THE TASK FORCE FOR GLOBAL HEALTH

SONAR



Strengthening Outbreak Notification and Response (SONAR)

Project Summary Report

THE GLOBAL FUND

Table of Contents

List of Abbreviations 3
Background 4
Project Activities 6
- Work with Countries 6
- Work with Africa CDC and WHO Africa Regional Office 12
  - Consultants and Regional Projects 12
  - Webinars 16
- Special Initiatives 17
  - Maturity Model Tool Development 17
  - The White Paper 19
  - Simulation Exercises 20
  - Management Partner Deployment (Malawi and Central African Republic) 21
  - Climate-Informed Early Warning Surveillance (Sierra Leone and Bangladesh) 21
  - Central Data Repository (Africa CDC) 21

Summary of Key Achievements 22
- Event-Based Surveillance Scale-Up 22
- Workforce Development and Capacity Building 23
- Informatics and Data Integration 24
- Epidemic Intelligence and Data Use 25
- Governance and Coordination 26
- Use of Data for Learning and Adaptive Management 27
- Maturity Model Results 27

Project Sustainability 31
- Lessons Learned 32
- Recommendations for Sustainability and the Future 33

Summary Conclusions 34
Links to Annexes A-K 35

List of Abbreviations

7-1-7 – Target to detect (7 days), notify (1 day), and respond (7 days) to public health emergencies

AFRO – Africa Regional Office of the World Health Organization

ACDC – Africa Centres for Disease Control and Prevention

CDC – United States Centers for Disease Control and Prevention

CMLI – Centrally Managed Limited Investment of the Global Fund

DHIS2 - District Health Information System 2

EBS – Event-Based Surveillance

EWS – Community-Based Early Warning System

FETP – Field Epidemiology Training Program

IBS – Indicator-Based Surveillance

IDSR – Integrated Disease Surveillance and Response

IMST - Incident Management Support Team

M&E – Monitoring and Evaluation

MM – Maturity Model

MOH – Ministry of Health

PHEOC – Public Health Emergency Operations Center

PR – Principal Recipient

SimEx – Simulation Exercise

SONAR – Strengthening Outbreak Notification and Response*

TFGH – The Task Force for Global Health

TGF – The Global Fund

WHO – World Health Organization



Interview with the Disease Surveillance Officer at one MESU in Bulacan province in the Philippines.

*SONAR is an initiative of The Global Fund, implemented by The Task Force for Global Health. Throughout this report, the names of SONAR and TFGH are used interchangeably as technical assistance experts and implementers.

Background

The Global Fund to Fight AIDS, Tuberculosis and Malaria (The Global Fund) created the COVID-19 Response Mechanism (C19RM) in early 2020 and awarded US$4.7 billion to 125 applicants. The goal of the C19RM was to mitigate the impact of the COVID-19 pandemic on programs to fight HIV/AIDS, tuberculosis, and malaria (referred to as HTM within the context of the Global Funds' work), and initiate urgent improvements in formal and community health systems. However, as the pandemic began to wane, unused funding was repurposed to strengthen health systems, including surveillance capacity, to improve country preparedness for future pandemics. The SONAR (Strengthening Outbreak Notification and Response) project was launched in early 2023 to support that new initiative. The project originally intended that The Task Force for Global Health (TFGH) would work with Africa Centres for Disease Control (ACDC), WHO and other regional partners to provide technical support and hands-on mentoring to about eight countries of Africa and Asia. Its primary aim was to improve national and subnational capacity to detect, report, and respond to emerging surges and outbreaks. However, the number of countries to be engaged expanded over time, as more countries requested assistance and coordinated with Global Fund country teams. Specific activities were to include creating or strengthening linkages between laboratory and epidemiological surveillance systems, improving capabilities to access and use data for program planning and response, and increasing the availability of clinical specimens for pathogen characterization.

Key to this effort was the Africa CDC's 2023 revised *Event-based Surveillance Framework*.[1] This framework provided the basis and guide for all of the technical support provided to countries. Inherent in the project was the effort to assist Africa CDC in rolling out surveillance systems that align with the principles described in the document.

The overall goals of the SONAR project were to:

1. Reduce the time of, and improve the quality and capacity for outbreak detection and reporting by implementing or improving early warning surveillance systems.

2. Improve cross-sectoral and cross-country coordination and collaboration for better and faster outbreak detection and response.

3. Improve accessibility and use of data for response including improving interconnectivity between data systems and establishing data visualization systems

1 Available at: https://africacdc.org/download/africa-cdc-event-based-surveillance-framework-2/

4. Improve epidemic intelligence and the use of surveillance data for timely decision-making.

5. Improve sustainability and country ownership of surveillance systems by embedding capacities, systems, processes and tools within national frameworks.

The scope of the project included working with individual countries through the recruitment and deployment of surveillance experts that could provide hands-on technical support at both the national and sub-national level, and working in support of regional institutions including the WHO Africa Regional Office (AFRO) and the Africa CDC. Support of AFRO and Africa CDCs also included recruitment and deployment of technical experts who were embedded in each institution. Additional regional support was accomplished through a series of webinars to train on basic principles related to early warning surveillance.

In addition, there were important projects that fell outside of the realm of direct technical support:

- Develop a Maturity Model for surveillance which could be used by the Global Fund to evaluate the development and sustainability status of national surveillance systems. The aim of the tool was to assist the Global Fund in targeting support and prioritizing specific areas of surveillance.

- Review, analyze, and report on how historical investments in HIV, TB and malaria were used during the COVID-19 pandemic and make recommendations for future investments in pandemic preparedness, producing a White Paper.

- Evaluate national early warning surveillance capacities in Malawi and Sierra Leone through full-scale simulation exercises to document community-level implementation successes and prioritize remaining operational gaps.

- Support the deployment of management partners in Malawi and the Central African Republic to strengthen coordination, resolve implementation bottlenecks, and accelerate C19RM-funded surveillance investments.

- Integrate climate and environmental data into national surveillance systems using machine learning to develop predictive models for climate-sensitive diseases in low-resource contexts.

- Establish a Central Data Repository at Africa CDC to consolidate continental surveillance data and enhance data-driven decision-making for priority disease trends.

Project Activities

Work with Countries



SONAR subnational consultant briefing health workers on disease surveillance in Kambia district, Sierra Leone. (photo credit: Joseph Bangura)

Countries were selected by the Global Fund in response to country requests and from recommendations from Global Fund Country Teams. The primary intervention with countries by TFGH was to deploy technical support to implement surveillance activities funded by the C19RM funds. Originally, it was proposed that TFGH have a kick-off meeting with all of the countries identified by the Global Fund for this project, however in actual practice countries were slow to come on-board and engagement was initiated country-by-country. In the absence of a kick-off meeting in which countries would receive orientation to the principles of the Africa CDC Event-based Surveillance Framework, it was decided to hold a series of webinars that would explain components of the framework (see later section on Webinars).

