



ELIMINATE TB PROJECT



Entrance to Debre Markos Hospital. Photo Credit: MSH

TECHNICAL BRIEF

ETHIOPIA'S TB PROGRAM RESPONSE TO MULTIPLE SHOCK CONDITIONS: ACHIEVEMENTS AND LESSONS FROM THE ELIMINATE TB PROJECT

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BACKGROUND

The MSH-led Eliminate TB Project began in June 2020 as a United States Government (USG) flagship TB project in Ethiopia, with the goal to reduce TB incidence and mortality by increasing the quality, access, utilization, and sustainability of TB services in Ethiopia. Building on over two decades of partnership in TB control between USG and the Government of Ethiopia, throughout which MSH has been a key implementing partner, these investments resulted in a significant and consistent decline of more than 50% in TB incidence, particularly since 2010. However, as the project began, the country was and is continuously facing multiple concurrent shocks including the COVID-19 pandemic, drought, disease outbreaks, and conflicts. The project has adapted and responded to these difficult realities to mitigate the long-term impact of such conditions on TB epidemiology. Despite these unprecedented challenges, Ethiopia is continuing towards their goal of TB elimination. As part of this commitment, the project has been supporting the national TB program since 2020 to accelerate the anticipated reduction in TB incidence through the provision of quality-assured, patient-centered, and accessible TB services through national and direct support to seven regions in the country: Amhara, Oromia, Central Ethiopia, South Ethiopia, South West Ethiopia, Sidama, and Tigray. These regions are populated with about 95 million Ethiopians, covering 86% of the national population in 2024 (Central Statistical Agency, 2013).

PROBLEM STATEMENT

THE COUNTRY FACES MULTIPLE SHOCK CONDITIONS

In collaboration with a range of stakeholders, Ethiopia's TB program reduced TB incidence significantly from 268 (per 100k population) in 2010 to 192 in 2015. The Eliminate TB Project was conceived at a time when TB incidence in Ethiopia was continuing to decline from 200 in 2015 to 156 in 2020—and when there were no shock conditions such as COVID-19, internal conflict, drought, or other disease outbreaks that could compromise the capacity of the health system and fuel the TB epidemic in Ethiopia.

The COVID-19 pandemic became a challenge for TB prevention and control in Ethiopia as the project began implementation in 2020. After the pandemic started to wane, the community faced an accumulation of undiagnosed TB cases. Symptomatic COVID-19 may precipitate reactivation of latent TB in some individuals, which, together with major disruptions to TB services during the pandemic, could contribute to observed increases in TB cases in affected communities (Alemu et al, 2022; Tewari and Yadav, 2022; WHO, 2022).

However, as the spread of COVID-19 began to settle, peace in the country was threatened by a widespread internal conflict in the northern part of the country in Tigray, Afar, and Amhara from November 2020 until November 2022. Another round of conflict erupted in July 2023 in the Amhara region that has persisted until today, while the Oromia region has also faced occasional conflict. In 2023, the country was also impacted by severe drought, affecting mainly the pastoralist community including those in the project-supported regions of Oromia, Central

Ethiopia, and South Ethiopia. Drought and conflict combined exacerbated the issue of undernutrition, particularly for internally displaced peoples (IDPs), which paved the way for TB disease reactivation (Daif et al., 2023). The project monitored the expansion of these shocks that have impacted an estimated 17 million people in 248 districts in Tigray; Amhara; Oromia; and Southern Nations, Nationalities, and Peoples' Region.

INTERVENTIONS

ADDRESSING THE CHALLENGES OF SHOCK CONDITIONS

Cognizant of the high occurrence and transmission of TB disease in the community, the Eliminate TB Project collaborated with the national TB program to notify and treat TB cases in the community. Active TB case finding (ACF) campaigns, community outreach TB prevention activities, high load health facility initiatives, and integrated TB screening into nutritional screenings at IDP centers and into COVID-19 testing and vaccine services were some of the strategies that assisted TB case notification in the country. These interventions were designed to identify the potential missed TB cases, including the conflict-affected areas that cannot be addressed under the routine TB program interventions.

RESPONDING TO CONFLICT-AFFECTED TB SERVICES

In the Amhara region, the project has been working to ensure continuity of the TB program amidst the conflict period through weekly phone-based monitoring and supervision of zones, districts, and health facilities in the region; supporting IDPs and implementing mental health and psychosocial support; and continuing to utilize and report data using the health management information systems. The project

supported the expansion of GeneXpert machines in the region from 134 to 206 and reconnected 189 of them to the internet using VPN, enabling 93% of the machines to report performance using Lab-Xpert connectivity.

As part of the post-conflict response in Tigray, the project assigned 20 district cluster coordinators to help support the restoration of TB program implementation, prevention and care services at primary health care units, and trained health care workers (HCWs) and lab professionals. Additionally, the project effectively restored TB diagnostic services by increasing GeneXpert machines in the region from 37 to 57, re-establishing the TB lab network and the specimen referral system using Ethiopian Postal Services (EPS) and youth associations as couriers. Likewise, in the Amhara region, the project supported the region by placing more health workers, strengthening capacity, screening of IDPs, and placing microscopes and GeneXpert machines procured by USG to restore the diagnostic services.

