

Technical Brief

Good Practices and Lessons Learned in TB Case Finding from West and Central Africa

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Executive Summary

With support from the Global Fund's Tuberculosis (TB) Strategic Initiative (TB SI), the West and Central Africa Strategic Engagement (WCA SE) aimed to develop and scale up promising approaches to TB case finding and treatment in Burkina Faso, Chad, Congo, the Democratic Republic of the Congo (DRC), Mali and Niger.

This document was produced by the Global Fund under the technical leadership of Nuccia Saleri, Anna Scardigli and support of Eliud Wandwalo, Daisy Lekharu and Melanie Kitongo from the Tuberculosis team. It summarizes some of the notable achievements, good practices and lessons learned in the six countries and provides recommendations that may assist the replication of approaches in other settings. The case studies were developed with critical contributions from National TB Program (NTP) managers and focal points from these countries, international and national consultants, Global Fund Country Teams and partners including the World Health Organization (WHO), Stop TB Partnership (STOP TB), Expertise France (L'Initiative), Damien Foundation, International Union against Tuberculosis West and Central African Regional Network for TB Control (WARN-CARN TB).

Implemented from 2021–2023, the WCA SE provided countries with catalytic funds to implement innovative TB case finding approaches, along with technical assistance in critical TB components to support the introduction and operationalization of innovations. Approaches were designed to address critical gaps in TB case finding and treatment, following local and global evidence showing that systematic and coordinated active case finding approaches – with community engagement to increase awareness on TB, reach vulnerable groups, reduce stigma and discrimination and improve access to treatment – have been successful in reducing the burden of the disease. Key strategies included Program Quality Efficiency (PQE), mobile screening campaigns using chest X-ray and CAD software, TB/HIV one-stop-shops, and community, rights and gender (CRG) and stigma assessments and plans.

While the six countries reflect a diverse set of contexts and challenges – with differences in socioeconomic status, healthcare systems and institutional capacities – the good practices and approaches implemented all shared a common mandate and strategic focus on galvanizing national TB efforts and enhancing collaboration and accountability. This included utilizing TB diagnosis and care integration and decentralization with community-based approaches; considering interactions between TB and gender, stigma and discrimination; and strengthening multistakeholder engagement. In addition, support for the implementation of new strategies was provided through national TB working groups and technical assistance funded by the TB SI.

Findings demonstrate that across different countries and settings, and despite a number of challenges, the innovative approaches and technical assistance delivered by the WCA SE contributed to measurable improvements in active case finding indicators. In **Burkina Faso**, TB notifications increased by 35% in the 10 regions where interventions were implemented in 2023, compared with the period from 2020 to 2022. In **Chad**, the number of TB patients notified in the second semester of 2022 in the intervention area increased by 22%, compared with the second semester of 2023 and the NTP plans to expand the strategy in two new provinces in 2024. In **Mali**, project results indicate that TB notification in the intervention's 15 PQE health facilities increased by 36% compared with 2019, with the National TB/HIV/Hepatitis Integrated Program planning to expand

the approach during GC7. In **Niger**, TB notification in the four regions where the intervention was implemented increased by 13%, on average, versus 0.8% in the country's four other regions, while in **the Republic of Congo** TB notification at the national level increased by 17% from 2019 to 2022. Finally, the number of notified TB patients increased by 67% from 2021 to 2023 in the 100 health facilities where PQE approach was implemented in the **Democratic Republic of the Congo**.

The implementation of TB innovations yielded a number of lessons learned to help close gaps at policy, health system and facility/community level, including: (i) supporting countries to accelerate **uptake of latest WHO recommended guidelines**; (ii) establishing **clear coordination mechanisms** to discuss programmatic TB data, jointly identify bottlenecks and context-specific solutions, and harmonize the work of different stakeholders; (iii) securing **buy-in and strong engagement/leadership** at country, facility, and community level; and (iv) providing **continuous coaching and mentorship** to health care workers.

Looking ahead, advancing progress towards finding the missing people and ending TB by 2030 will require continued coordination and collaboration of governments, donors, international organizations, and civil society, along with meaningful involvement of TB communities, sustained political commitment and increased financial investment.

1. TB in West and Central Africa

Although some progress has been made in turning the tide on TB and reaching global TB targets, the disease continues to pose a major challenge worldwide, with both domestic and international funding falling far short of the estimated financing needs.

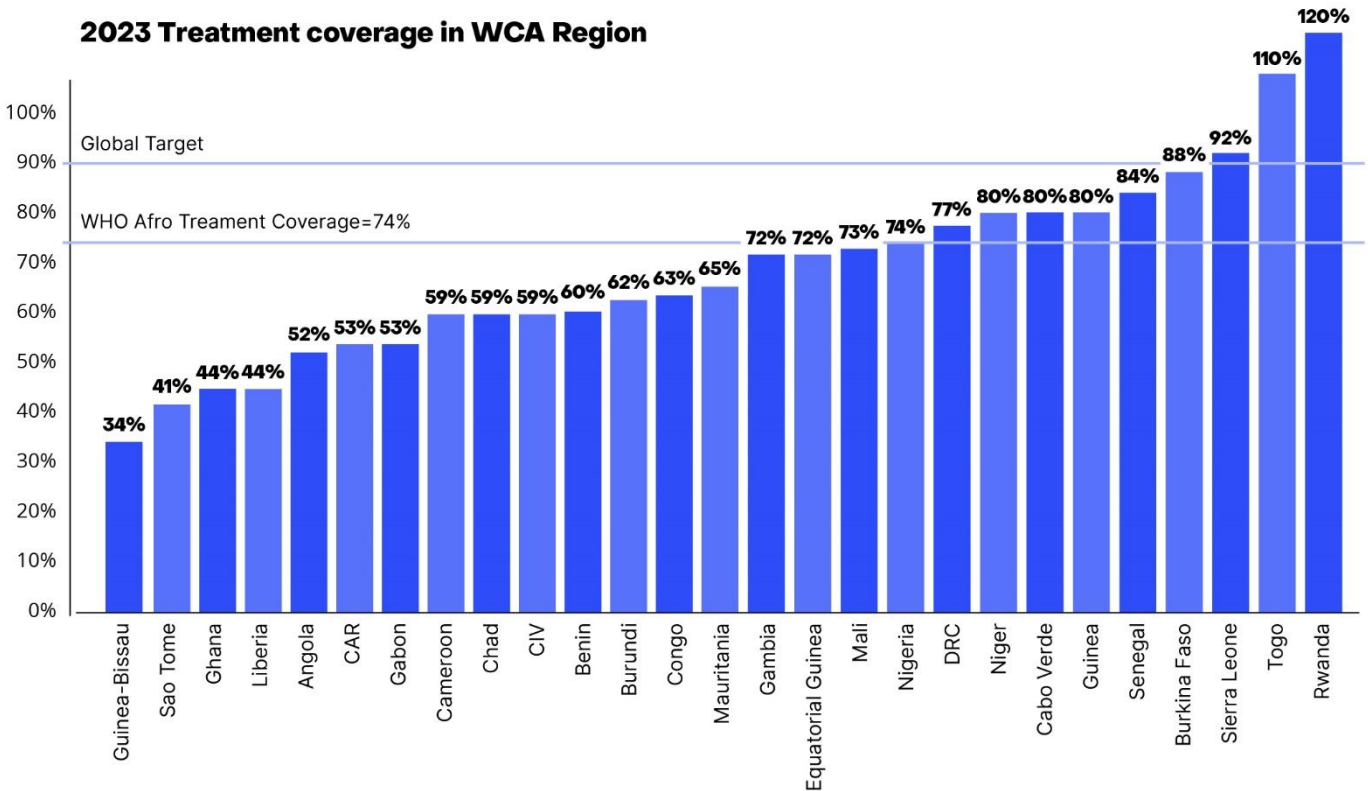
In West and Central Africa (WCA) – a region in which many countries face protracted political instability and civil unrest, weak health systems and low health financing – data indicate that an estimated 407,408 people with TB were missed in 2023, with two out of twenty-seven countries in the region (Democratic Republic of Congo and Nigeria) accounting for 51% of adults and children missed. In West Africa, 208,953 people with TB were missed, while 198,455 were missed in Central Africa (WHO Global TB Report 2024). As of 2023, treatment coverage in the WCA region was 68.5%, below the global target of 90% (see Figure 1) – ranging from 34% in Guinea Bissau to 120% in Rwanda.