As a first step, several target countries required assistance in writing their grant proposals for the newly repurposed C19RM funding. TFGH supported this activity in five countries (Liberia, Ghana, Madagascar, Central African Republic, and Sierra Leone) by supplying consultants who worked with Ministry of Health (MOH) colleagues to write grant proposals and work-plans, training countries to utilize a newly created Global Fund proposal template.

The second preparatory activity was a scoping visit to each of the countries to better understand their specific needs, and to develop a joint agreement for how to support them.

The first scoping visit was to Nigeria in January of 2023. We will detail this visit as an example for how all scoping visits were basically carried out and resulted in support plans. During the visit, the TFGH team met with the Nigerian CDC, the director and staff responsible for respiratory disease surveillance and the director of the National Influenza Program, the National Primary Health Care Development Agency, the head of the Field Epidemiology Program, technical staff from the national reference laboratory, technical staff responsible for managing the information management system for surveillance, the Project Implementation staff of the Gates Foundation in Nigeria, WHO Country Office and other

partners, and other technical staff of the MOH. In the final discussions with MOH leadership, an agreement was reached on how TFGH and the Nigerian MOH would work together. The final outcome of the visit was a joint plan for support to address the technical support requests by the MOH which fit within the mandate of the TFGH and were supported under the C19RM. The core of the country-tailored plan was for TFGH to provide specialized expertise in information systems to address integration issues, support to finalize and roll-out a guideline for community-based surveillance, and local in-person mentoring by long-term consultants at national and subnational levels.

Country engagement model

The Nigeria scoping visit served as a model for future visits to other countries as they were identified by the Global Fund. In each country, a joint plan for support was established with key milestones and outcomes identified. Over time, more countries were added to the TFGH portfolio as additional countries requested support. Some of these were included as "light touch" countries which needed some minimal additional support due to their support from a distinct TA provider, but for which there was not a need or sufficient time remaining in the project lifespan to implement full support. Engagement with each light touch country was different and tailored to the limited specific needs of the country. In some, TFGH worked with another local service provider or Nongovernmental Organization (NGO), while in others TFGH provided consultants with specialized skills to address an issue for a limited duration.

Several gaps were noted during these scoping visits that were common to most of the countries visited. These included:

- **Fragmented and non-interoperable data systems**
  Surveillance, laboratory, and community reporting systems often operated in silos, requiring manual reconciliation and resulting in mistakes introduced during that process, delays in data availability, and data quality issues.

- **Limited community-level detection capacity**
  Most countries relied heavily on facility-based indicator surveillance with weak or non-existent mechanisms for detecting unusual events at community level. This delayed outbreak recognition, particularly in rural and hard-to-reach areas.

- **Underutilization of surveillance data for decision-making**
  Although data were routinely collected, many countries lacked the analytical capacity, tools, or processes to translate data into actionable intelligence.

- **Insufficiently trained surveillance workforce**
  Surveillance capacity gaps were evident at national, subnational, and community levels, including limited familiarity with Event-based Surveillance (EBS), Integrated Disease Surveillance and Response (IDSR), and epidemic intelligence concepts.

- **Weak intersectoral and One Health coordination**
  Coordination between human, animal, and environmental health sectors was often ad hoc or informal.

To address these gaps, joint plans of engagement were written during scoping visits which in turn informed the SONAR work plan submitted by TFGH to the Global Fund for implementation of the grant. Work for each of the countries generally fell into several categories of activities:

- ***Support to integrate existing surveillance data management systems.***
  This work was carried out by the health informatics experts at the TFGH. It generally involved a multi-stage process in which a mapping exercise was carried out to identify the system needs followed by a staged implementation that connected systems in a step-by-step approach and established dashboards for viewing data. In addition, local informatics experts were recruited by TFGH to implement the project in accordance with the consensus road map developed with the Ministry of Health. These experts were deployed in-country for periods of many months and supplemented the skill sets of existing informatics staff in the MOH, while also providing training and mentoring.

  In addition,TFGH informatics experts developed a fellowship program that was able to provide technical staff of the Nigerian CDC with the skills in public health informatics, health information exchange, data governance, data management, and the application of modern technologies needed to enhance their information systems.

- ***Support for surveillance system improvements.***
  Technical support for surveillance system development was delivered by several different types of consultants:

  » *Direct hands-on technical support at national and subnational level.*
  This was accomplished through the recruitment of external consultants with surveillance expertise, one at the national level and the rest at subnational level. At the national level, the consultant provided support for the development of national policies and procedures, including the development of guidelines and training materials. At the subnational level, consultants helped local public health leaders understand and implement national policies and procedures related to early warning

surveillance. In addition to direct technical advice to local leaders, they provided training to local technical staff, served as the core technical team that provided support for the development of national policies and guidelines where needed, and provided direct assistance to subnational public health leaders to implement them. The primary focus of the early warning surveillance improvements was engagement of the community, including both community leaders and community health workers, in watching for signals of emerging public health threats.

In addition, the consultants provided mentoring to public health technical staff at both national and subnational levels to analyze and interpret data collected by the surveillance system.

» *External, high-level consultation.*
As additional support, TFGH deployed regional advisors who had extensive international experience in global standards and implementation of early warning surveillance. These regional advisors served as specialist experts advising both the TFGH teams in-country and the MOH at national level in ways to improve early warning surveillance.

» *International support with specialized expertise.*
In some countries, there was a need for specialized expertise for a specific project. As an example, Malawi did not have a WHO certified National Influenza Center (NIC). TFGH identified and recruited a short-term specialist consultant to support and guide the country in bringing their influenza laboratory network into conformity with WHO standards and applying for NIC status.

A second example was the preparation and implementation of simulation exercises in which TFGH recruited an external organization with specialized expertise in developing simulation exercise protocols and carrying out these activities in Malawi and Sierra Leone. These exercises were the first post-Covid exercises focused on stress testing detection, reporting, verification, and coordination mechanisms.

- ***Development of national guidelines and policies.***
A key initial activity supported by TFGH teams was to develop or revise national guidelines for early warning surveillance, which included deciding priorities for surveillance and the design of surveillance signals. The primary focus of most of these guidelines was to extend surveillance efforts into the community by providing guidance to community health workers. This activity was generally carried out in support of a national technical

advisory group appointed by the Ministry of Health. Once guidelines and policies were developed, training materials were also produced and training given at the national and subnational levels.

- ***Governance, procurement policies and procedures.***
  In many countries, it was found that the funding of activities by the Global Fund Principal Recipient (PR) was often slow or delayed because of a lack of familiarity with the intended funding targets. Historically, these PRs were tasked primarily with the procurement of goods to support work in HTM and had worked with different offices within the Ministry of Health than those who implement and oversee surveillance. This required building new relationships and the establishment of policies and procedures to support meetings, travel, and personnel in ways that were previously unknown to the PR. The TFGH was able to broker this new relationship to an extent and provide external feedback to Global Fund when needed for their intervention.

  For example, technical assistance for Governance and Coordination strengthening was deployed In Malawi and the Central African Republic. A management partner was embedded in each country – to support C19RM implementation, strengthen cross-sectoral coordination, and improve alignment and completion of priority grant activities.

