

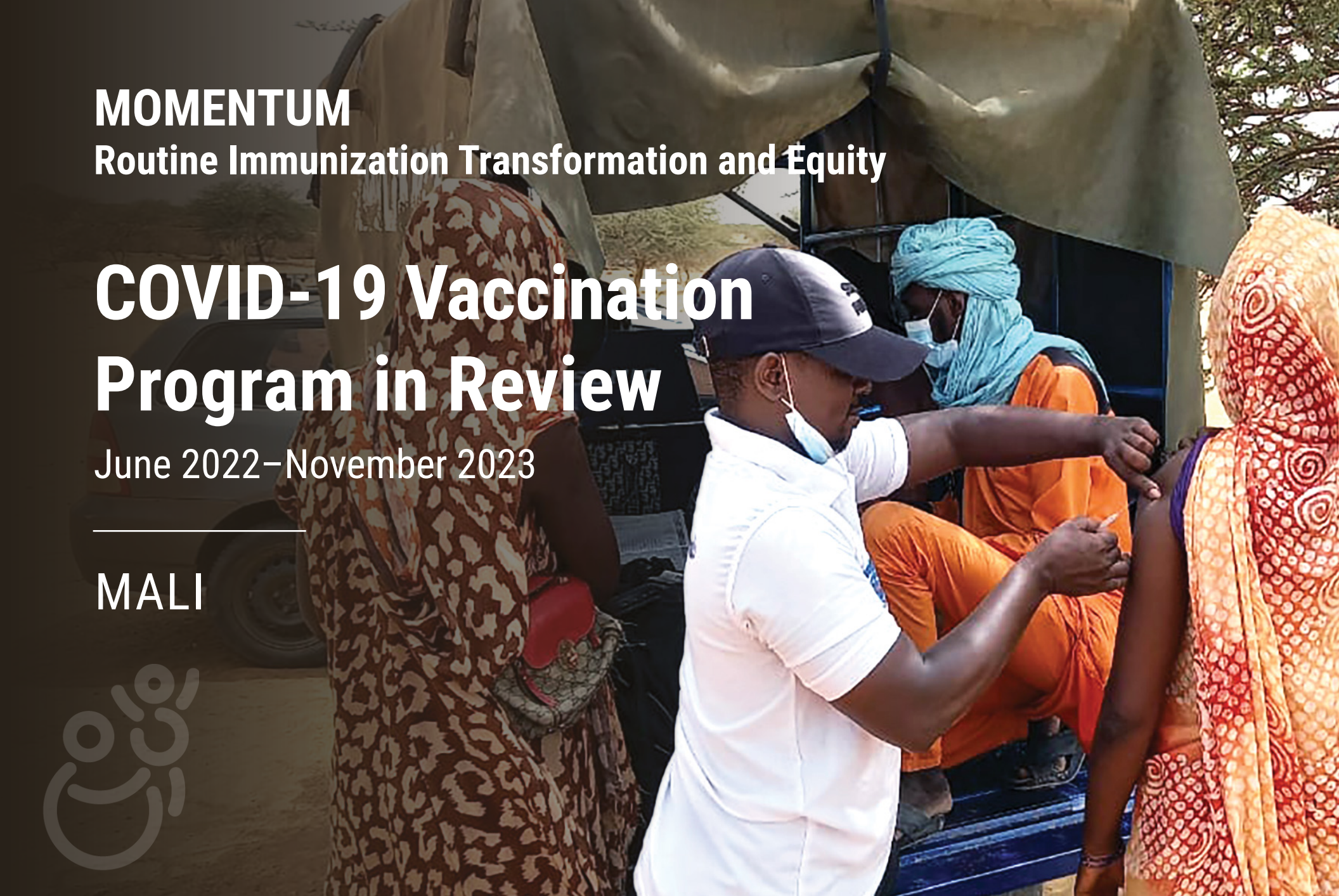
MOMENTUM

Routine Immunization Transformation and Equity

COVID-19 Vaccination Program in Review

June 2022–November 2023

MALI



January 2024





MOMENTUM Routine Immunization Transformation and Equity

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Acronyms

NCI	National Center for Immunization
DHIS2	District Health Information Software 2
EPI	Expanded Program on Immunization
MOH	Ministry of Health and Social Development
NDVP	National Deployment and Vaccination Plan
PTF	technical and financial partner
RI	routine immunization
UNICEF	United Nations Children's Fund
WHO	World Health Organization



Results

Reaching Underserved and Priority Populations



Directly supported the administration of **COVID-19 vaccines** to **35,600 people** in the regions of Gao and Timbuktu.