Global TB Snapshot - 2023

According to the Global TB Report (WHO 2024), TB likely returned to being the world's leading cause of death from a single infectious agent, following three years in which it was replaced by the coronavirus disease (COVID-19), and caused almost twice as many deaths as HIV/AIDS. The number of people newly diagnosed with TB was 8.2 million in 2023. An estimated 10.8 million people developed TB in 2023, with an estimated 1.25 million deaths due to the disease (Global TB Report 2024). In the WHO Africa Region, a decline in TB incidence and TB deaths has been sustained. However, none of the global targets set at the first UN high-level meeting on TB for the 5-year period 2018–2022 were achieved.

Figure 1: AFRO and/or WCA data, versus global on treatment coverage

Source: WHO Global TB Report 2024.



Key challenges in TB detection, care and treatment in the region include weak TB screening strategies in vulnerable and high-risk groups (e.g., people detained in prisons, people living with HIV (PLHIV), contacts, miners, children, migrants, internally displaced persons (IDPs) and nomads); insufficient training and high turnover of health personnel; limited integration of services (e.g., TB/HIV); high rates of under-diagnosed and under-treated multidrug-resistant/rifampicin-resistant TB (MDR/RR-TB); and low capacity of TB diagnostic and laboratory networks.

Despite these challenges, new tools to screen for TB and newer, more sensitive tests have enabled prompter and more accurate TB diagnosis, including for drug-resistant TB (DR-TB). These advancements – coupled with new guidelines for shorter, safer and more effective treatments for DR-TB and TB preventive treatment (TPT) and on-the-ground innovations – have created additional opportunities to find and treat more missing people, ultimately reducing TB transmission and incidence, saving more lives and improving the quality of life for people with TB worldwide.

2. Building Commitment and Capacity to Improve TB Outcomes

Scaling Up Catalytic Investments in West and Central Africa

The **TB Strategic Initiative (TB SI)**, funded by the Global Fund, in coordination with the Stop TB Partnership (Stop TB) and the World Health Organization (WHO), was launched in 2018 to address specific barriers to find missing people with TB, especially among key vulnerable populations.

TB Strategic Initiative to find missing people with TB highlights

- Catalytic funding per selected country
- Implemented as part of the country grant
- Included additional budget to finance international and/or national technical assistance based on country demand

Building on successes and lessons learned to date, the second phase of the TB Strategic Initiative (2021 - 2023) aimed to catalyze further efforts to address the missed opportunities to find and successfully treat people with TB at different entry points in the TB care cascade. This was achieved through a combination of innovative approaches, knowledge-sharing and best practices in 20 high burden countries, including the Democratic Republic of Congo (DRC), which accounted for more than 80% of the missing people with TB globally.

During the same period, five countries in West and Central Africa with potential to reduce TB treatment coverage gaps – Burkina Faso, Mali, Niger, Chad and Congo – were supported through the TB Strategic Initiative's **West and Central Africa Strategic Engagement (WCA SE)** to improve TB program performance and generate local evidence and lessons learned. The five countries received catalytic funds to implement innovative approaches, along with technical assistance in critical TB components to introduce and operationalize the innovations (see Figure 2).

Figure 2: Strategic support to WCA countries

Source: The Global Fund.

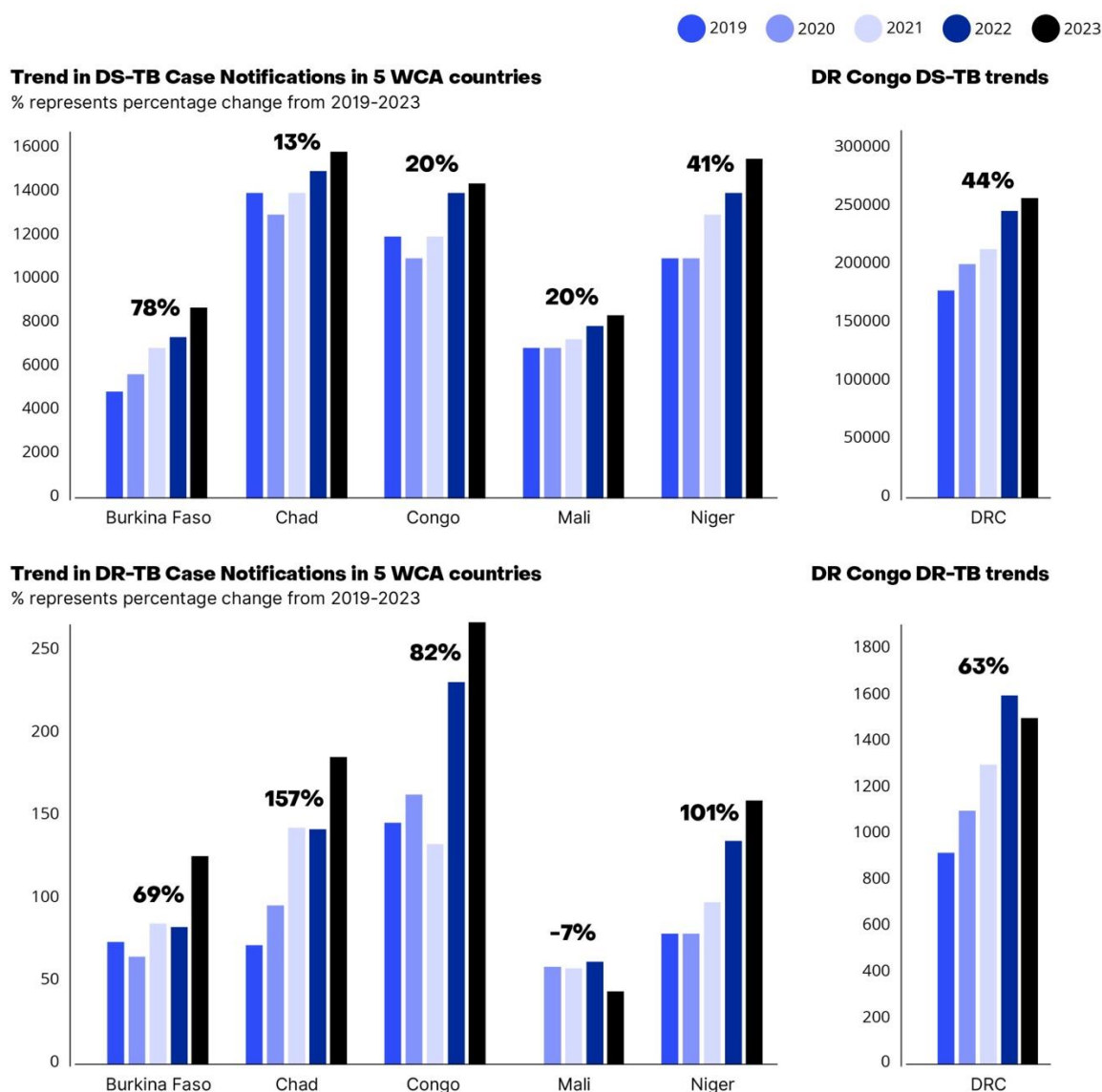


The aim of this document is to **highlight the innovative approaches and strategies** introduced to scale up TB case finding across six countries – Burkina Faso, Mali, Niger, Chad, Congo, and the DRC – including how they were operationalized and leveraged to expand national capacity and improve TB results. Activities were implemented by the Global Fund Principal Recipients (PRs) and National TB Programs (NTBs) with the support of national and international consultants in all six countries.

Figure 3 shows increased drug-susceptible TB (DS-TB) and DR-TB notification rates in the six countries selected for this report from 2019 to 2023.