- ***Monitoring and evaluation.***
  As part of the work of institutionalizing early warning surveillance, the TFGH developed both the Maturity Model as described in the background and a set of standardized *Key Performance Indicators (Annex A)*. The latter were built into the fabric of the surveillance systems to allow leadership to monitor system performance, identify persistent gaps, and detect problems as they arose.

  The incorporation of Key Performance Indicators developed by TFGH into surveillance systems was part of a larger effort to develop and incorporate a Monitoring and Evaluation (M&E) Framework which would provide program managers and public health leaders with information on the performance of the system. All SONAR country programs developed and implemented M&E frameworks which included indicators from the standard SONAR M&E framework (Annex B) as well as additional country specific indicators as needed.

Light-touch countries

Four countries[2] were identified in late 2024 as "light-touch" countries. These countries needed some additional support but already had other partners working in-country to provide some of the direct technical assistance that TFGH would have otherwise provided.

In two of the countries, Burkina Faso and Guinea, the TFGH collaborated with the Building Integrated Readiness for Community Health (BIRCH) Project[3]. TFGH engagement was through a regional advisor who spent time in the country and provided technical input into strategies, procedures and documents specifically related to early warning surveillance to the MOH as part of a larger health systems strengthening effort. In Indonesia, the TFGH hired an international M&E expert to guide the development of the M&E framework, in addition to a locally based M&E focal person. Remote support was also provided to Indonesia by technical experts in Atlanta for the development of the framework. In the fourth country, Tanzania, soon after engagement by TFGH with the local implementing partner there was a pause requested due to "unforeseen circumstances" that led to the withdrawal of the Benjamin Mkapa Foundation as the implementing partner. This necessitated the identification of an alternative provider by GF and the MOH, a process that was expected to take 1 - 2 months. Global Fund advised that discussions on SONAR technical assistance through BIRCH would resume once a new provider was secured; however, no further communication or notification was received by TFGH.



Community members take place in a clean-up in the village of Ankitsikitsika in Madagascar, aimed at combating rats, fleas and mosquitos - as part of the Model Villages initiative.

2 Burkina Faso, Guinea, Indonesia and Tanzania.
3 BIRCH is a major initiative designed to strengthen community health systems, particularly in Africa, funded by the Global Fund

Work with Africa CDC and WHO Africa Regional Office

Consultants and Regional Projects

TFGH also recruited and embedded technical experts in the two primary regional institutions in Africa, AFRO and Africa CDC. The goal of this was to increase the technical manpower at each institution and to facilitate the active engagement of each in the project being implemented in their Member States. Specific stated goals were to:



Nigeria CDC staff and TFGH Nigeria team at the public health informatics fellowship, in collaboration with Africa CDC Data Science team in Addis Ababa, Ethiopia.

- Ensure that the SONAR support countries are implementing the AFRO Integrated Disease Surveillance and Response technical guidelines and the Africa CDC Event-based Surveillance Guidelines
- Strengthen Africa CDC capacity to support its Member States in timely and adequate response to outbreaks, through establishing a robust data management system and data-driven decision-making
- Provide support to Africa CDC to expand the development and utilization of EBS guidelines to its Member States

Specific contributions of each included:

Africa CDC Technical Support

The epidemiologist advisor deployed to Africa CDC extended the impact of the TFGH's efforts in individual countries by working in eight additional countries that TFGH was not directly engaged with. These activities included:

- Supported the development of EBS national guidelines in eight additional Member States.
- Provided in-person support for National EBS Training of Trainers in five Member States.
- Supported the review, development, and quality assurance of 52 Africa CDC Member States' EBS weekly reports.

- Provided in-person support for the Regional Training Workshop on the use of the 7-1-7 approach (7 days for detection, 1 day for notification, 7 days for response) in the Central Africa region.
- Coordinated and supported the organization of six Africa CDC quarterly partners meetings



Supporting the Western Area Urban District (Sierra Leone) surveillance team on Mpox case investigation at Aberdeen Women's Centre Hospital (Photo credit: Lilian Admire-Taylor)

A data management specialist was also deployed to Africa CDC. Specific contributions included:

- Developed continental databases and surveillance data reporting systems including the first joint AFRO - Africa CDC Mpox Database. Also, initiated the development of a joint AFRO and Africa CDC cholera database to unify surveillance data for the ongoing outbreak response.
- Led the design, technical roadmap, and initial implementation of DHIS2 for integrated disease surveillance, supporting its rollout across nine priority countries.

- Significantly contributed to continental frameworks, guidelines and strategic plans.
  - » Co-developed and led the adoption of a revised set of 18 standard Key Performance Indicators for Mpox surveillance, replacing an outdated framework.
  - » Conducted analyses and contributed to the Continental Guidance for the decentralization of laboratory services to optimize diagnostic access for epidemic response.
  - » Provided critical data analytics for the development of the Cholera Continental Response Plan and the Mpox Incidence Action Plan, including scenario modeling and budget forecasting.
- Improved the collection and use of surveillance data at the institution.
  - » Produced 104+ epidemiological briefings and data packs for the Africa CDC Director-General's weekly press conferences and high-level strategic discussions, directly informing response decisions (including the de-escalation of the Mpox Emergency Operations Center).
  - » Automated and maintained analytics for the IMST (Incident Management Support Team) Surveillance Pillar's weekly situational reports, covering Mpox, Cholera, Ebola, and Marburg.
  - » Supported and co-authored seven publications in journals on Mpox response and strategy.
- Built capacity in Member States.
  - » Deployed on technical missions to Sierra Leone (DHIS2 active surveillance setup) and Burundi (DHIS2 baseline assessment and stakeholder mapping).

Participated in and provided analytical support for key workshops in Ethiopia (Mpox Intra-Action Review), Ghana (Surveillance Harmonization), and Cameroon (Lab Decentralization Guidance development).

WHO Africa Regional Office

The epidemiologist deployed to AFRO expanded capacity within the Emergency Preparedness and Response (EPR) unit and supported the provision of normative guidance and coordinated roll-out of IDSR across SONAR-supported countries.

- Policies/guidelines developed
  - » Developed AFRO Regional Guidelines for the Implementation of Collaborative Surveillance.
- IDSR implementation evaluation
  - » Developed an online assessment tool for IDSR implementation tracking in 46 AFRO Member States, including all SONAR countries.
  - » Generated report on 2024 IDSR implementation assessment findings in 46 AFRO Member States.
- Data analysis
  - » Generated an IDSR Data analysis plan.
  - » Carried out analysis of 2024 IDSR Data from 46 AFRO Member States.
  - » Produced the AFRO 2024 IDSR Data analysis report.
- Organized three virtual webinar workshops on strengthening early warning surveillance and IDSR implementation in Member States.
- Produced one paper: *Performance of Core and Support Functions of the Integrated Disease Surveillance and Response (IDSR) System in WHO African Region Member States: A Multi-country Assessment.*
- Supported production of 37 Weekly AFRO Epidemiological Bulletins.