Delivered **46,300 doses of** COVID-19 vaccines, **91,000 syringes**, and **26,000 vaccination cards** to the regions of Gao and Timbuktu.



Reached **211,076 people** with COVID-19 vaccine-related messaging through mass media.

Strengthening the Health System



Supported the National Center of Immunization (NCI) to update and revise the **National Deployment and Vaccination Plan (NDVP) 2023**.



Supported the development of the **national plan** to **integrate COVID-19 vaccination** into the Expanded Program on Immunization (EPI).



Trained **554 health workers** and **staff** on COVID-19-related topics.



Supported health facility staff in **75 districts** to record COVID-19 vaccination data for **103,704 people**.

Background

Mali recorded its first COVID-19 cases in March 2020.¹ One year later, the country acquired 396,000 doses of the COVID-19 vaccine and launched a large-scale vaccination campaign. The government prioritized health care workers, people aged 60 and over, and people with comorbidities.² In the year following vaccine introduction, the country received over 3.8 million doses of vaccines through the COVAX initiative and bilateral agreements and donations, but administered less than half of the doses.³

Although Mali had sufficient vaccine availability in all regions and health districts, a number of factors contributed to low rates of vaccine acceptance and uptake. There were challenges in planning and implementation, persistent myths and misconceptions, a poor data management system, and a lack of concern about COVID-19 infection among the general population.⁴

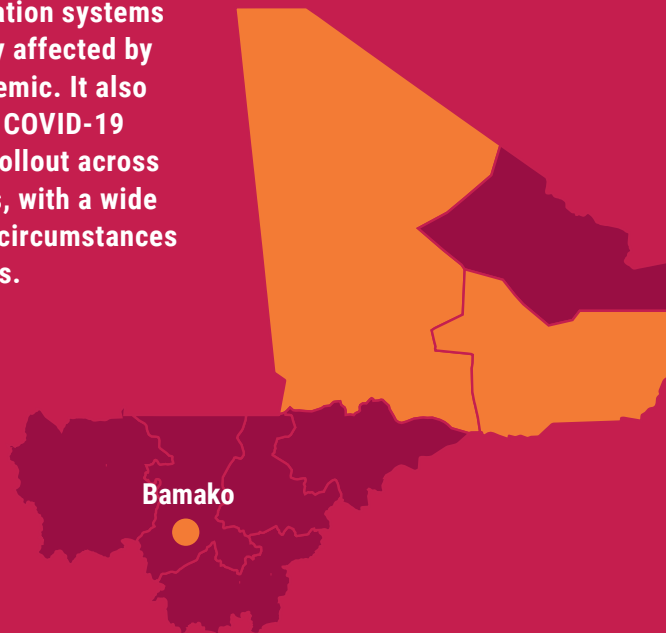
In March 2022, Mali updated its NDVP for the COVID-19 vaccine. The NDVP goals were to train health workers involved in immunization; manage 100 percent of reported adverse events following immunization; manage 100 percent of vaccination waste; and ensure that at least 80 percent of the eligible population had a favorable impression of the vaccine.⁵