HEALTH SYSTEM STRENGTHENING TO SUPPORT NATIONAL TB PROGRAM IMPACTED BY SHOCKS

Figure 1 illustrates how multiple shocks create population vulnerabilities and ultimately contribute to higher TB-related morbidity and mortality. The Eliminate TB Project helped mitigate the negative consequences of these shocks through a comprehensive TB program response organized around the health system building blocks. Specific interventions included ACF innovations at health facilities and in the community, undertaken alongside the scale-up of new TB screening and diagnostic tools. Six mobile chest X-ray (CXR) machines, including three with artificial intelligence, were used for TB screening during ACF campaigns and TB

prevention outreach activities. The project worked with USG and Ethiopian health authorities to place USG-procured GeneXpert machines at health facilities across the country, more than doubling their number from 313 in 2020 to 972 by the end of 2025. Targeted outreach in hotspots, integrated TB/COVID-19 screening, task-sharing and task-shifting, supportive supervision and tele-mentorship, emergency “run-away” kits, domestic resource mobilization, and community-based health insurance initiatives further strengthened the resilience and continuity of TB services during periods of crisis. Overall, the project worked with Ethiopia’s national TB program to strengthen health system capacity and ensure continuity of care during emergencies, reducing TB-related morbidity and mortality despite conflict, disease outbreaks, and other humanitarian crises.

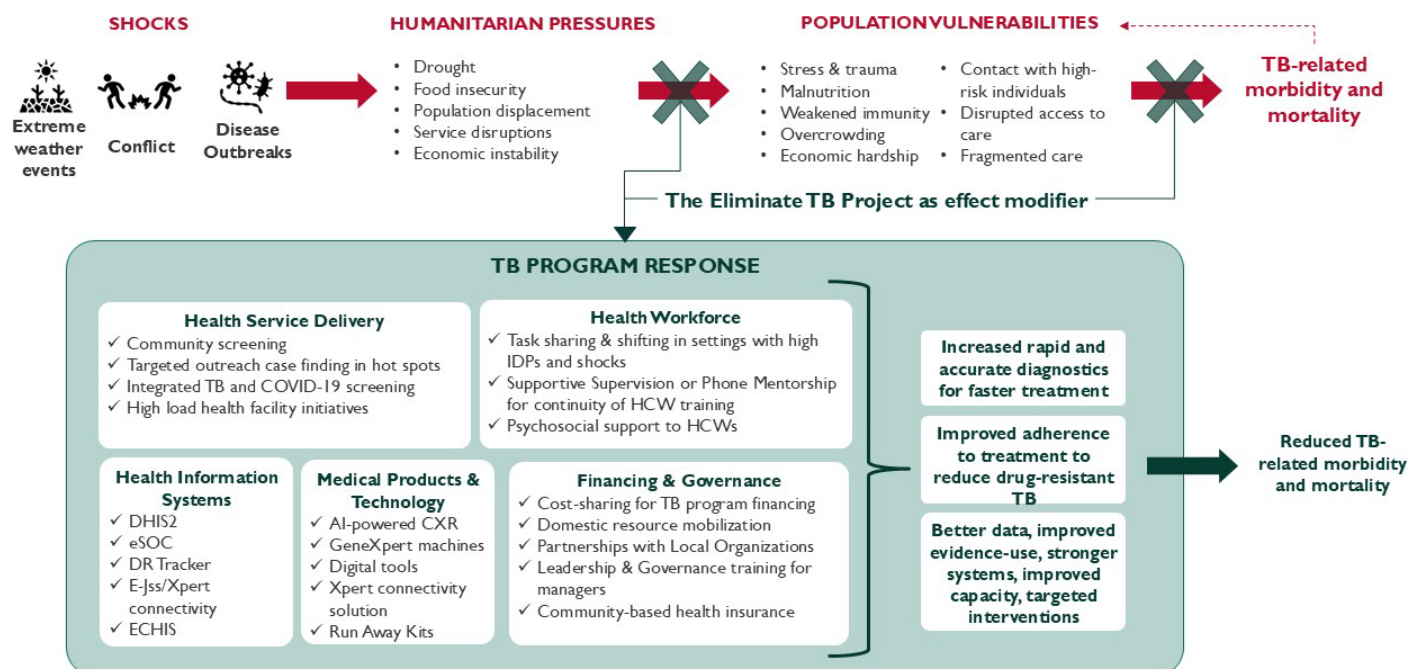


Figure 1: Diagram indicating the project’s response through health system strengthening to shock conditions contributing to increased TB cases in Ethiopia

RESULTS AND ACHIEVEMENTS

DETECTING MISSED TB CASES, REDUCING CATASTROPHIC COSTS, AND AVERTING TB-RELATED DEATHS AND TRANSMISSION

Between 2020-2025, the project supported the national TB program to notify 649,241 TB cases, surpassing the target of 497,874 by about 30%. Without the project’s technical and financial support to the national TB program during this period with multiple shock conditions fueling the TB burden in the country, 151,367 TB cases would likely have been undiagnosed. The

project’s innovative response averted the missed TB cases that could have succumbed to the disease or further perpetuated TB transmission within the community.