Webinars

Integral to the work of this project included helping countries in the region to understand and implement the Africa CDC's Second Edition of the Event-Based Surveillance Guideline. To support this effort, TFGH developed a series of webinars to explain and promote specific aspects of early warning surveillance in alignment with the EBS guideline. The topics were proposed and each webinar planned by a small planning committee made up of members from TFGH, AFRO, and Africa CDC. The format of the webinars included a topical presentation by a recognized expert on the subject matter, followed by one to two countries on the continent sharing their experiences in implementation. A summary report can be found in Annex C.

A total of five webinars were held over a two-year period. Topics included:

- The Evolving Landscape of Early Warning Surveillance in Africa: The Journey So Far, and the Path Ahead, which highlighted key points of the latest edition of the Africa CDC Event-based Surveillance Guideline.
- Real-time monitoring: Live Tracking for Early Warning Surveillance, describing metrics and methods for monitoring performance of early warning surveillance systems.
- EBS Signal Development for Community-level Surveillance of Novel Emerging Threats, outlining tips for writing good signal definitions avoiding the pitfalls of overly-sensitive signals that risk overwhelming systems.
- Climate-informed Early Warning Surveillance: Integrating Climate and Disease Information for Decision Intelligence, defining and demonstrating the use of climate data to inform early warning systems.
- Collaborative Surveillance: From Silos to Integration, clarifying collaborative surveillance meaning and methods to participants.

The webinars were well-attended and attendance increased over time from 200 registrants in the first webinar to over 800 in the last, and from 123 unique attendees in the first to 413 in the last. Attendees came from a wide variety of backgrounds including MOH technical experts from 40 – 60 countries; partner institutions, NGOs and non-governmental technical agencies that support work in countries on the continent, and other interested parties including Africa CDC, AFENET, WHO (HQ, AFRO, and EMRO, SEARO, EURO), public health institutes (European CDC, US CDC, national CDCs), The Global Fund, various National Public Health Institutes, various FE(L)TPs, International Federation of the Red Cross/Red Crescent, and JHPIEGO.

In addition to the general positive feedback received following the webinars, there were many examples of countries applying the teachings and learning from the experiences of the countries that presented. These included Sierra Leone, which changed their surveillance signal definitions for Mpox adding symptoms specific to Mpox to enhance Mpox case finding and improve specificity of detection; and Madagascar which shifted Mpox surveillance focus from point-of-entry screening to tourist sites and other high-traffic areas for travelers.

Special Initiatives

Maturity Model

The Maturity Model was developed as a tool to be used by the Global Fund to evaluate the status of surveillance development in countries where the organization was working, to help guide investments in system improvements. It was intended to aid in the identification of gaps in relevant capacities and capabilities for Early Warning Surveillance specifically and supportive systems. It was not intended to measure performance directly, but rather a country's capacity to perform and was to complement a parallel set of performance indicators which TFGH also developed.

Work on the tool started in early 2023. As a first step, existing documents and tools including the Joint External Evaluation (JEE), the State Party Self-Assessment Annual Reporting (SPAR), WHO Benchmarks for International Health Regulation Capacities, WHO's guidelines for Vaccine Preventable Disease surveillance, and other standards were reviewed.

The tool was intended to be similar in structure and function to the Global Fund's previously developed Digital Health Index Indicators tool. The intention in reviewing existing tools and normative guidance was to develop a tool that was surveillance specific and complementary to tools already in existence rather than to create new benchmarks. As such, whenever possible, existing metrics were used with little modification or created based on concepts described in the existing tools. The primary focus of the tool was to evaluate capacity for early warning surveillance, but because surveillance systems are interconnected and synergistic, the tool also included elements of other surveillance components such as sentinel surveillance, laboratory capacity, and information management.

The tool was organized to evaluate seven different domains of surveillance, including:

- Policy and guidelines
- Surveillance infrastructure
- Workforce
- Monitoring and evaluation
- Laboratory systems
- Data systems
- Response capacity

The basic structure included five levels of maturity for multiple facets of each domain, which were then given a simple score from 1 to 5 based on the best estimate of where the country fell on the continuum of development for that capacity. It was designed to be a subjective scoring that could be done by persons familiar with the different domains. The scores for each domain were averaged and then a summary average was produced for all of the domains together. The tool was piloted by TFGH field staff independently in consultation with their national counterparts and the results of the multiple consultants in individual countries were compared for consistency of scoring. The pilot demonstrated a high degree of consistency between different evaluators in each country and the consultants also provided valuable feedback on the wording and structure of the metrics. Final revisions were made on the tool based on the feedback of the consultants and the tool was approved by the Global Fund (Annexes D & E).

Further evolution and expanded use of the tool

In late 2023, TFGH was asked by the WHO to help with producing the Mosaic Respiratory Surveillance Framework, which was intended to provide a structure with which countries could examine how their various surveillance programs fit together to address the scope of basic surveillance objectives. As part of this framework, a set of tools for implementation were designed to be used by countries in the effort, and these included an evaluation of the maturity and performance of the systems. With the encouragement of the Global Fund, the Maturity Model was adapted for this purpose but went through significant modifications as the Framework was rolled out and piloted. Ultimately, the overall structure and content of the tool was preserved, although it was modified to focus on respiratory disease surveillance systems, but the definitions of each maturity level were scrapped in favor of a Likert scale. Within the scale for each surveillance capacity, the minimum capacity was defined as a score of “1” and the ideal capacity was described as a score of “5.” In addition, guidance was given on factors to consider for intermediate scores. The final modification was to add a section for a specific component of the Mosaic Framework which specifically addresses the level of preparedness of surveillance systems to answer key questions about emerging pathogens and nascent pandemics. (Annex F)

The White Paper

The COVID-19 pandemic placed great strains on existing public health infrastructure requiring creative approaches and the recruitment of resources and systems not usually used for outbreak response. These included, for instance, utilization of laboratory infrastructure built for HTM programs for SARS CoV2 diagnostics, bidirectional testing platforms using TB infrastructure, recruitment of HIV program implementing partners in the community to do vaccine advocacy and service delivery. These experiences led the Global Fund to consider whether there were ways to better use those systems established for HTM in future events and to improve preparedness and early warning surveillance capacity pre-pandemic. To better understand the issues and experiences related to use of disease-specific infrastructure for pandemic response, the TFGH was requested to produce a white paper that summarized pandemic experience with using the Global Fund investments in HTM programs for the response and provide recommendations for the Global Fund to further leverage these investments to strengthen pandemic preparedness, particularly related to surveillance. (Annex G)

The methods used for this paper included:

- Review and summarize the experience of at least four target countries that were known to have successfully leveraged HTM resources and systems to support COVID-19 pandemic response. This was done through a mix of in-person, in-country structured and unstructured interviews among local leadership and implementing partners, site visits to review program experience during the pandemic, and remote interviews and data collection.

- Review of relevant accessible unpublished and published literature on the topic.

- Interviews with recognized experts in the field.

