Eastern Europe and Eurasia Regional Training of Trainers

TB Monitoring and Evaluation and Surveillance Capacity Strengthening

July 2023

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TB DIAH
Tuberculosis Data, Impact Assessment and Communications Hub

Eastern Europe and Eurasia Regional Training of Trainers

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TB DIAH

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This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of the TB Data, Impact Assessment and Communications Hub (TB DIAH) Associate Award No. 7200AA18LA00007. TB DIAH is implemented by the University of North Carolina at Chapel Hill, in partnership with John Snow, Inc. Views expressed are not necessarily those of USAID or the United States government. Publication ID Number SR-23-185 TB

Acknowledgements

This report was produced by Nina Javakhishvili, TB Data, Impact Assessment, and Communications Hub (TB DIAH) consultant, and reviewed by Bridgit Adamou and Ezra Tessera, TB DIAH. Special appreciation goes to Alexander Asatiani, TB DIAH's Senior Regional Consultant for Eastern Europe and Eurasia, who worked tirelessly to help plan the regional training along with the TB DIAH headquarters support staff. We acknowledge The Universal Consulting Group who helped organize the event, and the United States Agency for International Development (USAID) for its financial support.

We thank the staff at the National Center for Tuberculosis and Lung Diseases (NCTLD) and the National Center for Disease Control and Public Health (NCDC) for their help with organizing the training and hosting the event in their lovely city, Tbilisi.

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Suggested citation:

Eastern Europe and Eurasia Regional Training of Trainers: TB Monitoring and Evaluation and Surveillance Capacity Strengthening. May 2023. TB DIAH, University of North Carolina at Chapel Hill.

Contents

Abbreviations

ART	antiretroviral therapy
BDQ	bedaquiline
COE	Center of Excellence
DR	drug-resistant
DS	drug-sensitive
DST	drug susceptibility testing
EEE	Eastern Europe and Eurasia
EPTB	extrapulmonary TB
FLQ	fluoroquinolones
LNZ	linezolid
MDR	multidrug-resistant
MoH	Ministry of Health
M&E	monitoring and evaluation
MoILSHA	Ministry of Internally Displaced Persons, Labour, Health, and Social Affairs of Georgia
NCDC	National Center for Disease Control and Public Health
NCTLD	National Center for Tuberculosis and Lung Diseases
NTP	national TB program
NTRP	National TB Response Program
PBMEF	Performance-Based Monitoring and Evaluation Framework
RIF	rifampicin
RR	rifampicin-resistant
PTB	pulmonary TB
SMART	specific, measurable, achievable, relevant, and time-bound
TB	tuberculosis
TB DIAH	TB Data, Impact Assessment, and Communications Hub
ToT	Training of Trainers
USAID	United States Agency for International Development
WHO	World Health Organization
XDR	extensively drug-resistant

Background Information

The Tuberculosis (TB) Data, Impact Assessment, and Communications Hub (TB DIAH), funded by the United States Agency for International Development (USAID), is part of USAID's new business model to fight TB: the Global Accelerator to End Tuberculosis (USAID TB Accelerator). The Accelerator is designed to increase investments from the public and private sectors to end the TB epidemic, while simultaneously building local commitment and capacity to achieve the goals set forth at the United Nations High-Level Meeting. TB DIAH aims to ensure optimal demand for and analysis of routine and non-routine TB data and their appropriate use to support interventions, policies, and performance management. To achieve this, TB DIAH supports national TB programs (NTPs) in strengthening TB surveillance systems and improving data use, building capacity to report on countries' TB Roadmap indicators, strengthening monitoring and evaluation (M&E) skills, and developing and promoting online data resources.

TB DIAH's approach in the Eastern Europe and Eurasia (EEE) region builds upon a Center of Excellence (COE) model as a means of providing technical assistance to five EEE countries that USAID provides bilateral and regional TB support to: Armenia, Azerbaijan, Georgia, Moldova, and Ukraine. TB DIAH established a virtual EEE regional COE in TB M&E and Surveillance in May 2022 in Georgia. It is hosted by the National Center for Disease Control and Public Health (NCDC) together with Georgia's National Center for Tuberculosis and Lung Diseases (NCTLD). The NCTLD's purpose is to model, test, and share best practices in TB M&E in the region; serve as a hub for TB DIAH support in the region; and ensure synergy and effective use of resources.

Since its establishment, the COE, with the support of the TB DIAH, has convened several regional and national consultative meetings and trainings. During these events, NTPs and TB stakeholders identified overarching challenges across different domains of TB M&E and surveillance systems and emphasized the need for capacity strengthening.

About the Event

The overall purpose of the Regional Training of Trainers (ToT) in TB M&E and Surveillance was to provide a foundation for critically reviewing, understanding, and using routine TB surveillance data through the practical examples of analysis, interpretation, and visualization of the data at sub-national and national levels.

The objective of the ToT was to build the capacity of NTP staff by training a cadre of master trainers on data collection, reporting, analysis, visualization, and use to improve TB surveillance and program management. The expected output of the ToT was to have trained up to 20 master trainers from the EEE countries so that they are competent in TB M&E and surveillance and able to deliver tailored training programs in their respective countries.

The five-day in-person training was held in Tbilisi, Georgia, May 1–5, 2023. The NTP representatives and affiliated professionals with M&E, surveillance, and TB program management backgrounds from Armenia, Georgia, Moldova, and Ukraine attended a mix of lectures, presentations, and individual and group activities. The ToT was facilitated by **Alexander Asatiani, TB DIAH's Senior TB M&E Consultant for the EEE Region**.

The expectation was that in their capacity as master trainers, participants would play a significant role in strengthening the M&E capacity of NTPs by facilitating and delivering country-level follow-up trainings with TB DIAH's ongoing support. On the last day of the event, country teams worked on customized national training plans, which was another important output of the regional ToT.

Training Modules

TB DIAH, in consultation with COE staff from the NCDC and NCTLD, reviewed the standard TB M&E training modules that had been developed by TB DIAH and used in other parts of the world. Specific modules were selected for the EEE region and modified appropriately. The 11 modules that were used for this training event are as follows:

1. TB epidemiology and control
2. M&E fundamentals
3. Performance-Based Monitoring and Evaluation Framework (PBMEF) indicators and reporting
4. Data collection
5. Use of technologies and understanding TB hotspot mapping
6. Data analysis, visualization, and interpretation
7. Data quality
8. Supportive supervision
9. Root cause analysis
10. Data use and sharing
11. Stakeholder analysis

Monday, May 1, 2023

Welcome and Opening Remarks

The first day served as an introduction to global TB strategies, targets, and key milestones. NCTLD staff presented TB epidemiology in the EEE countries and TB case definitions from an M&E process perspective, while NCDC staff shared M&E concepts, plans, indicators, and specific, measurable, achievable, relevant, and time-bound (SMART) objectives. The session was concluded with an in-depth look at the PBMEF and indicators.

Tamar Gabunia • Deputy Minister, Ministry of Internally Displaced Persons, Labour, Health, and Social Affairs of Georgia (MoILHSA)

A well-functioning data management model for TB progress is very important. Georgia has made substantial progress working to address TB over the past 10 years with substantial investment from the US government. This has helped build new models for disease surveillance, activated civil society actors, and built capacity at the NCTLD. This project opens up new opportunities for regional partnerships, and Georgia is to be a part of the COE.

Training in TB M&E gives all actors an opportunity to identify and address gaps to make sure the data reaches the point in terms of decision-making, understanding how programs function, defining the needs of beneficiaries, and finding room for improvement.

Irma Khonelidze • Deputy Director General, NCDC

The primary purpose of this event is to create a cohort of master trainers, and those trainers will conduct tailored training programs in their countries to improve TB management.

The COE was established in Georgia in May 2022. Several regional activities were implemented, and the end of last year demonstrated that regional exchange is critically important.

The NCDC believes that the work done under TB DIAH's support lays a solid foundation for regional cooperation and effective exchange. As a result, the NCDC and event participants have a better understanding of common challenges, different domains, and M&E and surveillance systems, as well as the improvements needed to be achieved together. This experience is especially important now because many countries in the region are in the process of submitting funding proposals to the Global Fund, and quality data, a strong surveillance system, and data use are in high demand.

Most of the COE's work will be virtual to maximize reach, but face-to-face meetings can improve results of joint work, therefore, the NCDC is extremely grateful for this opportunity to meet all participants in person.

Nino Lomtadze • Head of Surveillance and Strategic Planning Department, NCTLD

The work of the COE has been made possible with active participation. People who attend current events will become master trainers in their countries and will be empowered to convey the curriculum and materials shared during the five-day workshop. Event organizers and facilitators rely on pleasant and friendly collaboration.

Stephanie Mullen • Project Director, TB DIAH

Mullen sent her warmest regards to the participants via video recording. She outlined that the ToT is critical for providing a foundation for country-level work to strengthen TB M&E capacity for data collection, reporting, analyses, visualization, and use to improve TB surveillance and program management.

