Successes and Challenges with Monitoring and Evaluating Tuberculosis (TB) Programs in Select African Countries

Photo credit: TB DIAH

Introduction

Tuberculosis (TB) is an infectious disease that continues to adversely affect lives globally. It is the leading infectious disease killer, surpassing COVID-19 in 2023. Despite TB being preventable and curable, over 10 million people continue to contract TB every year[1]. For more than 20 years, the United States Agency for International Development (USAID) has been a global leader in the fight against TB. USAID's global TB strategy is to work with partners worldwide to **reach** every person with TB; **cure** those in need of treatment; **prevent** new infections and progression to active TB disease; scale up **innovations** in detection, care, and treatment; and foster local ownership to **sustain** TB programs that contribute to pandemic preparedness.[2]

TB DIAH Overview

The USAID-funded TB Data, Impact Assessment and Communications Hub (TB DIAH) project aims to enhance existing TB data and knowledge sharing and strengthen National TB Programs (NTPs) globally[3]. The project supports governments, policy makers, and program stakeholders with the generation, analysis, communication, and use of quality data for decision making and scale up. TB DIAH provides technical expertise to ensure optimal demand for and analysis of TB data and appropriate use of that information to measure program performance and inform NTP and USAID interventions and policies[4]. From the Performance-Based Monitoring and Evaluation Framework (PBMEF) for TB and data assessments to data dashboards and other key TB monitoring and evaluation (M&E) resources, TB DIAH offers a range of tools and frameworks to help improve TB programs worldwide.

Africa Regional Workshop Overview

The PBMEF is the cornerstone of USAID's efforts to ensure effective accountability of its investments in TB at global, regional, country, and project levels and accelerate progress to end the TB epidemic. To support the rollout of the PBMEF and improve country-level TB M&E, TB DIAH conducted a workshop in TB M&E and surveillance capacity strengthening for 10 countries in the Eastern Europe and Eurasia and Central Asian regions. TB DIAH proposed a similar workshop for the Africa region with USAID's 11 TB-priority countries as a practical approach to maximize the number of countries that the project can reach with this needed M&E support.

The Africa Regional Workshop, held from April 16–19, 2024, in Dar es Salaam, Tanzania, brought together country-level TB experts, stakeholders, and technical partners to learn from their M&E experiences and continue to build capacity on TB M&E in the region. The workshop focused on presenting the updated PBMEF, introducing the new World Health Organization (WHO) surveillance guidelines, and fostering collaboration and cross-learning.

TB M&E Successes – The Africa Story

Countries in the African region have shown significant progress toward reaching the 90-90-90 TB global targets. NTPs are increasingly recognizing the importance of sound M&E as reflected in better M&E staffing, growing technical capacity for M&E, increasing interest in and use of PBMEF indicators, and investments in improved systems to monitor and evaluate TB programs.

All the presenting countries have moved or are in the process of moving from the traditional paper-based system to a digital system, making data reporting and use more effective. With more frequent and regular data reporting, combined with consistent technical review meetings, data quality and analysis have improved, thus improving decision making among NTPs across the Africa region. Furthermore,

[1] Global TB report 2023.
[2] USAID'S Global TB Strategy, 2023.
[3] TB DIAH – Capture data. Contextualize data. Strengthen TB programs worldwide.
[4] Project Overview and Objectives – TB DIAH.

The Africa Regional Workshop saw widespread participation from NTPs, Ministries of Health, and USAID-funded implementing partners (IPs) from the 11 USAID TB-priority countries in Africa: Democratic Republic of Congo (DRC), Ethiopia, Kenya, Malawi, Mozambique, Nigeria, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe. Workshop attendees also included USAID/ Washington and Mission staff, and representatives from the WHO Global Fund to Fight AIDS, TB, and Malaria; and Stop TB Partnership.

Photo credit: TB DIAH

the constant collaboration with and technical support from USAID, IPs, technical partners, and community TB stakeholders has strengthened partnerships and contributed toward successfully implementing innovative solutions that other countries could replicate for their NTPs.