To carry out the project, TFGH recruited a small team of experts with many years of experience in each of the areas that the Global Fund historically supports to develop data collection tools, conduct interviews, summarize the findings, and provide additional recommendations.

The team found that HTM programs all contributed personnel to the COVID-19 response. In many countries, the laboratory networks for HIV and TB programs were used heavily for COVID-19; to a lesser extent, these programs' surveillance systems, community networks, and expertise in screening, infection control, and active case finding were also used. Malaria

programs were much less engaged in the pandemic response. HTM programs could be more easily leveraged in the pandemic response when there were cross-trained healthcare workers, integrated systems, flexible funding, and recognition that COVID-19 investments could benefit HTM programs in the long-term.

The overall conclusion of the exercise was that HTM program infrastructure supplied important assets for responding to the COVID-19 pandemic in LMICs. Of the three, malaria programs were least utilized. Changes in the way these programs are implemented including cross-training health workers, integrating systems, and increasing the flexibility of funding mechanisms are suggested as ways to help countries optimally use HTM programs in future pandemics. Bilateral and multilateral entities played a crucial role in supporting countries in the COVID-19 pandemic, and should be encouraged to continue assisting countries to plan and respond to future pandemics while fulfilling their HTM mandates.

After submission and acceptance of the White Paper to Global Fund leadership, the paper was shortened and reworked into a manuscript for publication in a peer reviewed journal. It was accepted and published in the British Medical Journal of Global Health[4].

Simulation Exercises

Full scale simulation exercises were carried out in Malawi and Sierra Leone in the last year of the project. The exercises allowed countries to test the systems that they had introduced, particularly the community involvement, and the procedures that had been established for early warning and response. Notably, these were the first such exercises since the COVID-19 pandemic that focused on stress testing detection, reporting, verification, and coordination mechanisms. The exercises were successful in both demonstrating the successes of the program and identifying remaining gaps that need to be addressed, and generated actionable lessons to strengthen national EBS implementation.

The results of the simulation exercises confirmed that the two countries now had some functional capacity for early warning surveillance. There was clear evidence that training given at higher administrative levels had been effectively disseminated to lower levels. Community Health Workers were able to recognize and appropriately report signals of a potential outbreak. The exercise also included conducting risk assessments and developed communications materials related to the findings. Generally, the exercises were able to test all components of the early warning system both documenting the successful roll-out of event-based surveillance at the community level and identifying some remaining gaps that needed to be addressed. (Annexes H and I)

4 Tollefson D, Mounts A, Rahman N, et al. Lessons learned from the COVID-19 pandemic: opportunities and challenges to leverage investments in HIV, tuberculosis and malaria for pandemic preparedness and response. BMJ Glob Health. 2025 Apr 21;10(4):e015868. doi: 10.1136/bmjgh-2024-015868. PMID: 40258635

Management Partner Deployment (Malawi and Central African Republic)



Team building activity to strengthen the leadership of the surveillance department in Central African Republic.

To help countries navigate the complexity of C19RM-supported surveillance investments, TFGH supported the deployment of management partners in Malawi and the Central African Republic. The intent was simple but important: to strengthen coordination and ensure that strong technical plans translated into effective implementation. Working alongside MOH and NPHI leadership, the management partner helped to clarify roles, improve communication across departments and create space for regular problem-solving discussions when bottlenecks emerged. This support proved especially valuable in aligning surveillance, laboratory, and emergency response functions and reinforcing accountability. Ultimately, the deployment improved the pace and quality of grant implementation.

Climate-Informed Early Warning Surveillance (Sierra Leone and Bangladesh)

Through the Climate-Informed Early Warning Surveillance (CI-EWS) initiative, TFGH supported Sierra Leone and Bangladesh in exploring how climate and environmental data could be integrated into national surveillance systems. The project applied artificial intelligence and machine learning tools to develop predictive models for climate-sensitive diseases such as malaria and cholera, tailored to a low-resource context. Beyond the technical innovation, the work facilitated closer collaboration between health and meteorological authorities and generated practical lessons on how predictive analytics can inform real-world decision-making.

Central Data Repository (Africa CDC)

TFGH informatics experts supported the establishment of the Central Data Repository (CDR) at Africa CDC to strengthen continental visibility of priority disease trends and enhance data-driven decision-making. The CDR was designed to consolidate surveillance data from Member States, including malaria, cholera, Mpox and other priority events, into a centralized platform to improve analysis, comparability, and timeliness of reporting. By supporting both the technical architecture and the governance processes around data submission and use, TFGH contributed to building a shared regional asset that advances epidemic intelligence beyond individual country systems into more coordinated, transparent and responsive public health surveillance across the African continent.

Summary of Key Achievements



TFGH SONAR national lead facilitating a group discussion during a workshop to develop Nigeria's community-based surveillance standard operational guidelines.

There were many achievements common to most of the countries which were a part of the SONAR project, and with which TFGH was engaged. These include:

Event-Based Surveillance Scale-Up

- **National EBS systems established or strengthened**
  All ten countries either introduced or significantly expanded event-based surveillance as a surveillance strategy. SONAR supported the development or revision of national EBS guidelines, standard operating procedures, priority signal lists, training materials, and reporting tools, ensuring alignment with WHO guidance and national IDSR frameworks. All countries reported an increase in the number of surveillance sites regularly reporting through these new or expanded systems.

- **Community-based and multisectoral surveillance introduced or strengthened**
  Community-level EBS was operationalized through pilots and scale-up initiatives tailored to country contexts, including establishing Model Villages and engagement of community health workers, animal health workers, and environmental actors. These systems increased the sensitivity of early warning surveillance and improved trust and participation at grassroots level. Five countries (Ghana, Kenya, Liberia, Madagascar and Nigeria) reported improved or maintained high percentage (above

75%) of signals verified as true events from 2024 through 2025. Notably, one country (Liberia) reported improved and a high percentage of signals verified except for the last quarter of 2025 when lack of communication and transport disrupted verification efforts. The countries that did not report improvements noted system and power outages, insufficient training on systems overall (previous to SONAR) and supportive supervision as barriers to successful implementation.

- **Improved timeliness of event detection and reporting**
  Countries reported increased signal reporting from non-traditional sources and notable reductions in detection and notification delays in pilot areas. All countries reported improvements in one or more of the 7-1-7 metrics targets from 2024 through 2025. However, results reflected difficulty in maintaining consistent timeliness across the timeframe. Again, unstable reporting systems and insufficient training on systems overall (previous to SONAR)and supportive supervision were noted as reasons for inconsistent implementation. Notably, five countries (CAR, Madagascar, Nigeria, Philippines and Sierra Leone) were able to begin monitoring 7-1-7 data during the project and continue reporting, and three additional countries (Kenya, Liberia and Malawi) were able to consistently monitor and report data for at least one of these indicators. These improvements demonstrated the added value of EBS in complementing routine indicator-based surveillance.