She mentioned how over the course of the week the participants would familiarize themselves with materials on key topics such as M&E fundamentals; data quality, analyses, and assessment; and much more. The ToT is just the beginning; after the event, participants will start customizing country-tailored training plans.

After the welcoming remarks **Bridgit Adamou, Senior M&E Advisor for TB DIAH,** presented the training objectives and set the ground rules for the five-day event. Participants then completed workshop pre-tests.

Module 1: TB Epidemiology and Control

Ezra Tessera, Senior TB M&E Technical Adviser for TB DIAH, together with the participants, reviewed strategic documents going back to the early 1990s. Tessera covered global TB strategies, targets, and key milestones including the End TB Strategy vision, goal, and 2035 targets: 95% reduction in deaths due to TB (compared with 2015); 90% reduction in TB incidence rate (compared with 2015); and no affected families face catastrophic costs due to TB.

TB Epidemiology in EEE Countries

In the next session, **Nino Lomtadze** reviewed TB epidemiology in the EEE countries. This included TB burden estimates, notifications, and trends; drug-resistant (DR)-TB; TB/HIV coinfection; treatment outcomes; global progress towards ending TB; and the COE countries' progress towards ending TB. (Part of the slides were used from the European Center for Disease Control (ECDC) and the World Health Organization's (WHO) World TB Day webinar 2023. COE country-specific data were abstracted from the ECDC/WHO 2023 report: TB surveillance and monitoring in Europe 2023–2021 data).

TB M&E Guidance

In the beginning of her next presentation, Lomtadze shared currently available guidance on TB surveillance:

- WHO Definitions and reporting framework for TB – 2013 revision: updated December 2014 and January 2020 (https://apps.who.int/iris/handle/10665/79199)
- Global consultation meeting report on extensively drug-resistant (XDR)-TB definitions, 27-29 October 2020 (https://www.who.int/publications/i/item/meeting-report-of-the-who-expert-consultation-on-the-definition-of-extensively-drug-resistant-tuberculosis)
- Global consultation meeting report on updated treatment outcomes, 17–19 November 2020 (https://apps.who.int/iris/handle/10665/340284)

Nino shared upcoming updates on TB surveillance. In the second half of 2023 WHO plans to issue updated guidance on TB surveillance considering the following rationale:

- Alignment with WHO's new End TB Strategy
- Updated WHO guidelines on TB prevention, diagnosis, and treatment, including a 2020 update to case definitions and treatment outcomes.
- Address common problems seen in over 100 national TB epidemiological reviews since 2013.
- Promote case-based digital TB surveillance.
- Growing demand for "real-time" data

TB Case Definitions

A bacteriologically confirmed TB case is one in which a biological specimen is positive by smear microscopy, culture, or WHO-recommended rapid diagnostic. All such cases should be notified, regardless of whether TB treatment has started.

A clinically diagnosed TB case is one which does not fulfill the criteria for bacteriological confirmation but has been diagnosed with active TB by a clinician or other medical practitioner who has decided to give the patient a full course of TB treatment. This definition includes cases diagnosed based on X-ray abnormalities or suggestive histology and extrapulmonary TB (EPTB) cases without laboratory confirmation. Clinically diagnosed cases subsequently found to be bacteriologically positive (before or after starting treatment) should be reclassified as bacteriologically confirmed.

TB Classification Groups

Classifications are based on the anatomical site of disease, history of previous TB treatment (patient registration group), HIV status, and drug resistance. Pulmonary TB (PTB) refers to any bacteriologically confirmed or clinically diagnosed case of TB involving lung parenchyma or the tracheobronchial tree. Miliary TB is classified as PTB because there are lesions in the lungs. Tuberculous intra-thoracic lymphadenopathy (mediastinal and/or hilar) or tuberculous pleural effusion, without radiographic abnormalities in the lungs, constitutes a case of EPTB. This refers to any bacteriologically confirmed or clinically diagnosed case of TB involving organs other than the lungs, e.g., pleura, lymph nodes, abdomen,

genitourinary tract, skin, joints, bones, or meninges. A patient with both PTB and EPTB should be classified as a case of PTB.

Classification Based on Previous TB Treatment

For new patients who have never been treated for TB or have taken anti-TB drugs for less than one month, or for previously treated patients who have received one month or more of anti-TB drugs in the past, they are further classified by the outcome of their most recent course of treatment as follows:

- *Relapse*: have previously been treated for TB, was declared cured or treatment completed at the end of their most recent course of treatment and are now diagnosed with a recurrent episode of TB (either a true relapse or a new episode of TB caused by reinfection).
- *Treatment after failure*: those who have previously been treated for TB and whose treatment failed at the end of their most recent course of treatment.
- *Treatment after loss to follow-up*: have previously been treated for TB and was declared lost to follow-up at the end of their most recent course of treatment. (These were previously known as treatments after default patients.)
- *Other previously treated*: have previously been treated for TB but whose outcome after their most recent course of treatment is unknown or undocumented.
- *Unknown previous TB treatment history*: do not fit into the categories listed above.

Classification Based on HIV Status

- *HIV-positive*: any bacteriologically confirmed or clinically diagnosed TB patient who had a positive result from HIV testing conducted at the time of TB diagnosis or other documented evidence of enrollment in HIV care, such as enrollment in the pre-antiretroviral therapy register or in the antiretroviral therapy (ART) register once ART was started.
- *HIV-negative*: any bacteriologically confirmed or clinically diagnosed TB patient who had a negative result from HIV testing conducted at the time of TB diagnosis. Any HIV-negative TB patient subsequently found to be HIV-positive should be reclassified accordingly.
- *HIV status unknown*: any bacteriologically confirmed or clinically diagnosed TB patient who has no result of HIV testing and no other documented evidence of enrollment in HIV care. If the patient's HIV status is subsequently determined, s/he should be reclassified accordingly.

Classification Based on Previous TB Treatment for Multidrug-Resistant (MDR)/Rifampicin-Resistant (RR)-TB

- *New MDR/RR-TB patient:* has never been treated for TB or has been taking anti-TB drugs for less than one month.
- *Previously treated with first line TB drugs:* received one month or more of first line anti-TB drugs in the past.
- *Previously treated with second-line TB drugs*: received one month or more of second-line anti-TB drugs in the past.

Classification Based on Drug Resistance

- *Mono-resistance*: resistant to one first-line anti-TB drug only.
- *Polydrug-resistant TB*: resistant to more than one first-line anti-TB drug (other than both isoniazid and rifampicin).
- *Isoniazid-resistant TB*: resistant to isoniazid and susceptible to rifampicin and caused by the Mycobacterium TB strains.
- *RR-TB*: resistant to rifampicin detected using phenotypic or genotypic methods, with or without resistance to other anti-TB drugs. It includes any resistance to rifampicin, whether monoresistance, multidrug resistance, polydrug resistance or extensive drug resistance.
- *MDR-TB*: resistant to at least both isoniazid and rifampin.
- *MDR/RR-TB*: term used to group MDR-TB and RR-TB cases together.

Evolution of XDR-TB Definition

MDR-TB emerged in the 1990s and was caused by Mycobacterium TB strains that were resistant to at least both rifampicin and isoniazid. The early definition (March 2006) of MDR-TB was resistance to three or more of the six main classes of second-line drugs. (At the time these were the aminoglycosides, polypeptides, fluoroquinolones (FLQ), thioamides, cycloserine, and p-amino salicylic acid.)

Injectable agents lost their priority ranking over the last decade and were replaced by other more effective oral agents. Resistance to fluroquinolones is linked to a decline in favorable treatment outcomes and leads to either an important choice between the shorter or longer regimens. Resistance to bedaquiline (BDQ) and

linezolid (LNZ) is rare but already reported, and that was not reflected in the old definition. (See this report for more information: https://www.who.int/publications/i/item/meeting-report-of-the-who-expert-consultation-on-the-definition-of-extensively-drug-resistant-tuberculosis.)

Updated XDR-TB definition

- Pre-XDR-TB: caused by Mycobacterium TB strains that fulfill the definition of MDR/RR-TB and which are also resistant to any fluoroquinolone.
- XDR-TB: caused by Mycobacterium TB strains that fulfill the definition of MDR/RR-TB which are also resistant to any fluoroquinolone and at least one additional Group A drug.