Figure 3: Increased DS and DR TB notification in the 6 countries from 2019 to 2023

Source: The Global Fund.



3. Thinking Outside the Box: Innovative Approaches in TB Case Finding and Treatment

A Common Strategic Focus and Tools

The six countries highlighted in this document reflect a diverse set of contexts and challenges, with differences in their socioeconomic status, healthcare systems and institutional capacities. Despite these differences, the good practices and approaches identified all share a common mandate and strategic focus on galvanizing national TB efforts and enhancing collaboration and accountability, underpinned by the following principles:

- Utilizing **TB diagnosis and care integration and decentralization combined with community-based approaches** aimed at expanding TB health service delivery in particularly hard-to-reach areas and among key populations and engaging affected TB communities, within the context of leaving no one behind.
- Considering **interactions between TB and gender, stigma and discrimination**, and identifying social, legal and gender barriers to care in order to most effectively meet those needs.
- Strengthening **multistakeholder engagement** at national and local levels to identify gaps, generate and share evidence, inform national TB policies and programming and advocate for increased domestic TB funding.

In addition, support for the implementation of new strategies was provided through national TB working groups established in five of the six countries, along with technical assistance funded by the TB SI:

Establishing National TB Working Groups to Improve Country Planning and Implementation of TB Solutions

National TB working groups, established in Burkina Faso, Congo, Chad, Mali and Niger, helped to monitor implementation of interventions and review programmatic data. Specifically, the groups supported (i) implementation of innovative strategies and collaboration between the Ministry of Health, national TB programs, Global Fund prime recipients (PRs), community organizations and partners; (ii) analysis of programmatic data and results; and (iii) identification of bottlenecks and joint solutions: Key aspects of the national working groups included:

- Selection of working groups members by each country to assure country leadership
- Membership composed of representatives from National TB and HIV programs, civil society organizations, laboratory directorate, Principal Recipient, Global Fund country teams, and technical and financial partners including WHO, Expertise France, Damien Foundation
- Monthly meetings on a range of thematic discussions and data analysis
- Minutes with action points available after each meeting
- Regular follow-up

These working groups have enabled countries to quickly identify bottlenecks and find appropriate solutions, thereby helping to improve results. They have also served as a system of accountability, coordination and collaboration around TB priorities, supporting countries to advocate for more resources and reinforce sustainability of TB control efforts.

“The TB Working Group represents a significant transformative force in the context of the Republic of Congo, engendering a new dynamic previously absent. It serves as a forum wherein diverse stakeholders, including disease programs, laboratories, international organizations, donors, and others, leverage the opportunity to engage in thoughtful deliberations pertaining to TB, TB/HIV and health system strengthening, with the primary aim of devising practical solutions. The TB Working Group undeniably moves the health agenda forward in Congo. This group effectively advances the goals and objectives set forth within the Global Fund supported grants”.

Lionel Caruana, Republic of Congo, Fund Portfolio Manager, Central Africa Team, The Global Fund

“The Chad TB working group set up with the support of the TB Strategic Initiative is without precedent for us. For me, it's an ideal framework for getting the various stakeholders more involved in achieving the set objective, which in the long term is to significantly reduce the number of missing people with TB”.

Dr Oumar Abdelhadi, NTP Manager, Chad

Mobilizing Technical Assistance to Support Uptake and Operationalization of Critical TB Components

Through the WCA SE, additional technical assistance was mobilized to support countries in critical TB components including in the introduction and operationalization of innovative approaches. Key aspects of the technical assistance included:

- Delivery of TA based on country demand.
- Short-term international TA and long-term national TA to support implementation for:
 - Utilization of innovative strategies to find missing people with TB and PQE (DRC, Chad, Niger, Republic of Congo, Mali, Burkina Faso).
 - Establishment of TB-HIV one stop shops (Burkina Faso).
 - Addressing TB among children and adolescents (Chad, Mali).
 - Development of an integrated contingency plan for insecure areas (Burkina Faso) and an operational plan to improve TB care in the Agadez Region (Niger).
 - Strengthening of the national TB laboratory (Republic of Congo).

4. Overcoming Barriers and Taking Synergistic Action: Country Examples

Burkina Faso: Finding People with TB in Vulnerable and Hard-To-Reach Populations

In order to reduce the number of missing people with TB in Burkina Faso, the Ministry of Health – through the National TB Program (NTP) and with support from the Global Fund – developed the “Recherche active des cas de TB” (REATB) strategy. This strategy was developed with the support of an international consultant after the NTP took a study tour to Kenya. The strategy was initially piloted in three regions (Sud-Ouest, Centre and Hauts Bassins) across the country and its main objective was to implement the PQE approach at the health facility level and to improve TB active case finding among high-risk populations, including people living with HIV, household contacts of people with TB and prisoners. The project trained health workers on active case finding and quality improvement methodologies, which were then implemented in their respective health facilities. During the pilot phase from October 2019 to December 2020, REATB was implemented in 126 health facilities across three regions.

Burkina Faso TB Fast Facts

- TB incidence in Burkina Faso was reported at 43 cases per 100,000 population in 2023.
- TB treatment coverages was 75% in 2022 and 88% in 2023
- Implementation of the REATB strategy and to the integrated contingency plan aim to reduce the treatment coverage gap and to improve TB treatment success rate.

Results

Results from the REATB pilot phase showed that a total of 506 TB cases were notified in the REATB centers and initiated on treatment (see Table 1). In the pilot phase, REATB demonstrated measurable successes and yielded consistent data availability and improvements in active case finding indicators. As a result, and for the first time, the NTP had useful data on TB among the targeted populations. Based on the pilot phase results, the project was then scaled-up nationally in four new regions in 2021 (Centre-Ouest, Centre-Sud, Nord and Plateau central) and three additional in 2022 (Cascades, Centre-Est and Est), for a total coverage of 365 health facilities. Table 2 (below) summarizes data collected routinely by the NTP in the REATB health facilities in 2021, 2022 and 2023. REATB data also suggest better access to TB care for women (see Figure 4), with a TB sex ratio of 2:3 in REATB centers versus 3:1 in the country in 2023. However, due to security challenges in the Sahel, Boucle du Mouhoun and Centre-Nord regions, no new sites were included in 2023. The protracted security crisis in the country has also resulted in a serious humanitarian crisis. Hundreds of health centers have been closed or ransacked and more than two million people have been internally displaced as of March 2023. To assist the health sector response to this increasingly challenging environment, the Global Fund TB SI supported the Ministry of Health to develop, validate and implement an **integrated national contingency operational plan to fight TB, HIV and malaria in security challenged areas** (ZADS) and elaborate regional operational plans.

Table 1: REATB Pilot phase results (126 health facilities)

Source: The National TB Program.

Population	Number of people screened	Number of people with presumptive TB identified	Number of people evaluated for TB disease	Number of people with TB and initiated on TB treatment	Number Needed to Screen (NNS)
People detained in prisons (routine screening)	17,110	1,223 (7%)	1,104 (90%)	33	518
People detained in prisons (mass screening with X-ray)	1,512	534 (35%)	534 (100%)	9 (1 MDR TB)	168
Household contacts (including children)	4,215 (581 children <5)	605 (14%)	483 (80%)	39 (31 adults and 8 children <5)	108
Health facility out-patients	193,634	12,646 (6.5%)	3,695 (29%)	312 (196 men and 116 women)	/
PLHIV	39,131	1,296 (3.3%)	744 (57.4%)	77 (50 men and 27 women)	/

Table 2: Results on the TB cascade in the REATB health facilities from 2021 to 2023

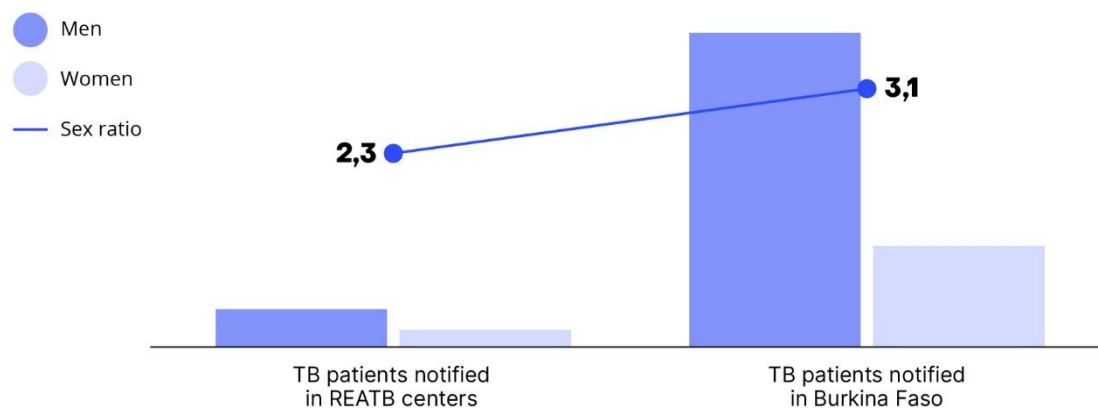
Source: The National TB Program.

