed, a standardized regimen for presumptive MDR cases (in 2007 for 40 patients 27 different regimens were used, with no patients cured) did not exist, and patients paid for second line treatment.

What actions were taken? In 2008, with the provision of support from the Damien Foundation to the NTP, a number of activities were launched and scaled-up. These included the expansion of culture and DST started in the ITM of Antwerp, introduction of a short treatment regimen under operational research conditions for patients not previously treated with SLD, opening of the first MDR-TB facility in Niamey (under a mango tree), and the building and equipping of the National Reference Lab. Culture and DST were expanded to Niamey, followed by the introduction of molecular testing (LPA for 1st and 2nd line and GeneXpert) and progressive decentralization, which was extended to eight sites in 2017 and included a sputa transport system based on public transport. During the intensive phase, patients receive DOT ambulatory daily care in MDR-TB units in Niamey and Maradi, while receiving daily hospital care in CHU Niamey and CHR Maradi if severe clinical conditions are present. During the continuation phase, treatment is ambulatory for those patients living or willing to stay in Niamey or Maradi, while family-based care (home visits) is organized for patients living outside Niamey and Maradi (drugs provided for one to two weeks) with one ambulatory visit every one to two weeks. In these two hospitals, the aDSM is also provided with the help of an ECG monitor and screening audiometer, while socio-economic support is provided to patients through free monitoring for adverse events, free ancillary drugs, and transport fees from patients' homes to MDR-TB healthcare facilities, nutritional support, home visits, and family counselling. Supply and management of drugs is supported by the Damien Foundation with the availability of companion (Cfz++) and ancillary drugs for AEs treatment and a buffer stock of six months.

What were the results? Results showed a significant increase in the proportion of re-treatment cases receiving a GeneXpert test (from 11 percent in 2008 to 89 percent in 2017) and an impressive reduction of the interval between MDR suspicion and treatment start (from a mean of 165 days in 2008 to 12 days in 2016). The average outcomes of the 9 to 12-month regimens provided to 255 patients in the last ten years is over 85 percent, with just 2.3 percent of relapses after cure.

Figure 3.8: Tools for aDSM

Useful tools for aDSM: ECG monitor and screening audiometer



What was learned? Various lessons were learned from the experience scaling up MDR-TB care, including the importance of deep knowledge of the local context and a good relationship between NTP and partners in order to identify gaps and find solutions; the need for dedicated, competent, stable and passionate health care workers; and the need for short and practical guidelines and for a patient-centered care model (free monitoring and drugs, transport fees, nutrition). Furthermore, the extension of MDR-TB management should be progressive and adapted to context: short treatment for MDR-TB is effective in programmatic conditions and good results are maintained. Effective drug management is crucial (with emphasis on the importance of buffer stock).

Participants' comments included questions about how to maintain motivated health staff, and how sustainable the intervention was that included in the package of care from MDR-TB patients.

Cameroon: A comprehensive package for MDR-TB management

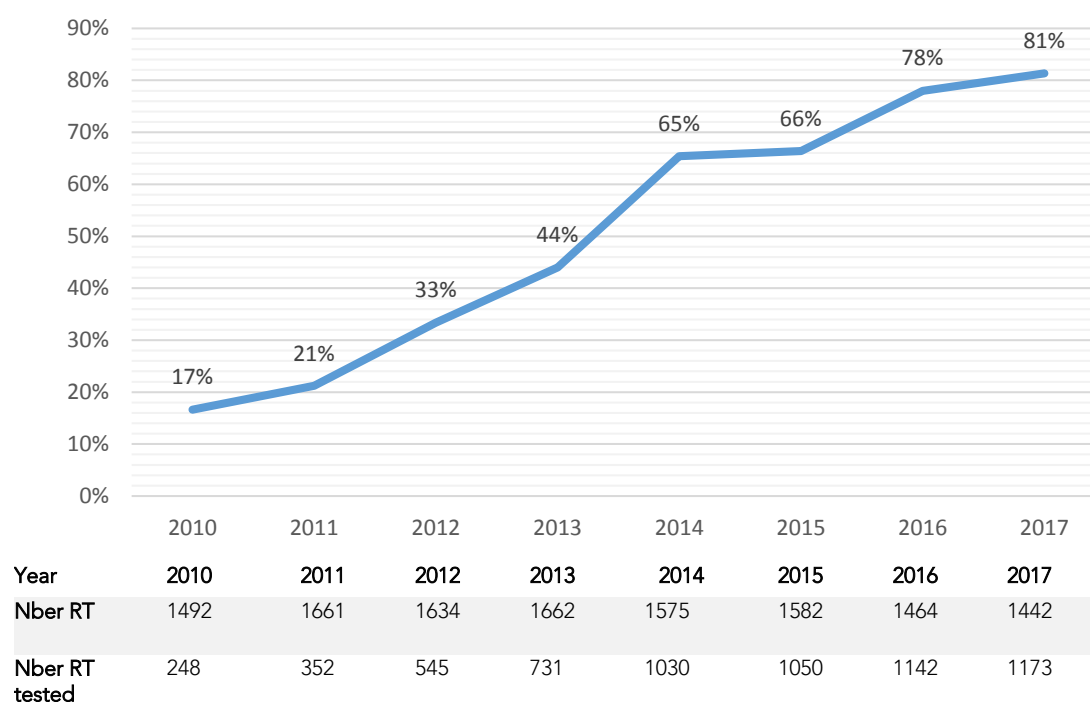
What was the challenge? Prior to 2005, very few cases of MDR-TB were detected in Cameroon. Those that were detected were done by culture and DST in the Centre Pasteur of Cameroon, and treated on an individualized basis by just two experts.

What actions were taken? Since 2005, various actors have become engaged in MDR-TB detection and management in the country and have provided financial and technical support, drugs, and human resources and leadership support. In addition, GeneXpert has become progressively more available throughout the entire country, allowing an increase in the number of re-treatment cases tested from 17 percent in 2010 to 81 percent in 2017. GeneXpert sites are connected through a server at the NTP and data is transmitted in real time to clinicians. Short regimens (12 months) were introduced in 2008, while the 9 month regimens were introduced in 2013.

What were the results? Results have shown a success rate of about 82 percent in the 425 cases treated overall since then. A high death rate might depend on late diagnosis of MDR-TB in some cases.

What was learned? The decentralization of care was made possible through a number of efforts including a high-performing sample transport system, which optimized the use of GeneXpert devices; training of nurses; supervision of sites by doctors; and the transfer of skills to lower-level cadres. Additional elements that have been central to success include the constant availability of medicines and buffer stock and a common vision of care between the NTP and partners.

Figure 3.9: Evolution of retreatment cases treated by Xpert MTB/RIF



Participants discussed the importance of deploying a robust sample transportation system.

3.5 A summary of poster presentations on innovative approaches

1. Guinea-Bissau: Detection and case management of MDR-TB

In the fight against MDR-TB, Guinea-Bissau is facing a number of challenges including low case detection, weak diagnostic capacity, loss to follow up, weak collaboration between the HIV and TB programs, weak community involvement, non-adherence to the DOT strategy, and non-availability of the 9 month regimen. To improve this situation, the program undertook a situational analysis and developed an improvement plan that was submitted to the Green Light Committee. The plan involved the development of a strategic plan and a case management guide on MDR-TB for clinical staff, establishment of a therapeutic committee, refurbishment of the national lab and procurement of two GeneXpert machines, development of a sample transportation system, identification of a supranational laboratory in Portugal, the definition of the follow up of patients (i.e., first year centralised, followed by ambulatory care), training of clinical staff and community agents, and construction of an in-patient ward for MDR-TB patients. The results from 2012 to 2015 show a gradual increase in the detection of MDR-TB cases, involvement of partners in the fight against MDR-TB (NGOs and community), decentralisation of case management, and international collaboration through the supranational lab. Implementation challenges included a low treatment success rate with the use of the 20 month regimen (46 percent in 2015), a high loss to follow up rate (13 percent) and death rate (33 percent), weak follow up on secondary effects and clinical follow up of patients, and weak systems to diagnose contacts.

2. Guinea: Detection and case management of MDR-TB

Guinea has advanced efforts made by the NTP and partners to improve the case management of MDR-TB patients by improving the biosecurity measures of the national laboratory, expanding the number of GeneXpert machines to 16 regional sites, expanding the number of treatment sites, developing a guide for MDR-TB case management and updating the eligibility criteria for GeneXpert testing, setting up a technical committee and a clinical committee for MDR-TB management, identifying a supranational lab (Anvers, Belgium), training of clinical and laboratory staff, and switching from the long to the short regimen. In addition, MDR-TB patients were provided with nutritional support and their clinical follow-up was also covered; the supply chain system was improved to assure the constant availability of second line drugs, drugs to treat secondary effects, and laboratory instruments; and an electronic system for data collection was deployed. The results show an increase in the number of patients diagnosed from 178 in 2016 to 219 in 2017, as well as an improvement in treatment success rate from 6 percent (cohort 2012) to 61 percent (2016 cohort, short regimen).

3. Sierra Leone: Establishment of MDR-TB diagnosis and treatment

Sierra Leone adopted GeneXpert for the diagnosis of DR-TB in 2016 and the first MDR-TB patient was initiated on treatment in April 2017. Prior to implementation, the country researched the process of establishing MDR-TB case management through a series of activities such as discussions and missions to neighbouring countries and the development of an operational. The work has provided the country with the experience needed to continue expanding MDR-TB diagnosis and treatment, including the establishment of 10 GeneXpert sites, the development of a specimen transportation system, the refurbishment of the national laboratory with capacity for DST, and the adoption of the short treatment regimen. Going forward, the program is looking to decentralize MDR-TB services to provide patient-centred care and research is ongoing to document the country's experience in the management of the first cohort of MDR-TB patients.



Participants and moderators discussing the poster presentations.

[4. Togo: The contribution of community health agents in TB case detection](#)

Togo improved TB case detection from 2008 to 2012 by engaging community health agents in the Lomé region and at national level. Contracts with NGOs were signed with the program and these NGOs were responsible for managing community health agents. The community health agents (8,573 nationally and 687 for Lomé) were trained on integrated community case management, including referral of TB suspects and TB treatment follow up. The community agents received 5000 CFA per patient followed until cure and were supervised by the nurse at the TB diagnosis and treatment centre. The results show an improvement in treatment success rate from 74 percent in 2007 to 85 percent in 2012 in the Lomé region and in the country as a whole. This rate decreased once the intervention was discontinued, registering at 83 percent in 2016.

[5. Guinea, Senegal, and Ghana: Seasonal malaria chemoprevention \(SMC\), TB, and malnutrition screening](#)

Pilots were conducted in Guinea (1 district targeting 150,000 children), Senegal (1 district targeting 120,000 children) and Ghana (11 districts targeting 230,000 children) using the campaign for seasonal malaria chemoprevention to undertake TB and malnutrition screening among children under 15 years of age. This research project planned to assess the feasibility, acceptability, efficacy and cost of this integration of services. The methodology involved national, regional, and district level engagement of staff from national TB, Malaria, and Nutritional Programmes; district directors of health services; UNICEF and other key district players. It also involved the definition of the TB screening strategy and the implementation modality (i.e., door to door versus fixed points, fully integrated to SMC versus having a TB team personnel added to SMC team and the target population). The preliminary results show an increase in TB case notification in children under 5 years of age. For example, in Ghana in the pilot area only one TB case in children under 5 years of age had been notified in 2015, whereas 20 TB cases were notified in 2016 (18 of them during the SMC week). The preliminary results of this research show that this integrated approach is feasible, acceptable, effective, and low cost.