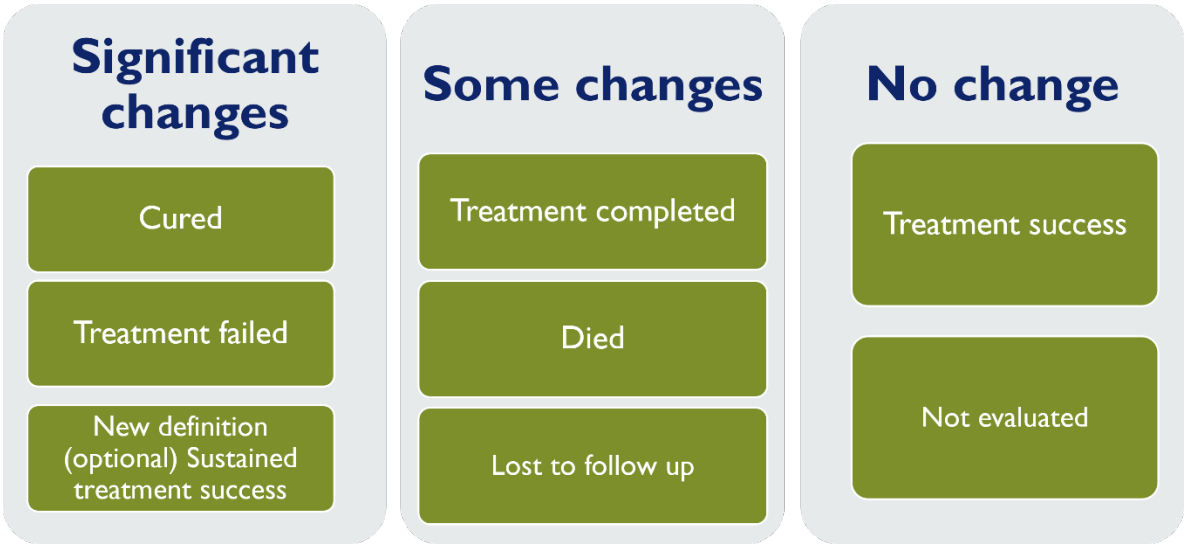
Updated Treatment Outcome Definitions

The updated treatment outcome definitions are applicable to both drug-sensitive (DS)-TB and DR-TB and to different length of treatment regimens. There were challenges with implementing the previous DR-TB outcome definitions. The definitions were different for DS-TB and DR-TB, causing challenges for programmatic implementation. They also depended upon the intensive or continuation phase that no longer applies to most all-oral regimens (without distinctive phases). For DS-TB, there were no standard outcome definitions and various adaptations of definitions were used.

The definition updates follow these general principles:

- Removes the emphasis on the traditional division between intensive and continuation phases.
- Takes into consideration the use of appropriate diagnostics for treatment monitoring.
- Has clear parameters for defining treatment failure, by a decision to change or stop treatment or by reliable evidence for non-response.
- Are practical for clinical and programmatic monitoring and are feasible for NTPs.
- Are applicable for regimens with shorter duration. The previous outcome definitions applied mainly to the longer regimens.

Figure 1. Revised treatment outcome definitions



However, with the lack of a reliable and universally applicable biomarker for treatment monitoring, a clear definition of bacteriological conversion or reversion is needed to inform continuation or modification of treatment regimens.

Treatment Failed: A patient whose treatment regimen needed to be terminated or permanently changed to a new regimen or treatment strategy. Reasons for the change include: no clinical response and/or no bacteriological response; adverse drug reactions; or evidence of additional drug resistance to medicines in the regimen.

Cured: A pulmonary TB patient with bacteriologically confirmed TB at the beginning of treatment completed treatment as recommended by the national policy, with evidence of bacteriological response and no evidence of failure. "Bacteriological response" refers to bacteriological conversion with no reversion. "Bacteriological conversion" describes a situation in a patient with bacteriologically confirmed TB where at least two consecutive cultures (for DR-TB and DS-TB) or smears (for DS-TB only), taken on different occasions at least seven days apart, are negative. "Bacteriological reversion" describes a situation where at least two consecutive cultures (for DR-TB and DS-TB) or smears (for DS-TB only), taken on different occasions at least seven days apart, are positive either after the bacteriological conversion or in patients without bacteriological confirmation of TB.

Died: Patient died for any reason before the start of treatment or during treatment. (Programs implementing a drug supply and management tool should also report this death as a serious adverse event.)

Not Evaluated: This includes cases "transferred out" to another treatment unit and those whose treatment outcome is unknown. It excludes lost follow-up.

Figure 2. Priority indicators for monitoring implementation of the End TB strategy

Top-ten priority indicators (not ranked) for monitoring implementation of the End TB Strategy at global and national levels

#	INDICATOR	TARGET 2025
1	**TB Treatment Coverage** - Number of new and relapse cases that were notified and treated, divided by the estimated number of incident TB cases in the same year, expressed as a percentage.	>90%
2	**TB Treatment Success Rate** - Percentage of notified TB patients who were successfully treated. The target is for drug-susceptible and drug-resistant TB combined, although outcomes should also be reported separately.	>90%
3	**PERCENTAGE OF TB-AFFECTED HOUSEHOLDS THAT EXPERIENCECATASTROPHIC COSTS DUE TO TB**	0%
4	**PERCENTAGE OF NEW AND RELAPSE TB PATIENTS TESTED USING A WHORECOMMENDED RAPID TESTS AT THE TIME OF DIAGNOSIS**	>90%
5	**TB PREVENTIVE TREATMENT COVERAGE**	>90%
6	**CONTACT INVESTIGATION COVERAGE**	>90%
7	**DRUG SUSCEPTIBILITY TESTING (DST) COVERAGE FOR TB PATIENTS**	100%
8	**TREATMENT COVERAGE, NEW TB DRUGS**	>90%
9	**DOCUMENTATION OF HIV STATUS AMONG TB PATIENTS**	100%
10	**CASE FATALITY RATIO (CFR)**	<5%

In conclusion, rapid implementation of current and updated TB case definitions is important for adequate TB surveillance. Treatment outcome categories are the same across all case types and treatment regimens. A change of treatment regimen for a patient is recorded as a treatment failure of the original regimen. Only pulmonary bacteriologically confirmed TB cases can be assigned a "cure" outcome. Death due to any cause and even before starting treatment must be reported. Post-treatment follow-up of "sustained treatment success" should be performed for successfully treated patients and is optional for programmatic purposes.

Q&A Session

Ukraine: If the country uses a database when the output definition is changed, this may affect old definitions in the system. It will be good to verify that the quality of data from the previous period is not lost. For instance, in TB manager if the logic of application of definitions is changed it might automatically reregister old outcomes. Those who develop similar systems must think about this aspect.

Armenia: To apply changes to definitions, principles should be supported or strengthened by the guiding protocols. In some countries there should be approved protocols by the WHO to apply changes and submit for approval. Changes to the level of protocols and level of national statistical processes need to be implemented and only after can they be applied practically. This process consists of several steps, and programs should follow the guidance to come up with those changes. Introducing changes requires training the users who will be responsible for putting the changes into practice. This process also requires new record forms since there will be a list of variables important for data collection according to at least the top 10 indicators.

Moldova: Moldova is updating its children's treatment protocol. A TB screening guide is being completed based on WHO recommendations. Changes will be applied to the adult treatment protocol next. These changes can be done under the umbrella of clinical guidance or epidemiological surveillance. A chapter may be added to the updated definitions and treatment outcomes. Moldova is also developing a new electronic database where more definitions, contact tracing, and other important components will be added.

Module 2: M&E Fundamentals

Introduction to M&E Concepts

Natalia Adamashvili, M&E Officer at the Global Fund TB Program and NCDC, discussed basic M&E concepts, frameworks, the structure and contents of an M&E plan, considerations for an M&E plan, and indicator definitions and measurements. To make the session livelier and more practical, Adamashvili led a group exercise after the presentation where the members discussed specific cases and identified which was monitoring and which was evaluation.

M&E Plans, Indicators and SMART Objectives

Bridgit Adamou continued with the M&E and project life cycle; fundamental documentation describing M&E activities; the purpose and components of an M&E plan; performance indicators; data collection, analyses, and quality; how to distribute M&E roles and responsibilities among program team members; and how to create schedules. By the end of presentation, Adamou described SMART objectives—specific, measurable, achievable, relevant and time bound—and lead groupwork where the members had to review cases handed out and develop a logic model using the five key components: input, process, output, outcome and impact.

Tuesday, May 2, 2023

Module 3: PBMEF Indicators and Reporting

In-depth Look at the PBMEF and Indicators

Ezra Tessera discussed the PBMEF in detail: the framework, core and extended indicators, and guidance documents. He emphasized the importance of understanding the indicators and speaking the same language across the region to achieve global TB goals.

Tessera talked about 14 performance-based core and extended indicators that are reported to USAID missions. The extended indicators allow for more in-depth analysis of TB data and closer M&E of TB programs to identify program gaps. Among the 14 indicators, 4 are core-plus while these 10 are core:

- Contact Investigation Coverage
- TB Case Detection Rate or TB Treatment Coverage
- Bacteriological Diagnosis Coverage (Pulmonary TB)
- Private Sector TB Notifications
- Percent of TB Financing Expected from Domestic Sources
- DR-TB Notifications
- Childhood TB Notifications
- TB Treatment Success Rate
- DR-TB Treatment Success
- TPT Coverage

For each of the core indicators, Tessera described the definition, numerator, denominator, category, unit of measure, data type, potential disaggregation, reporting level, and reporting frequency.

The extended indicators provide additional standard options to include in an M&E plan to bolster the justification for programming and funding for specific technical areas in the TB portfolio. They can be used to construct treatment cascades and patient pathways that are critical to understanding where there are gaps and where efforts need to be strengthened.

