**MOMENTUM**
**Routine Immunization Transformation and Equity**

# COVID-19 Vaccination Program in Review

July 2022–June 2023

GHANA

August 2023

USAID FROM THE AMERICAN PEOPLE

MOMENTUM A Global Partnership for Health and Resilience

Richmond Nsaih

## MOMENTUM Routine Immunization Transformation and Equity

MOMENTUM Routine Immunization Transformation and Equity is funded by the U.S. Agency for International Development (USAID) as part of the MOMENTUM suite of awards and implemented by JSI Research & Training Institute, Inc. (JSI), along with PATH, Accenture Development Partnerships, Results for Development, CORE Group, and The Manoff Group under USAID cooperative agreement 7200AA20CA00017. The contents of this report are the sole responsibility of JSI and do not necessarily reflect the views of USAID or the United States Government.

## Recommended Citation

MOMENTUM Routine Immunization Transformation and Equity. 2023. Country Program in Review, Ghana. Arlington, VA: MOMENTUM Routine Immunization Transformation and Equity.

## Acknowledgments

We would like to thank the leadership role played by Ghana Health Service EPI Programme Manager, Dr. Kwame Amponsa-Achiano, and the Regional Health Directors, Dr. Boakye Boateng, Dr. Marion Okoh-Owusu and Dr. Yaw Ofori Yeboah of Ahafo, Western North and Western regions respectively. The EPI Manager and Regional Directors made valuable technical inputs to guide the design and implementation process. The project wishes to thank the leadership of the 10 civil society organizations for taking on the challenge to engage communities and priority groups to increase COVID-19 vaccine uptake. The project also acknowledges the Deputy Directors for Public Health in the project regions, who coordinated the delivery of project activities and ensured timely attainment of the deliverables.

**JSI RESEARCH & TRAINING INSTITUTE, INC.**
JSI is a public health management consulting and research organization dedicated to improving the health of individuals and communities. JSI collaborates with government agencies, the private sector, and local nonprofit and civil society organizations to improve quality, access, and equity of health systems worldwide.

**PATH**
PATH is a global nonprofit dedicated to achieving health equity. With more than 40 years of experience forging multisectoral partnerships, and with expertise in science, economics, technology, advocacy, and dozens of other specialties, PATH develops and scales up innovative solutions to the world's most pressing health challenges.

## Contact Information

JSI RESEARCH & TRAINING INSTITUTE, INC.
2733 Crystal Drive, 4th Floor
Arlington, VA 22202, USA
Phone: 703-528-7474
Fax: 703-528-7480
Web: https://usaidmomentum.org/

Cover photo: Philip Nankong Awelana

# Table of Contents

# Acronyms

| | |
|---|---|
| **AEFI** | adverse events following immunization |
| **DHIMS** | data health information management system |
| **DQA** | data quality assessment |
| **EPI** | Expanded Programme on Immunization |
| **GHS** | Ghana Health Service |
| **HCD** | human-centered design |
| **HPO** | health promotion officer |
| **NGO** | nongovernmental organization |
| **ODK** | open data kit |
| **RI** | routine immunization |
| **VAM** | vaccine accountability management |

# Results

## Strengthening the Health System

Conducted **87 supportive supervision sessions** with project support to improve quality of services.

Entered **714,434 client records to the national DHIS database** to help clear the COVID-19 vaccination data backlog.

## Reaching Underserved and Priority Populations

Conducted **414 community engagement events** providing information about the **COVID-19 vaccine** and where to access vaccination services.

## Strengthening the Health Workforce

Trained **795 health workers** on COVID-19 vaccine related topics.

Trained **121 people** on **digital microplanning** in three districts to develop accurate catchment maps.

Trained **59 health promotion officers** and **staff members** of nongovernmental organizations on **human-centered design approaches** to increase COVID-19 vaccine uptake.

Trained **168 health workers** on **cold chain** and **vaccine accountability management**.