[6. Cameroon: Improving TB case finding in Northwest Cameroon](#)

Cameroon has been working to improve its TB case finding in the northwest region through a TB REACH grant. The country has low TB treatment coverage with a high co-infection rate with HIV. The focus was on improving case finding at health facilities by ensuring that health care personnel would systematically screen for TB and refer symptomatic patients for a lab test at multiple entry points at the health facilities (e.g., HIV centres, inpatients and outpatient departments, and labs), providing regular feedback on site, and expanding the number of GeneXpert machines available (11 largest sites in the region inter-connected). The results show that the intensified screening and testing at health facilities resulted in an 83 percent increase in the TB laboratory tests performed since the start of TB REACH activities. For example: 9 percent of patients were found to be TB positive out of the patients that were HIV-positive and eligible to start ART and 14 percent of patients were found to be TB positive out of the inpatients HIV-positive and/or symptomatic for TB. The project also highlighted the benefits of having all the GeneXpert machines interconnected by GxAlert, receiving SMS/emails with results, and being able to monitor their usage and performance in real time.

[7. Burkina Faso: TB contact tracing in children under 5 years of age](#)

In Burkina Faso, a pilot on active TB contact tracing in children was implemented. The approach utilized home visits by community agents in one region and then compared the results to another region implementing passive case finding and to the initial region implementing passive case finding before the intervention. The results show an improvement in the identification of contacts using the active approach (a ratio of contacts per index case of 2.47) versus the passive approach (a ratio of contacts per index case of 0.72), and a higher screening coverage (99 percent of children screened with the active approach versus 64 percent with the passive approach). Both approaches resulted in a similar rate of isoniazid preventive treatment initiation. The disaggregation of the relationship between the contacts and the index cases showed that 91 percent of the contacts were family members and 9 percent were neighbours of the index case. The approach also shows the importance and effectiveness of using community agents in the research of TB contacts and preventive treatment follow up with isoniazid, as well as the role decentralised CHCs can play in conducting the evaluation of the contacts, collecting data, and referring clients to the TB diagnostic and treatment centre.

[8. Mali: TB diagnosis in children under 15 years of age](#)

Children under 5 years of age represent only four percent of the overall number of cases (all forms) notified in Mali. As a result, the country has made efforts to improve case detection in children under 15 years of age in the district of Koutiala. As such, the TB diagnostic and treatment centre established a collaboration with the two health structures responsible for children's care in the district. This included introducing a TB focal point in each of these two structures and providing them with medicines, data collection tools, and support with diagnosis. This collaboration, together with the mass sensitisation conducted by community agents and free care for children, resulted in an increase in the notification rate for children under 15 years of age.

[9. Gambia: Implementing successful and unsuccessful strategies for improving TB case detection in vulnerable populations and high risk groups](#)

Gambia has been implementing innovative strategies to support intensified case finding and improve treatment outcomes. The program successfully implemented active case finding for children in the Greater Banjul Area with the support from the Medical Research Council (MRC). This strategy increased childhood TB case detection by 40 percent. The program also implemented TB case finding at the central prison by establishing a TB diagnostic and treatment centre there. Implemented strategies that resulted in little or no evidence of success included training of village health workers (VHW) in early identification, referral of presumptive TB cases, and follow-up on treatment. Lack of reporting tools to capture the number of referred cases has limited the evaluation of this activity. Based on these lessons learned, and in order to improve case detection, the program is planning, among other interventions, to a) expand household contact tracing to increase TB case detection in children; b) implement active case finding among PLHIV; and c) retrain VHWs on early identification, referral and follow up on treatment—ensuring that reporting tools can capture the community contribution.

4 WORKING TOWARDS TB SOLUTIONS: KEY INSIGHTS AND ACTIONS

A primary objective of the workshop was to provide an opportunity for participants to discuss challenges and identify possible innovative solutions. On Day 2 of the workshop, an update on four thematic areas was provided by experts. The four topics were then discussed in working groups where the participants shared with experts and partners their views about challenges and opportunities and agreed on at least three possible innovative solutions to address those areas. The thematic areas included:

- [Thematic Area 1: TB laboratory diagnostics](#), with special focus on the operational aspects of rapid molecular tests;
- [Thematic Area 2: Procurement, supply, and management \(PSM\)](#), with special focus on the importance of linking programmatic TB data to PSM aspects and on issues related to the introduction of new drugs and regimens;
- [Thematic Area 3: Monitoring and evaluation \(M&E\)](#), with special focus on the use of data to inform policy, and on groups and populations whose data are not routinely collected and easily available;
- [Thematic Area 4: Community engagement for TB control](#), with special focus on people-centered and community-driven responses to TB.

Given that these thematic areas are strongly associated with health system strengthening, the day opened with a session on building resilient and sustainable systems for health, including opportunities for strengthening health systems to support TB programs in the WCA region (see Section 2). Feedback from the working groups indicated a strong interest and willingness to explore innovations, to engage more with communities, and to take advantage of existing and available resources. Participants indicated that this could be achieved through joint supervision and training for TB, HIV, and malaria, better coordination and integration among programs, common utilization of tools (e.g., GeneXpert platform, M&E tools, PSM channels, and laboratory transport systems), better utilization of available human resources (e.g., communities, health care providers, and “post-Ebola” motivated human resources), and exploration of additional funding opportunities (e.g., RSSH and HIV grants, and other partners projects and support).

Table 4.1: Highlights from participants’ feedback on thematic areas discussions

Thematic Area	Identified Solutions
1. TB laboratory diagnostics	<ul style="list-style-type: none"> • Make better use of resources by integrating tools that are available for different programs (such GeneXpert for TB and HIV programs) • Utilize local contracts for the transport of samples or a regional approach for the transport of samples delivered by specialized companies • Ensure adequate TB screening policies are in place and strengthen TB screening as a first step
2. Procurement, supply, and management	<ul style="list-style-type: none"> • Develop integrated PSM systems that can be used by multiple programmes • Utilize innovative technologies for reporting (e.g. mobile phones) and joint resources (HR, M&E, finance, logistics, etc.) for the procurement and stock management of the three diseases • Utilize the new quantification tools developed by partners
3. Monitoring and evaluation	<ul style="list-style-type: none"> • Improve M&E tools and train actors involved at the various levels of M&E • Provide technical assistance for countries to adopt the DHIS2 • Develop a mentoring system and promote further exchange among countries and regional meetings to share M&E best practices
4. Community engagement for TB control	<ul style="list-style-type: none"> • Elaborate and implement guidance documents in terms of policies for community interventions • Engage community at regional level through a training workshop on STOP TB tools and through support to countries to implement these tools in the field • Document community TB interventions and their contribution to the health system and TB control and adapt community interventions to identified needs

4.1 TB Laboratory Diagnostics

WHO-endorsed diagnostic technologies for TB in Africa

Presented by: Jean De Dieu Iragena, WHO AFRO Lab Adviser

WHO's recommended techniques for diagnosing TB: until 2017

WHO's recommended techniques for diagnosing TB include AFB microscopy (Ziehl Neelsen and Fluorescence); solid and liquid culture; Phenotypic Drug Susceptible Testing (first and second-line DST)—with a focus on recent rapid- and molecular-developed technologies such as Genotypic DST (first- and second-line Line Probe Assay and GeneXpert); Loop Mediated Amplification Assay as a replacement of microscopy and Lipoarabinomannan Assay; and urine test used in PLHIV who are seriously ill and for which obtaining sputum for Xpert MTB/RIF seems to be impossible.

These technologies are placed at different tiers of health system—from peripheral through intermediate up to central levels. Molecular tests have advantages as rapid tests as they can be positioned at the lowest level of the health system, have fewer biosafety requirements, and increased speed for diagnosis and for scaling-up programmatic management and surveillance of DR-TB. Besides new and rapid diagnostics, conventional laboratory capacity (microscopy, culture and DST) must be maintained for monitoring patient response to treatment (microscopy and culture) and detecting resistance to drugs other than Rifampicin (DST).

Indication on the use of each rapid test includes the use of Xpert MTB/RIF as an initial diagnostic test in adult and children to detect pulmonary, extrapulmonary-TB, and Rif resistant TB; the use of first line LPA for MDR (Isoniazid and Rifampicin resistance) and second line LPA to detect resistance to Fluoroquinolones and second-line injectable—a prerequisite test before 9 month short regimen can be administered to TB patients. The use of a LAM test in urine to detect TB in PLHIV who are seriously ill offers an advantage and countries were requested to plan to use this life-saving test. The same applies to LAMP assay that can replace microscopy in non-MDR-TB/HIV settings where Xpert MTB/RIF is the preferred assay.

Integration of diagnostic platforms

Country participants were encouraged to start thinking about integration of a diagnostic platform where GeneXpert cartridges for other diseases could be used on the same GeneXpert instrument as for Xpert MTB/RIF, offering advantage to diagnose HIV in children born from HIV positive mothers, Hepatitis C, and HIV viral load. Using a diagnostic platform facilitates sharing the same tools such as training of site personnel, maintenance, supply systems, specimen referral, and quality assurance.

TB lab network in WCA

An update on the TB laboratory network in West and Central Africa within the Stop TB Strategy (up to 2015) highlighted that 60 percent of countries achieved the benchmark of 1 microscopy center per 100,000 population, while only 30 percent and 18 percent of countries achieved the benchmark of 1 culture and DST facility per 5 million population, respectively. Therefore, there is a need to support those countries in reaching the End TB Strategy targets in the post-2015 era.

GeneXpert instruments and modules

The cumulative number of GeneXpert instruments and modules from 2010 to 2017 indicated that the DRC, Cameroon, Burundi and Angola were the top four countries ordering this equipment for Central Africa. In terms of usage of GeneXpert, Cameroon led the way, followed by DRC Burundi, and Angola. From the West African countries, the cumulative number of GeneXpert and modules procured from 2010 to 2017 was highest in Nigeria, followed by Ghana, Ivory Coast, and Liberia, while Nigeria and Ghana were the top users of GeneXpert. It was noted, however, that GeneXpert was not used optimally across all the countries due to a number of reasons that included diagnostic algorithms, sample referral systems, and slow update and implementation of GeneXpert (largely due to the lack of GeneXpert implementation plans across most of countries). Based on these findings, there is a window to integrate other diagnostics using the same platform, which would benefit patients on the use of the GeneXpert platform where other diagnostics cannot be implemented (for instance for early infant diagnosis (EID) and HIV viral load).