- 1 "Mali: WHO Coronavirus Disease (Covid-19) Dashboard with Vaccination Data." WHO Coronavirus (COVID-19) Dashboard, January 2020. <https://covid19.who.int/region/afro/country/ml>.
- 2 *Projet Vaccin AF Mali COVID-19. Ministère de la Santé et des Affaires Sociales, June 2021.* http://www.sante.gov.ml/docs/PPCIGD_COVID_VACCIN%20AF_%20VF_300621.pdf.
- 3 *Le Mali marque une année de vaccination contre la COVID-19 dans le pays, avec plus de 1 000 000 personnes complètement vaccinées, March 31, 2022.* <https://www.afro.who.int/fr/countries/mali/news/le-mali-marque-une-annee-de-vaccination-contre-la-covid-19-dans-le-pays-avec-plus-de-1-000-000>.
- 4 World Health Organization, and World Bank. *Rep. Accelerating COVID-19 Vaccine Deployment*, April 20, 2022. <https://www.who.int/docs/default-source/coronaviruse/g20-report-accelerating-covid-19-vaccine-deployment.pdf>.
- 5 *Plan National Actualisé de Déploiement des Vaccins et de la Vaccination Contre la COVID-19 au Mali, Mars 2022.*



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.



From June 2022 to November 2023, the project received USAID funds through Congressional Notifications 18 and 31 to provide technical assistance to the Government of Mali to complement the MOMENTUM Integrated Health Resilience project, supporting COVID-19 vaccination rollout in Gao and Timbuktu regions, and national-level technical support in Bamako. In Gao and Timbuktu, the project applied tailored strategies to reduce persistent challenges including vaccine hesitancy, data backlogs, poor data quality, management of multiple vaccines within the system, and vaccine distribution to health facilities in rural areas. Working alongside the EPI and the technical sub-committees of the National COVID-19 Coordination Committee, the project provided support related to community engagement, data, vaccine supply management, and microplanning to increase COVID-19 vaccination uptake by priority populations (including pregnant women) at facility and community levels.

The project worked to fill key gaps and mitigate bottlenecks hindering COVID-19 vaccination by assisting in the design and adaptation of service delivery and vaccine distribution strategies, and ensuring supply chain functionality in the two northern regions. At the national level, the project coordinated with the NCI, the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and other partners to implement the NDVP and design region-specific activities to vaccinate hard-to-reach and priority populations.

These efforts, while initially focused on COVID-19 vaccination, will contribute to a stronger and more cohesive health system, support improved routine immunization (RI) services, and inform future emergency responses.