Items	2021*	2022	2023
Number of health facilities included in REATB	269	360	365
Number of people screened/registered in REATB health centers (including HIV care, prisons and among contacts)	115,604/276,287 (42%)	200,975/444,380 (45%)	478,708/1,116,068 (43%)
Number of people with presumptive TB identified	1,585 (1.4%)	5,693 (3%)	15,709 (3%)
Number of people tested for TB	1,354 (85%)	3,659 (64%)	8,597 (55%)
Number of people with TB notified	166 (12%)	459 (12.5%)	987 (11%)

*Data available for 6 months in 2021 (start of GC6)

Figure 4: TB sex ratio in REATB centers and at national level

Source: The National TB Program.





Elaboration of the monthly PQE report with the collaboration of the CHW who carried out the contact tracing.
Source: The National TB Program.



TB information session among internally displaced population realized by CHWs in Burkina Faso.
Source: The National TB Program.

Lessons learned

In Burkina Faso, TB notifications increased by 35% in the 10 regions where REATB was implemented in 2023, compared to the period 2020-2022. Furthermore, the REATB strategy has not only had a positive effect in the health facilities involved, but also among health staff in other health facilities in the intervention districts. Findings indicate that a progressively increasing number of health staff who were not initially involved in the REATB project started to integrate the active case finding approach in their daily routine, with REATB creating “positive pressure” to find and treat more patients at both health facility and community levels. Despite remaining implementation challenges – such as limited access to TB diagnostics related to insecurity challenges, limited contact investigation coverage and related difficulties in sample transportation – the strategies and approaches applied have proven to be an effective model in implementing and monitoring active finding of missing people with TB and improving quality of care.

This case study was developed with contributions from Adjima Combarry, NTP Manager in Burkina Faso, Tandaogo Saouadogo, REATB Focal Point within Burkina Faso’s NTP and Tadjoa Yonli, national consultant.

Chad: Improving the Accessibility and Efficiency of TB Screening and Diagnostic Tools for Key Groups

In an attempt to close the gap between the country's TB screening and notification, the WCA SE supported the NTP in Chad to adopt a new strategy to intensify the active search for missing people with TB, with a focus on at-risk and vulnerable populations (i.e., contacts, PLHIV, undernourished children, prisoners, refugees, nomads and people with diabetes). A situation analysis, conducted to better understand diagnostic gaps, identified a number of challenges, including operational weaknesses of the laboratory networks and TB sample transportation, inadequate testing strategies for target groups and insufficient participation of health care providers and community health workers (CHWs). For the first year (2023), interventions were prioritized in the three provinces most affected by missing cases: N'Djamena, Moyen Chari and Mayo-Kebbi-Est. A budgeted operational plan was also developed, along with a guide for health care workers, a training manual and tools for TB diagnostic algorithms targeting most-at-risk populations. The project also increased access to TB services by establishing 64 new diagnostic and treatment centers and 150 new treatment centers. Health care workers and laboratory technicians in the three pilot provinces were trained on the new approaches during Q1 and Q2 in 2023. Approaches included contact tracing of index TB cases and active case finding with mobile vans equipped with Gene Xpert machines and digital chest X-rays (CXR) with computer-aided detection (CAD) software to reach vulnerable populations. For people living in prisons, the algorithm adopted parallel screening with any TB symptom and CXR (see Figure 5). An algorithm was also adopted for nomads and refugees (see Figure 6).

Chad TB Fast Facts

- TB incidence in Chad was estimated at 139 new cases per 100,000 inhabitants.
- TB treatment coverage was estimated at 59% in 2023.
- 41% of people with drug-sensitive TB (DS-TB) and 58% of people with multi-drug resistant (MDR-TB) are missing.

Figure 5: Parallel screening with any TB symptom and CXR adopted for people living in prisons

Source: The National TB Program.

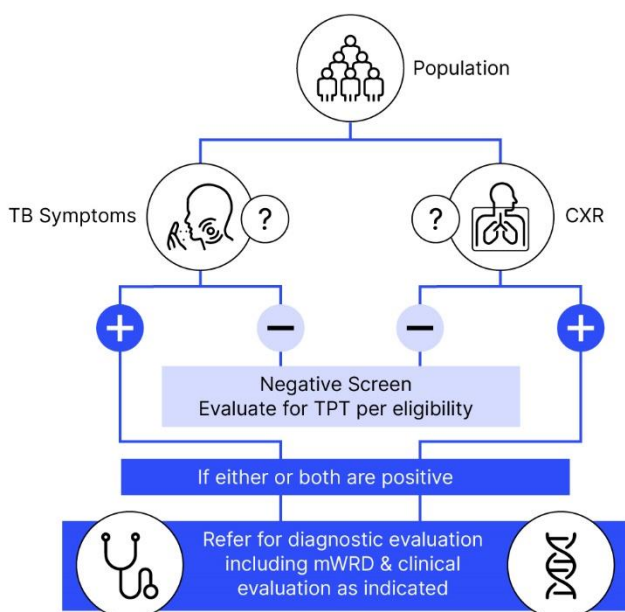
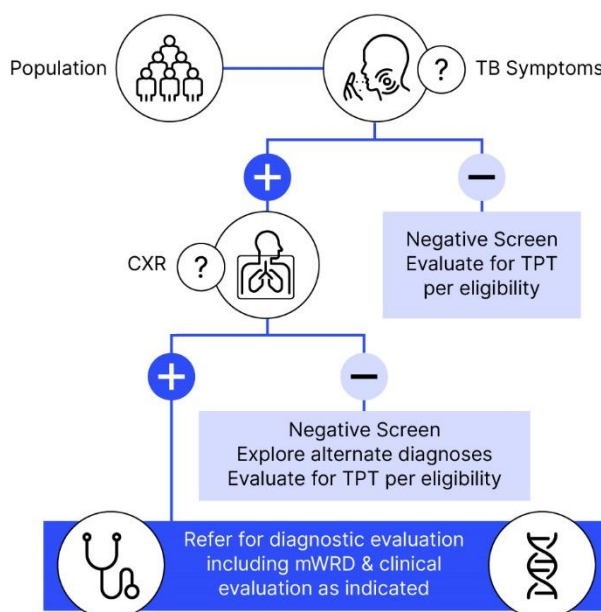


Figure 6: Sequential positive serial screening with any TB symptom and CXR adopted for refugees and nomads

Source: The National TB Program.



Results

In the intervention area, the number of TB patients notified in the second semester of 2022 (2,561) increased by 22% compared with the second semester of 2023 (3,122). Systematic screening campaigns using digital CXR with CAD (mobile unit) started in May 2023 and yielded the results presented in Table 3 below.

Table 3: Mobile van screening among people living in prisons, people living in refugee camps and nomads

Source: The National TB Program.