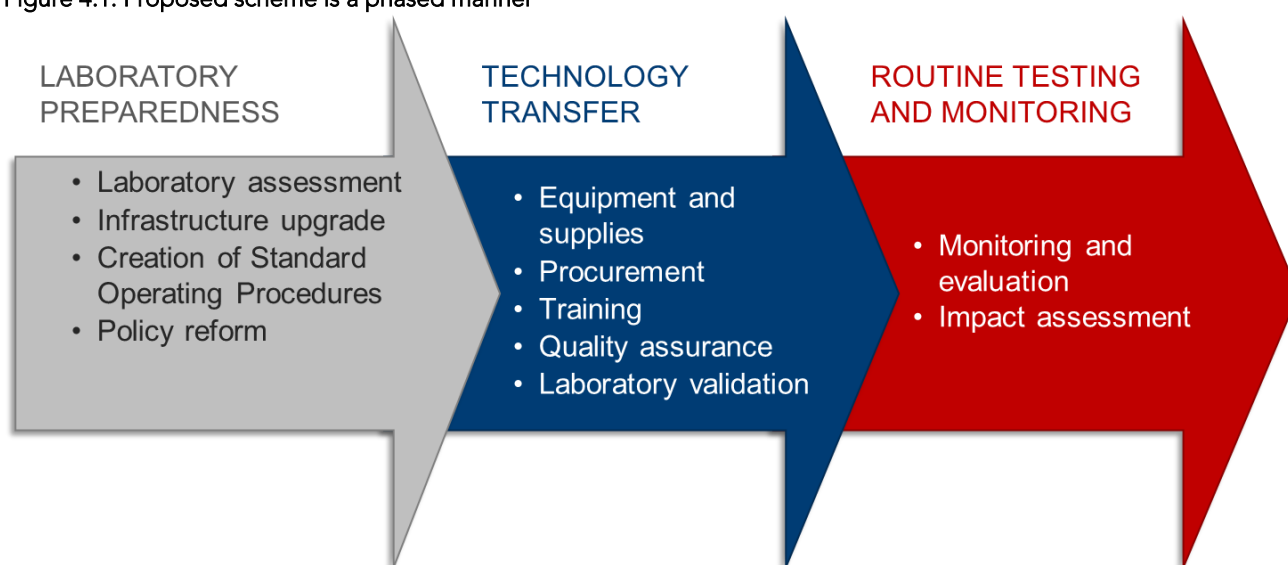
Laboratory indicators and targets

In terms of the 12 laboratory indicators and targets from the End TB Strategy in the post-2015 era, the need for countries to increase access to rapid and accurate detection of TB through rapid diagnostics, reach universal access to DST allowing all of the confirmed TB cases to undergo at least first line DST for RIF; and all RIF-resistant cases to undergo second line DST and strengthen quality of laboratory services by implementing Quality Assurance and Quality Management Systems towards accreditation from National TB Reference Laboratories were among the key activities.

Strategic solutions to improve TB laboratory services in Africa

A model for strengthening the laboratory network through strategic solutions to improve TB laboratory services in Africa was highlighted as a “know how to” package, which is required to succeed implementation. The “know how to” package should take into account the laboratory preparedness, followed by the technology transfer, and should finish with routine testing and monitoring the impact of implemented diagnostic technology.

Figure 4.1: Proposed scheme is a phased manner



Conclusion

Finally, the role of the laboratory and laboratory indicators for the End TB Strategy era was emphasized. Even if future diagnostics play a role in reaching the End TB Strategy targets, countries should make the best use of the currently available diagnostics and should also start implementing multi-disease testing platforms that will provide opportunities for laboratory integration and laboratory data connectivity for improved quality assurance and patient care. To this end, adoption of WHO policy guidance on new TB diagnostics combined with use of Global Laboratory Initiative implementation guidance can help countries to reach the targets of the End TB Strategy.

Lessons learned from the global roll-out of Xpert MTB/RIF

Presented by: Riccardo Alagna, Milan SRL Lab Adviser

Successful roll-out of Xpert MTB/RIF

The global roll-out of Xpert MTB/RIF tests has changed the diagnostic landscape of TB and allowed for a shift from a centralized to a decentralized model of testing. Since the launch of the assay in 2010, a total of 42,392 instrument modules and more than 34.4 million Xpert MTB/RIF cartridges has been procured in the public sector in 130 of the 145 countries eligible for concessional pricing, as of 31 December 2017.

Impactful introduction of new diagnostic tests is a multi-dimensional challenge

Although smears still dominate the TB testing landscape in many high burden countries, the increased number of Xpert MTB/RIF tests performed on TB patients in recent years suggests the increasingly key role this assay

plays on TB diagnosis. Over the past seven years, the introduction of the Xpert MTB/RIF test into national TB diagnostic routines has been widely supported by an extensive number of guidance and strategy documents. Overall, uptake of WHO guidelines on Xpert MTB/RIF has been relatively quick compared to other guidelines on new TB diagnostics. However, the global roll-out of the test has highlighted gaps that have limited impact on the TB care cascade. The roll-out has also demonstrated that the efficient and impactful introduction of Xpert MTB/RIF tests should not be merely limited to aligning local policies with international diagnostic - guidelines, but should also be framed by national capacities to reduce access barriers and ensure continuous provision of diagnostic services.

Barriers to accessing health/diagnostic services

Barriers to accessing diagnostic services are complex and multidimensional. From provider-side perspectives, ensuring broader access to diagnostic services requires working within the context of a strengthened health system where high-quality services are provided to those in need. In this context, the End TB Strategy calls for expanding access to high quality TB diagnostic services and universal drug susceptibility testing for all TB cases.

Diagnostic test alone is not enough

Expanding access to TB diagnostic services doesn't necessarily require a massive deployment of diagnostic tools. In fact, for certain tests, a robust specimen referral system may be more cost-effective than placing staff and procuring and maintaining equipment to conduct testing at lower levels. Specimen referral systems, therefore, play a critical role in ensuring access to laboratory services by allowing patients to receive care at one location, while their specimens are transferred to various levels of a tiered laboratory system for testing.

Integrated national sample referral systems

In recent years, the interest to develop integrated national sample referral systems and dedicated guidelines has risen dramatically with success stories from different countries. However, there are several operational challenges to implementing an integrated sample referral system, including, among others, a lack of tools to develop, plan, and implement a strategy; lack of understanding of the true costs; limited availability of national courier companies dedicated to transport of biological samples; and limited capacities to create a flexible service that fits with patients' needs.

In 2017, to guide countries in the national planning and coordinating of an integrated network that meets the needs of various disease programmes, the Global Laboratory Initiatives (GLI) released its "Guide to TB Specimens Referral Systems and Integrated Networks". In this context, multi-disease testing devices, such as GeneXpert for TB and HIV testing purposes, represent an unprecedented opportunity to build integrated systems. Figure 20 below provides an example of how a regional GeneXpert laboratory might serve as a coordinator center or regional "hub" in a catchment area for specimen testing and arrangement of transportation to the national reference laboratory. In addition, given the poly-functionality of most laboratories in low-resource settings, this system may facilitate integration of other diseases and allow for additional testing such as CD4 counts, complete blood counts (CBC), and blood chemistries.

Figure 4.2: Example of integrated sample referral system



Accessibility should also be integrated into a framework of quality where needs are anticipated and all equipment and supplies available for uninterrupted and reliable diagnostic services are made available. The absence of instrument maintenance plans and poor supply management of cartridges are two common causes of service interruptions in many settings, including the WCA region. Due to lack of funding, perceptions that they are not worth the cost, and limited knowledge of their existence, extended warranties and calibration kits are rarely purchased, resulting in long downtimes. National-level stock of cartridges frequently run out as a result of poor supply management systems in countries. In addition, an overestimate of cartridges needed due to insufficient electronic inventory systems and complex distribution channels are commonly experienced.

Comprehensive approaches to solve a multidimensional issue

Finally, the belief that high-tech solutions offer a magic bullet reflects a flawed understanding of the complex cultural and systemic components present in these countries. While Xpert MTB/RIF is indeed playing a critical role in advancing early diagnosis of TB—including universal DST—new technology alone is not a panacea for TB control and does not obviate the need for more comprehensive approaches to solve a multidimensional issue and achieve the expected benefits.

PARTICIPANT FEEDBACK – TB DIAGNOSTICS

Challenges: The group highlighted the fact that a main issue in this area is the poor planning in the introduction of new technologies. This refers to the acquisition, deployment, and utilization of tools and the diagnostic algorithms to guide their use. Another major barrier is the transport system for the patients' samples to be carried from the collection site to the facility where the diagnostic tools are available. Finally, the maintenance of the diagnostic equipment has been reported as challenging. The need for local investments in local contracts is one solution, but also the challenge as capacity and services are often inadequate.

Opportunities and Solutions: Main opportunities have been identified in the upcoming regional laboratory network to promote sharing of experiences, as well as support to national labs. The implication of community agents, for instance, in the sample or slides' transport system has also been seen as an opportunity. Finally, for diagnostics, the group considered the possibility of making better use of resources through the integration of tools available for different programs (such as GeneXpert for TB and HIV programs). The utilization of TIC (information and communication) for the transmission of the tests' results and laboratory data is one of the solutions proposed, as well as the engagement of organizations (such as the mail, NGOs, mobile labs, private companies etc.) in local contracts for the transport of samples. Finally, some connectivity systems (such as the GXAlert, Data to Care, etc.) have been proposed for the transmission of lab results. A regional approach for the transport of samples delivered by specialized companies has also been proposed, but the issue of identifying the most appropriate way for transport within the country, especially from very peripheral levels, remains. Participants also noted that TB managers are not logisticians and it might be hard for them to define what the most appropriate transport system is. The most adequate system should be built around the evidence of systems that work in each given context and tailored to the reality and needs (i.e., in countries where public transport is used). Participants further explained that having rapid molecular diagnostics is not sufficient if there are not adequate TB screening policies in place. They referred to the examples shared by Kenya, Tanzania, and Uganda on Day 1, and to the importance of strengthening TB screening as a first step.

4.2 Procurement and Supply Management

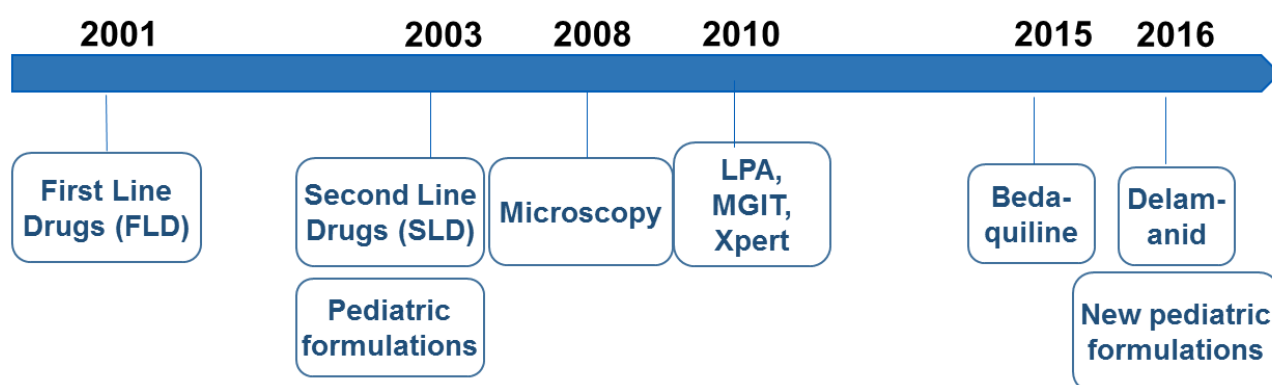
The introduction of new TB tools and the importance of programmatic and PSM data

Presented by: Fabienne Jouberton, Stop TB/Global Drug Facility (GDF)

In view of the challenges faced by several countries in forecasting and procurement planning when the new TB tools were introduced—and also for guidance on preparing for the next implementation period—a summary of the most recent TB tools and the importance of linking programmatic and PSM data was presented.