# Background

Ghana recorded its first COVID-19 cases on March 12, 2020.[1] The first government strategy for managing the epidemic was a national level strategy focused on the 3Ts: test, trace, and treat. As more cases were reported countrywide, a five-pronged approach was adopted in March 2022 as a measure to protect the population: limit the number of imported cases; prevent community spread; isolate; treat and ensure resilience and domestic capability; and limit the impact on citizens. Ghana's COVID-19 response was designed to fit into its decentralized health sector—organized by the national, regional, and district level—to ensure effective delivery of COVID-19 vaccines and not disrupt current health services.

Ghana received its first COVID-19 vaccines in March 2021 and set an initial vaccination target of 60 percent of the population (approximately 20 million people) as part of its strategy to achieve high vaccination coverage. Once vaccine rollout began that same month, challenges arose around coordination, managing data, demand generation, cold chain and logistics, and an initial lack of vaccine availability and deployment efforts. The government altered its course to address these challenges and began working with partners to increase vaccination efforts. As of June 30, 2023, the Government of Ghana had administered over 25 million COVID-19 vaccine doses with 76 percent of the target population receiving at least one dose and 34 percent of the total population fully vaccinated.[2]

Philip Nankong Awelana

1 Press Release: Ghana Confirms Two Cases of COVID-19. Ministry of Health. https://www.ghs.gov.gh/covid19/downloads/covid_19_first_confirmed_GH.pdf. Accessed: May 17, 2023.
2 COVID-19 Ghana's Outbreak Response Management Updates. Ghana Health Service. https://www.ghs.gov.gh/covid19/. Accessed: July 5, 2023.

# Project Overview

**MOMENTUM Routine Immunization Transformation and Equity (the project) applies best practices and explores innovations to increase equitable immunization coverage in USAID-supported countries. The project is USAID's flagship technical assistance mechanism for immunization working in 18 countries around the world. It works to build countries' capacity to identify and overcome barriers to reaching zero-dose and under-immunized children and older populations with lifesaving vaccines and other integrated health services, including rebuilding immunization systems adversely affected by the pandemic. It also supports COVID-19 vaccine rollout across countries with a wide range of circumstances and needs.**

In July 2022, the project received funding under the American Rescue Plan Act Congressional Notification 18 to support Ghana's COVID-19 vaccination effort. The project provided strategic national-level technical support to mitigate key gaps and bottlenecks to vaccine introduction. The project partnered with the USAID-led Global Vaccine Access initiative (Global VAX) in 29 districts in the Western, Western North, and Ahafo Regional Health Directorates to:

1. Enhance availability and use of high-quality data.
2. Increase capacity to develop and implement microplans.
3. Improve cold chain management.
4. Strengthen community engagement.