Population	Number of people screened	Number of people with CXR	Images of presumptive TB at CXR with CAD	Number of people with GeneXpert	Confirmed TB case by GeneXpert	Number of TB patients enrolled on treatment	Number needed to screen (NNS)
People living in prisons	2,496	2,496	244 (9.8%)	244 (100%)	49 (20%)	49 (100%)	51
People living in refugee camps	Data not available	592	165 (28%)	165 (100%)	10 (6%)	10 (100%)	/
Nomads	395	151 (38%)	19 (12,6%)	19 (100%)	5 (26%)	5 (100%)	79

Lessons learned

Several lessons were learned from the interventions. The situation analysis conducted at the beginning of the project was crucial in helping to guide interventions and prioritize actions, while the targeted approaches helped to identify more people with TB who otherwise would have been missed. Capacity building aimed at upskilling personnel (e.g., lab technicians, nurses and physicians), many of whom were not trained due to high turnover, also increased knowledge and awareness on how to identify presumptive TB, thereby increasing the number of TB screenings in TB centers and improving access to TB services. Moreover, the use of mobile vans equipped with modern diagnostic devices, such as GeneXpert and digital CXR with CAD, has facilitated very good yield in terms of the number of TB cases detected and prompt TB management, specifically for vulnerable groups, people living in refugee camps and prisons. Good collaboration between mobile teams, health district teams, diagnostic and treatment centers and healthcare workers contributed to the success of screening campaigns. A mid-term assessment of the intervention strategies identified operational challenges, including sample transportation, GeneXpert network functioning and machines maintenance, slow financial disbursement and limited flexibility of funds, insufficient collaboration between stakeholders (e.g., NTP, NGO BASE, RENALTUB, health districts and provincial health directorate) in order to speed up activities in the field. Recommendations were agreed upon to address challenges and scale-up project activities in two new provinces in 2024.



HCW training in N'Djamena (Left) and in Mayo-Kebbi Est (right).
Source: The National TB Program.



Equipped mobile van during screening campaign in refugee camps.
Source: The National TB Program.

This case study was developed with contributions from Oumar Abdelhadi, NTP Manager in Chad, Abderramane Abdelrahim Barka, M&E Specialist at Chad's NTP, Mahamat Amine Brahim, national consultant and Ousseni Tiemtore, international consultant.

Mali: Synergizing Community Efforts and the PQE Approach to Improve TB Detection

Since 2012, Mali has faced political instability and a security crisis that has negatively impacted access to quality health care services. The density of health workers is also one of the lowest in the world with 0.52 per 1,000 inhabitants versus the 2.3 per 1,000 inhabitants recommended by WHO. To improve TB case detection in health facilities, the TB/HIV/Hepatitis Integrated Program (CSLS-TBH), working in synergy with the community PR ARCAD Santé Plus, implemented the PQE approach in 15 health facilities. The aim of the project was to strengthen community interventions and initiate TB screening campaigns using ultra-portable chest X-rays and CAD. Key activities included a community, rights and gender (CRG) assessment of barriers to accessing TB care; selection health facilities to implement the PQE approach; and development of a guide, training modules and tools. In May 2022, the PQE approach was piloted in 15 health centers.

Mali TB Fast Facts

- The TB incidence rate in Mali was estimated at 48 cases per 100,000 inhabitants, with a mortality of 6.3 deaths per 100,000 inhabitants among HIV-negative people.
- TB treatment coverage in 2023 was estimated at 73%.
- The national TB response is centered on integrating TB control into primary health care, and in community health centers (CSCOM), in particular.

Results

The cascade analysis from May 2022 to April 2023 is presented in Table 4 (see below). Project results indicate that TB notification in the 15 PQE health facilities increased by 36% (more than 1,367 additional TB patients) compared with 2019. This increase was also observed for children and adolescents under 15 years old (186 patients in 2023 versus 99 in 2019).

Starting from January 2023, ARCAD Santé Plus and the NGO Santé Sud realized 49 TB screening campaigns with 2 ultraportable X-rays and CAD, in addition to routine community activities. Table 5 shows results of the TB screening campaigns among key populations (people living in prison and people living in poor urban areas).

Table 4: TB cascade analysis in the 15 PQE pilot health facilities

Source: The National TB Program.

Items	Number
Health facilities included in the PQE	15
Increased TB notification from May 2022 to April 2023 compared with 2019	36% (+1,367 TB patients)
Number of people screened/registered in health centers	316,881/1,249,235 (25%)
Number of people with presumptive TB identified	15,395 (5%)
Number of people tested for TB	13,370 (87%)
Number of people with TB notified*	3,324 (25%)
Number of people with TB started on TB treatment	2,586 (78%)
Number Needed to Screen (NNS)	95

* In the 10 TB centers with availability of TB diagnosis/15 health facilities and this can explicate the high number of people with TB notified

Table 5: TB cascade analysis during TB screening campaigns using X-ray and CAD

Source: The National TB Program.

	People detained in prison (19 screening campaigns)	People living in poor urban areas (30 screening campaigns)
Number of people screened with X-ray and CAD	687	714
Number of people with presumptive TB identified	49 (7%)	40 (5.6%)
Number of people tested for TB	49 (100%)	40 (100%)
Number of people with TB notified	13 (26.5%)	21 (53%)
Number of people with TB started on TB treatment	13	21
Number Needed to Screen (NNS)	53	34

At the national level, the number of notified TB cases increased from 6,900 in 2019 to 8,267 in 2023 (+20%), with 13% (1,113) of the TB patients notified as a result of community referral. For DR-TB patients, the program notified 55 patients in 2023 compared with 46 in 2019 (+25%).



Orientation session on PQE at CSCOM ASACONIA, Mali.

Source: The National TB Program.



TB screening campaigns using X-Ray and CAD in Mali.
Source: The National TB Program.

Lessons learned

Despite several challenges encountered during implementation, the results were encouraging and the CSLS-TBH decided to expand the approach to 100 health facilities in 2023 and continue strengthening community interventions with ARCAD Santé Plus. Lessons learned included: 1) integration of the TB screening cascade analysis during routine monthly meetings in the PQE health centers can facilitate the appropriation of the intervention by health staff and the TB cascade analysis to improve TB indicators; 2) integration of the PQE analysis in the national supervision checklist helps to reduce the cost of the intervention and increase sustainability; 3) the need to reinforce mentorship during implementation to increase the proportion of people screened/people received at the health facility; 4) CHWs are instrumental in finding missing people with TB in community and during contact investigation; and 5) the results during the realized TB mobile screening campaigns using X-ray and CAD allowed the national program and the community PR to plan an expansion to cover other target populations (e.g., people with diabetes, PLHIV, malnourished children, miners).

This case study was developed with contributions from Madina Konate, CSLS-TBH Coordinator at the Ministry of Health and Social Affairs of Mali, Bah Cheick Oumar (CSLS-TBH), Tahirou Keita, national consultant and Yacine Marr Diop, international consultant.

Niger: Scaling Up Systematic TB Screening for High-Risk Populations

In order to step up TB case finding and control efforts, **Niger** elaborated a new TB strategic plan (2022-2026) and aims to eliminate TB in Niger by 2030. Through the Ministry of Health’s National TB Program (PNLT), and with support from the WCA SE, the country also developed a new approach to improve the quality of TB case finding, known as ReCAM (Recherche cas manquants et amélioration de la cascade de la tuberculose au Niger). The primary goal of the ReCAM strategy is to scale-up PQE and systematic TB screening for high-risk populations in four priority regions: Zinder, Maradi, Tillabéri and Dosso (see Figure 7). These regions were selected after an external program review, which indicated that they represented the largest number of missing TB people in the country.