An overview of the Global Drug Facility (GDF) and a historical timeline of the availability of new drugs, diagnostics, and laboratory supplies highlighted that there are now more than 600 TB diagnostic products and laboratory supplies in the catalogue. Key challenges in the introduction of new TB medicines and regimens include the lack of coordination between the NTP and key actors; the lack of functional TB information systems; and also the challenge of collecting and analyzing data combined with insufficient HR capacity on PSM at all levels of the supply chain. The implications these challenges have for countries include more frequent stock-outs, resulting not only in treatment interruptions but also in delays in introducing new tools and enrolling new patients. Poor planning has also contributed to wasted supplies (i.e., when fewer patients are enrolled than anticipated but the drugs have already been procured).

Figure 4.3: Historical timeline of the availability of new drugs



In view of these consequences, linking programmatic data (e.g., number of patients under treatment, expected cases) and the PSM data (e.g., drugs consumption, stock on hand, expiry dates) is important. Transition plans, in particular, are important not only before the introduction of new TB tools but also more generally and for planning purposes. It was noted that it is important to have access to quality data on the number of cases by categories and drugs needed to avoid any implementation issues. To this effect, countries should ensure good coordination between the different actors involved in case management and the supply chain (e.g., procurement, storage, distribution). In addition, efforts should be placed on the development and/or improvement of the reporting system and on the training and supervision of health workers. At the global level, it was noted that the GDF, through USAID financing, could provide technical assistance to countries by helping them develop different scenarios for the introduction of new TB tools and by building additional capacity to establish a functional information system and utilize adequate tools. Finally, the importance of collaboration and coordination between PSM actors and those actors involved in activity implementation and data collection in order to ensure that, ultimately, patients have access to treatment was noted.

Challenges: The group identified three levels of challenges: 1) poor coordination, especially between the ministries and the partners, and including the limited respect of financial commitments; 2) limited human resources, such as an insufficient number of staff, limited training opportunities, and high turnover of staff; and 3) unavailability of reliable programmatic TB data to inform the quantification and distribution processes.

Opportunities and Solutions: The opportunities and solutions were limited to three each, indicating some challenges in identifying innovative approaches to address PSM needs. The universal access to health care products and the SDG (sustainable development goals) was one of the opportunities noted, as well as the upcoming high level international meetings (e.g., Sub-regional Heads of State Meeting, UN 2018 meeting in NY, Declaration for the Financial Engagement of Governments, etc.). Finally, an opportunity has been seen in the integrated PSM system, which can be used by multiples programmes. Proposed solutions included utilization of innovative technologies for reporting (e.g. mobile phones); joint utilization of resources (HR, M&E, finance, logistics, etc.) for the procurement and stock management of the three diseases; and utilization of the new quantification tools developed by partners. Participants noted that there were too few solutions proposed, and that available resources, such as GDF support, should be taken advantage of. It was emphasized that a significant challenge remains at the “last mile,” and that the importance of the pharmacovigilance is not always addressed. Thus, it is necessary to increase health service providers’ understanding of the importance of providing appropriate PSM data to the central level, and that some “community-led observatories” to control drugs management could help – such as the one created in the Ivory Coast.

4.3 Monitoring and Evaluation

National TB programme monitoring and evaluation systems and the use of data to inform programmatic activities

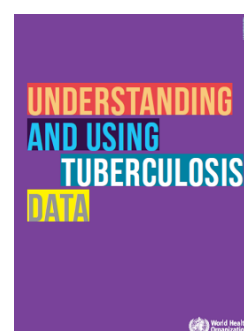
Presented by: Corinne Merle (WHO/TDR)

Improving TB surveillance systems in order to measure the TB burden is critical. In Africa, around 60 percent of missing people with TB are notified, with those missed representing a combination of under-diagnosis and under-reporting. There are several methods that can be used to guide NTPs in the evaluation of the TB surveillance system capacity, one of which is an epidemiological review. An epidemiological review is a standardized and systematic analysis that has main components: 1) an evaluation of the capacity of the TB surveillance system to measure the TB burden correctly; and 2) an analysis of TB and non-TB data to define the importance and geographical time trends of TB burden and the reason of TB burden variation.

Epidemiological reviews

The first part of the epidemiological review uses “[The standards and benchmarks for the TB surveillance and vital registration system](#)” tool developed by WHO, which helps to characterize the surveillance system. In addition, inventory studies can be used to assess under-reporting. An inventory study compares the number of TB cases diagnosed in the public or private sector with the number of cases reported to the NTP, explores the risk factors for under-reporting, and allows for corrective action to be taken for TB surveillance system strengthening.

The second part of the epidemiological review aims to understand the level of and trends in TB burden. As part of their guidance, WHO has developed the “[Understanding and using TB data](#)” tool that is used to assess the levels and the trends in TB disease burden (incidence, prevalence and mortality) using available surveillance data, surveys, and programmatic data. It analyzes the data by geography, age, sex and other relevant variables. The availability of the DHIS 2 TB module in countries greatly facilitates this analysis. A platform has been developed with the support of the University of Oslo, WHO, and Global Fund as part of the Health Data Collaborative Initiative to compile, safeguard, and visualize aggregated TB data at the subnational level. The [DHIS 2 TB module](#) dashboard allows for



visualization of notification number and rates and outcomes trends at the national and subnational level. During the epi review, data analysis should be conducted on a routine basis at national and sub-national levels to detect errors and inconsistencies in order to improve data quality and guide NTP activities. Trainings on data analysis have now been completed with the support of WHO for the West and Central Africa NTPs at the central level and decentralization to regional and district levels is planned in several countries in 2018-2019. The epi review also analyzes data on most-at-risk populations collected by other programs, such as ART and IPT coverage, to assess the impact of factors such as HIV, diabetes prevalence and ageing of the population on case detection. Examples of epi review analysis were shown during the presentation to demonstrate, for example, the correlation between a country's undernourished children mortality rate and TB notification.

Other tools that can help

Other tools available to measure the TB burden in-country are:

- Patient pathway analysis (PPA) to help the TB programs identify where in the health system TB patients may be missed;
- Catastrophic cost surveys;
- Prevalence surveys;
- Ad hoc surveys in at risk populations such as PLHIV, diabetic patients, pregnant women, migrants, prisoners, drug user; and
- Cost analysis to understand for each strategy the cost per TB case detected.

Data for action for TB-specific key vulnerable and underserved populations

Presented by: Ezra Tessera, MECA Team, The Global Fund

Key populations include those that are more prone to TB, either due to increased environmental (overcrowdedness, poor ventilation), biological (immunologically suppressed, poor nutrition), or behavioural risks (direct air borne transmission or indirectly through behaviour that increases the risk of non-TB diseases that suppresses immunity), or barriers in accessing public services (systematically excluded from access often due to criminalization, stigma and discrimination). Many of these key populations overlap (e.g., a person who uses drugs in detention who is also living with HIV, miners who migrated from another country, women trafficked from another country) and have multiple risks, making TB and other health service delivery very challenging.

Data for these key vulnerable and underserved populations is lacking in most countries and it is recommended to follow a systematic process to define the groups and gather the necessary information for planning and decision-making. Key steps to help countries plan and roll out TB services to key populations:

1. **Determine which population sub-groups should be considered as key populations** – Identify and prioritize potential population sub-groups that would need additional attention if TB was to be eliminated in the country, based on estimated size of the potential population sub-groups, risks environment, biology, behaviour, and service access barriers (legal, economic, gender and human rights). The prioritized population sub-groups are then designated as key populations.
2. **Conduct rapid assessment to support key population programme development** – Use qualitative research to identify data gaps to ensure TB programmes would address the risks, risk drivers and service access barriers key populations are faced with. This involves three stages: (a) gathering key information to identify specific issues that need to be addressed in order for the TB services for key populations to be successful; (b) prioritizing potential responses; and (c) designing interventions for prioritized responses.
3. **Fill key population programme and service planning data gaps** – Use probability-based sampling methods (Respondent Driven Sampling, Time Location Sampling) to quantify in a particular locale the size, risks and service access barriers of key populations, who are often hard-to-reach without official records of addresses or contact information. Ensure surveys used for sampling methods are designed to allow for the application of population size estimate techniques (Multiplier, Service Data, Unique Object). Then, extrapolate local-level estimates to derive regional and national estimates.
4. **Add prioritized key populations to the National TB Plan** - Integrate qualitative research and quantitative sampling survey results on prioritized key populations into the country's National TB Plan, specifying where key populations are located, what their TB risks and corresponding risk drivers are, what service access barriers key populations might encounter, what service packages are needed to minimise access barriers, what targets should be set for TB programmes for key populations, and what data gaps need to be addressed.

5. [Integrate service cascades and community-based monitoring into the TB service monitoring and evaluation system at both national and local levels](#) – Design a service cascade with indicators for each step of the cascade and community accountability system to facilitate early identification and correction of implementation and coordination bottlenecks between relevant government clinics, department and civil society organisations to maximise programme impact.

[The five TB-specific key populations](#): Although all key populations are important, the global action framework prioritizes five TB-specific key populations, which include mobile populations, miners, prisoners and detainees, PWID, and PLHIV.

[Potential data sources](#): Limited availability of data about key populations has hampered programming to address the need of these groups. However, countries can get some level of data from local and international sources for the respective population groups. For instance, data about mobile populations are available from the IOM, World Bank, and Unicef (mainly on migrant children). Data about miners is usually difficult to get as in many countries mining is practiced informally. However, in countries with legal mining practices, data can be obtained from relevant government authorities. Data about prisoners is available from local authorities, the World Bank, UNODC, AidsInfo, etc. Similarly, data for PWID can be obtained from the UNODC and AidsInfo and data about PLHIV is available from partners report including UNAIDS and the Global TB report.

PARTICIPANT FEEDBACK – MONITORING AND EVALUATION

[Challenges](#): The main barrier identified was related to the systems to collect TB data: lack of training for peripheral agents to adequately fill data tools, poor regularity and promptness, limited supervision and data validation, and weak or absent integration of community data in the national system. A second level of concern is the analysis and utilization of data, with limited capacity of the persons involved in TB management to perform these functions. Finally, limited collaboration with other ministries and the community, and insufficient sharing/limited feedback from the National TB Programs to the actors involved (e.g. weak collaboration with the Ministry of Justice for data on TB among prisoners) is another key challenge across countries.

[Opportunities and Solutions](#): The group identified several opportunities for M&E. These include existence of tools for data collection; platforms such the DHIS2; workshops to facilitate further exchange among countries; WARN TB activities in the area of strengthening the surveillance system; the support of the Special Programme for Research and Training in Tropical Diseases (TDR) for research; the possibility of joint supervision and joint training; the willingness of decision makers to improve internet coverage and the accessibility of some hard to reach areas; and finally the existence of new tools in the pipeline. To strengthen the overall system, the group proposed the following: a situation analysis, improving M&E tools, training of actors involved at each of the various levels for monitoring & evaluation, technical assistance for countries to adopt the DHIS2, development of a mentoring system, engaging communities in the meetings where feedback on activities is shared, and involving other ministries in the system. In particular, further exchange among countries and regional meetings to share M&E best practices is requested.