Cascade analyses are another element of the PBMEF. Indicator cascades are built into the framework so that TB data can be analyzed using a cascade approach to find gaps in programs. A cascade can quantify, track, and visualize how health and development programs are performing for the target population at progressive stages toward an expected outcome.

Module 4: Data Collection

Key Data Collection Concepts, Tools, and Standards

Irakli Gabisonia, M&E Officer for the Global Fund TB Program, NCDC, delivered a presentation on data collection. Gabisonia talked about the difference between data, information, and knowledge; basic concepts of data collection; qualitative versus quantitative data; and data analyses.

During a group discussion on common recording tools used in TB programs, the Armenian group shared their experience. The country uses both paper and electronic forms. Data is verified by comparing one to another at the outpatient, primary healthcare, and administrative program levels. Multiple reasons for not switching completely to an electronic format include technical glitches that appear in electronic systems, no backup, lack of space on servers, limited investment for technical equipment, and lack of professional or qualified staff.

In the second part of the presentation, Gabisonia talked about electronic data collection tools in Georgia:

- National TB electronic database
- AdhereTB—VST app
- Local HMIS system—Medservice—Available at NCTLD
- National reference laboratory database—Available at NCTLD
- TraceTB—Contact investigation and TPT tracking app
- C360—GeneXpert systems monitoring
- EIDSS—Electronic integrated disease surveillance system

Currently, Georgia is piloting a new TB electronic database called "TB Health." The team is focused on making the database the crossroads where all the information will be combined to automatically generate reports. Information will be filled out at the user level (at each facility). The database will have a live mode and include all data starting from presumptive to treatment outcome, statistical dashboards, and all previous data transferred from the older (i.e., existing) database.

TB Health will be introduced by the end of October 2023. Initially, paper-based forms will be kept for cross-checking purposes and will gradually be replaced with electronic only.

Marina Janjghava, Head of TB Management and Control Service and the NCTLD, continued the presentation discussing key paper-based NTP recording tools available in Georgia. All the forms are provided by WHO, and providers are trained on how to correctly complete them.

The Georgian team observed that quarterly data does not allow individual patient assessment and in 2005 they created "TB 10/12," which is an individual TB case registration form that is completed and then transferred to the database.

Key paper-based NTP recording tools in Georgia

- Presumptive TB Registry Journal
- TB Contacts Registry Journal
- Medical card for DR-TB treatment
- TB 01: Medical card for DS-TB treatment
- TB 02: DR-TB Treatment Registry Journal
- TB 03: TB Case Registry Journal
- TB 04: Lab Registry Journal
- TB 07: Quarterly Registration Form
- TB 08: Quarterly Registration Form
- TB 10/12: Individual TB Case Registration Form
- TB 26: Daily Medication Intake Record Journal

Module 5: Use of Technologies and Understanding TB Hotspot Mapping

Natalia Adamashvili discussed geographic information systems, hotspot analysis, TB hotspot mapping, tools for hotspot analysis, data elements of hotspot analysis, and its importance.

Module 6: Data Analysis, Visualization, and Interpretation

Key Terminology and Concepts of Data Analysis

Ezra Tessera opened Module 6 on data analysis, visualization, and interpretation. Tessera covered descriptive statistics (ratio, rate, proportion, and percentage; and median, mean, and trend), cascade analyses, selection of appropriate charts, gap identification, and recommendations for improvement. The objective of this session was to provide a basic understanding of important calculations that are useful in everyday work. Together with the participants, Tessera explored a few analysis topics to be able to better advise and/or understand information that pertains to the workplace.

Data Visualization: Dos and Don'ts and Best Practices

The final presentation of the day was delivered by **Bridgit Adamou** focused on TB data communication, visualization, and its use. Adamou shared the history behind successful data visualization and tips for what to do and what not to do. She presented the three steps for selecting visualizations: (1) determine if a visualization is necessary, (2) identify your audience, and (3) figure out what information you want to show your audience. Adamou showed specific examples of good and bad data visualizations, suggested best practices in visually depicting information, and held a small exercise among participants.

Wednesday, May 3, 2023

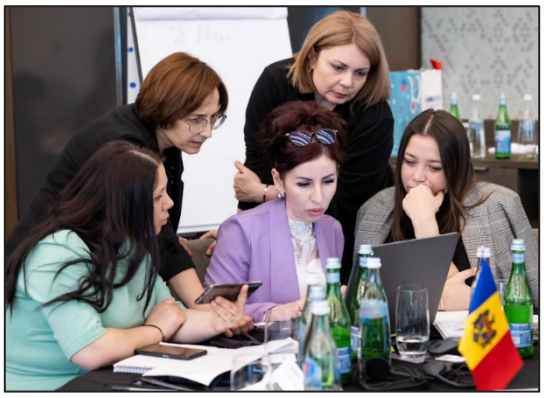
TB Cascade Analyses

Nino Lomtadze continued the discussion on Module 6 that had started the previous day and delivered a presentation on TB cascade analyses. The objectives of the session were:

- Understand the TB cascade of care
- Identify gaps in quality of care through the care cascade analyses

Lomtadze talked about the objectives of cascade analyses, analyses limitations and opportunities, its requirements, and described the basic steps or process of cascade analyses. During the presentation, Lomtadze shared illustrative examples and real data from Georgia.

After the presentation, Lomtadze facilitated group work on selecting indicators for cascade analyses using country national reports and actual project data. Group members created charts, interpretations, and identified gaps and their explanation then presented possible actions for improvement. The country groups used their national data and data from Georgia, which had been provided for the group work beforehand.

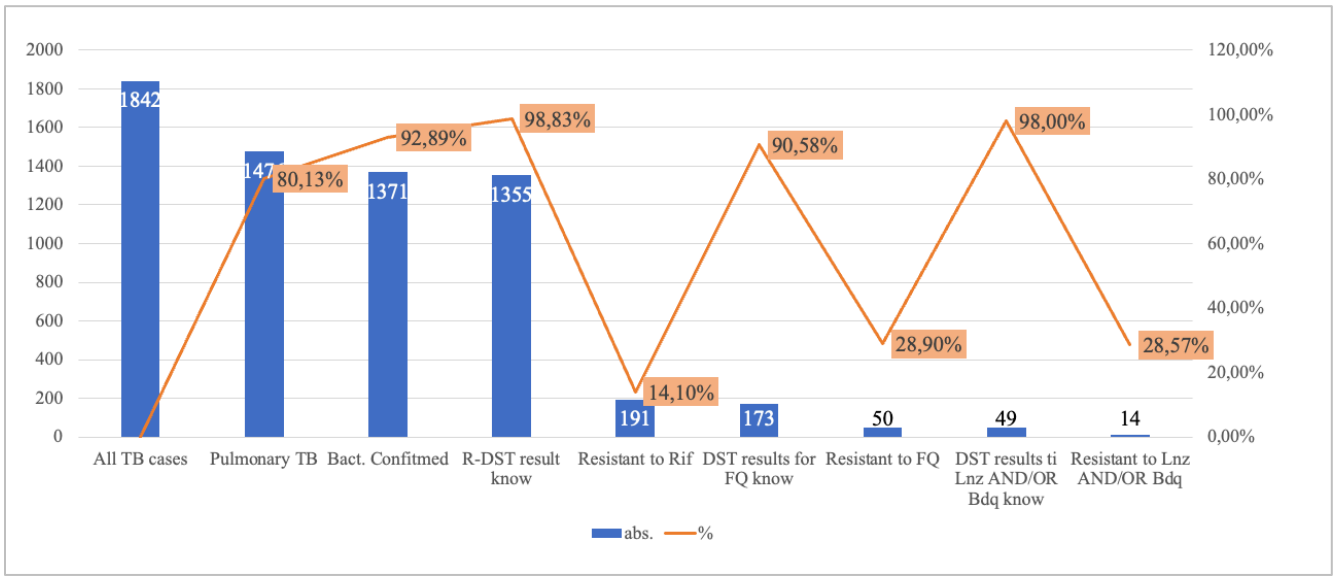


Country Presentations

Moldova—Drug susceptibility testing (DST) cascade, Georgia 2020 data

Out of 1,842 TB cases, pulmonary TB was detected among 80%, and out of those, 92.89% were bacterially confirmed. Confirmed cases were examined on resistance, with 98.83% R. DST and 14.10% RR. Of 191 RR cases, 173 got DS-TB results for FLQ (shown as FQ below), 50 were resistant to FLQ, 49 had DST results for LNZ, and /or BDQ and 14 were resistant to LNZ and/or BDQ.