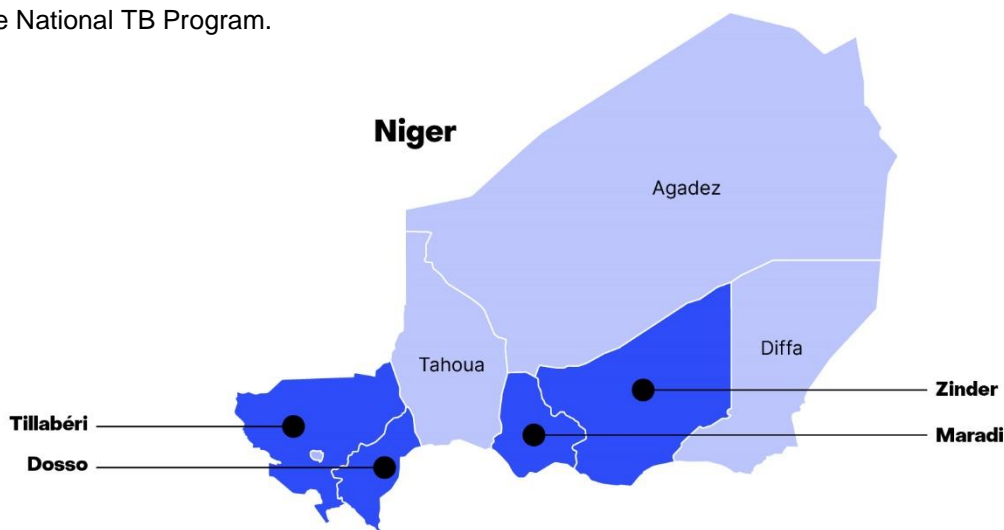
Niger TB Fast Facts

- TB incidence in Niger was estimated at 74 new cases per 100,000 inhabitants.
- TB treatment coverage in 2023 was estimated at 80%.
- Implementation of the ReCAM strategy aim to scale-up PQE and systematic TB screening for high-risk populations in four priority regions.

Activities included organizing a national meeting to prioritize target locations and populations, define algorithms and discuss how ReCAM could be synergized with other projects, in particular a community intervention funded by France Expertise. The country also aimed to increase the diagnostic network and reinforce sample transportation in the four priority regions. An operational plan was then developed, which included systematic screening in seven prisons and 44 HIV centers, mass screening campaigns in refugee camps and implementation of contact tracing in 58 TB centers and the PQE approach in 165 health centers. Among the 165 health centers included in PQE, 92 were primary health centers without a laboratory. This was followed by a training of trainers for health staff, the deployment of job aids and data collection tools, and a mentorship and monitoring program for health and community staff. Under the coordination of the NTP RecAM focal point and the national consultant, three ReCAM focal points were recruited to supervise implementation and collect data in Maradi, Dosso and Zinder. Unfortunately, due to an increase in insecurity in the Tillabery region during the period, the NTP decided to reduce the number of activities in this region and use the funds to elaborate an action plan to implement RecAM in 42 health centers of Niamey (18 with a laboratory offering TB diagnosis and 24 without). Activities in Niamey, along with X-Ray and CAD TB screening campaigns in prisons and among vulnerable people, will start in Q2 2024.

Figure 7: The four ReCaM regions in Niger

Source: The National TB Program.



Results

The results of the TB cascade in the four regions implementing the ReCAM strategy in 2023 are included in Tables 6 and 7. During the year, more than 140,000 people were actively screened for TB (but only 15% of the people received a consultation) and the 172 health facilities included notified 2,105 TB patients (all forms) (see Table 6). In the 58 TB centers included in the ReCAM strategy, 4,297 contacts were screened and 144 TB people notified among this population (see Table 7). The average increase of TB notification in the four regions where the ReCAM strategy is implemented was 13% versus 0.8% in the country's four other regions.

Table 6: TB cascade analysis in the PQE health facilities in Niger

Source: The National TB Program.

Items	Number	%
Health facilities included in the PQE	172	
Number of people screened/registered in health centers	142,104/923,318	15.4
Number of people with presumptive TB identified	23,872	16.8
Number of people tested for TB	12,795	53.6
Number of people with TB notified/tested with Xpert	410/2,038	20
Number of people with TB notified/tested with microscopy	1,603/10,757	15
Total number of people with TB (all forms)	2,105	15.8
Number of people with TB started on TB treatment	2,105	100

Table 7: TB contact investigation activities in the ReCAM regions in 2023

Source: The National TB Program.

Items	Number	%
TB centers included in the ReCAM	58	
TB patients notified (index cases)	1,841	
Number of visits at home realized	746	40.5
Number of contacts people screened	4,297	
Number of people with presumptive TB identified among household contacts	940	21.9
Number of people tested for TB	646	68.7
Number of people with TB notified/tested with Xpert	12/76	15.8
Number of people with TB notified/tested with microscopy	125/570	22
Total number of people with TB (all forms)	144 (137 bacteriologically confirmed)	
Number of people with TB started on TB treatment	144	

The number of notified TB cases increased from 11,000 in 2019 to 14,000 in 2022 (+27%). For DR-TB patients, the program notified 135 patients in 2022 compared with 79 in 2019 (+71%).

Lessons learned

Similar to other countries, the active case finding approach using PQE at health-facility level and contact investigation in Niger has improved detection of additional people with TB in the implementing regions. The national focal points, consultant and ReCAM regional focal points have encouraged the health providers to take ownership of the approach and supported data analysis. Despite a change of intervention areas due to insecurity in one of the four regions, ReCAM has proven to be a good strategy to increase TB treatment coverage in Niger and the NTP plans to expand it during the Grant Cycle 7 (GC7) grant.



Monitoring visit in a Health facility in Niamey, Niger.

Source: The National TB Program.

This case study was developed with contributions from Alphazazi Soumana, NTP Manager in Niger, Ballé Boubacar, ReCAM Focal Point within Niger's NTP and Daouda Hassane, national consultant.

Congo: Recalibrating TB Service Delivery to Address Health System Barriers

Gaps related to TB detection (e.g. under detection) and quality of TB care remain major challenges in the **Republic of Congo**. In 2022, with support from the WCA SE, the NTP developed a national policy and strategic guidelines to improve the quality of TB case detection through the PQE approach and reduce the gap in treatment coverage in health facilities and among vulnerable groups. The situational analysis that was conducted provided essential insights into the development of the strategy and active case finding screening algorithms. The country then started a decentralization phase to improve access to quality TB care from the TB referral centers (CAT Brazzaville and Pointe Noire) to the TB services in peripheral health centers. Although site selection was a major challenge for the NTP, through sites visits and consultative discussions, 15 health facilities were selected for the pilot phase in 2022. Selection criteria included health facilities with the potential to have greater impact, including high volume sites and those with availability of TB diagnosis. Quality assurance tools and training modules were developed and a training of trainers was delivered to 20 national trainers. A pilot project for sample transportation was also established in Brazzaville and Pointe Noire in 2022 to collect and transport samples to the laboratory with a GeneXpert machine. The PQE extension phase started in July 2023 with 29 new health facilities, for a total of 44. A PQE focal point was established in each health facility to monitor PQE implementation.

Congo TB Fast Facts

- Congo is ranked among the top 30 high-TB countries globally.
- The incidence of TB of any form in country is estimated at 368 cases per 100,000 population with an estimated TB mortality rate of 38 and 45 deaths per 100,000 among HIV-positive and HIV-negative persons, respectively.

Results

Figure 8 (below) shows the increase in number of TB diagnostic tests realized from 2021 to 2023 in the Congo.

From May to December 2023, in the 15 PQE health facilities, around 72,000 people were actively screened for TB and 5,542 people with TB were notified. Unfortunately, only 44% of the presumptive people were tested for TB (see Table 8).

Figure 8: Number of TB diagnostic tests realized from 2021 to 2023

Source: The National TB Program.