Technical Areas of Support

TECHNICAL AREAS



Community engagement and demand creation



Vaccination service delivery



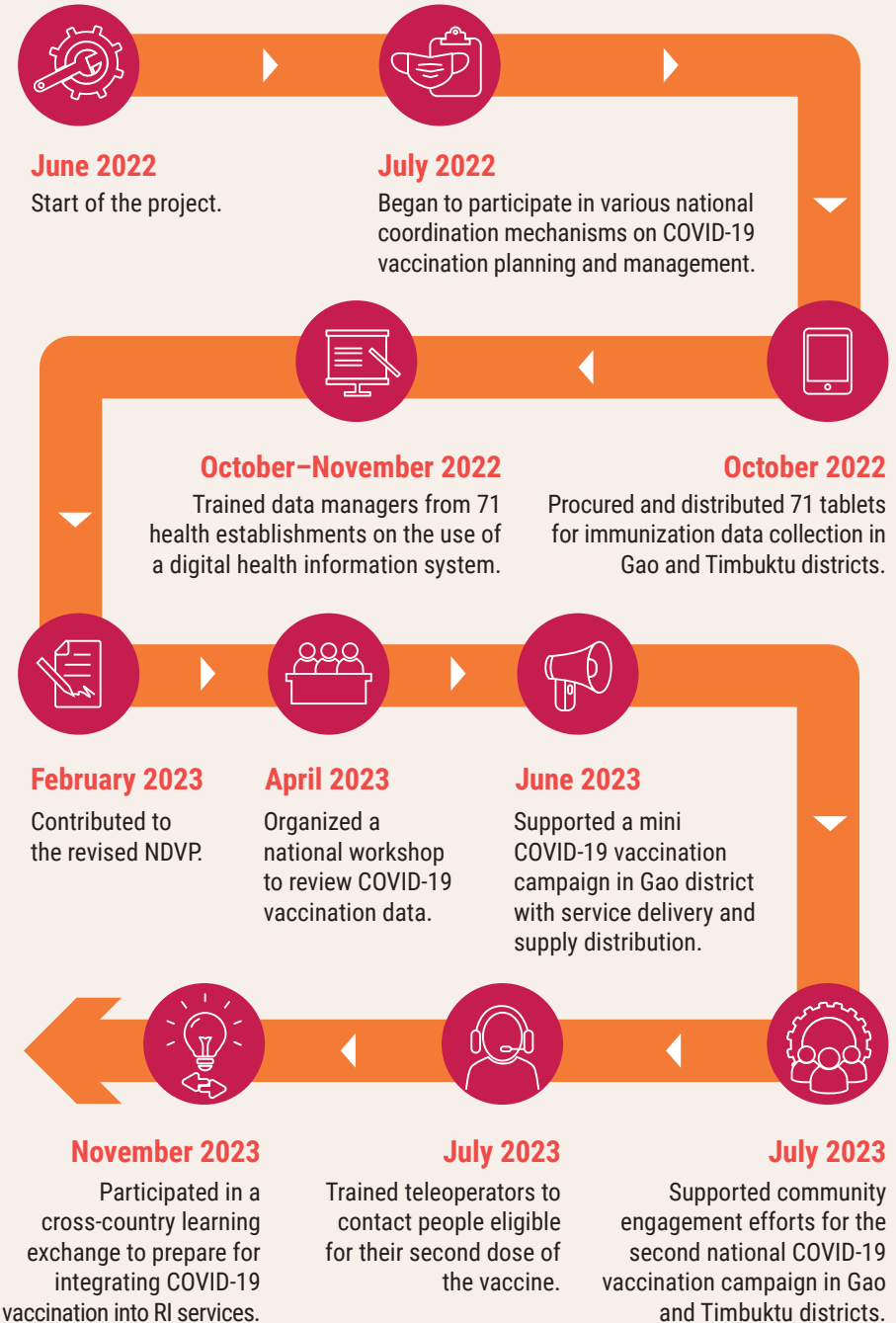
COVID-19 planning, policy, and coordination



Supply chain planning and systems strengthening



Data quality, management, and use



Reaching Underserved and Priority Populations



Community engagement and demand generation

As COVID-19 vaccines were introduced around the world and rolled out in Mali, myths, rumors, and misconceptions circulated widely, contributing to vaccine hesitancy and low demand. With fewer than 1,000 reported deaths caused by COVID-19 in Mali as of two years after the first cases were reported,⁶ many people did not prioritize vaccination against it because they were not concerned about infection. These factors contributed to low uptake of COVID-19 vaccines, in particular for the second dose.⁷ In June 2022, the Mission engaged the project to provide further support. The project set out to increase uptake of COVID-19 vaccines by priority populations in Mali, including health workers, older persons, and people with comorbidities.

During the COVID-19 vaccination campaigns in Gao and Timbuktu, the project engaged influential community members such as youth leaders, civil society organizations, women's groups, and village chiefs to raise awareness and build confidence in the vaccine. Community leaders are often better positioned to support their communities because people know and trust them. The project conveyed messages and information about COVID-19 vaccination to the community leaders, who then went door-to-door to pass along the information. They dispelled myths and encouraged people to get vaccinated. The project also collaborated with Breakthrough ACTION, USAID's flagship global social and behavior change project, to convey messages about COVID-19 vaccination through the network of the Union of Free Radio and Television of Mali. The messages were translated in local languages to increase reach and understanding. In March 2023, the project also supported the NCI in organizing a press conference at the Cabinet of the MOH to share the results of its vaccination campaigns and answer questions from the press.

The press conference was an opportunity to dispel rumors about COVID-19 vaccines and provide accurate information to journalists, who play an important role in disseminating that information to the public through their social networks.



6 "Mali: WHO Coronavirus Disease (Covid-19) Dashboard with Vaccination Data." WHO Coronavirus (COVID-19) Dashboard, January 2020. <https://covid19.who.int/region/afro/country/ml>.