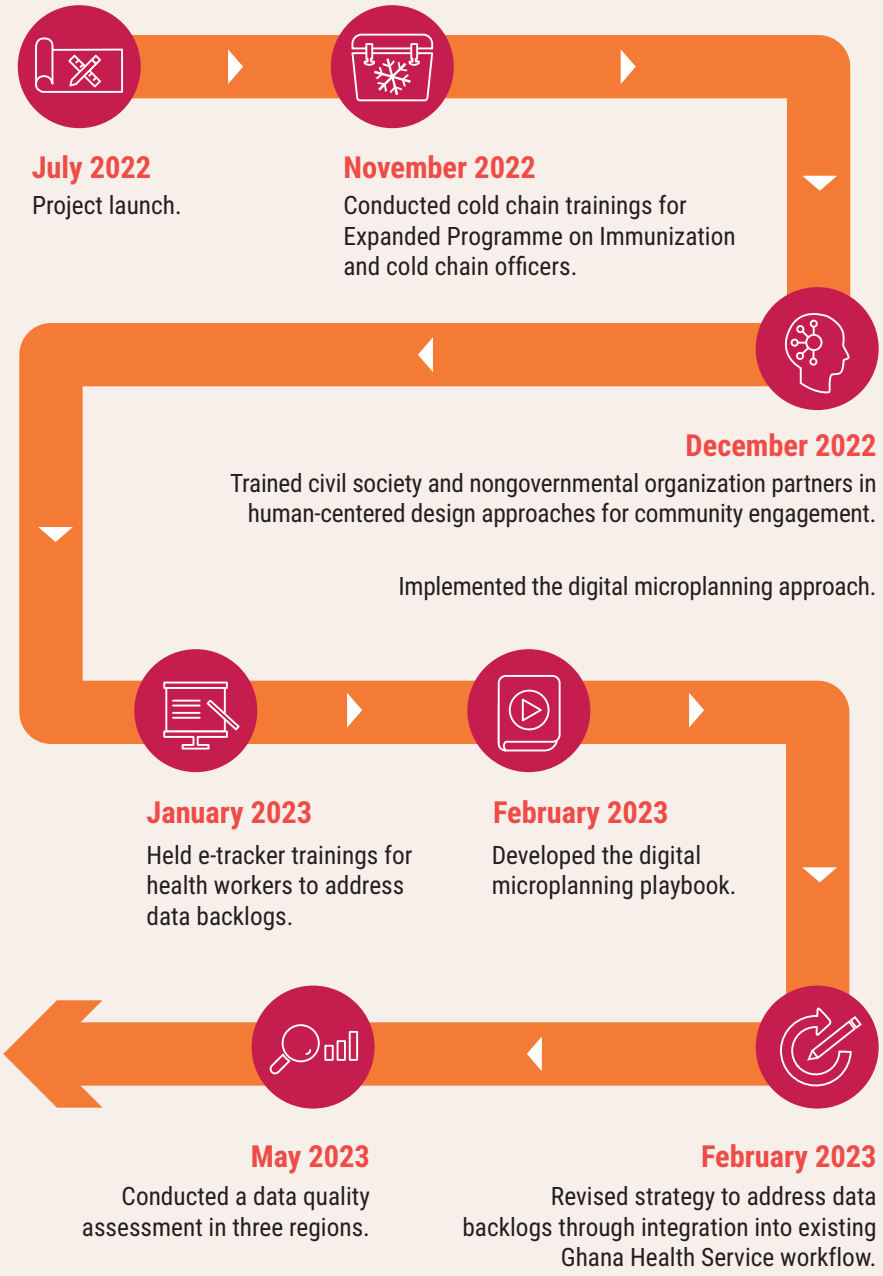
The project's engagement with Ghana was a rapid sprint with funding for just under one year (July 2022–June 2023). Due to its short-term, the project had clear objectives and focused on what would have the most benefit for both COVID-19 vaccination efforts and overall health systems strengthening. All activities designed under the project were co-created with regional and district health directorates as lead implementers to increase the sustainability and commitment. Whenever possible, the project embedded project-specific activities within on-going health directorate activities.

# Technical Areas of Support

The core areas of support provided through the project were interrelated, focusing on strengthening the Ghana health system beyond COVID-19. The capacity building initiatives focused on improving data quality to enhance decision making; ensuring functional cold chain and logistics management systems; using microplanning as a tool for improving community engagement; and using human-centered design (HCD) to target priority populations.

## TECHNICAL AREAS

- **Strengthen cold chain and vaccine management systems**
- **Strengthen community engagement**
- **Enhance microplanning processes**
- **Improve data quality, management, and use**



# Strengthening the Health Workforce

## Strengthen cold chain and vaccine management systems

The project worked closely with the Ghana Health Service (GHS), regional health directorates, and partners to roll out sustainable vaccination activities. One of the project's main objectives was to ensure sustainability, easy integration into primary health care activities, and complementarity with Global VAX activities through joint planning. Once activities began, regular review meetings were necessary to update partners, identify challenge areas, and adjust implementation as needed based on learnings. The project met monthly with regional health directorates to review performance and discuss various aspects of the program and identify capacity building and data management needs. During meetings with GHS and Expanded Programme on Immunization (EPI), the project gave updates on data quality, cold chain, and logistics management and community engagement activities. Each of these updates included a focus on how the project was using its COVID-19 activities to enhance the delivery of routine immunization (RI) services in project focal regions.