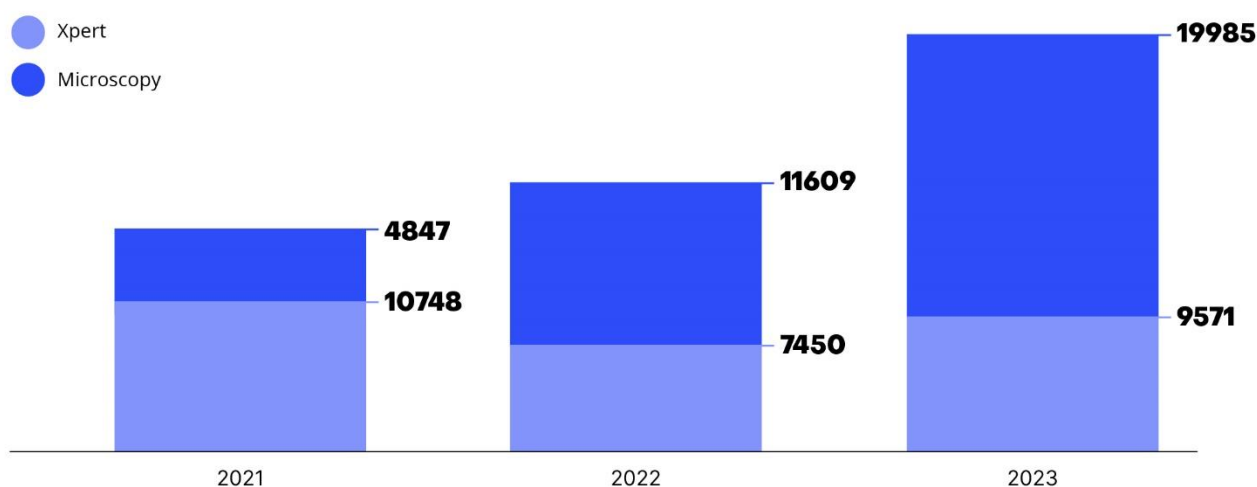


Table 8: TB cascade analysis in the 15 PQE health facilities in Congo (data from May to December 2023)

Source: The National TB Program.

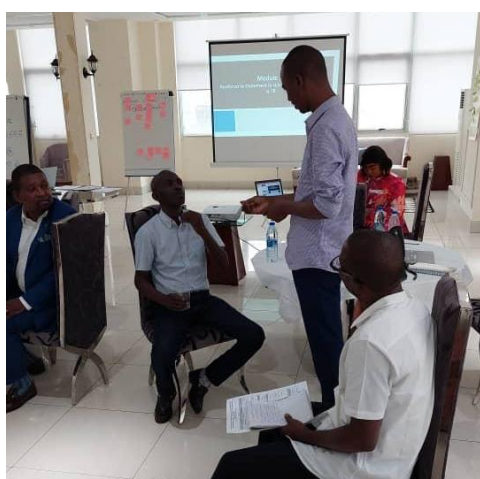
Items	Number	%
Health facilities included in the PQE	15	
Number of people screened/registered in health centers	71,905/79,056	91
Number of people with presumptive TB identified	44,807*	62
Number of people tested for TB	19,917	44
Total number of people with TB (all forms)	5,542	28
Number of people with TB started on TB treatment	4,744	86

* It is important to consider that 63% of person were registered in the 2 TB biggest TB centers in Brazzaville and Pointe Noire and this can explain the large % of people screened and also the % of presumptive TB

At the national level, the number of notified TB cases increased from 12,000 in 2019 to 14,000 in 2022 (+17%). For DR-TB patients, the program notified 231 patients in 2022 versus 146 in 2019 (+58%).

Lessons learned

The main finding from an evaluation conducted in November 2023 showed that a positive dynamic has been established at all levels (national, departmental and local) for improving missing people with TB in health facilities, and among vulnerable groups. Key recommendations include ensuring close mentorship at the facility level during the early stages of the strategy's implementation to support the behavior change of healthcare providers and ensuring regular and early monitoring of indicators at national, departmental and site level to reorganize services and improve TB case detection and quality of care.



Training of trainers in the PQE approach.

Source: The National TB Program.

This case study was developed with contributions from Franck Okemba, NTP Manager in the Republic of Congo, Aubin Liega, national consultant and Ramatoulaye Sarr, international consultant.

Democratic Republic of Congo: the Success Story of the PQE Approach

Gaps related to TB detection (e.g. under detection) and quality of TB care remain major challenges in the **Republic of Congo**. In 2022, with support from the WCA SE, the NTP developed a national policy and strategic guidelines to improve the quality of TB case detection through the PQE approach and reduce the gap in treatment coverage in health facilities and among vulnerable groups. The situational analysis that was conducted provided essential insights into the development of the strategy and active case finding screening algorithms. The country then started a decentralization phase to improve access to quality TB care from the TB referral centers (CAT Brazzaville and Pointe Noire) to the TB services in peripheral health centers. Although site selection was a major challenge for the NTP, through sites visits and consultative discussions, 15 health facilities were selected for the pilot phase in 2022. Selection criteria included health facilities with the potential to have greater impact, including high volume sites and those with availability of TB diagnosis. Quality assurance tools and training modules were developed and a training of trainers was delivered to 20 national trainers. A pilot project for sample transportation was also established in Brazzaville and Pointe Noire in 2022 to collect and transport samples to the laboratory with a GeneXpert machine. The PQE extension phase started in July 2023 with 29 new health facilities, for a total of 44. A PQE focal point was established in each health facility to monitor PQE implementation.

DRC TB Fast Facts

- The DRC is ranked among the top 30 high-burden countries for TB, TB/HIV, and multidrug-resistant TB (WHO Global TB Report 2024).
- TB incidence was estimated at 316 per 100 000 population, with treatment coverage estimated at 77% in 2023.
- DR-TB gap is very large with more than 5,000 missing people with DR-TB in 2023.

Results

The number of notified TB patients during 2023 in the 100 PQE facilities in Kinshasa increased by 67% compared with 2021 before the intervention (see Figure 9). Results of the TB cascade analysis in the 100 PQE health facilities from January to December 2023 are shown in Figure 10. During the period covering Q1 to Q4 2023, 660,851/824,226 (80%) of the patients registered in the consultation register were screened for TB. Among the screened patients, 111,124 (17%) were declared TB presumptive. Among the presumptive patients referred to the laboratory, 82,763 (74%) carried out the TB diagnostic test (61% with microscopy and 39% with molecular test). The total number of TB patients notified was 24,965 (30%) in the 100 PQE health facilities, including 2,273 children under 15 years old (9%). Finally, 96% of the notified TB patients were enrolled in TB treatment. These results could improve if current gaps in TB screening (20% not screened), testing (26 not tested%), and access to rapid molecular tests (61% tested with microscopy) were closed.

Figure 9: Increased notification in the 100 health facilities before (2021), during the pilot PQE phase in 30 health facilities (2022) and during PQE scaling up in 100 health facilities in 2023

Source: The National TB Program.