7 "Explore Data." UNDP Data Futures Platform: Explore Data, April 2022. <https://data.undp.org/vaccine-equity/explore-data/>.



In July 2023, the project launched an initiative with the *Agence Nationale de Télé Santé et d'Informatique Médicale* (National Agency for Telehealth and Medical Informatics) and NCI to locate and vaccinate people who had not completed their primary series of COVID-19 vaccines. The project used the national COVID-19 vaccination digital database to identify people eligible for the second dose in all regions and health districts in Mali. It trained 14 teleoperators to call and give eligible people information about completing the COVID-19 vaccination primary series. The teleoperators made 36,985 calls between July and September 2023.



The teleoperators called more than **40,000 people** between **July and September 2023** to remind them to return for their second dose.

By applying various community engagement strategies throughout its duration, the project reached over 211,000 people with COVID-19 vaccine-related messaging through mass media, and over 27,000 people through social mobilization activities. The project prepared Mali to apply similar strategies to broader life-course immunization efforts.



Vaccine service delivery

Alongside the NCI and MOH, in June 2023 the project launched a four-day mini vaccination campaign in seven community health centers in Gao district to use 1,980 doses of Pfizer vaccine that were nearing expiration. The project conducted a cascade training of 132 supervisors, technical directors, and vaccinators on the objectives, strategies, and targets of the campaign. The project also helped with campaign logistics, distributing the vaccines from the regional health directorate to the community health centers, and supervising the activities. The mini-campaign reached 2,299 people with the remaining doses of Pfizer vaccine and administered an additional 338 doses of Johnson & Johnson vaccines.

With the project's efforts to support vaccination campaigns through service delivery and supply distribution, Gao and Timbuktu are better prepared to respond to future health emergencies that call for campaign-style outreach.

“Despite several campaigns already carried out, we were still far from reaching our vaccination goals. The mini-campaign enabled the regional health directorate to vaccinate many people. By supporting this campaign, the project will help us achieve our objectives before the end of 2023.”

Yattara Oumou Coulibaly, Vaccination Agent at the Djidarra Community Health Center.

Strengthening Health Systems Management

COVID-19 planning, policy, and coordination

Before shots can reach arms, a series of carefully planned and well-coordinated events must take place. For optimal efficiency, various actors from all levels of the health system must be involved in conversations to guide the overall vaccination process. In Mali, the project worked with key immunization partners in a variety of fora to contribute to the many conversations affecting the country's vaccination program.

The COVID-19 Vaccination Coordination Committee, established by the NCI, convened stakeholders involved in vaccination at central and regional levels, as well as *partenaires techniques et financiers* (technical and financial partners, PTFs). The committee monitored the implementation of vaccination activities; the availability of vaccines; the number of people vaccinated; and cases of adverse events following immunization. It also developed a template to map how Mali's various implementing partners would focus efforts and allocate funds, a key step to prevent duplication of activities.

Throughout its duration, the project hosted or participated in other fora, such as the scientific committee for the management of COVID-19 vaccination, the USAID implementing partner coordination mechanism, the mass campaign coordination committee, and the PTF health dialogue group. These meetings allowed for regular communication with USAID, UNICEF, MOMENTUM Integrated Health Resilience, the MOH, the NCI, civil society organizations, PTFs, and other immunization partners. Among other objectives, the project helped plan mass vaccination campaign activities, make decisions about priority populations and vaccination goals, and strengthen partner coordination. The project also helped plan quarterly workshops with immunization partners such as the MOH and PTFs, to create a collaborative, engaging space for them to reflect on progress and strategize future goals and next steps.

In February 2023, the project worked with the NCI in planning two workshops to update and revise the NDVP. Chaired by the General Directorate of Health and Public Hygiene and led by the NCI director, these workshops convened participants from regional health directorates, social development directorates, the Technical Consultative Group

on Vaccination, the Order of Physicians of Mali, the National Federation of Community Health Associations of Mali, PTFs, and other partners supporting vaccination services in the country. Attendees identified the main strengths, weaknesses, and challenges that impeded NDVP 2022 implementation, and defined new guidelines and strategies to improve COVID-19 vaccination outcomes. After the workshops the Interagency Coordination Committee for Immunization, led by the MOH, validated the NDVP 2023. The revised NDVP set a goal of vaccinating all people over the age of 12, with an emphasis on priority populations (people over 60 years of age, people with comorbidities, pregnant women, and health workers).