A. Data Visualization and Use: Mozambique, Nigeria, and Zambia

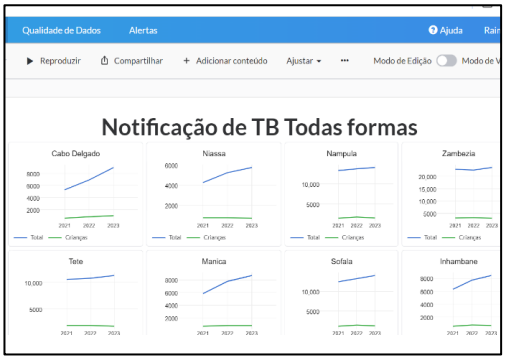
High-quality TB data is necessary for supporting program progress and assessing a program's interventions, activities, and their impact on patient care and policies. The TB Situation Room (TBSR) is an innovative data-driven process that routinely gathers TB stakeholders to review TB data in a "one-stop" dashboard. The dashboard provides access to real-time data from different sources aggregated in one place, helping decision makers, program staff, and implementers streamline the review, analysis, and interpretation of comprehensive TB data with accuracy.

The TBSR visually displays multi-sourced TB data, including electronic medical record data, program data, diagnostic data, and TB commodity data[5]. With TB DIAH's support for establishing Nigeria's TBSR, the successful use of the TBSR in Nigeria has strengthened the analysis and interpretation of TB data, improved NTP program performance monitoring, and empowered stakeholders across different levels of the NTP to analyze and use TB data.

Zambia's TBSR, an NTP initiative, is also designed to track the TB program's weekly performance across the country using key performance measures in a user-friendly format to monitor progress.

Similarly, Mozambique has implemented the Advanced Data Analytics Platform (*Plataforma de Análise Avançada de Dados*, or PAAD) at the provincial level, which continues to successfully support improved data visualization and use, bringing stakeholders together for further evidence-based decision making.

Snapshot of Mozambique's Advanced Data Analytics Platform



B. TB Operational Research and Use of Results: DRC, Ethiopia, and Uganda

In line with STOP TB Partnership, WHO, and Global Fund priority areas, many countries in the Africa region have focused more on operational research (OR) to identify TB data gaps and increase the evidence base for making programmatic decisions. For example, TB DIAH worked with the Programme National de Lutte contre la Tuberculose (PNLT), DRC, to develop national guidelines for conducting OR. Additionally, more than 25 key PNLT staff were trained on OR to support future research studies. Studies focused on factors related to the mortality of TB patients on treatment. Another study looked at prevalence and risk factors related to pulmonary TB among artisanal miners. Uganda plans to support TB research activities such as integrating x-ray screening in the screening algorithm and analyzing routine data for manuscripts. Ethiopia organizes an annual TB research conference to communicate and disseminate research findings to further put them into practice. Forums such as these create a strong enabling environment for research and findings that are integral to TB elimination and can serve as a model to be replicated across countries.

[5] TB Situation Room Management and Implementation Guidance.; 2024. Accessed August 26, 2024.

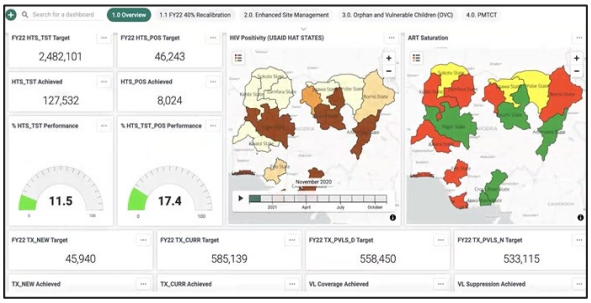
C. Using DHIS2 for Data Analysis and Visualization: Ethiopia and Uganda

Uganda and Ethiopia have shown effective uptake and use of DHIS2 for data analysis and visualization. Uganda successfully uses the DHIS2 dashboard, Power BI PIRS (SURGE Dashboard), for routine data analysis, visualization, and decision making for performance monitoring against set targets. The Government of Uganda has shown strong support and commitment to data-driven TB elimination efforts by prioritizing integration of TB and HIV interventions. Ethiopia also successfully uses DHIS2 as the routine data source for monthly program monitoring for further analysis and decision making, making it a significant and effective strategy to strengthen their existing M&E system.