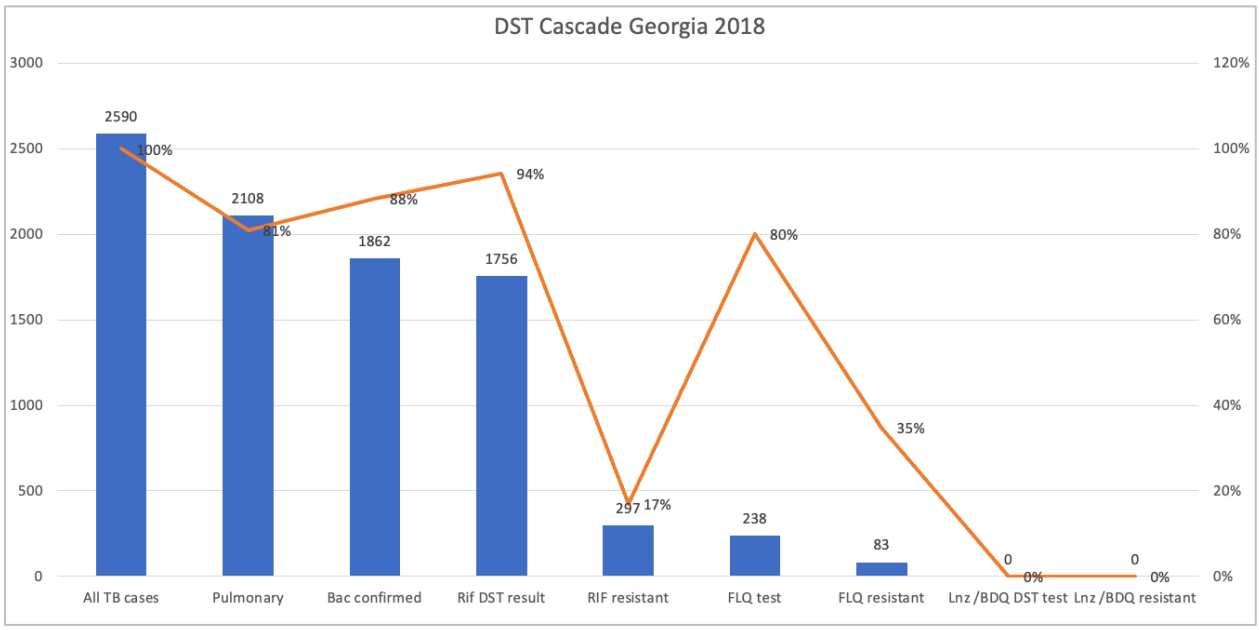
Figure 3. DST cascade with data from Georgia, 2020



Armenia—DST cascade, Georgia 2020 data

Out of 2,590 TB cases, pulmonary TB was detected among 81%, and out of those, 88% were bacterially confirmed. Confirmed cases were examined on resistance; RIF-DST results were available for 94% of cases and 17% of those were RR. Of 297 RR cases, 238 (80%) were tested on FLQ, 83 (35%) turned out FLQ resistant. No tests were done on second-line medication.

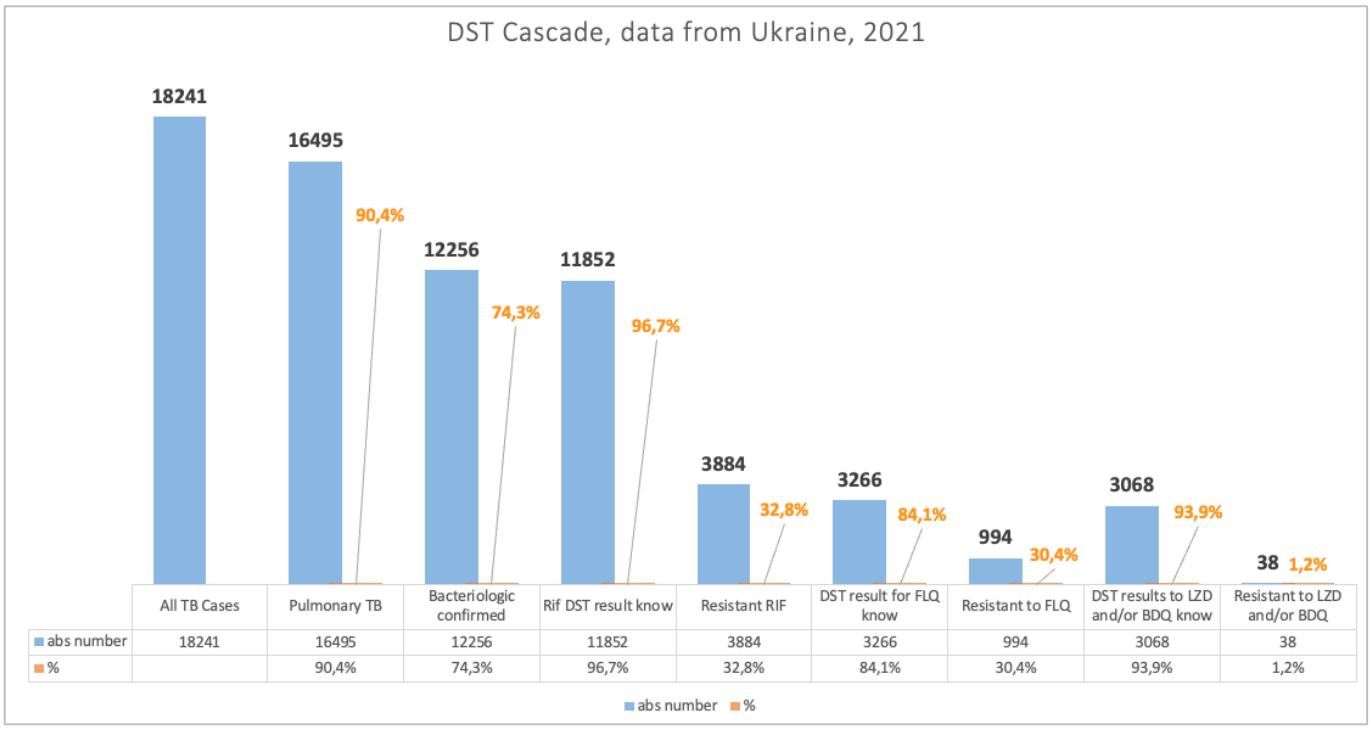
Figure 4. DST cascade with data from Georgia, 2018



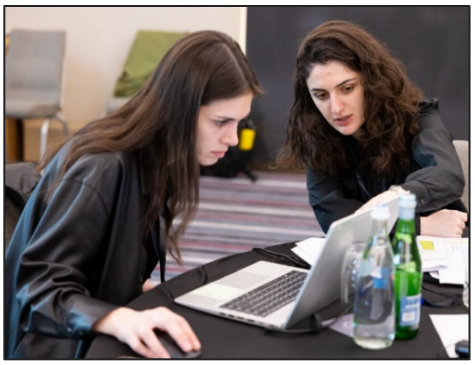
Ukraine—DST cascade, Georgia 2021 data

Out of 18,241 cases, pulmonary TB cases were detected among 16,495 (90.4%). Out of those, 12,256 (73.4%) cases were bacteriologically confirmed. Confirmed cases were tested for resistance. RIF DST results were available for 96.7% of cases, and 3,884 (32.8%) turned out to be RR. DST results for FLQ know were 3,266 (84.1%), with 994 (30.4%) resistant to FLQ. DST results to LZD (also known as LNZ) and/or BDQ know were 3,068 (93.9%), and 38 (1.2%) were resistant to LZD and/or BDQ know.