The project participates in a workshop to revise Mali's NDVP.

In April 2023, the project supported a national data review workshop with two representatives from each of the seven health regions in Mali, as well as leaders from the central level of the MOH to improve COVID-19 vaccination data availability and quality in the District Health Information Software 2 (DHIS2) platform.

During the workshop, participants:



Established a plan for resolving data quality issues in each region.



Corrected inaccurate data on adverse events following immunization.



Entered population data for 2022 and 2023 into DHIS2.



Shared experiences and difficulties in vaccination delivery services.

The project also worked with national immunization stakeholders to develop strategic documents and tools. To follow the *Comprehensive Multi-Year Plan for Immunization 2017–2021*, the project participated in sessions with the EPI, NCI, and other partners to discuss experience supporting COVID-19 vaccination and provide input on the next document to guide Mali's immunization program. The document focuses on planning, service delivery, finance, communication, monitoring, evaluation, and human resources, and outlines the government's plan to integrate COVID-19 vaccination into RI services.

Supply chain planning and systems strengthening

Strong supply chains are a prerequisite to improving immunization coverage and equity.⁸ In Mali, the project prioritized strengthening the supply chain to ensure that vaccines could reach the people who needed them most. Storing, managing, and transporting vaccines requires a properly functioning cold chain, including temperature-controlled fridges, freezers, and cold boxes. Project staff participated in logistics group meetings at national and regional levels to discuss, update, and improve the availability and functionality of cold chain equipment. Other participants included the NCI, UNICEF, USAID, Mali's Directorate of Pharmacy and Medicine, cold chain technicians, and waste

8 "Immunisation Supply Chain." Immunisation supply chain, December 12, 2019. <https://www.gavi.org/types-support/health-system-and-immunisation-strengthening/immunisation-supply>.

management staff. The group identified areas of improvement, such as the need for increased capacity for ultra-cold storage equipment for Pfizer vaccines, to meet the NCI's cold chain requirements. These measures prevent vaccines from being exposed to temperatures that are too high or too low, which can cause them to lose their ability to protect against disease.

The project updated the *COVID-19 and Routine Immunization Vaccines Weekly Report* on behalf of the NCI central warehouse in each of Mali's health regions. In collaboration with the logistics group, the project helped complete the *Collaborative Supply Planning Tool for COVID-19 Vaccine Management*, which included information on the districts' vaccine supply, use, and wastage and first and second doses administered. Generated data were shared with the National Logistics Group to inform decisions about COVID-19 vaccine supply. These reports guided the Government of Mali in acquiring adequate vaccine supply and making decisions around how to distribute the vaccines.

Once vaccines arrived in Bamako through the COVAX initiative, the project helped NCI collect and deliver them to various regions in Mali based on forecasted needs. This involved packing, handling, and shipping to ensure the vaccines arrived safely and were ready for use. The team also distributed supplies, such as registers, vaccination cards, and syringes to Gao and Timbuktu so the regions could continue the vaccination campaigns without interruption.



Bringing COVID-19 vaccines to Gao's health districts.

Mali's NDVP, updated in February 2023, set a goal of vaccinating at least 70 percent of people aged 12 and over. To meet this goal, the project provided technical support for the first three rounds of COVID-19 vaccination campaigns. During the second round of campaigns in July 2023, the project provided additional planning and implementation support by managing the transport of vaccines and other supplies from Bamako to Gao and Timbuktu districts via United Nations Humanitarian Air Service flights. The project then supported distribution from Gao and Timbuktu regional stores to community health centers. This ensured that vaccination sites were properly stocked and prepared to administer the vaccines. The project also held a microplanning workshop with the district health team and community health center managers to make sure there was an appropriate amount of stock for each community. The second round of campaigns spanned health centers, public areas, and neighborhoods across Gao and Timbuktu districts, vaccinating 21,252 people (Table 1).