Workforce Development and Capacity Building

- **Large-scale training across all surveillance levels**
  TFGH supported training of over 170,000 individuals across all supported countries, including national surveillance officers, district health teams, facility focal persons, community volunteers, and multisectoral partners. Training covered EBS, IDSR, data quality, epidemic intelligence, and use of digital tools.

  170,000 Trained

- **Cascade and institutionalized training approaches**
  Training-of-trainers enabled rapid scale-up while building national capacity to sustain training beyond the project period. Over 6,000 trainers across seven countries were trained using this approach. Several countries integrated SONAR-supported content into existing curricula, e-learning platforms, or field epidemiology programs. This integration supported ease of training roll-out as well as the reach of the training.

  6,000 Trained

- **Enhanced confidence and performance of frontline actors**
  Guidance and mentoring through supportive supervision improved the ability of particularly frontline staff to detect, report, and respond to unusual health events. This translated into improved data completeness, quality, and responsiveness. It should be noted that inconsistent supportive supervision was also reported as a challenge related to decreased signal and event reporting as well as declines in timeliness.

Informatics and Data Integration

- **Digitization of surveillance and EBS processes**
  TFGH through the SONAR project supported the digitization of event reporting and management using DHIS2 modules, national platforms like SORMAS, and customized applications. This reduced reliance on paper-based systems and manual data entry, improving data quality and access. Some countries did however note struggling with unstable connectivity and electronic system function, emphasizing the importance of integrating EBS into existing surveillance systems.

- **Improved interoperability between systems**
  Efforts focused on linking surveillance, laboratory, and community reporting systems to enable end-to-end visibility from detection to confirmation and response. Several countries established dashboards and data warehouses to support integrated analysis. Seven countries report having national data warehouses with integrated surveillance data sources.

- **Reduced time from data availability to analysis**
  Informatics improvements significantly shortened the time required to compile, analyze, and visualize surveillance data, enhancing situational awareness at national and subnational levels. Several countries specifically noted improved system functioning and data use as a result of the digitalization of their surveillance systems.

- **Improved overall capacity for system development**
  The training of informatics technical staff, including through a PHII (TFGH informatics) Fellowship, in the use and modification of data systems such as SORMAS and DHIS-2 will allow the system to grow and adapt to new pathogens and new requirements of decision makers. In addition, the extension of digital data collection into more peripheral areas has helped systems expand in sustainable ways that will continue to serve the increasing demands for data for decision making.

» **Improved cross-border data sharing**
TFGH supported establishment of Africa CDC's Central Data Repository, strengthening continental visibility of priority disease data, including malaria, cholera, and Mpox. The Repository enables earlier identification of cross-border threats while preserving national data ownership through a federated architecture.



Training of evaluators prior to the first-ever IDSR system evaluation in Liberia.

Epidemic Intelligence and Data Use

» **Institutionalization of epidemic intelligence practices**
TFGH supported the establishment or strengthening of epidemic intelligence functions, including media scanning, signal triage, and event verification processes. Over 800 data focal points were trained on surveillance data management, analysis, and use for decision making. All countries reported an increase or maintenance in the number of surveillance sites regularly reporting EBS data from 2024 through 2025.

» **Application of 7-1-7 metrics and outbreak reviews**
Retrospective analyses of outbreaks using 7-1-7 metrics provided objective assessments of system performance and informed targeted improvement plans. These exercises strengthened accountability and learning. 7-1-7 metric monitoring along with other metrics compiled by TFGH provided tools for monitoring surveillance quality. Eight countries reported conducting real-time or after-action reviews for outbreaks, and three countries reported conducting meetings to analyze timeliness data for actionable insights. The regularity of these reviews continues to merit attention and requires ongoing support.

» **Improved use of data for operational decision-making**
Surveillance data increasingly informed response actions, prioritization of resources, and coordination through PHEOCs and surveillance units. Eight of the countries reported disseminating Epi bulletins or Sitreps. Seven countries report meetings were convened for EBS data review and use.



Measles response in Mangochi Malawi, after SONAR's intervention supporting 7-1-7 metrics.

Governance and Coordination

» **Strengthened One Health and intersectoral coordination**
TFGHfacilitated the establishment or revitalization of technical working groups and coordination platforms, improving communication and collaboration across sectors. All countries were able to establish multi-sectoral technical working groups, though several reported some inconsistency in regular meetings.

» **Enhanced partner alignment and reduced fragmentation**
By acting as a neutral technical broker, the SONAR project helped align partner activities with national priorities, reducing duplication and improving efficiency.

» **Improved alignment with regional standards**
Produced the AFRO Regional Guidelines for the Implementation of Collaborative Surveillance, held a series of Webinars on the principles of the Africa CDC's Event-based Surveillance Guideline.

- **Improved procurement policies and procedures**
  TFGH was able to serve as an arbitrator and liaison between the Global Fund Principal Recipient and the Ministry of Health, in some cases, and when needed provide feedback directly to the Global Fund leadership as an unbiased observer. This work included the creation of a process map of the funding request procedures to determine lead time required for requests as well as to understand the bottlenecks in the process. As a result, the turnaround time for service procurements and reimbursements was shortened notably.

Use of Data for Learning and Adaptive Management

Monitoring and Evaluation

M&E data were collected on a quarterly basis using the M & E Framework. The data were reviewed by the TFGH country teams alongside their in-country partners to assess program implementation and progress. M&E data were also used in routine in-country early-warning surveillance implementation meetings as well as to inform surveillance site supportive supervision visits. The results were further used to inform the development and to update the annual SONAR country workplans. M&E data were also incorporated into sessions of the routine monthly TFGH SONAR meetings held to share country experiences, progress and lessons learned across SONAR implementation countries.

Reporting improved over the implementation timeframe with all countries able to report their results on a quarterly basis. However, several countries indicated difficulty in accessing the routine Early Warning System data or data systems from their national partners. Other countries noted that national systems did not collect all recommended data, such those that inform 7-1-7 metrics. These countries were therefore prevented from reporting on specific indicators, most notably the 7-1-7 metrics. The use of the M&E Framework was able to highlight these deficiencies so that they could be addressed in subsequent quality improvement plans.