Figure 5. DST cascade with data from Ukraine, 2021

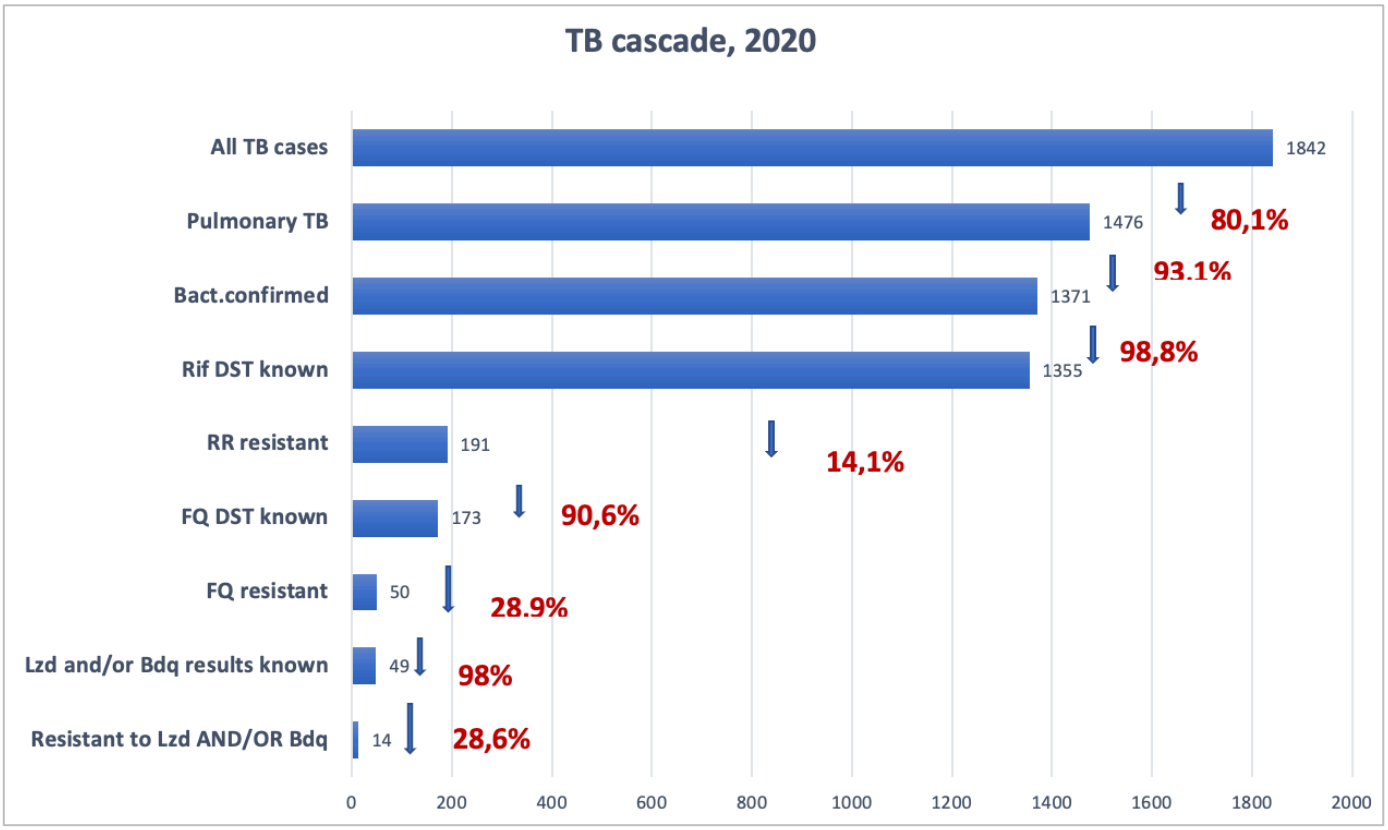


Georgia—DST cascade, Georgia 2020 data



Out of 1,842 total TB cases, 1,476 (81.1%) were pulmonary TB and 1,371 (93.1%) were bacteriologically confirmed cases. Confirmed cases were examined on resistance, with 1,355 (98.8%) RIF DST known and 194 (14.1%) RR. DST results for FLQ (shown as FQ below) were 173 (90.6%), with 50 (28.9%) resistant to FLQ. Nearly all (98%) DST results for LZD and/or BDQ were known (49), with 14 (28.6%) resistant to LZD and/or BDQ.

Figure 6. DST cascade with data from Georgia, 2020



Module 7: Data Quality

Data Quality Assessment

Marina Janjghava started Module 7 on data quality. The objectives of the session were:

- Demonstrate an understanding of data quality.
- Identify the different dimensions of data quality.
- Understand factors compromising data quality.
- Understand how to conduct data quality assessment.
- Demonstrate how to mitigate data quality issues.

Janjghava discussed key components and methodology; data quality terms, dimensions, accuracy, and verification at the health facility level; reliability; internal and external consistency; completeness; timeliness; precision; and integrity. Janjghava provided specific examples and together with the group discussed roles and responsibilities of the M&E team.

In the second half of the presentation, Janjghava focused on data quality assessment tools, identified gaps and weaknesses in data management and reporting systems, identified indicators, and described key factors of ensuring data quality.

Module 8: Supportive Supervision

Supportive Supervision Techniques, Examples, and Practical Tips

Janjghava presented the objectives of the session:

- Understand the different approaches to supervision.
- Define supportive supervision.
- Enhance knowledge and improve supportive supervision skills.
- Understand the different types of communication and leadership skills necessary to be a supportive supervisor.

She explained the types of supervision; differences between controlling and supportive supervision; steps of supportive supervision: before, during, after; its benefits and challenges; tools of self-assessment; and shared tips on providing feedback to the team members.

Janjghava talked about leadership skills required for supportive supervision and provided examples of effective communication skills. By the end of the session, she listed the challenges of supervision:

- Sustainability of the supervision component depends entirely on Global Fund funding.

- The status of "regional coordinator" applies to Global Fund projects.
- Sustainable TB program monitoring structures at the regional level are not defined.
- The observations/report of the monitoring team regarding the quality of services is advisory in nature.
- It is advisable to increase the involvement of medical facility managers in TB issues.

Thursday, May 4, 2023

Module 9: Root Cause Analysis

The fourth day of the ToT started with discussing the process of discovering root causes of problems to identify appropriate solutions. **Maka Danelia, Global Fund TB Program Manager, NCDC,** delivered a presentation on the approach of "5 Whys."

Danelia discussed 5 Whys, its benefits, preparation methods, and limitations. Practical groupwork followed where country representatives named a problem and followed the 5 Whys approach. After this exercise Danelia continued her presentation on fishbone analysis. She discussed the benefits of constructing a fishbone diagram, its steps, problem statement, categorization, contributing factors, and what the many ribs mean—deeper causes. Danelia discussed its limitations, shared specific examples, then facilitated another groupwork.

Module 10: Data Use and Sharing

Using TB M&E Results for Decision-Making

In this module, Danelia talked about the purpose of M&E, conceptual framework for data demand and use, barriers to data use, data demand and use defined, stakeholder engagement, and key tools for data demand and use.

Danelia described underling principles around decision-making: decisions are choices made in support of goals, and all decisions are made based on some information.

During a group activity, country representatives listed the barriers faced in using or getting others to use data and information.

Country Experiences

Ukraine faces challenges in reporting to Global Fund and WHO platforms on modern treatment cases—the number of patients who received treatment over the course of nine months or longer and what type of treatment they have received. There are cases of changing a regimen that require studying cases in detail to identify what category this patient should belong to. The database shows every drug a patient has ever received.

Moldova faces challenges when the department needs some data urgently, but it takes time to process it. Normally teams have limited time to collect information from database and filter accordingly. In some cases, TB program staff must call each regional office separately and collect information individually.

Armenia finds it confusing when the M&E reporting demands are not clear. The team cannot understand exactly what figures to present. Questions follow because the task was not clear in the beginning.

A barrier for **Georgia** is having two databases. The laboratory has its own database and updates results after a month, which is too late for TB program staff in terms of reporting.

Danelia gave another task to country representatives to brainstorm on potential barriers to information use within their programs and the factors that will help facilitate information use.

Moldova said it would be good to have a unified software that combines information and is updated 365 days a year. This would avoid calls around the regions and identify information from around the country instead of spending time on evaluation.

Ukraine shared that doctors maintain several databases for various purposes. These require extra verification steps. Currently Ukraine is creating a unified database that will help regulate the process in future. Primary data needs will be optimized to avoid extra unnecessary information. Doctors are not using a standardized data collection methodology. An electronic system with filters will help solve this problem.

Armenia's communication channels are not set well; staff turnover and handover are big challenges. Ministers and deputy ministers change positions and are not familiar with medical terminology, and decisions are frequently not made based on data or evidence. TB programs need to organize roundtable discussions and meetings to help familiarize themselves with the area to avoid miscommunication in future. Also, it is important to share updates from service providers around the country to make informed decisions.

Georgia's problems can be mostly solved with a new database. Doctors will register new patients and labs will instantly enter information in the same database after receiving results. This will help TB program staff receive real-time data.

Danelia reminded participants that decisions based on evidence lead to better health outcomes, but high-quality information is needed for decision-making at policy, planning, and program levels. The purpose of M&E is not just to produce more information but to improve action. Data use is an essential part of the entire M&E plan and investments made to improve information systems will be wasted if they are not used to inform policy and program decisions.

Key Concepts in Data Dissemination and Communicating M&E Results

Natalia Adamashvili delivered the next presentation in the framework of data use and sharing module. Adamashvili discussed ways to define data dissemination and communication, why to use and disseminate M&E results, disseminating M&E results to others, common dissemination formats, tips for making an effective oral presentation, and preparing slides using visual aids in communication materials.

Module 11: Stakeholder Analysis

Repsina Chintalova–Dallas, Senior Technical Adviser with TB DIAH, facilitated the final session of the day dedicated to stakeholder analyses tools. Chintalova–Dallas talked about ways of identifying TB M&E stakeholders and conducting stakeholder analyses, and then shared stakeholder engagement tools.

At the end of the session, participants were given a task to draft a stakeholder engagement plan focusing on following list:

- Name of stakeholder organization, group or individual (national, regional, or local)
- Stakeholder description (primary purpose, affiliation, funding)
- Potential role in TB M&E (vested interest in the system)
- Level of knowledge of the issue (specific areas of expertise)
- Level of commitment (support or oppose TB M&E, to what extent and why)
- Available resources (staff, money, technology, information, influence)
- Constraints (need funds to participate, lack of personnel, political or other barriers)

Friday, May 5, 2023

Developing Country-Tailored Training Plans

On the last day of the ToT, Georgia, Moldova, Armenia, and Ukraine representatives filled out post-tests to assess the knowledge gained during the five-day training and worked on creating national, country-specific training plans based on the information received throughout the week. Training plans will be finalized and shared with the TB DIAH team in early summer 2023.