4.4 Community and TB

STOP TB Partnership presentation

Presented by: Caoimhe Smyth, Stop TB Partnership

Countries can use reliable and complementary people-centered data to plan effective and focused TB responses. With this data, countries can tailor services to the populations, locations, and needs of the most vulnerable and remove barriers to accessing TB treatment, care and support services, and thereby increase impact. It is highly probable that a large portion of the missing 4.2 million people with TB can be found among TB key populations since they are least likely to be reached by passive approaches in TB case finding. TB key populations are people who are vulnerable, underserved, or at-risk of TB infection and illness—as defined in the Global Plan to End TB. Current data on key populations is limited and efforts to fill data gaps—including risk and exposure factors, barriers to access and estimated size of populations—are needed.

In 2017, the Stop TB Partnership published a suite of tools for countries to identify the legal, policy and gender-related barriers populations face, as well as identify key populations, understand their vulnerabilities, and develop interventions to ensure specific populations are reached with appropriate services. In the same year, six high burden TB countries (respective national TB program representatives and civil society partners) were trained on the tools and conducted assessments to identify the legal, policy, and gender-related barriers and identify the key and vulnerable populations in their respective countries. Data that has been collected is being used by country programs and civil society to complement existing data systems and inform and transform TB programs and services to reach the missing people with TB. This pioneering people-centered, inclusive, community driven work is part of what the Stop TB Partnership is calling the paradigm shift need to end TB. In 2018, using these same tools, seven additional countries under the Global Fund Strategic Initiative on Finding the Missing People with TB will collect this complementary people-centered data to inform and strengthen national responses.

Using people-centered and community-driven responses to identify TB-specific key and vulnerable populations in Tanzania

Presented by: Olive Mumba, Executive Director - EANNASO

Tanzania has been leveraging key population data for action through a joint initiative involving the National Tuberculosis and Leprosy Programme (NTLP) and EANNASO. Using both quantitative and qualitative means of assessment, key populations identified in Tanzania included miners, prisoners, diabetics, PLHIV, and children—with prioritization given to miners in Chunya, one of seven districts in the Mbeya Region.

Through the process the NTLP and EANNASO identified data gaps, including national population size estimates for all vulnerable groups, TB prevalence disaggregated by sex and gender, estimated TB incidence disaggregated by sex and age, and TB case fatality rates. Lessons learned through the process included the value of national programme and civil society/community collaboration, the leading and meaningful roles community and civil society played throughout the process, and the need for a multi-stakeholder approach to ending TB in the mining district of Chunya.

By way of next steps, the NTLP and EANNASO will map all partners in the Chunya district who can support TB activities, establish and engage a TB community organization that can inform and empower the mining community, and conduct formative research on TB in the mining community to inform the next National Strategic Plan. The Stop TB Partnership highly regards the visionary and groundbreaking work of the NTLP and EANNASO on TB key populations for more focused TB service and programming purposes.

ENGAGE-TB: Integrated community TB activities

Presented by: Lana Syed - WHO/ENGAGE TB

In 2016, out of 10 million people with tuberculosis (TB), 4 million were not reached by current systems and services. 54 percent of all persons affected by TB/HIV did not receive care. Only 22 percent of all persons with MDR-TB started treatment, with a treatment success rate of 54 percent. Furthermore, there is ample evidence of linkages between TB and HIV, malnutrition, poverty, crowding, diabetes, tobacco, alcohol and drug use.

The WHO End TB Strategy is aligned with the Sustainable Development Goal (SDG) framework and calls for ending the TB epidemic by 2030 through multi-sectoral action. A strong coalition with civil society organizations (CSOs) and communities is at the core of its principles for success. This is because communities and CSOs are best placed to engage vulnerable groups and tailor the services to their needs. CSOs have the comparative advantages of bidirectional influence on community structures and governmental institutions; knowledge and understanding of local circumstances; and flexibility and adaptability towards local situations. The role they play in addressing the TB epidemic and assisting the global TB response is unquestionable.

To facilitate the implementation of integrated community-based activities through government or CSOs in TB response, WHO developed the ENGAGE-TB approach and associated implementation tools in the period between 2012 and 2015. It underlines the importance of close collaboration between the National TB Programmes and community actors in planning, supervision, and monitoring and evaluation. To address weaknesses in monitoring and evaluation, two core indicators have been developed: percentage of new notifications from community referrals and treatment success of patients who benefited from any type of community treatment support. The number of countries reporting on these indicators has grown from 13 in 2013 to 53 in 2017. Innovative pilot projects in 2012-2014 in DR Congo, Ethiopia, Kenya, South Africa, and Tanzania helped demonstrate effectiveness and feasibility. To date, 15 countries in total have included the

ENGAGE-TB approach in their national policies and strategies, while the additional funds secured for implementation are equal to 31.5 million USD through the Global Fund until end 2017.

In November 2017, the first WHO Global Ministerial Conference with 74 Ministers and 1,000 participants was held to accelerate implementation of the WHO End TB Strategy in order to reach its targets and the UN SDGs through national and global commitments, deliverables, and accountability. The Ministerial Conference will inform the UN General Assembly High-Level Meeting (HLM) on TB in September 2018. To seize the full potential of this historical period for the global TB response, the UN Secretary General reached out to Member States, reminding all that civil society is a key stakeholder in the preparation and national delegations for the HLM.

PARTICIPANT FEEDBACK – COMMUNITY AND TB

Challenges: The main challenges cited were around how to involve governments to support community interventions, including the community agents; how to strengthen the coordination of activities (e.g. planning, M&E, research) among all the relevant stakeholders (e.g., government, civil society); how to take advantage of the funding for community activities for the three diseases; and how to allow an integrated care package offered by community agents. Also, the issue of “appropriation” is considered a potential barrier for community engagement.

Opportunities and Solutions: The group identified various opportunities, including the interest of governments to elaborate a national policy for community interventions; utilization of the good practices of some countries and/or some other diseases to strengthen community engagement for TB; opportunities to advocate in favour of community engagement at high level meetings at national and regional level; the existence and utilization of WHO norms to encourage governments and civil society to organize a community TB response; the organization of exchange workshops to share good practices and lessons learned; and the organization of community fora to analyse and validate data and to identify solutions contextualized to the challenges. Some innovative solutions were then proposed, such as the elaboration and implementation of guidance documents in terms of policies for community interventions; engagement of community at regional level through a training workshop on STOP TB tools and through support to countries to implement these tools in the field; better documentation of community TB interventions and their contribution to the health system and TB control; establishment of observatories to better document and adapt community interventions to identified needs; and establishment of support groups for patients and associations.

Participants noted that it is essential that the actors involved are first and foremost convinced that interventions are needed: communities often do not give value to their own work, which deserves and needs to be documented. Twelve participants indicated that they had a national community plan in their country, six of which are currently implemented.

5 TAKING COUNTRY PLANNING FORWARD: WHERE ARE WE GOING? HOW ARE WE GETTING THERE?

5.1 Bottlenecks and opportunities identified after each session by individual participants

After each session, all the participants were invited to complete a form that asked “**what about my country?**” More specifically, they were requested to briefly take note of their immediate reactions to the presentations they attended and to reply to the following questions:

1. How is this relevant to my country? e.g. important programmatic gap in this area and/or high potential for impact;
2. What are the opportunities in my country? e.g., funding (domestic, Global Fund/partners), human resources, technical capacity etc.
3. What are the significant bottlenecks? e.g., high programmatic/financial risks, very complicated implementation arrangements, high dependence on other stakeholders etc.
4. Can impact be achieved by changing the “how” without additional significant investment?

With each bottleneck, participants were invited to come up with opportunities to improve the situation. Opportunities in some cases were the same as bottlenecks as some participants saw in the issue (for example funding) both the weakness in their program and the area that, if strengthened, could make a meaningful difference in their program’s success. Additionally, as this was a survey completed by 19 countries, where some saw one area as a strength, another did not (an example is the reported strength of the health system in some countries but not all). A summary of the overall bottlenecks and opportunities is reported below. This information provides key insights on what actions countries will potentially take forward, building on their collective learning and reflection.

5.1.1 Bottlenecks

Funding gaps

Although there are several areas where bottlenecks can be encountered in the national TB programs, some of the same bottlenecks kept coming up in discussions with countries. For this reason, it seems that the region has more in common than one might assume given the diversity in populations (urban vs rural, different key populations etc.). For example, funding gaps were found to be a cross-cutting issue and much deeper than expected. This funding gap was brought up in two specific areas: 1) over dependence on the Global Fund and 2) lack of government engagement. The Global Fund’s grants are not able to cover all the needs in the region, yet, as a percentage of a country program’s spending, it does represent a large amount. This can be problematic as there should be several sources of funding and the Global Fund system is designed to encourage more local engagement. At the same time, the current government funding to cover the gap between the program’s needs and what is not covered by the Global Fund grant is either lacking or not reliable. This puts NTPs in a difficult situation where bottlenecks exist in many areas and the solutions are difficult to implement without additional funding.

Insufficient human resources

Another commonly cited problem was insufficient human resources. This includes low staff availability, high turnover, and inadequate budgeting for staff where there are no permanent positions for staff that should be permanent. It is not surprising that in combination with the other bottlenecks that weaken the system overall, motivation was a recurring word. Low motivation or lack of motivation was common, sometimes even at the leadership level.

MDR-TB case management and treatment outcomes

The largest number of bottlenecks (and opportunities) were specifically around MDR-TB case management and treatment outcomes. This includes a number of different challenges, such as centralization of treatment, poor sputum transport systems, lack of follow up on drugs side effects, and the human resources challenges mentioned in other sessions.

5.1.2 Opportunities

Human resources

The most important opportunity to build around was viewed as human resources. Whereas participants agreed that training was needed at all levels of healthcare, there were notable instances of strong personnel who could train others to strengthen the entire system.

Funding

Many participants cited additional funding as an opportunity. This includes accessing opportunities for additional funding in the form of smaller grants for piloting projects like those proposed by Stop TB for community activities. The workshop was also an opportunity for countries to find a few more sources of funding. In some cases, this funding could be from current Global Fund grants or other sources—including from other partners.

Partner support

The presence of partners was well noted and partner support was a recurring theme for opportunities. In addition to the current partners who are active in the region, the workshop encouraged discussion around more partner involvement, particularly for the additional TA that was seen as a needed step in improving the TB response.

Pilots

Countries mentioned several projects that were piloted and have shown promise. Even if these were successful on a small scale, there are opportunities to scale these up nationally. Those who had not piloted projects to address specific needs expressed a desire to start projects to test the innovative approaches that were shared during the workshop.

Existing systems

The strength of existing systems was mentioned by some as an opportunity that could be used to boost case finding and case management. Non-communicable disease programs, such as diabetes or paediatrics, (or MNCH overall) were viewed as strong enough to build TB case finding around.

5.2 Highlights from drafts of country plans and strategies for the way forward

Country Planning

On Day 3 of the workshop, countries were invited to work on their own **country plans** as an opportunity to define in as much detail as possible what would be implemented, scaled, and/or piloted to improve TB case finding and treatment outcomes in their contexts and how this implementation would happen. Specifically, participants were given three guiding questions to answer in order to facilitate their focus upon returning to their countries. Country delegations worked individually through working groups to develop a plan based on the questions and were then able to discuss their draft proposals in real time with experts and through a peer review. Resources made available to countries during this process included a counterpart from the NTP of another country in the region and other partners who could offer additional guidance and possibly more formal TA or some small grants for the community component. Of particular note, participants were able to incorporate ideas that they learned through country presentations with the knowledge that it was tried and tested in a similar context.