As the GHS developed plans to facilitate rapid introduction of the COVID-19 vaccine, the project identified the need to enhance cold chain and logistics management systems. Working with USAID's Global VAX project, the project conducted a cold chain gap analysis for its three supported regions that found the following main challenges:

- Inability to deliver services effectively due to inadequate cold chain equipment in some sub-districts.
- Low level of knowledge and skills in cold chain management at health facility levels hindering record keeping.
- Inadequate resources to transport vaccines to sites.
- Inability to store some vaccines, such as meningitis type A and rotavirus, due to lack of adequate infrastructure, resulting in high dropout rates.

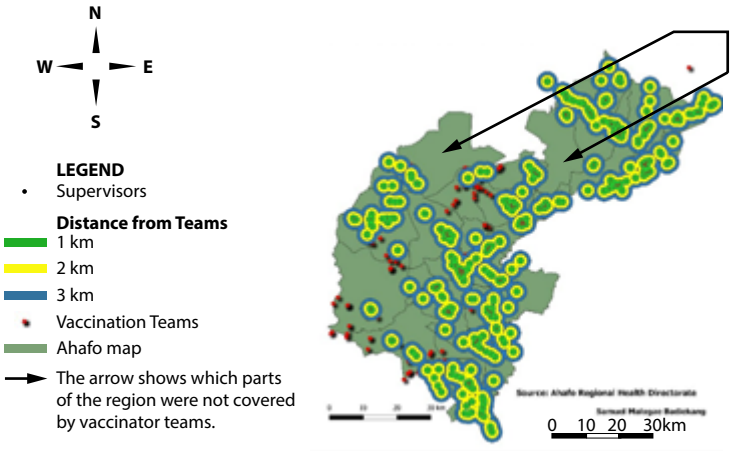
While the main purpose of the gap analysis was to gain insights into how the cold chain system was managed, the analysis showed important gaps pertinent to RI, such as the inability to store meningitis type A and rotavirus vaccines. To address the gaps identified, the project and Global VAX worked with regional health directorates to adapt existing training modules on:

**Cold chain and logistics management, including management of COVID-19 vaccines.**

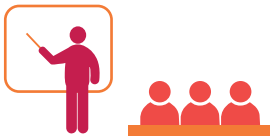
**Vaccine Accountability Monitoring (VAM), a process of monitoring and accounting for each vaccine vial delivered, used, and reported.**

**Using ODK software to monitor the movement of vaccines and other logistics and supervision teams and identify areas that vaccination teams have not visited (figure 1).**

Figure 1: Use of ODK to monitor vaccinator movements




Source: Ahafo Regional Health Directorate
Samuel Malogae Badiekang



The project conducted **six trainings** for **168 health workers across three regions**.

The trainings were interactive and allowed participants to share their experiences and learn from each other. They also allowed regional health directorate staff, whose visits to districts were infrequent, to verify and validate all cold chain and VAM records for both COVID-19 and RI vaccines. The project supported key regional health directorate staff to facilitate the training modules on cold chain and logistics management and VAM. This approach was not only cost effective, but ensured regional staff have the knowledge to continue giving these trainings after the project's support ends. This is an integral component of the project's health systems strengthening strategy.

A month after the trainings, the project, in conjunction with the regional health directorates, conducted joint monitoring visits to randomly selected sub-districts and health facilities to assess if the training had improved cold chain and logistics management practices. These visits showed that all standard operating procedures were being followed; vaccines were available and appropriately stored; and stock records, vaccination cards, and forms for adverse events following immunization (AEFI) forms were available and regularly updated. Record keeping had improved compared to before the training and staff were able to explain the various stages of vaccine management. The only challenge observed was slow response to investigating cases of AEFI. The project referred this issue to the regional health directorate.

# Reaching Underserved and Priority Populations

## Strengthen community engagement

Beginning in April 2022, 13 months after COVID-19 vaccines were introduced in Ghana, the number of people getting vaccinated began to decline due to unavailability of vaccines. When vaccines became available again, rates did not increase as expected, due to widespread misinformation and disinformation that proliferated while people were waiting for vaccines.