National Training Plan of Ukraine

Audience: The planned audience for the territory of Ukraine are M&E team members from regional departments around the country and TB program coordinators.

Benefits: The benefits for participants are increased capacity, competence, skills, and knowledge for effective monitoring, analysis, evaluation, and interpretation of data. The benefits for the NTP are improved timeliness, quality, and data verification for making informed decisions.

Training curriculum: The curriculum will be adjusted based on the problems or needs of the country and regions in terms of TB M&E. We will include modules 1–11:

- Module 1: Epidemiology, TB control in Ukraine
- Module 2: M&E principles
- Module 3: TB M&E systems in Ukraine, indicators
- Module 4: Data collection and verification, quality control
- Module 5: Technology use and chartography
- Module 6: Data analyses, analytical dashboards
- Module 7: Data visualization and interpretation
- Module 8: Supervision (monitoring and mentoring visits)
- Module 9: Root cause analyses
- Module 10: Data use and management
- Module 11: Stakeholder analysis

Adapting the materials can be done in four to six weeks, including translation into Ukrainian and the creation of new materials. Translating the materials, obtaining approvals, and preparatory work will take time. Therefore, late summer or early fall would be a more realistic timeline for the series of trainings in Ukraine.

Dates and location: There will be three, four-day trainings with 18–20 participants per training (for a total of 60 participants). The dates and location of the trainings need to be communicated with NTP management. Additional approval from government agencies and border control will be required since the trainings will entail travel. Most trainings will occur in Western Ukraine: Ivano-Frankovsk, Uzhhorod, Chernivtsi, and Lvov, where it is currently safer and more peaceful. The trainings will most likely be held in hotel conference rooms and similar venues.

Budget: Allocating funds for travel, per diem, lodging, TA, and venue will be necessary. The Global Fund budget is available. Based on their approval, a portion can be allocated over the course of two to three weeks, depending on the donor's priority.

National Training Plan of Armenia

Audience: Since Armenia is geographically small, they have one M&E unit in the National Pulmonology Center. There are 60 TB cabinets in the regions and the staff of each cabinet is a doctor and a nurse who have access to an electronic system. The Armenian team decided to organize a training for the TB M&E Unit first.

A total of 100 participants will be divided into two groups. Group 1 will consist of 15 TB specialists who are involved in TB data collection, reporting, and recording. A two-day training would contribute to improving their knowledge and skills in TB data quality.

Group 2 will consist of 15 M&E specialists who are responsible for data compilation, analyses, reporting, and dissemination. A four-day training would contribute to improving and updating their knowledge and skills, specifically in supportive supervision, data analysis, visualization, presentation, and dissemination to relevant stakeholders so they can make the right decisions about improving the country's TB M&E system.

Training curriculum: The NTP M&E plan will be reviewed and updated. Training modules will be presented to the groups in accordance with the audience's needs. Training materials will be translated into Armenian and adapted to the country context. An Excel training will be conducted for the M&E team and a training of ethical issues and communication will be conducted as well.

The modules for group 1 will be TB epidemiology and control, data collection, data quality, and supportive supervision.

The modules for group 2 will be TB epidemiology and control; M&E fundamentals; PBMEF, data collection; data quality; data analysis, data visualization and interpretation; supportive supervision; root cause analysis; and stakeholder analysis.

The Armenian team wants to grant training accreditation which will become a motivator for the participants. Accreditation will take approximately one month.

Training dates and location: The Armenia team will start translating and adapting the training materials after returning home from the ToT. They will receive the necessary approvals from management and the Ministry of Health (MoH) and will be ready to start.

The plan is for the group 1 training to occur from May 29 to July 10 at the NTP office and regional centers. Group 2 will be June 5–8 at the NTP office.

National Training Plan of Moldova

Audience: The training audience will be primary healthcare providers, physio-pneumologists, the NTP, and the coordination unit of the National Reference Laboratory. These groups are involved in TB control at various levels. The total number of participants will be about 150 people.

Benefits: The training benefits for primary healthcare providers, physio-pneumologists, and National Reference Lab staff are empowering the knowledge of data collection tools, data analyses, and use at their level. The NTP will have improved M&E, supportive supervision skills, learning, ability to fundraise, and advocacy skills.

Training curriculum: Training materials will be adapted according to the participant groups and national context. Besides the topics listed above, additional training will be conducted on Excel and SIMETB use (a local database in Moldova), which will involve IT specialists from the NTP.

Reviewing, translating, and adapting materials to the local context will take up to one month.

Dates and Location: Participants will be divided into groups. Each training will last three days. A total of four training sessions will be held consecutively from June 19 to July 20, 2023. The trainings will be conducted in the NTP conference room and other venues. Approvals should be received at the national level from the MoH and NTP management.

Budget: Funds will have to be allocated for travel, per diem, material translation, and the venue.

National Training Plan of Georgia

Audience: One four-day training will be conducted for 20 people consisting of regional coordinators, M&E and surveillance staff at the national and regional levels, and program management.

Benefits: The training will improve understanding of Georgian targets and reporting and recording requirements. One objective is to discuss errors to improve the overall M&E process.

Training curriculum: Besides the topics discussed by other groups, Georgia will dedicate a session to the health management information system overview and hold a demonstration case to show how data entry is done, how cases are linked to laboratory and finance data points, and how the system operates in general. The developer company representatives will be invited to participate as well. The session will also be dedicated to key Excel functions for data management, which goes well with cascade analyses.

Georgia is considering looking at accrediting the training, which will take approximately one month, to increase motivation among participants.

Location: Space is available at the NCTLD and NCDC, but it will be preferable to rent a different venue in terms of focus and concentration of the participants.

COE Virtual Platform Functional Requirements

In the final session of the event, **Alexander Asatiani** led a group discussion/brainstorming session on ways to improve the CEO virtual platform and how to define its functionality. The participants were asked what they would like to find on the website. Their recommendations were as follows:

- Make the website simple, user-friendly, understandable, and accessible.
- Provide online training courses in a brief and understandable format.
- Provide the latest annual reports, guidelines, protocols, and recommendations (national and international).
- Share M&E technical tools.
- Include online consultation possibilities at the international level.
- Have study materials with diverse formatting, including not only text but video and audio materials too.

- Update materials regularly but keep old documents.
- Upload regional indicators and statistics.
- Upload international presentations.
- Have a unified newsfeed including events and other information NTPs would want to share with other programs such as best practices for the region as well as challenges.
- Create a calendar and update it based on events scheduled by NTPs.
- Share updates on new technology/software availability.

Conclusion

USAID, NCDC, NCTLD, COE, and TB DIAH representatives and event facilitators thanked the participants for travelling internationally and taking part in the regional ToT. **Zaza Avaliani, Director, NCTLD**, expressed his gratitude for the training and the COE's commitment to providing technical assistance to the region to support improved TB M&E.

The next regional training will be held in October 2023 in Georgia. At the end of the training, participants received certificates.

All the presentations used by facilitators during the ToT are available on the TB DIAH website.

Appendix 1. List of Participants

Participants		
Name	**Affiliation**	**Country**
Naira Khachatryan	National Center for Pulmonology of the Ministry of Health (MoH), Republic of Armenia	Armenia
Anush Khachatryan	National Center for Pulmonology of the MoH, Republic of Armenia	Armenia
Lilit Khachatryan	Global Fund HIV/TB Grant Program Coordination Team, MoH, Republic of Armenia	Armenia
Naira Sergeeva	M&E Specialist, Global Fund HIV/TB Grant Program Coordination Team, MoH, Republic of Armenia	Armenia
Aurelia Popov	MoH of the Republic of Moldova	Moldova
Evghenia Cula	National TB Response Program (NTRP) Coordination Department, Institute of Phthisiopneumology “Chiril Dragniuc”	Moldova
Oxana Plamadeala	NTRP Coordination Department, Institute of Phthisiopneumology “Chiril Dragniuc”	Moldova
Olga Sclifos	NTRP Coordination Department, Institute of Phthisiopneumology “Chiril Dragniuc”	Moldova
Tatiana Cotelnic-Harea	Center for Health Policies and Studies (PAS Center)	Moldova
Olga Zaitseva	Center for Public Health of the MoH of Ukraine	Ukraine
Daryna Levandovska	Cherkasy Oblast TB Dispensary	Ukraine
Liubov Markovtsiy	Oblast Clinical Phtisiopulmonological Treatment-Diagnostics Center	Ukraine
Serhii Samchenko	Odessa Oblast Center for Socially Significant Diseases	Ukraine
Vera Utiashvili	NCDC	Georgia
Manana Chichinadze	NCDC	Georgia
Nelly Solomonia	NCTLD	Georgia
Mamuka Chincharauli	NCTLD	Georgia
Mari Buziashvili	NCTLD	Georgia