Overall, the country planning process was a very useful exercise that helped to consolidate the experiences and learning that were shared and also allowed countries to receive some immediate feedback from other countries, explore technical support, and explore financial and technical opportunities for implementation.

The three guiding questions were the following:

- Proposed intervention, targeted population, and geographical area of intervention for TB and/or MDR-TB detection/treatment: **What will we do differently?**
- Main activities/strategies to implement: **What will we do differently?**
- How we'll monitor and document results: **What will we do differently?**

Below are some examples of interventions proposed by countries in their draft plans:

- Working with key populations that have difficulty accessing the health care system—including children, nomads, and prisoners. Interventions could include the decentralization of diagnosis and care with expanded GeneXpert use, active TB case finding, the use of mobile clinics, and innovative connectivity and R&R systems. The country anticipates that data and GeneXpert optimization could play a significant role in increasing case detection from 51 percent to 68 percent and the treatment success rate from 77 percent to 86 percent by 2020.
- Implementing active case finding in prisons and areas with indigenous populations—organizing these campaigns 3 times a year and improving case detection among the general population through lab technician capacity building.
- Improving sputum transportation by 1) identifying new transporters, 2) creating new contracts, and 3) training community workers on collection and transport of samples. This could be tracked with widely-distributed registries and the data could be compiled and analyzed. With additional financing to make this possible, the country is hoping to improve case detection by 15 percent each year.
- Screening all symptomatic diabetic patients by chest x-ray with the aim to reduce mortality in this high risk population. Given the high price of the intervention and limited x-ray machines throughout the country, funding from several sources would be required to make it possible.

As a follow-up to the workshop and the development of these draft plans, participants will meet at a side event during the Union World TB Conference in The Hague to review progress and to map the way forward.

5.3 A key outcome of the workshop: The Cotonou TB Declaration

Aside from the country draft plans that were developed during Day 3 of the workshop, which were a key outcome of the workshop, another key result of this process was the **Cotonou TB Declaration**—a resolution made by participants (see Annex 1).

Over the course of the first two days, a group of participants discussed the idea of the longevity of the initiative and what would be required to ensure continued commitment. Following some informal discussions on what was needed to achieve this, there was agreement that a commitment to address the main issues around TB in the region was a high priority. In order to strengthen actions and efforts, this commitment would be required by all participants present but, equally importantly, from respective governments as they hold the political and financial capital to drive the initiative forward in line with the Sustainable Development Goals and the Global Plan to End TB.

The group included partners, NTP managers, and community actors who represented the diverse backgrounds at the workshop and who met several times to draft the declaration. Through several iterations, and with comments and approval from the larger workshop on the last day, the declaration was ready to be shared. The document highlights the particular needs in the region and requests the level of support needed from governments and stakeholders to tackle the TB challenge in the region. The seven points that were agreed on represent the areas that are the most promising in terms of reversing the tide of the TB burden and also that require additional focus and improvement. They include the following:

1. Reduce the proportion of missing people with TB by 50 percent by 2020 for DS and DR-TB
2. Reduce the TB/HIV mortality by half by 2020
3. Accelerate childhood TB interventions including preventive treatment, case finding, and treatment by at least 50 percent by 2020
4. Strengthen systematic use of implementation research to generate locally relevant evidence-based data for innovative interventions and scale up
5. Strengthen strategic partnerships with community and civil society to foster integrated, community-led, people-centered, rights-based and gender-transformative approaches to the TB response
6. Ensure adequate financing for TB, including following through on existing domestic government commitments to support essential TB drugs, human resources and services
7. Strengthen partnerships among stakeholders for elimination of TB, including accountability for the outcomes of this declaration at national, regional and global levels.

5.4 Final message

While the fight against TB remains a major global threat, the burden that TB places on health services and systems in sub-Saharan Africa is particularly significant. As countries in the region have shared, low case detection, weak diagnosis and treatment strategies, limited laboratory and diagnostic capacities, weak reporting systems, insufficient domestic and external funding, and insufficient human resources are among the many barriers. Despite these challenges, promising developments in the West and Central Africa region and beyond have provided an opportunity to reflect on progress, refocus capabilities, and apply lessons learned to accelerate interventions in TB control.

The best practices and experiences shared throughout this workshop demonstrate that a number of innovative and effective strategies to find missing people with TB and enhance treatment outcomes are possible. Among these promising examples, several key messages to consider have emerged not only for countries in the region, but also for TB actors across the continent and globally:

1. **Capitalize on community-based action for successful TB control efforts.** In communities across the region and continent, community health workers, community-based service providers, and local leaders have helped to pave the way in finding missing people with TB and improving TB outcomes. Leveraging and scaling-up these local resources to deliver local and context-specific TB solutions—and aligning capacity building investments accordingly—provides a unique opportunity to strengthen critical linkages between health services and local communities.
2. **Strengthen health systems to support successful TB prevention, detection, and management—particularly for children.** To this end, investments should be leveraged to reinforce the health system through both cross-cutting and disease-specific interventions. This includes addressing human resource gaps, strengthening technical and management capacity at all levels of the health care system, engaging primary health care facilities, and scaling-up TB-specific interventions that reinforce health systems (e.g. case management, laboratory capacity, HIS, PSM, etc.)
3. **Integrate services to increase access to TB diagnosis, care and improved outcomes.** For example, promising strategies emerged for collaboration and strategic integration of HIV and TB services—which is critical for bridging case detection and treatment gaps and reducing incidence, prevalence, and mortality due to TB and HIV. Field experiences have also shown the importance of using multiple entry points for TB detection (e.g., MCH) and securing the “buy-in” of NTPs and other programs (e.g., malaria, nutrition) in improving TB outcomes.
4. **Optimize use of existing tools and resources.** Exploring how existing competencies, tools, and resources (e.g. staff competencies and skills, HMIS, diagnostic platforms, etc.) in the health system can be applied to the implementation of TB interventions supports not only TB services but also sustainability.
5. **Maximize the scaling-up of successful pilots and dissemination of best practices.** A number of successful pilots were shared throughout the workshop for boosting TB detection, improving case finding, addressing TB in children, and improving treatment outcomes. Moving forward, countries can—and should—focus efforts on taking these lessons and experiences forward, implementing them nationwide where appropriate, and integrating them into routine practices. Increasing awareness among decision-makers and other key stakeholders of best practices and establishing further networks to communicate regularly and share experiences both within and outside of country settings should be prioritized.
6. **Finance efforts adequately and commit at government level.** The success of these national TB programs rests on each government’s willingness to place high importance on the fight to end TB and, consequently, equip programs with the necessary human and financial resources—along with support at the highest levels. This, coupled with continued international donor support, will be instrumental in reversing the trends seen throughout the region.

Through a focus on community-led efforts, paediatric TB, and other TB high risk groups—along with the inspiring experiences shared around scaling-up MDR-TB and the significant gains made by NTPs, committed partners, and in-country champions with limited resources—this workshop has highlighted both impressive advances and key areas where urgent actions are needed to get ahead of challenges. Not only have the countries that attended the workshop gained substantial momentum but their experiences offer important lessons for countries facing similar hurdles in TB control. Sustaining and expanding this progress—which includes establishing strong mechanisms for collaboration across sectors and services and strengthening implementation—will ensure that more missing people with TB are found, TB treatment outcomes in the region are improved, and, ultimately, a shared pathway is forged to achieve the End TB 2030 targets.

Annex 1: The Cotonou TB Declaration

COTONOU TB DECLARATION

Workshop to share best practices and lessons learned in tuberculosis case finding and treatment in Western and Central Africa

26 - 28 March 2018



Preamble

We note with concern that every year, the Western and Central Africa (WCA) Region is missing more than 50% of TB cases. Among children, three quarter of cases are missed.

The estimated mortality in TB/HIV co-infected patients in WCA region is 50% higher than in the rest of Africa.

Our national programs are currently diagnosing and treating only 20% of the patients suffering from DR-TB.

We, the National TB Programs of WCA region*, having come together with partners at the Regional Workshop in Benin, reaffirm our commitment to end TB as declared in the Sustainable Development Goals and require absolute commitment from our Governments.

We recognize that 2018 is a historical moment in the fight against TB, with the upcoming UN General Assembly (UNGA) High Level Meeting on TB in September.

We call on our Governments and stakeholders for a multi-sectoral response against TB and provide the needed **political** and **operational** leadership to end the TB epidemic and we affirm to do the following:



Reduce the proportion of missing TB cases by 50% by 2020 for DS and DR-TB



Reduce the TB/HIV mortality by half by 2020

* The West and Central African countries present at the workshop: Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Cote d'Ivoire, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Sao Tome and Principe, Senegal, Sierra Leone and Togo.



Accelerate childhood TB interventions including preventive treatment, case finding, and treatment by at least 50% by 2020



Strengthen systematic use of implementation research to generate locally relevant evidence-based data for innovative interventions and scale up



Strengthen strategic partnerships with community and civil society to foster integrated, community-led, people-centered, rights-based and gender-transformative approaches to the TB response



Ensure adequate financing for TB, including following through on existing domestic government commitments to support essential TB drugs, human resources and services



Strengthen partnerships among stakeholders for elimination of TB, including accountability for the outcomes of this declaration at national, regional and global levels

Annex 2: Agenda and participant/speaker List

**Workshop to share best practices and lessons learned in TB case finding and treatment
in the West and Central Africa Region**
Date: 26th - 28th March, 2018.
Venue: Marina Hotel, Cotonou, Benin

DAY 1 AGENDA (26/03/2018)			
S/N	AGENDA ITEM/ACTIVITY	RESPONSIBLE/PRESENTERS	TIME
1	Registration	WARN TB Secretariat	8.00 – 8.30
2	Opening of the workshop	WHO representative, Global Fund representative, Community representative, Ministry of Health of Benin representative	8.30 – 8.50
3	Brief introduction to the workshop: objectives and methodology	Gilles Cesari / Ibrahima Coulibaly (Global Fund)	8.50 – 8.55
4	Logistics of the workshop	WARN TB Secretariat	8.55 – 9.00
5	Brief introduction to the topic: TB and MDR-TB case finding and treatment outcomes: where we are in the region	Corinne Merle (WHO/ TDR)	9.00 – 9.20
6	Brief overview of the templates sent by countries	Anna Scardigli (Global Fund)	9.20 – 9.30
7	1. Country experiences: Boosting TB detection through Community Engagemet and Services Decentralization 1a) The role of the eHCWs in TB detection in Ethiopia 1b) PROCESSUS DE DECENTRALISATION DES STRUCTURES DE LUTTE CONTRE LA TUBERCULOSE EN CÔTE D'IVOIRE DE 2016 À 2017 1c) Contribution des communautés dans la lutte contre la TB au Sénégal	<i>Chairs:</i> Miriam Faid (STOP TB) and Adjima Combarry (Burkina Faso NTP) <i>Presenters:</i> 1a. Daniel Gemechu (consultant Ethiopia) 1b. Fatou Tiépé Coulibaly Adjobi (NTP Cote d'Ivoire) and M. Kambou Edouard Sansan, (TB Alliance Cote d'Ivoire) 1c. Elhadji Mamadou Dioukhane (PLAN Senegal)	9.30 - 10.30
8	Discussion of the experiences shared; what about our country?	2 chairs & all presenters	10.30 - 11.00
	<i>COFFEE break</i>		11.00 - 11.30
9	2. Country experiences: Optimizing TB case finding at Facility Level 2a) Quality improvement and efficiency in increasing TB case detection: Experience from Kenya and Tanzania 2b) Intensified ACF in PLWHA and in DIABETICS (RAFAscreen project) - Senegal, Benin and Guinea Conakry 2c) Challenges and opportunities in implementing ICF in Ghana	<i>Chairs:</i> Meghan Holohan (USAID) and Eliud Wandwalo (Global Fund) <i>Presenters:</i> 2a. Samuel Kinyanjui (consultant Kenya) and Sode Matiku (consultant Tanzania) 2b. Ablo Wachinou on behalf of RAFAscreen team 2c. Frank Bonsu (Ghana NTP)	11.30 - 12.30
10	Discussion of the experiences shared; what about our country?	2 chairs & all presenters	12.30 - 13.00
	<i>LUNCH break</i>		13.00 - 14.00