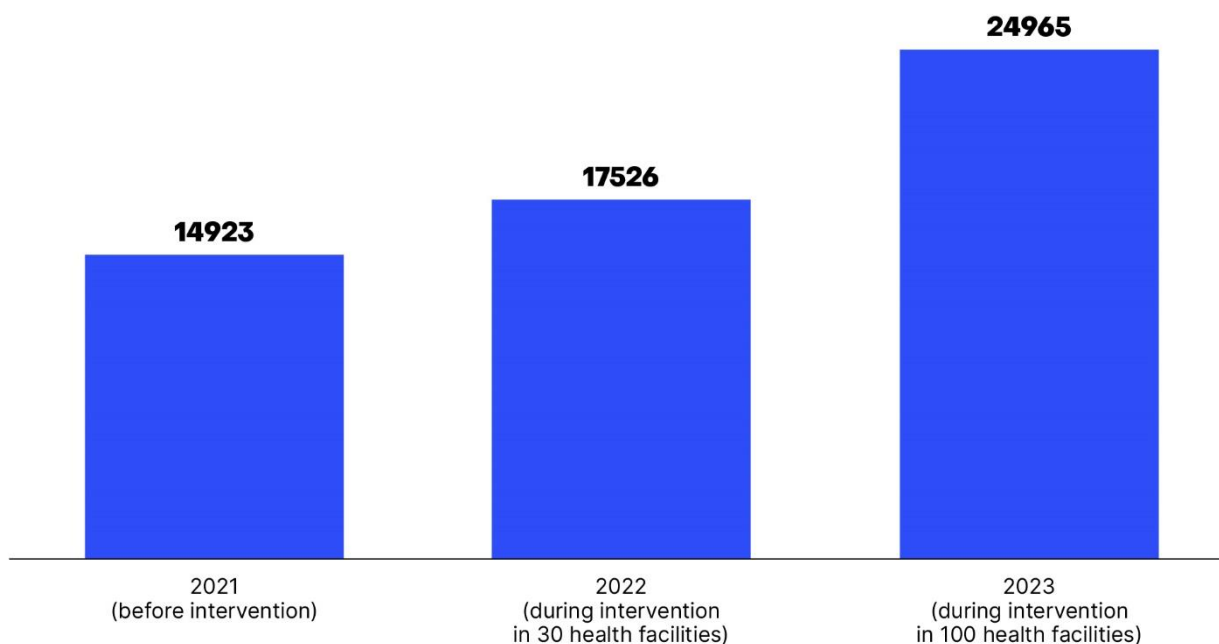
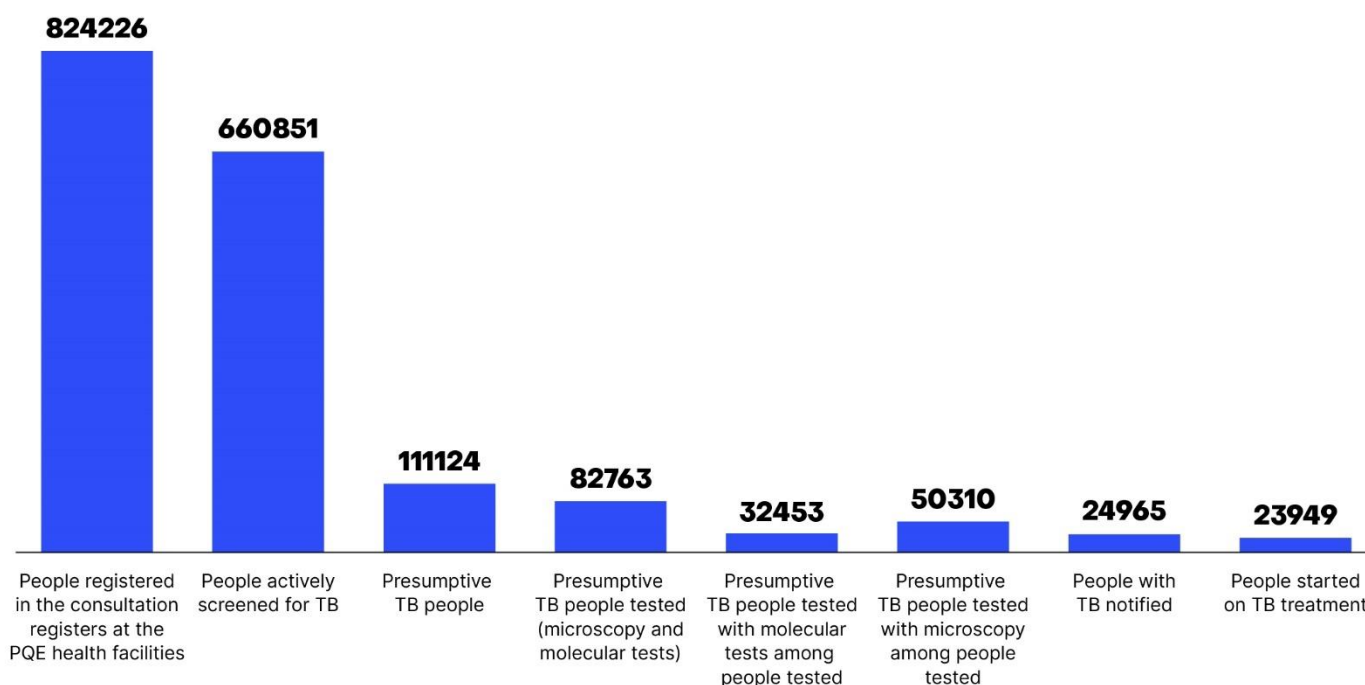


Figure 10: The TB cascade analysis in the 100 PQE health facilities in 2023

Source: The National TB Program.





Mentorship visits in PQE health centers in DR Congo.
Source: The National TB Program.

Lessons learned

It was noted that screening of TB in the other departments/entry points in the health facilities has improved detection of additional people of bacteriologically confirmed TB. Another lesson was that monthly meetings for data analysis and self-assessment of TB performance in the health facilities, with the participation of the managers of the various entry points, provided a pathway towards adoption of the PQE approach in the health centers. In addition, monthly TB reporting templates were viewed as useful tools to analyze the performance during supervision and mentoring visits and strengthening of supervision towards PQE health facilities has stimulated providers to take ownership of the approach. Although implementation challenges remain, the PQE approach has proven to be effective and was included in GC7.

This case study was developed with contributions from Michel Kawsa, former NTP Manager in DRC, Romain Kibadi, Program Quality Efficiency (PQE) Focal Point at DRC's NTP and Ngoy Jean, national consultant.

5. Looking Ahead

Advancing progress towards finding the missing people with TB and ending the disease by 2030 will require continued coordination and collaboration of governments, donors, international organizations and civil society, along with meaningful involvement of TB communities, sustained political commitment and increased financial investment. With the support of the TB SI, a number of countries in the WCA region have made commendable progress, including notable increases in TB case detection. While the TB SI and catalytic funding ended in December 2023 (excluding DRC), the interventions and approaches included in this document have shone a spotlight on successful multisectoral and multilevel approaches to finding missing people with TB that have the potential to be scaled up across the region and in other countries. All of the countries whose experiences have been described here have planned (or are planning) to use the new Global Fund grants to sustain and/or scale up some of the successful interventions implemented over the past few years. However, it will be critical to mobilize further resources where funds are insufficient, as well as adequate technical and operational support for successful continuation and expansion.

Overall Findings and Lessons Learned

At the policy level

- **Accelerate uptake of latest WHO recommended guidelines.** It is important to support countries to accelerate the uptake of latest evidence and guidelines, especially on TB screening and diagnostic tools, as their uptake needs to be accelerated at country and regional level. At the global level, continued use of locally-generated evidence will play a critical role in informing global policies and international guidelines, supporting resource mobilization, shaping the market and advocating for a reduction of the cost of TB commodities, which in some cases is still a barrier.

At the health system level

- **Establish clear coordination mechanisms.** The creation of TB Working Groups at the national level allowed for better follow-up of grant implementation. The working groups represented a safe environment in which to discuss programmatic data for early identification of bottlenecks and to collectively identify the most appropriate and context-specific solutions. They also helped to create a shared accountability mechanism, maximize the use of available resources (including human resources), reduce duplication and harmonize the work of different stakeholders.
- **Secure strong buy-in and leadership.** Clear policies, guidance, operational procedures and tools are critical to supporting the operationalization of new approaches, such the PQE and other active case finding strategies. Strong engagement of key players at country level is also key, including having national/facility-level focal points to support operational aspects, especially in initial phases as new approaches are introduced.

At the facility and community level

- **Integrate and decentralize TB care** at the peripheral and community level to better use financial resources and improve programmatic results.
- **Ensure continuous coaching and mentorship** in the post-training period.
- **Hold monthly meetings for data analysis and self-assessment of TB performance in the health facilities**, with the participation of the managers of the various entry points in order to encourage appropriation of the PQE approach in health centers.
- **Create space for continuous discussions with community organizations and local leaders** to advocate for the implementation of new approaches and tools and to reduce barriers to access TB care and catastrophic costs.

Priorities Moving Forward

1. Disseminate intervention results to encourage countries to invest more, mobilize additional funds at the national and international level and learn from each other.
2. Coordinate with technical and financial partners to provide long-term national TA and the short-term international TA to support countries during implementation of innovative approaches (e.g., design, implementation, evaluation, cost-effective analysis).
3. Integrate innovative approaches to find missing people with TB in the TB and TB/HIV grants.
4. Consider molecular WHO-recommended rapid diagnostic (mWRD) and chest X-ray with CAD network strengthening, including human resources and maintenance.
5. Strengthen in-country coordination among Principal Recipients, national TB programs and civil society organizations.