In response, the GHS and EPI intensified communication to combat hesitancy and introduced new community engagement strategies. However, the NGOs lacked skills for using some of these new methods (participatory methodologies, increased monitoring and documentation, and targeting low coverage communities), so the project, in partnership with Global VAX, trained NGOs and health promotion officers (HPOs) on HCD methods. The training covered how to use HCD to understand and engage priority groups and how UNICEF's "Journey to Health and Immunization Framework" can be used to identify enablers and barriers to vaccination. In conjunction with this was a training sponsored by the project and Global VAX on risk communication and how to overcome vaccine hesitancy by dispelling misinformation and disinformation during community engagement activities. The approach involved joint training for the regional health directorate HPOs and NGOs to promote synergy and strengthen partnerships to generate demand for COVID-19 vaccines. Participants worked in regional teams to develop joint action plans to ensure consistency in community engagement initiatives.

Trained **59 health promotion officers** and **staff** from nongovernmental organizations on **human-centered design approaches** to increase COVID-19 vaccine uptake.

> **"Using the HCD was really an eye opener to us as a team on this vaccination program. It's been realized that more of the target groups have reasonable and peculiar reasons why they refused the vaccines, and without using the HCD steps, it would be difficult to know the root causes and also plan to solve those issues."**
>
> **Representative from Life Relief Foundation, an NGO in Western Region**

HCD activities have become popular and are helping to change attitudes about COVID-19 vaccination in communities. NGOs used an HCD step called "understanding the persona" to gain insight into the needs, aspirations, values, and traits of a particular character; in this case, families or individuals in communities. One of the NGOs was working in the Western North Region, where it encountered strong vaccine resistance. As the team talked with and tried to understand family members' perspectives, it found that many people in the community were migrant workers who refused the vaccine because they believed that before a needle breaks skin, a tribal leader must perform rituals or the person would die upon receiving the vaccine. The NGO workers sat with the family and discussed their fears and asked others in the community, including the village chief, who had been vaccinated, to talk with the family. The chief showed them his vaccination card and received a booster in front of the family.

**"The [NGO] mobilizer told me about [the family] and I visited them at their village and used my HCD skills and all accepted and took the vaccine. They said it is against their culture. I spent 1 to 2 hours talking with them. After the head of family agreed to take the vaccine, the others accepted. So the head took it first. And the rest followed. Today has been a wonderful day for me."**

**NGO project coordinator**

Michael Asare

Use of participatory approaches such as HCD in combination with other strategies was vital to increasing vaccine acceptance and uptake. It allowed communities and priority populations to be heard, which increased trust in the messages delivered. It also strengthened the bond between the communities and NGO implementing partners because joint decisions were actually implemented and NGOs worked with EPI to ensure vaccines were readily available at engagement points. The use of participatory tools and the collaborative relationships between the NGOs, HPOs, and EPI, are likely to continue after COVID-19 to support demand generation for RI services for zero-dose children.

Both the project and Global VAX partners participated in bi-weekly review sessions to provide updates on community engagement activities, share strategies to increase vaccine uptake, and overcome challenges. Information shared during these sessions indicated that NGOs were integrated into regional health directorate COVID-19 vaccination campaigns. The sessions were also an opportunity for NGOs to demonstrate the extent to which their efforts were yielding results.

By June 2023, the project supported over 414 community engagement events providing information about the COVID-19 vaccine and where to access vaccination services. During community events CSOs disseminated information, engaged priority groups, and identified hesitant communities and individuals to promote vaccine uptake using HCD approaches. The CSOs worked closely with HPO and EPI vaccination teams during events.

# Strengthening Health System Management

## Enhance microplanning processes

Microplanning is the process of identifying priority communities and their barriers to health services, and developing a detailed work plan to overcome those barriers. The process involves a set of decision-making steps and tools to define the activities, resources, timing, location, and monitoring plan. Microplanning for COVID-19 vaccination was a continuous process that depended on the type and supply of vaccines, the demand for and uptake of high-quality services, and findings based on monitoring similar activities. It also involved re-evaluating and revising activities to leverage requisite resources and opportunities. Working with Global VAX, the project helped update COVID-19 microplans in 29 districts, starting by reviewing steps districts were taking to develop their microplans, including using maps to identify communities. During this review, partners realized several challenges with the maps:

- Maps were hand drawn and time-consuming to update (see figure 2).
- Maps did not include all settlements and facilities.
- There were inaccurate population estimates at the sub-district and community-based health planning and service zone levels.
- Urban slums were not well defined or demarcated.
- Distances from communities to facilities were not documented.
- There were no tools or resources to visualize, map, and identify areas of low EPI performance.