D. Operationalizing the PBMEF with the Automated Partner Progress Report (APPR): Nigeria

The APPR is the USAID/Nigeria Mission's data management platform for HIV, AIDS, and TB data. It enables seamless data integration across different data platforms and improves data quality by minimizing manual entries and data errors and by improving data timeliness and completeness. The TB DIAH/Nigeria team incorporated PBMEF indicators into the tool to optimize the availability and use of TB data and support course-corrective measures and oversight of USAID investments in TB in Nigeria. The APPR enhances data exchange and interoperability among Nigerian data providers and with other platforms, enabling real-time performance measurement and decision making by visualizing performance indicators against targets. The APPR has successfully facilitated the transition from the Excel-based data systems to DHIS2 and improved interoperability and data exchange among data providers[6]

Snapshot of Nigeria's APPR dashboard



E. Investing in Capacity Building for Data Managers: DRC, Ethiopia, Kenya, and Nigeria

Countries in the African region have invested substantial time, resources, and knowledge in capacity building to strengthen the M&E systems of their respective NTPs. The DRC, Kenya, and Nigeria, among other countries, shared notable results from strengthening the capacity of NTP staff and data managers. TB DIAH worked with the DRC's PNLT to develop an appropriate TB M&E training curriculum in-line with PNLT's needs and focused on data use, quality, analysis, communication, and dissemination.

A training of trainers was successfully conducted, with subsequent training cascaded to the subnational, provincial, district, and health facility levels in the DRC, covering over 200 participants. In Nigeria, quarterly coaching and mentoring visits were conducted in five priority states to assist with strengthening their M&E capacity and improving their surveillance systems. Kenya highlighted capacity building for TB data reporting and using data for decision making as a key strategy for improving data use. Likewise, Ethiopia developed the TB and Leprosy M&E Training Manual for health facilities and NTP program managers and successfully trained over 1,000 TB focal persons at high-load TB facilities.

TB M&E Challenges and Areas for Improvement

Despite many TB M&E successes in the African region, challenges and areas for improvement were presented that, when addressed, can continue to strengthen existing TB M&E systems to achieve the larger goal of TB elimination. As the culture of data use continues to develop, routine and effective data sharing and dissemination are a challenge in many settings. Translation of data use for policy-level changes and implementation can make significant improvements in program implementation. There is also growing demand for better precision of estimation and disaggregation of TB incidence data at the subnational level since countries face the challenge of accessing current population estimates. Many countries raised concerns over high staff turnover leading to limited skilled staff members, making supervision of different program activities at the provincial and district level both a challenge and an area of improvement. Some participants also mentioned the challenge of conducting

[6] New Tools, Platforms and Resources for TB Data Capture, Visualization and Use. Panopto. Published 2015. Accessed September 4, 2024.

country-led TB research due to limited funding. Enhanced support from local country leadership combined with increased domestic financing and resource allocation can strongly contribute to TB elimination efforts.

Way Forward

With significant TB interventions and improvements in the Africa region, NTPs, in partnership with IPs, donors, and other technical partners, and in-line with TB program priority areas, continue to focus on strengthening TB programs for improved performance outcomes.

- Representatives from the STOP TB Partnership and the Global Fund highlighted the role of TB research and development, especially vaccine research. Furthermore, bilateral agencies are supporting the use of innovative tools such as artificial intelligence to improve TB prevention, diagnosis, and treatment.
- The DRC aims to strengthen advocacy efforts with partners to mobilize additional resources, improve training coverage of TB M&E, and roll out DHIS2 throughout the country.
- Continuous capacity building is an important step for Tanzania's NTP, with a focus on advanced analysis and visualization at the national level and data use and analysis training at the subnational level. Additionally, they envision geographical information system-enabled analyses and mapping, integration of GeneXpert, and country-wide implementation of electronic medical records.
- South Africa is planning for a community-based monitoring system using a real-time electronic surveillance system. They are also planning for the national implementation of electronic medical records and a single health database for South African citizens.
- With Zambia's TBSR success, the country plans to leverage technological advancements such as web-based applications (i.e., DHIS2 and Power BI) and other application solutions as a way forward.
- Ethiopia aims to expedite the transition from a paper-based system to an electronic-based TB management information system and achieve a digital case-based TB reporting and surveillance system by 2030.
- Nigeria is also preparing for a fully electronic system with a unified dashboard integrated with the TB M&E system.
- Uganda is exploring innovative ways to model and conduct TB studies (e.g., a prevalence survey with subnational TB data). They aim to leverage existing data (i.e., research studies, Demographic Health Surveys, special surveys, etc.) and focus on TB OR support.
- With the establishment of Kenya's Digital Health Agency, plans are underway to fully digitize their health data. Kenya's NTP anticipates using technology such as artificial intelligence-based tools to address some existing data challenges. They are also piloting a biometric patient identifier with a global identifier. The NTP is leveraging the roll-out of a national electronic community health information system to achieve their set TB targets.

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