11	3. Country experiences: TB: What do we do for Children? Introductory presentation: Update on Child and Adolescent TB 3a) "Expérience de l'investigation des contacts chez les enfants au Bénin". 3b) Decentralizing and integrating pediatric TB diagnosis and care in Uganda	<i>Chairs:</i> Nicolas Furtado (Global Fund) and Musa Jallow (Gambia NTP) <i>Presenters:</i> Introductory presentation: Corinne Merle on behalf of Annemieke Brands (WHO/GTB) 3a. Menonli Adjobimey (Benin NTP) 3b. Moorine Sekadde (Uganda NTP)	14.00 - 15.00
12	Discussion of the experiences shared; what about our country?	2 chairs & all presenters	15.00 - 15.30
	COFFEE break		15.30 - 16.00
13	4. Country experiences: TB/MDR-TB CASE MANAGEMENT & TREATMENT OUTCOMES. 4a) TB/HIV Overview: HIV-associated TB 4b) Comprehensive package for MDR-TB management in Niger 4c) Comprehensive package for MDR-TB management in Cameroon	<i>Chairs:</i> André Ndongosieme (WHO AFRO) and Fatou Kine Wathie Thiam (Plan Guinee) 4a. Corinne Merle on behalf of Annabel Baddeley (WHO/GTB) 4b. Bassirou Souleymane (Damien Foundation) 4c. Vincent Mbassa (NTP Cameroon)	16.00 - 17.00
14	Discussion of the experiences shared; what about our country?	2 chairs & all presenters	17.00 - 17.30
15	Register for tomorrow's "meet the expert" session	Participants	17.30 - 18.00
16	Partners' meeting	Partners	18.00 - 19.00
DAY 2 AGENDA (27/03/2018)			
S/N	AGENDA ITEM/ACTIVITY	RESPONSIBLE	TIME
1	Brief summary of the previous day's session	Anna Scardigli and Noemi Cambray (Global Fund) and audience	8.30 – 8.40
2	Introduction to the content of the 2nd day's agenda (included organization of groups for the parallel sessions and working groups)	Anna Scardigli and Noemi Cambray	8.40 – 8.50
3	Overview on the Region: opportunities from an RSSH perspective	Nicolas Furtado (Global Fund)	8.50- 9.15
4	1st Thematic area: TB Diagnostics 1. Brief update on TB diagnosis -including AFRO WCA Region 2. Lessons learnt from global roll-out of Xpert MTB/RIF	<i>Chairs:</i> Dissou Affolabi (Benin NTP) and Nimer Ortuno (Damien Foundation) <i>Presenters:</i> 1. Jean de Dieu Iragena (WHO AFRO Lab Adviser) 2. Riccardo Alagna (Milan SRL Lab Adviser)	9.15- 10.05
5	2nd Thematic area (parallel session with PSM session) : M&E, data system and use of data to inform policy - with special focus on populations hard to reach and groups not routinely addressed	<i>Presenter:</i> Corinne Merle <i>Panel:</i> Corinne Merle, Ezra Tessera (Global Fund), Kobto Koura (The Union), Ibrahima Coulibaly, (Global Fund), Madou Kane (NTP Senegal) and Dubliss Nguafack (NTP Cameroon)	10.05- 11.00

5	3rd Thematic area (parallel session with M&E session): PSM - procurement supply and management - with special focus on linking programmatic data to supply and management aspects, and on TB drugs management in the context of short regimens scaling up and new drugs.	<i>Presenters:</i> Fabienne Jouberton (Stop TB/GDF) <i>Panel:</i> Khoudia Diokhane(Global Fund), Alberto Piubello (The Union), Achille Yemoa (NTP Benin)	10.05-11.00
	<i>COFFEE break</i>		11.00 - 11.30
6	Poster session	<i>Chairs:</i> Henriette Wembanyama (TB/HIV consultant), Soleil Labelle (WHO/GTB), Andre Ndongosieme (WHO AFRO) and partners	11.30 - 12.30
7	Poster feedback in Plenary	<i>Chairs:</i> Henriette Wembanyama, Soleil Labelle, Andre Ndongosieme and partners	12.30-13.00
	<i>LUNCH break</i>		13.00 - 14.00
*8	4th Thematic area: People centred and community driven responses to TB – Strengthening integrated community-based TB service delivery and partnerships with communities to address barriers to access and ensure quality care	<i>Chairs:</i> Abdulai Abubakar Sesay (CISMAT-Sierra Leone) and André Ndongosieme <i>Joint panel:</i> Caoimhe Smyth (STOP TB), Lana Syed (WHO/Engage TB), Olive Mumba (EANNASO) and Nicolas Nkiere Masheni - WHO DRC	14.00 – 1.00
9	Plenary discussion and introduction of working groups on thematic areas	<i>Facilitators:</i> Anna Scardigli and Oriol Ramis and presenters (Jean de Dieu Iragena, Riccardo Alagna, Corinne Merle, Fabienne Jouberton, Caoimhe Smyth, Lana Syed)	15.00-15.30
	<i>COFFEE break (during working groups discussions)</i>		15.30-16.00
10	Group works on the four thematic areas: what are the challenges and the opportunity in your country?	<i>Facilitators:</i> All presenters in the respective thematic groups, plus partners. 5 groups of 4-5 countries plus 2-3 partners and expert	15.00 - 16.00
11	Feedback from groups in plenary (20 minutes feedback/discussion on each of the 4 thematic areas)	<i>Facilitators:</i> Anna Scardigli and Oriol Ramis and presenters	16.00 - 17.30
12	Meet the expert (10 minutes available for each country interested to talk in person with the "experts panels")	Countries and Expert panels	17.30 - 18.30
DAY 3 AGENDA (28/03/2018)			
S/N	AGENDA ITEM/ACTIVITY	RESPONSIBLE	TIME
1	Meet the expert (10 minutes available for each country interested to talk in person with the "experts panels")	Countries and Expert panels	8.00 – 9.00

2	Brief summary of the previous day's session	Ibrahima Coulibaly and Maria Padkina(Global Fund) (and audience)	9.00 – 9.10	
3	Introduction on the day content, objectives and methodology: Individual countries develop plans, grouping countries for peer review and in-depth discussion	<i>Facilitators:</i> Tina Draser (Global Fund) and Maria Padkina (with G.Cesari, I.Coulibaly, N.Cambray, K.Diokhane and other partners to help with facilitation of groups work)	9.10 – 9.30	
4	Working Groups on country planning	21 country working groups (1 for each country)	9.30 – 10.30	-
	<i>COFFEE break</i>		10.30 – 11.00	-
5	Working Groups on country planning (cont.)	21 country working groups (1 for each country)	11.00 – 13.00	-
	<i>LUNCH break</i>		13.00 – 14.00	-
6	Peer review of the plans (countries will be paired and each will review the present its plan and revie the other country plan - 15 minutes presentation and 15 minutes constructive peer review done by the other country)	21 countries in pairs	14.00 – 15.00	-
7	Individual country groups meet to fine tune their final feedback (What? How? Who?)	Individual countries	15.00- 15.30	
	<i>COFFEE break</i>		15.30 – 16.00	-
8	Sharing the experience and evaluation (each country: What, How and Who will be implementing case finding/treatment outcomes	Tina Draser and Gilles Cesari All countries (2-3 mins each)	16.00- 17.15	
9	Official closure	WARN TB, Eliud Wandwalo	17.15- 17.30	
10	Cocktail dinner	All	18.00 – 19.00	-

Participants' List		
No.	Name	Affiliation/Country
1	Eliud Wandwalo	The Global Fund
2	Tina Draser	The Global Fund
3	Anna Scardigli	The Global Fund
4	Gilles Cesari	The Global Fund
5	Ezra Tesera	The Global Fund
6	Nicolas Furtado	The Global Fund
7	Ibrahima Coulibaly	The Global Fund
8	Noemi Cambray	The Global Fund
9	Khoudia Diokhane	The Global Fund
10	Nnamdi Nwaneri	The Global Fund
11	Mariam Toure	The Global Fund
12	Maria Padkina	The Global Fund
13	Corinne Merle	WHO/TDR
14	Lana Syed	WHO GTB
15	Soleil Labelle	WHO GTB
16	Miriam Faid	Stop TB
17	Caoimhe Smyth	Stop TB
18	Oriol Ramis	Stop TB
19	Meghan Holohan	USAID
20	Jean De Dieu Iragena	AFRO lab adviser
21	Ndongosiemme André	WHO AFRO
22	Riccardo Alagna	Milan SRL, lab consultant
23	Abdulai Abubakar Sesay	Community representative; Sierra Leone
24	Alberto Piubello	The Union
25	Kobto Koura	The Union
26	Dissou Affolabi	WARN TB
27	Ablo Prudence	WARN TB
28	Saran Branchi	Expertise France
29	Fabienne Jouberton	Stop TB/GDF
30	Nimer Ortuno Gutierrez	Damien Foundation
31	Bassirou Souleymane	Damien Foundation
32	Sophie Hermanns	GIZ
33	Jean-Pierre Baptiste	WHO Benin
34	Henriette Wembanyama	TB/HIV consultant
35	Sode Matiku	Consultant Tanzania
36	Samuel Kinyanjui	Consultant Kenya
37	Daniel Gemechu	Consultant Ethiopia
38	Moorine Sekadde	Uganda NTLP
39	Oumar Abdelhadi	Tchad NTP
40	Abderramane Abdelrahim	Tchad NTP
41	Arouna Tena	Cameroon CAMNAFAW
42	Vincent Mbassa	Cameroon NTP
43	Dubliss Nguafack	Cameroon NTP
44	Mourtala Assao	Niger NTP