The project and the regional and district health teams co-created a concept and new approach to microplanning to overcome some of these challenges. The project and regional and district management teams decided to work with the project to initiate pilot geo-enabled digital microplanning in three districts: Asunafo North District in Ahafo, Aowin District in Western North, and Effia Kwesimintsim District in Western Regions. The project reviewed and selected these districts based on three criteria: having large target populations but low COVID-19 vaccination coverage; being in an urban setting; and being highly populated.

Based on challenges from the previous microplanning processes, the project included the following elements in the training:

- How to generate maps using Q-GIS (an open-source, user-friendly software).
- How to review sub-district coverage data from the district health information management system DHIMS2.
- How geo-referencing can improve quality service delivery.

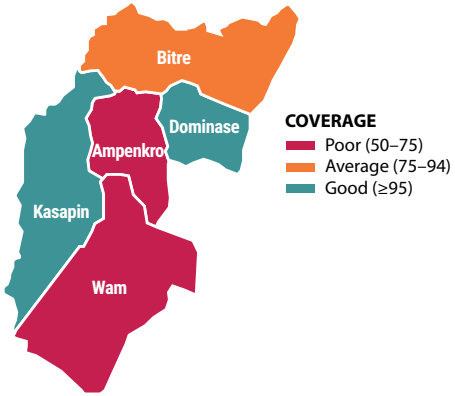
The project trained **121 people** from the regional and district health directorates and representatives from each health facility in the pilot districts on **digital microplanning over the course of five days**.

While challenges in COVID-19 vaccination delivery necessitated this training, data visualization and data for decision making are crucial to improving RI coverage as well. During the training, participants practiced making digital maps and after the training used these skills to inform RI coverage planning decisions (figure 3). Figure 3 is the same sub-district as figure 2, but was created using new training tools to visualize immunization coverage and geographic scope as well as plan activities.

After training health workers in microplanning, the project worked with district health teams and community representatives to review maps on Penta 1, Penta 3, and COVID-19 vaccination coverage. Community representatives identified reasons that

Figure 2. Hand-drawn Map of Kasapin Sub-District

Figure 3. Penta 3 Immunization Coverage Maps of Kasapin Sub-district, by Community-based Health Planning and Service Zone




coverage was strong or weaker and developed an action plan to increase coverage where needed. This step was critical for ensuring that the digital maps reflected community-based knowledge.

The pilot districts are planning to use skills gained during the training to develop strategies for vaccine deployment and community engagement and mobilization during COVID-19 vaccination campaigns. During Ahafo Region's annual review, staff used these skills to develop maps to report on both RI and COVID-19 vaccination status. Based on the success of the pilot, the project, partners, and regional health directorates are expanding the initial training to Tano North and additional sub-districts in Ahafo. With updated maps and more comprehensive microplans, health workers were able to identify missed communities and vaccinate people in these newly identified communities.

## Improve data quality, management, and use

Access to, understanding of, and use of accurate vaccination data is critical for immunization service delivery planning, measurement, and management. When the project began working in Ghana, its three supported regions had 853,746 backlogged COVID-19 vaccination data records and no way to analyze which populations were getting vaccinated and which were missed. As a first step, the project agreed to work with regional teams to enter the data backlog. This approach was stopped because the e-tracker for capturing COVID-19 data was down.