Appendix 2. List of Facilitators

Facilitators		
Name	**Affiliation**	**Country**
Alexander Asatiani	TB DIAH	Georgia
Bridgit Adamou	TB DIAH	USA
Ezra Tessera	TB DIAH	USA
Respsina Chintalova-Dallas	TB DIAH	USA
Irakli Gabisonia	NCDC	Georgia
Irma Khonelidze	NCDC	Georgia
Maka Danelia	NCDC	Georgia
Marina Janjghava	NCTLD	Georgia
Natalia Adamashvili	NCDC	Georgia
Nino Lomtadze	NCTLD	Georgia
Tamar Sirbiladze	USAID/Georgia	Georgia
Zaza Avaliani	NCDC	Georgia
Geroge Darsavelidze	Leavingstone	Georgia
Salome Kerkadze	Leavingstone	Georgia

Appendix 3. Agenda

Monday, May 1			
Start Time	**Duration h:mm**	**Agenda Item**	**Presenter/Facilitator**
9:00 AM	0:30	Check in and registration of participants	
9:30 AM	0:15	Welcome and general housekeeping	**Alexander Asatiani** • Senior TB M&E Consultant, EEE Region, TB DIAH
9:45 AM	1:10	Introduction to the training	
9:45 AM	0:15	Opening remarks	**Tamar Gabunia** • First Deputy Minister, Ministry of IDPs, Labour, Health and Social Affairs of Georgia (MoILHSA) **Irma Khonelidze** • Deputy Director General, National Center for Disease Control and Public Health (NCDC) **Zaza Avaliani** • Director, National Center for Tuberculosis and Lung Diseases (NCTLD) **Tamar Sirbiladze** • Office of Democracy, Rights, and Governance (DRG), Human Rights and Resilience Team Leader, USAID/Georgia **Stephanie Mullen** • Project Director, TB Data, Impact Assessment and Communications Hub (TB DIAH) *(Video welcome)*
10:00 AM	0:15	Training objectives and overview	**Bridgit Adamou** • Senior M&E Advisor, TB DIAH
10:15 AM	0:10	Setting ground rules	TB DIAH/COE
10:25 AM	0:30	Pre-test	
10:55 AM	0:20	Coffee Break	
11:15 AM	1:30	Module 1: TB Epidemiology and Control	
11:15 AM	0:30	Global TB strategies, targets, key milestones	**Ezra Tessera** • Senior TB M&E Technical Adviser, TB DIAH
11:45 AM	0:45	TB epidemiology in the EEE countries	**Nino Lomtadze** • Head of Surveillance and Strategic Planning Department, NCTLD/COE
12:30 AM	0:15	Q/A	TB DIAH/COE
12:45 PM	1:00	Lunch Break	
1:45 PM	1:00	TB Case definitions from an M&E process perspective	**Nino Lomtadze** • NCTLD/COE
2:45 PM	0:15	Q/A	TB DIAH/COE
3:00 PM	0:20	Coffee Break	
3:20 PM	1:45	Module 2: Monitoring and Evaluation (M&E) Fundamentals	

3:20 PM	0:30	Introduction to M&E concepts	**Natalia Adamashvili** • M&E Officer, The Global Fund TB Program, NCDC, COE
3:50 PM	0:30	M&E plans, indicators and SMART objectives	**Bridgit Adamou** • TB DIAH
4:20 PM	0:45	Group work	TB DIAH/COE
5:05 PM	0:45	Country Feedback and Closing	

Tuesday, May 2			
Start Time	**Duration h:mm**	**Agenda Item**	**Presenter/Facilitator**
9:00 AM	0:30	Registration and recap of day 1	TB DIAH/COE
Module 3: Performance-Based Monitoring and Evaluation Framework (PBMEF) indicators and reporting			
9:30 AM	1:15	In-depth look at the PBMEF and indicators	**Ezra Tessera** • TB DIAH
10:45 AM	0:15	Q/A	TB DIAH/COE
11:00 AM	0:15	Coffee Break	
Module 4: Data collection			
11:15 AM	0:40	Key data collection concepts, tools and standards	**Irakli Gabisonia** • M&E Officer, The Global Fund TB Program, NCDC/ COE **Marina Janjghava** • Head of TB Management and Control Service, NCTLD/ COE
11:55 AM	0:25	Group work	TB DIAH/COE
12:20 PM	1:00	Lunch Break	
Module 5: Use of technologies and Understanding TB Hotspot Mapping			
1:20 PM	0:30	Use of technologies and Understanding TB Hotspot Mapping	**Natalia Adamashvili** • NCDC/ COE
1:50 PM	0:15	Q/A	TB DIAH/COE
Module 6: Data analysis, visualization, and interpretation			
2:05 PM	1:15	Key terminology and concepts of data analysis	**Ezra Tessera** • TB DIAH **Bridgit Adamou** • TB DIAH
3:20 PM	0:20	Coffee Break	
3:40 PM	0:30	TB cascade analysis	**Nino Lomtadze** • NCTLD/COE
4:10 PM	0:30	Group activity	TB DIAH/COE
4:40 PM	0:45	Country Feedback and Closing	

Wednesday, May 3			
Start Time	**Duration h:mm**	**Agenda Item**	**Presenter/Facilitator**
9:00 AM	0:30	Registration and recap of day 2	TB DIAH/COE
Module 6: Data analysis, visualization, and interpretation			
9:30 AM	0:45	TB cascade analysis	**Nino Lomtadze** • NCTLD/COE
10:15 AM	0:45	Group activity	TB DIAH/COE
11:00 AM	0:20	Coffee Break	
Module 7: Data quality			
11:20 AM	1:00	Key components and methodology	**Ezra Tessera** • TB DIAH
12:20 PM	1:00	Data quality assessment	**Marina Janjghava** • NCTLD/ COE
1:20 PM	1:00	Lunch Break	
Module 8: Supportive supervision			
2:20 PM	1:45	Supportive supervision techniques, examples and practical tips	**Marina Janjghava** • NCTLD/ COE
4:05 PM	0:20	Coffee Break	
4:25 PM	0:45	Group work	TB DIAH/COE
5:10 PM	0:45	Country Feedback and Closing	

Thursday, May 4			
Start Time	**Duration h:mm**	**Agenda Item**	**Presenter/Facilitator**
9:00 AM	0:30	Registration and recap of day 3	TB DIAH/COE
9:30 AM	2:45	Module 9: Root Cause Analysis	
9:30 AM	0:45	The 5 Whys approach	**Maka Danelia** • Manager, The Global Fund TB Program, NCDC/COE
10:15 AM	0:30	Group activity	TB DIAH/COE
10:45 AM	0:15	Coffee Break	
11:00 AM	0:45	Fishbone analysis	**Maka Danelia** • NCDC/COE
11:45 AM	0:30	Group activity	TB DIAH/COE
12:15 PM	1:00	Lunch Break	
1:15 PM	1:45	Module 10: Data use and sharing	

1:15 PM	1:00	Using TB M&E results for decision-making	**Maka Danelia** • NCDC/COE
2:15 PM	0:45	Data dissemination and communicating M&E results	**Natalia Adamashvili** • NCDC/COE
3:00 PM	0:15	Coffee Break	
3:15 PM	1:15	Module 11: Stakeholder analysis	
3:15 PM	0:45	Tools for stakeholder analysis	**Repsina Chintalova-Dallas** • Senior Technical Adviser, TB DIAH
4:00 PM	0:30	Group activity	TB DIAH/COE
4:30 PM	0:45	Country Feedback and Closing	

Friday, May 5			
Start Time	**Duration h:mm**	**Agenda Item**	**Presenter / Facilitator**
9:00 AM	0:30	Registration and recap of day 5	TB DIAH/COE
9:30 AM	2:35	Developing Country-tailored Training Plans	
9:30 AM	1:30	Group activity: developing country-tailored training Plans	TB DIAH/COE
11:00 AM	0:20	Coffee Break	
11:20 AM	0:45	Group activity: developing country-tailored training Plans	TB DIAH/COE
12:05 PM	0:45	Country feedback / presentations	Country teams
12:50 PM	1:00	Lunch Break	
1:50 PM	2:50	COE Virtual Platform	
1:50 PM	1:15	Group activity: Defining functional requirements	TB DIAH/COE; Leavingstone
3:05 PM	0:20	Coffee Break ☕	
3:25 PM	1:15	Group activity: Defining functional requirements (cont'd)	TB DIAH/COE; Leavingstone
4:40 PM	0:50	Closing Session	
4:40 PM	0:30	Post-test	TB DIAH/COE
5:10 PM	0:10	Certificate award	
5:20 PM	0:10	Group photo	
5:30 PM	0:30	Closing Remarks	TB DIAH/COE

This publication was produced with the support of the United States Agency for International Development (USAID) under the terms of the TB Data, Impact Assessment and Communications Hub (TB DIAH) Associate Award No. 7200AA18LA00007. TB DIAH is implemented by the University of North Carolina at Chapel Hill, in partnership with John Snow, Inc. Views expressed are not necessarily those of USAID or the United States government. SR-23-185