Maturity Model Results

In its basic design, the Maturity Model is intended to provide a snapshot view of the current status of a system in terms of its level of development, support by the national government, and expectations of its sustainability. It does not evaluate the performance of a surveillance system, although TFGH also developed a set of metrics that aim to do that. As such, and because not all domains were intended to be addressed by the SONAR project, not all seven of the domains were useful for measuring the progress of programs that TFGH was supporting over the limited time-frame of the project. Within the seven, the ones deemed relevant for the SONAR project were:

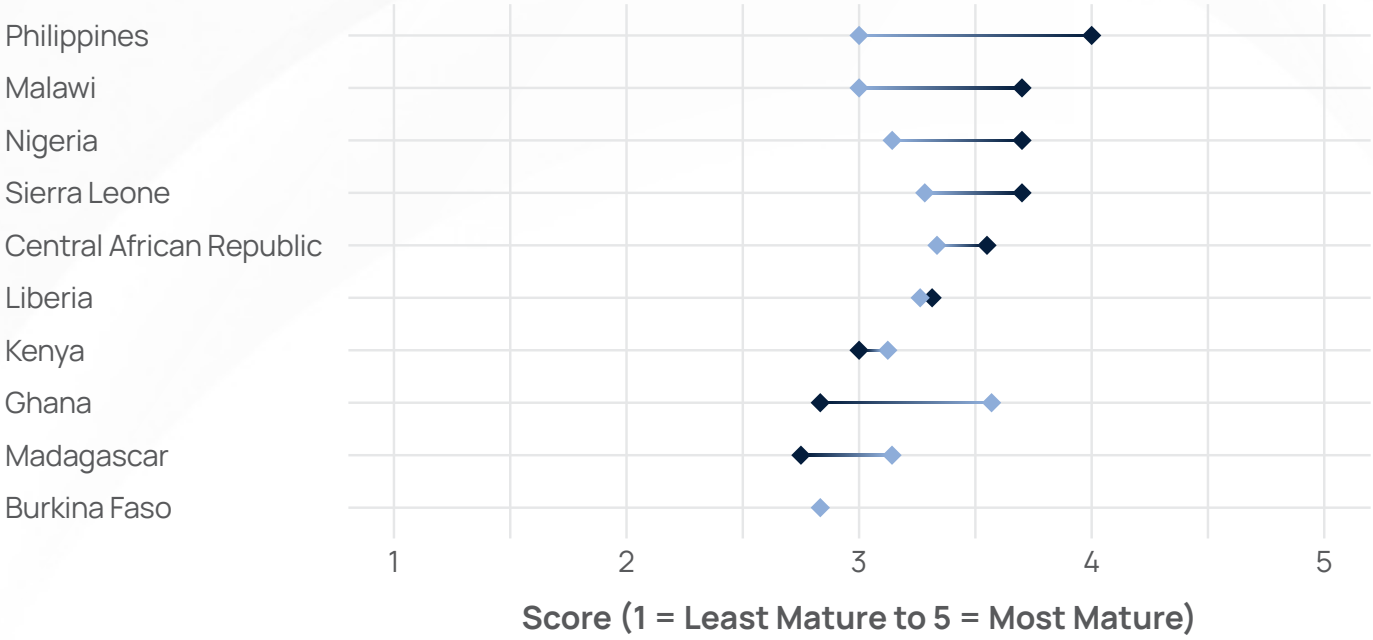
- Early Warning Surveillance (a component of the larger Surveillance Infrastructure domain)
- Nationally Notifiable Diseases (a component of the larger Surveillance Infrastructure domain)
- Response capacity
- Leveraging HTM Infrastructure (also part of the Surveillance Infrastructure domain)

The other domains included in the model were included as optional domains, which some countries chose to include in their evaluations. The tool was used twice in evaluating the countries for which TFGH was providing support, once at baseline and once near the end of the project. Feedback from TFGH field consultants and their MOH counterparts was received following each of these uses of the tool on its design and utility. A summary of learnings and recommendations from the tool's implementation are included in Annex J.

TFGH conducted baseline assessments in five countries in 2023 (Ghana, Nigeria, Madagascar, Philippines and Sierra Leone) and five additional countries in 2024 (Burkina Faso, CAR, Liberia, Malawi, and Kenya). The baseline results were used to assess country-level needs and gaps and align plans for country support. National and regional SONAR consultants collaborated with national and subnational surveillance department officials to conduct the assessments. Where possible, relevant stakeholders were brought together to discuss and score the tool together. In most cases, SONAR technical consultants consulted stakeholders separately and validated any conflicting opinions on scoring where they arose. In all countries, the final results were shared with and approved by national surveillance officials prior to finalizing them. The tool was re-deployed in all countries except for Burkina Faso to monitor progress from the first assessment.

As the tool was still being developed throughout deployment, there were significant changes to the scoring method, domain component descriptions, and wording of the component descriptions between the timing of the two assessments. The version deployed for follow-up assessments is included in Annex E. Many of the changes were made in response to feedback from the first assessment, but it should be noted that they affected the comparability of results and thus the utility of the tool to measure true progress from baseline. Nevertheless, the differences in average overall scores between the assessments are shown in Figure 1, and complete country scores by domain are included in Annex K.

Average Maturity Model Scores for the First Assessment (2023/4) & Follow-Up (2025)



Most countries had a higher overall score for the follow-up assessment compared to the first assessment. Notably, Ghana, Madagascar and Kenya had lower overall scores, while Burkina Faso did not complete a follow up assessment. All countries with both baseline and follow-up results showed improvement in one or more of the four essential domains in the Maturity Model. The domains of "Early warning surveillance" and "Response capability" were areas most frequently showing improvement. Notably, Ghana had lower follow-up scores in all domains except for "Routine sentinel surveillance." Madagascar also showed a decline in at least one essential domain, "Response capability." In the first version of the tool, "Response capability" was described as evidence that "national level response teams have been deployed at least once within 48 hours," while the second version described it as "teams need more than 48 hours to organize and deploy themselves." This is one example where a change in response wording may have resulted in a difference in scores without a difference in implementation status.

Another challenge to comparability of results stems from differences in how the tool was deployed and who was involved between the two assessments. For example, five of the countries scored a decline in score for the domain "Data hub for decision making," but each of these countries' follow-up responses indicated "There is a plan and budget for developing a central data hub," suggesting that plans are moving forward. This could be due to the wording of the indicator that described a data hub with "most data sources" in place, which

could be interpreted differently depending on who participated in the assessments. Different interpretations in scoring would be anticipated in cases where different stakeholders may have participated in the baseline and follow up assessments, but understanding of data hub requirements and limitations may also have changed even among the same stakeholders, given their participation in data mapping and data system improvement activities.

Despite score comparison limitations, progress from baseline is still evident. For the "Early warning surveillance" domain, participants in the Philippines described an updated policy manual including new case definitions and investigation forms, which were developed with assistance by SONAR technical consultants. They also described a progressive expansion of the community event-based surveillance program piloted under SONAR. Even though Liberia did not document an increase in score for this domain, participants noted that there has been progress "based on the orientation and formal training conducted under the SONAR project." For "Response capability," while delayed deployment was mentioned as a challenge at baseline, participants in Sierra Leone noted that response teams are now routinely deployed within 48 hours and multiple simulation exercises have been conducted.

A few countries noted improvements in collaboration across sectors, particularly animal health. Participants in Malawi noted that "[t]here is functional IDSR using the One Health Surveillance Platform for reporting, with an average >80% in both timeliness and completeness." In Sierra Leone, "[a] One Health (OH) platform has been established, and an OH Governance Manual with clear terms of reference is in place. Multi-sectoral coordination is being implemented routinely at all administrative levels, with the majority of the sectors involved. A One Health data hub has been established with the capacity to receive, store, and analyze data from multiple streams." In Nigeria, a reporting bottleneck was identified as the animal health authorities were dependent on the NCDC for zoonotic disease reports. To address this, it was noted that TFGH will support the integration of state-level EBS and One Health technical working groups in order to facilitate more efficient reporting between the sectors.