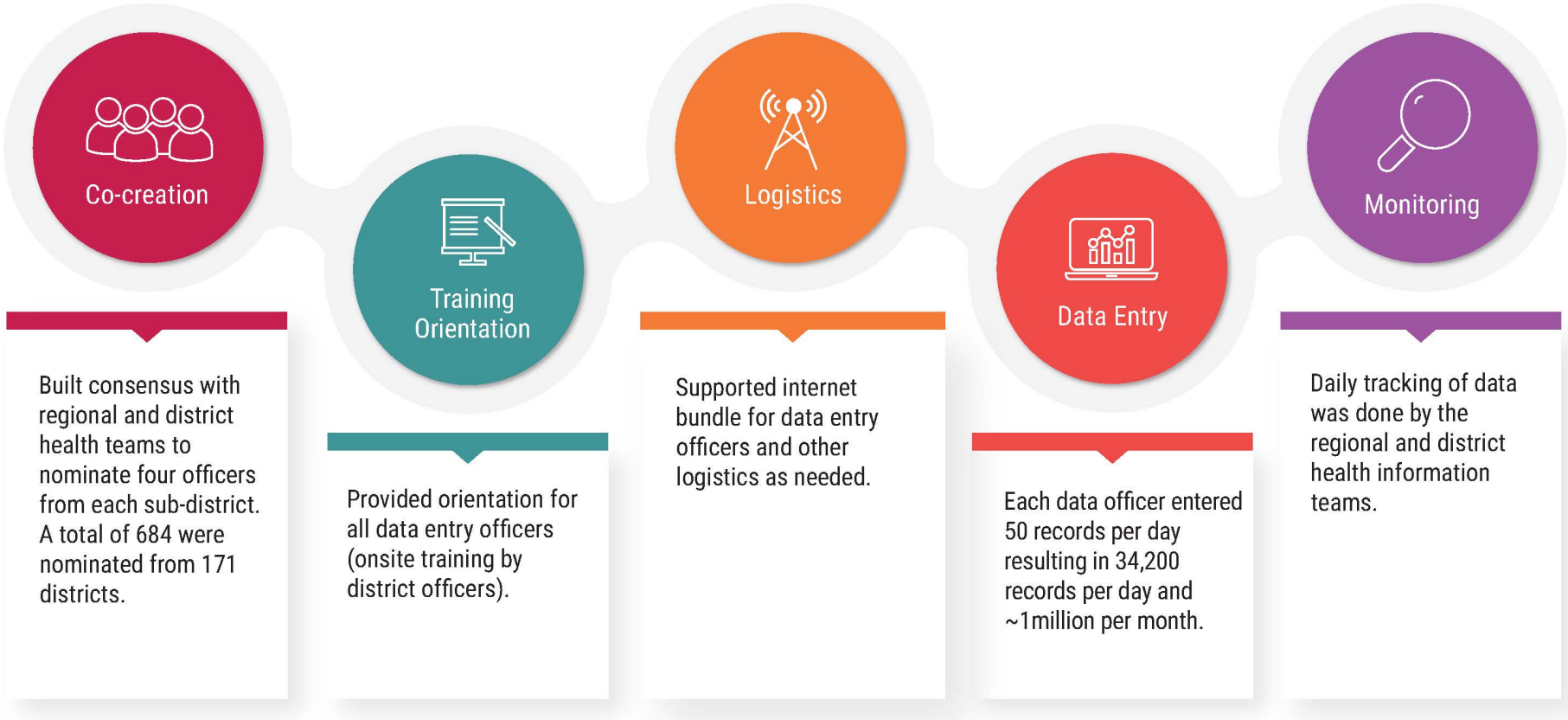
After a prolonged outage, the COVID-19 e-tracker system was restored in December 2022, but when it was, all previously logged data were lost, resulting in a backlog of 2.5 million data points in the three regions. The project and Global VAX met with regional partners to develop strategies to manage and clear this new and substantially larger data backlog. The agreed-upon approach was for regional teams to meet in centralized locations for a week-long data bootcamp to re-enter the data into the e-tracker. This was a chance to also provide additional training on how to use the e-tracker and incorporate activities like data quality management and supportive supervision techniques for supervisors.

However, during the bootcamps, the daily data capture rate was lower than expected. After reflecting on challenges, the project and districts designed a new strategy where GHS data entry teams worked in their respective districts, guided by specific targets (figure 4). The regional and district health information teams supervised and supported the sub-district data entry teams and the project supported the team with data bundles to overcome internet connection challenges.