Given the significance of the role of ACF to reach, treat, and prevent TB cases, supporting the overall goal to reduce TB incidence and mortality, the project implemented innovative strategies to limit the number of undiagnosed TB cases. The specimen transport network was expanded by engaging private couriers to

complement EPS, which subsequently reduced costs for patients due to transportation, accommodation, and diagnostic investigation. The TB sample transportation pilot program is successfully increasing access to TB testing in hard-to-reach regions and therefore limiting diagnosis and treatment delays.

By notifying 151,367 TB cases above the initial target, the project contributed to Ethiopia's TB control efforts during a period of unprecedented challenges. While precise attribution is difficult given multiple concurrent interventions by government and partners, modeling suggests that earlier case detection through project-supported activities likely prevented hundreds to several thousand deaths and secondary transmissions.

The Eliminate TB Project has tailored TB case notification and care through targeting hot spot areas for TB transmission and among key and vulnerable populations such as contacts of infectious TB cases (Dememew et. al., 2020 & Jerene et. al., 2015). Moreover, in 2021 the project determined the TB-related catastrophic cost to be 66% (Dememew et. al., 2024). This was measured during the baseline assessment of the project prior to startup of the intensified ACF and expansion of GeneXpert in the country; hence, the figure was one of the highest. After two years of intervention (in 2023) and expansion of the GeneXpert machines, it fell to 44%, a reduction of 33% (Deribew, 2024). While the reduction coincides with project scale-up activities, attribution is limited by the absence of a comparison group and significant macroeconomic changes between survey periods.

LESSONS LEARNED

The project has navigated responses to drought, disease outbreaks, and conflict that impacted the TB program in Ethiopia.

Responding to intra- and post-conflict TB service in Amhara, Tigray, and Oromia, MSH supported the implementation of a shock responsive and resilient TB program in the country through innovative and tailored ACF. Despite the combined effects of COVID-19, conflict, drought, and population displacement, TB services were maintained and restored through adaptive and flexible approaches, demonstrating the importance of resilient health systems.

Community-based screening and outreach activities were not practical, but the integration of TB screening into COVID-19, nutrition, and IDP services were effective in identifying missed TB cases and sustaining case notification amidst conflict. The utilization of digital tools in screening, diagnosis, remote mentoring, and monitoring ensured continuity of TB diagnosis and improved access to TB service in conflict-affected regions and other areas experiencing shock conditions.

The project's contribution to detecting 151,367 additional cases likely averted hundreds to several thousand deaths and prevented numerous secondary transmissions, though precise quantification requires additional modeling assumptions. These achievements are expected to reduce the occurrence of new TB cases in the coming period in the country; and hence, could reverse the increasing TB incidence due to shocks.

In all, the Eliminate TB Project demonstrated that a strong, adaptable, and innovation-driven TB program can be sustained during multiple concurrent shocks. Integrating ACF, strengthening diagnostic systems and digitalization, and targeting vulnerable populations were key strategies that helped

Ethiopia maintain progress toward TB elimination despite unprecedented challenges.

WAY FORWARD

Despite the resilience to shock conditions implemented by the project and strong post- and intra-conflict response, accelerated population growth, climate change, undernutrition, urbanization, and other infectious disease outbreaks pose a threat to Ethiopia's health system and TB incidence. To contribute to TB elimination efforts in Ethiopia, MSH recommends further investigation on the emergence of new TB drivers such as population dynamics at borders and change in climatic conditions. The introduction of new point-of-care TB diagnostics and digital screening targeting subclinical and asymptomatic TB may further strengthen the TB program in the country. Additionally, preparation for a TB vaccine and wide-scale preventive TB services could be part of future considerations for the TB program. HCWs remain central to these efforts whereby continued innovations and investments in capacity strengthening, including blended learning and virtual mentorship, should be employed to improve the overall TB program. Above all, MSH has demonstrated TB elimination strategies, with a focus on TB prevention and evidence-based interventions in low-income, high TB burden settings of Ethiopia and will continue to strengthen these efforts.

LIMITATIONS

This brief documents project achievements but has several limitations in quantifying impact. First, the lack of comparison areas makes attribution challenging, as other partners and government initiatives contributed to TB control during this period. Second, shock conditions created measurement challenges, with potential underreporting in conflict-affected areas. Third, catastrophic cost reduction should be interpreted cautiously given different economic contexts between survey rounds. Finally, the temporal correlation between project activities and outcomes does not prove to be causation.

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