Although the domain "Leveraging HIV, TB, and Malaria infrastructure" was not assessed across all countries at baseline, some countries still noted progress in this area. From Sierra Leone: "The recently established courier system for the transportation of HTM samples from across the country, supported by the Global Fund, is being leveraged by the surveillance program to transport samples of all priority diseases (including VPDs) to the testing laboratories." And from Malawi: "Malawi is moving towards integrating HIV surveillance into the main surveillance system. Currently, 2 districts (Lilongwe and Nsanje) are under pilot on this initiative. Renovations of the Emergency Operation Centers and creating Dashboards to integrate HIV and Malaria data into the main surveillance system are underway."

Project Sustainability



Presentation of the launched EBS Guidelines by the Director General, Ghana Health Service and team.

A fundamental guiding principle of the SONAR project was that it aimed to produce sustainable surveillance improvements that would be fully aligned with established governance structures and integrated into overall national surveillance strategies. In regards to integration, the following was achieved:

- Seven of the countries (Kenya, Madagascar, Sierra Leone, Ghana, Nigeria, Cameroon, and Malawi) have now fully integrated Community Event-based Surveillance into their surveillance strategies. This includes surveillance guidelines, epidemic intelligence curricula, evaluation reports (e.g., IDSR and 7-1-7 baseline), trained personnel (master trainers), and informatics tools (e.g., eEBSS, NPHIIS, CI-EWS) are aligned with existing national systems and used to continuously strengthen them. At least three of the countries (Malawi, Cameroon and Central African Republic) have included some SONAR-related activities in their annual workplans and have retained former TFGH consultants in key surveillance-related roles. Countries are also actively expanding the program from the initial pilot areas into new areas of the country.

- Although financial support from national budgets for the continuation of community event-based surveillance is generally limited to those activities that don't significantly increase costs over baseline (e.g. the pay for Community Health Workers and support of data systems), all countries have expressed a plan to include this work in future funding proposals for the Global Fund, the Pandemic Fund, and in bilateral agreements with the U.S. government.

Lessons Learned

- **Embedded technical assistance builds durable capacity** Long-term, hands-on support with day-to-day mentoring is more effective than short-term consultancies in strengthening systems, implementation quality and institutional memory.
- **Community engagement is critical for early detection.** Community-based surveillance significantly improved trust, ownership and participation in surveillance (signal reporting), particularly in underserved areas.
- **Technology must be paired with capacity building.** Informatics investments delivered impact only when users were adequately trained and systems aligned with workflows.
- **Government leadership is essential for sustainability.** Strong Ministry of Health ownership and cross-departmental coordination were key determinants of successful implementation and institutionalization beyond project support.
- **Clear guidelines, policies and procedures are essential.** Clearly written guidelines reduce confusion and increase participation by all participants.
- **EBS processes and systems should be integrated** into existing surveillance systems to support consistent implementation.
- **Performance indicators** should be the minimum needed, routinely used, and consistent across the timeframe to adequately monitor the system implementation.
- **Routine supportive supervision** that responds to results and follows up on monitoring is essential to maintain M&E data reporting and use.
- **Adequate training** in surveillance and M&E processes at all levels is critical to the success of those carrying out surveillance. Training should include opportunities for the new systems and turnover in staff.

- **Consistent functioning** of reporting systems is critical to surveillance functions and enables monitoring of the system. Electronic systems are most efficient, though paper-based systems are also effective at lower levels of implementation. A concern noted was electronic system outages as well as difficulty in support and monitoring visits to remote surveillance sites.

- **Monitoring and evaluation** Continuous M&E was critical to identify persistent gaps in and sustain performance.

- **Importance of supportive supervision** In locations where supervision was weak, performance tended to decline over time, however, the inverse was also true. Much of the work of TFGH in subnational areas involved the development of supervisory procedures and tools, and mentoring those responsible for supervising field work.

Recommendations for Sustainability and the Future

- **Institutionalize SONAR-supported systems.** Countries should continue to work towards full integration of EBS, epidemic intelligence, and informatics tools into routine IDSR operations, national budgets, and IHR monitoring frameworks to ensure continuity beyond catalytic funding.

- **Sustain and professionalize the surveillance workforce.** Long-term sustainability will require continued investment in training, mentorship, integration with FETP and public health training programs, and clear career pathways for surveillance and informatics professionals is essential.

- **Maintain and expand data integration efforts.** Future investments should shift focus from development to maintenance, performance and system optimization, and national scale-up of interoperable systems.

- **Leverage SONAR as a scalable model.** The SONAR implementation approach emphasizing long-term embedded boots on the ground mentorship, implementation troubleshooting and cross-sector coordination proved to be catalytic in accelerating grant execution and strengthening core public health functions. Future investments could consider deployment of this replicable blueprint for strengthening early warning surveillance in other countries and regions and where implementation bottlenecks persist.

Summary Conclusions

The SONAR project implemented by The Task Force for Global Health using funds from the COVID-19 Response Mechanism of the Global Fund was effective in improving early warning surveillance in a number of countries in Africa, plus the Philippines. The project was a well-rounded approach that addressed the issue from multiple angles starting with regional training and discussions, support of Ministries of Health at the national policy level, and extending down to implementation at the subnational level. This approach is unique amongst public health programs and ensured that global standards were adapted to individual country contexts and directly applied at the local level. The use of long-term mentoring rather than short, intermittent consultancies was particularly effective in building relationships by engaging public health leadership at each level. The result was a notable improvement in the ability of countries to detect emerging outbreaks in a timely manner. The transfer of knowledge and the establishment of policies and procedures that were aligned with existing government policies will help to ensure that the impacts of the program will be sustained after the program is officially closed.

In addition, the White Paper and the Maturity Model have provided the Global Fund with insights and tools that will help to improve future investments by making them more useful to future response efforts and to target areas most in need of support. The Maturity Model has now been adapted for use in a larger surveillance improvement program of the WHO, and has been used globally for the past two years and published for future use by regional offices and Member States.



James S. Momo, Jr, a TFGH Subnational Consultant, providing on-site mentorship to health facility staff in Sinoe County, Liberia.

Annexes:

All Annexes can be found in the shared folder: SONAR Final Report Annexes

Annex A - Key Performance Indicators_w source.docx

Annex B: Monitoring and Evaluation Framework

Annex C: SONAR webinar summary report.docx

Annex D - Global Fund Maturity Model_v1-baseline.docx

Annex E - Global Fund Maturity Model_v2-followup

Annex F - WHO Mosaic Maturity Model.xlsx

Annex G: White Paper_Final_June30_2023.pdf

Annex H: Sierra Leone Simulation Exercise After Action Report

Annex I: Malawi Simulation After Action Report.pdf

Annex J: Lessons and Feedback from the Maturity Model's Implementation

Annex K - Maturity Model Scorecards by Domain.pdf

Annexes will also be shared via ZIP File in the event that reviewers can't access a link.