To ensure data quality was not compromised using this approach, the project undertook a data quality assessment (DQA) in each supported region. The project adapted the WHO DQA tools to focus on RI and COVID-19 indicators and reviewed DHIMS2 data to assess the quality and identify low-performing districts. After training on the adapted tools, the project supported field trips to review data in low-performing districts and health facilities. Key findings included:

- Inconsistencies between data captured in registers, aggregated reports, and DHIMS2 in most facilities.
- Lack of COVID-19 vaccination registers and EPI data collection tools.
- Irregular or no service performance feedback to the facilities from the district health directorate.
- Incorrect service data in DHIMS2.
- COVID-19 e-tracker system was not functional.

Figure 4. New COVID-19 Vaccination Data Backlog Strategy




After the DQA, the project and district health management teams organized a workshop in each region led by the district directors to review the DQA findings. During the discussions, the district developed plans for addressing data challenges. The regional health teams monitored implementation of the plans in selected districts and visted selected health facilities to verify and support the data teams. Subsequent review of data quality in each region showed marked improvement in the data management systems. The information showed COVID-19 and RI base data sheets were accurately recorded and the figures in the national database and DHIMS2 corresponded with the facility level data.


By the end of June 2023, the three regions had entered **29 percent of the data backlog**, at an **accuracy level above 90 percent**.

# Lessons Learned

**Continuous support for digital microplanning increased understanding and appreciation of how it can support health services.**

- On-site support was critical to overcoming initial challenges such as getting accurate coordinates of points of interest and loading data on maps.
- The ability of sub-districts to use digital tools beyond the generation of catchment area maps is crucial to measure performance and identify missed areas for vaccination.

**Strong leadership is essential to improving COVID-19 vaccination cover age.**

- Ellembelle in Western Region was judged the best-performing district for COVID-19 vaccine coverage. When the project visited the district to learn from its experience, it found that the district health director solicited support from the local government and provided periodic performance feedback to the sub-districts. The director's active involvement stimulated sub-districts' interest and created a friendly competitive environment.
- When leadership was involved, the local government provided funds to distribute vaccines and monitor vaccination activities, mobilizing additional resources outside the health sector for immunization services. This can be applied to RI planning.

**Participatory approaches with communities increased acceptance and uptake of COVID-19 vaccination.**

- When NGOs used HCD techniques, they moved from conventional approaches to community engagement and were able to better reach priority populations by understanding their perspective and working together to map mutually agreed upon solutions, which was both empowering and confidence building.
- Involving community members during the microplanning process helped indicate and refine service delivery and outreach points on digital maps.
- Resources and modules for community engagement approaches need to be developed so NGOs can use them to strengthen their community connections.

# A Way Forward

Since the project's inception in July 2022, the adoption of the co-creation approach enabled the GHS to strengthen data management and cold chain and logistics management systems, and enhance the capacity of GHS health officers on the use of geo-enabled digital microplanning and community engagement tools. The project adopted a co-creation approach that served as a vehicle for building regional ownership and enhancing regional health directorates' ability to design, lead, and manage similar activities in the future. Through the introduction of HCD participatory approaches, regional health directorates better understand reasons for vaccine hesitancy and, more importantly, have the tools to analyze and address this in the future. Regional health directorates are using digital microplanning and data to make decisions and assess which populations are being missed for RI and other health services. Ultimately, the regional health directorates have an improved capacity to manage health systems and are better positioned to integrate COVID-19 service delivery to help strengthen RI services.

The project contributed to building a stronger and more responsive health system in Ahafo, Western, and Western North regions by supporting NGOs to understand and use HCD methods, improve data quality and management, and training regional health directorate trainers.


**A health worker vaccinates a community member after a project supported NGO engaged the community using newly learned HCD techniques.**

**Credit: Philip Nankong Awelana**


Philip Nankong Awelana

**JSI RESEARCH & TRAINING INSTITUTE, INC.**
2733 Crystal Drive, 4th Floor
Arlington, VA 22202, USA
Phone: 703-528-7474
Fax: 703-528-7480

https://usaidmomentum.org/

https://www.facebook.com/USAIDMOMENTUM/

@USAID_MOMENTUM

https://www.linkedin.com/company/usaid-momentum/