45	Menonli Adjobimey	Benin NTP
46	Musa . B. Jallow	The Gambia NTP
47	Lamin Badjie	The Gambia NAS
48	Marie Sarr	Senegal NTP
49	Madou Kane	Senegal NTP
50	Elhadji Dioukhane	Plan Senegal
51	Magalie Nelson	Plan Canada
52	Miguel Camara	Guinea-Bissau NTP
53	Victor Gomes	Guinea-Bissau NTP
54	Adjima Combarry	Burkina-Faso NTP
55	Guy Arnaud Konseimbo	Burkina-Faso IPC/BF
56	Bakary Konate	Mali, PNLT
57	Mamadou Diop	Mali, CRS
58	Aboubacar Sidiki Magassouba	Guinea NTP
59	Fatou Kine Wathie Thiam	Guinea, Plan International
60	Ernest Cholopray	Liberia NTP
61	Henry Dickson	Liberia NTP
62	Manjo A. Lamim	Sierra Leone NTP
63	James Holima Katta	Sierra Leone NTP
64	Ndikumana Thaddé	Burundi NTP
65	Georges Hermana	Central African Republic NTP
66	Hervé Gando Gildas	Central African Republic NTP
67	Jorge Barreto	Cape Verde NTP
68	Franck Hardain Okemba-Okombi	Congo NTLP
69	Jacques Ndion-Ngandzien	Congo NTLP
70	Jocelyn Mahoumbou	Gabon NTP
71	Marguerite Massinga Loembe	Gabon CERMEL
72	Komi Adjoh	Togo CHU
73	Samey Agbenyegan	Togo NTP
74	Bonifacio Sousa	Sao Tome and Principe CNE
75	Swasilanne Sousa	Sao Tome and Principe CNE
76	Olive Mumba	EANNASO, Tanzania
77	Fatou Tiepe Coulibaly	Cote d'Ivoire NTP
78	Sansan Edouard Kambou	Cote d'Ivoire TB Alliance

Annex 3: Country template for workshop preparation and planning

COUNTRY TEMPLATE	
Brief background information	
Name of Country:	Names of stakeholder(s)/partner(s) who contributed to the discussions during the filling of this template. Kindly include the name of their institution in a bracket next to the person/partner's name.
1. a) The missing people: WHO are they? WHERE are they? WHY are they not reached?	
Based on the funding request submitted to the Global Fund and other strategic and programmatic documents, list and describe (consider also human rights and gender-related issues):	
Population/group/geographical area not detected and/or notified to NTP for TB and/or MDR-TB	Barriers faced that prevent being detected and/or notified (consider also issues related to the TB and MDR-TB data system)
1. b) The missing people: WHAT has worked so far? WHAT has not worked at all?	

Describe if and what strategies implemented with the Global Fund or other grants have provided good results in finding the missing cases.		
Population/group detected and notified to NTP for TB and/or MDR-TB	Activity/strategy implemented	Preliminary results achieved
1. c) Activities to address gaps in TB Case detection		
Considering EACH of the above mentioned population groups, their locations and barriers to TB case detection, describe (if any), each of the successful experiences so far:		
Proposed intervention, targeted population and geographical area of intervention for TB and/or MDR-TB	How will the intervention address key barriers described in the previous section 1.a)	Is there any monitoring system to analyse data and document results?
2. a) The unsuccessful treatment outcomes: WHO? WHERE? WHY?		
Based on the funding request submitted to the Global Fund and other strategic and programmatic documents, list and describe (consider also human rights and gender-related issues):		
Population/group/area where TB or MDR-TB treatment outcomes are worst	Possible barriers faced for not achieving successful treatment outcomes (also consider issues related to the TB and MDR-TB data system)	

**2. b) TB and MDR-TB treatment successful outcomes:
WHAT has worked so far? WHAT has not worked at all?**

Describe if and what strategies implemented with the Global Fund or other grants have provided good results in treating TB and MDR-TB patients.

Population/group/area addressed for TB and/or MDR-TB	Activity/strategy implemented	Preliminary results achieved

2. c) Activities to address the gaps in TB and MDR-TB successful treatment

Considering EACH of the above mentioned population groups, their locations and barriers to TB case detection, describe (if any), each of the successful experiences so far:

Proposed intervention, targeted population and geographical area of intervention for TB and/or MDR-TB	How will the intervention address key barriers described in the previous section 2.a)	Is there any monitoring system to analyse data and document results?

Annex 4: A summary of findings from the workshop evaluation

At the end of each workshop day, participants completed an evaluation form where they provided feedback on the sessions of the day. This feedback ranged from highly satisfactory to highly unsatisfactory as shown in the figures below. Participants also provided additional comments where they highlighted what they liked best about the day's sessions, what they liked the least, and what else could be included or done better in future.

The overall feedback from the workshop was very encouraging, with the frequency of participants' responses ranging from 17 for those who found the sessions on "Boosting detection through community engagement and service decentralization" to be highly satisfactory to 10 participants who reported that the M&E data thematic session was satisfactory. Only one participant found any session unsatisfactory (i.e. the poster session), while none of the participants found any session highly unsatisfactory. It is important to also note that the number of participants who filled the evaluation form varied by thematic session and daily as shown in the visual representation below. A summary of the key comments provided by the participants regarding the workshop is also captured in the figures below.

Figure 6.1: Participants' evaluation of day 1

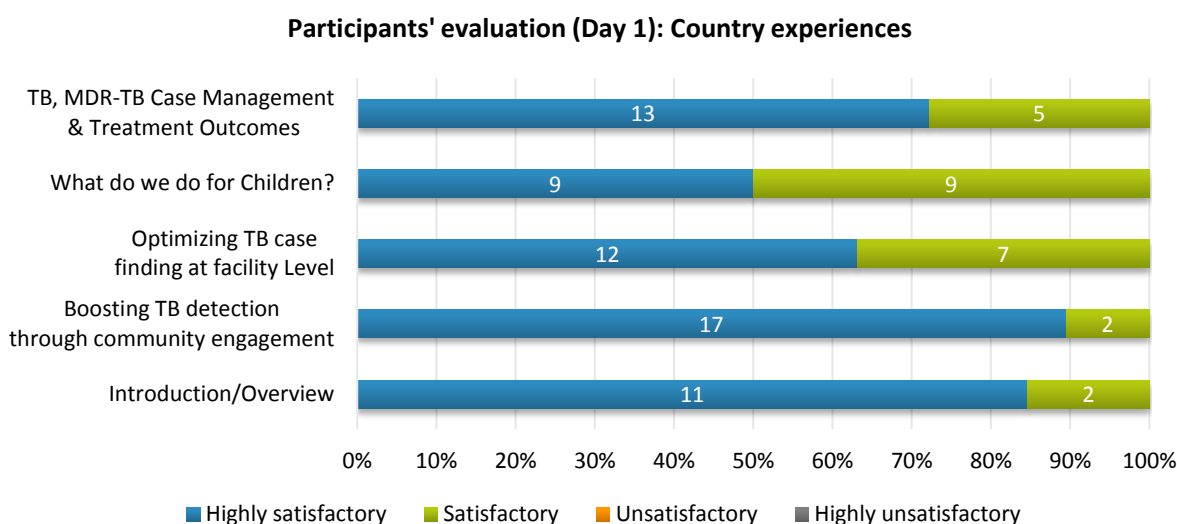


Figure 6.2: Participants' evaluation of day 2

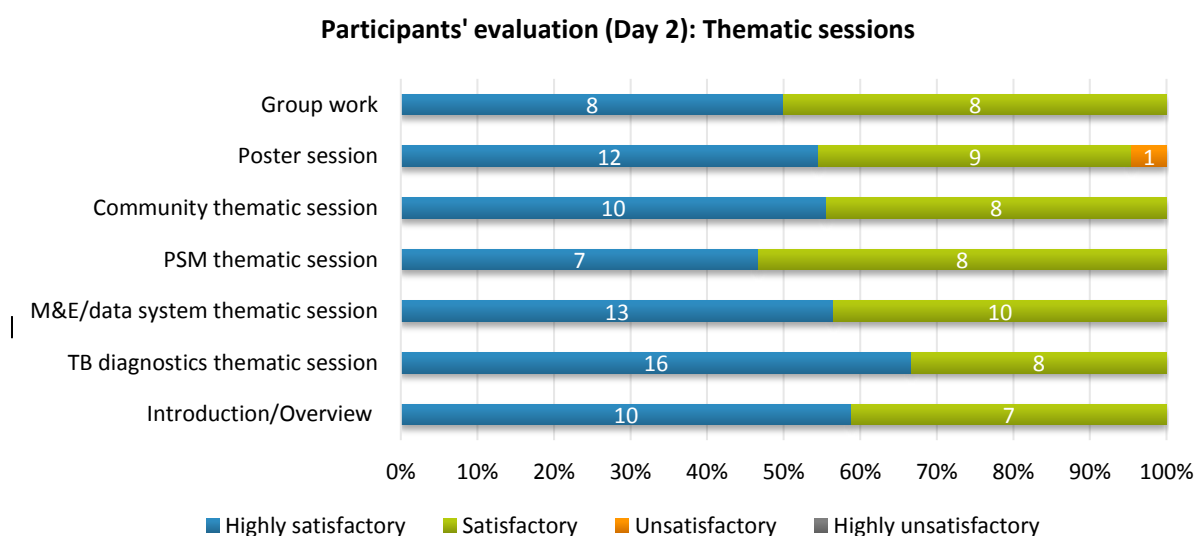
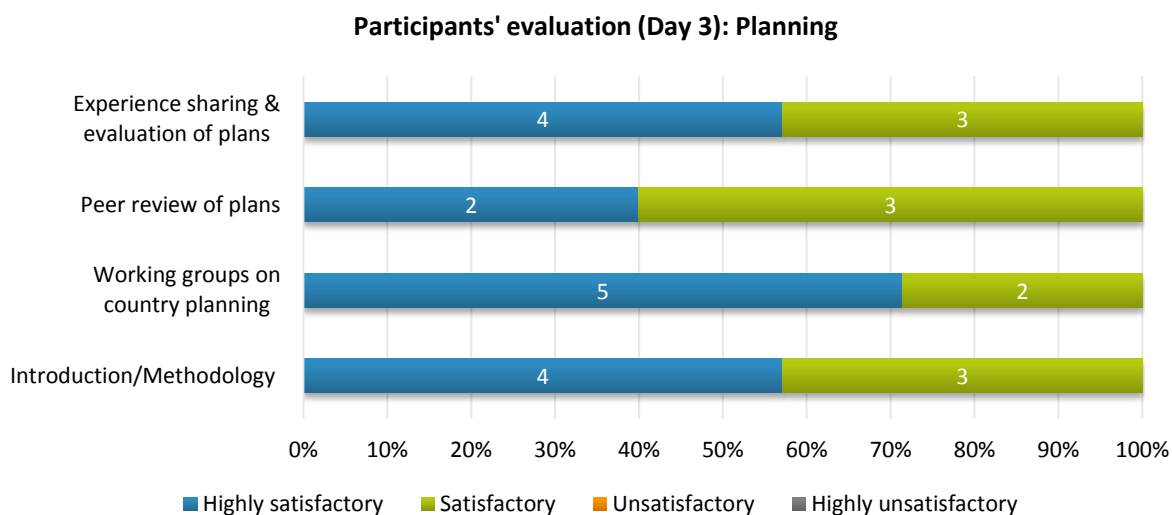


Figure 6.3: Participants' evaluation of day 3



Note: The number of participants who submitted evaluation forms on day 3 were significantly less than those who did so on days 1 and 2 thereby leading to fewer respondents' feedback analysed on day 3.

Summary of key comments by participants

The components/aspects of the workshop that participants liked the most were the various country experience sharing sessions and discussions, particularly the session on "Boosting detection through community engagement and service decentralization" on Day 1; the thematic sessions on TB diagnostics, M&E/data, and the poster sessions on Day 2; and the synergy/collaboration between countries representatives and partners' during the development of country plans on day 3.



Some participants noted that the time allotted for most of the sessions, particularly the Q&A and discussion component of the sessions were largely inadequate. They strongly recommended that more time be apportioned in future to these sessions and to the workshop in general to afford everyone the opportunity to maximize the learning experience.

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