Table 1. People vaccinated with project support during second round of COVID-19 vaccination campaigns

District	Target	Total vaccinated	Percent of target
Gao	12,000	12,151	101.25
Timbuktu	4,427	9,101	205.5*
Total	16,427	21,252	129.4

*In Timbuktu, over twice as many people were reached than targeted. This may be due to the involvement of community leaders in raising awareness and mobilizing the community.

These efforts made clear the importance of coordination across health districts to incorporate efficient mechanisms to enter and report supply chain data for decision making. In addition to COVID-19 vaccination supply planning, this is true for RI and other health services.

Data quality, management, and use

Managing COVID-19 vaccination data quality, analysis, and use in addition to managing RI data is a complex undertaking. Challenges in Mali included excessive workload for data collectors, inconsistent internet access, limited access to tablets, health workers' difficulty navigating the digital health system, low health worker motivation, and poor task delegation. The project employed a number of strategies to mitigate some of these challenges.

When COVID-19 vaccination commenced, health workers collected data either in a Microsoft Excel file or in the DHIS2 electronic health information system. DHIS2 stores data on RI, epidemiological surveillance, and COVID-19 vaccination. The Malian health districts are transitioning COVID-19 vaccination data from Microsoft Excel files to DHIS2, which makes it easier to report data to the national level and store patient information in a joint data management system. While all Malian health centers have access to DHIS2, many struggled with limited internet connectivity and resource constraints, causing delays in immunization data reporting. To facilitate data collection, the project procured 71 tablets with DHIS2 and distributed them to each health center and reference health center in Gao and Timbuktu districts, and supported and regularly



A health worker prepares and administers a dose of COVID-19 vaccine.

monitored their data collection progress. In June 2023, the project purchased satellite internet services, providing Ansongo health district in Gao and Niafouké health district in Timbuktu with high-speed internet connection. This made it easier for staff to report DHIS2 data for both COVID-19 vaccination and RI.

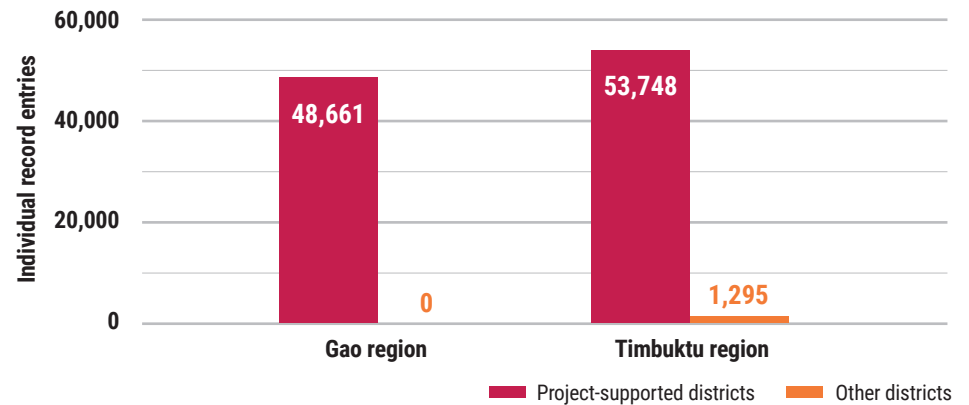
The project trained data managers to enter individual and aggregate data from immunization campaigns into the DHIS2 software. The project then supported MOMENTUM Integrated Health Resilience to conduct three COVID-19 vaccination data review workshops focused on analyzing DHIS2 data for completeness, consistency, and outliers. Each workshop convened community health center technical directors, reference health center data managers, district chief medical officers or representatives, and regional directorate of health managers staff to review and enter COVID-19 vaccination data and discuss the challenges related to its management. During the workshops, health center staff deleted more than 7,800 erroneous entries from the COVID-19 database for Timbuktu, and entered over 8,400 aggregated data for Gao.

Since health workers began using the project-supplied tablets and attended the training sessions and workshops, the number of COVID-19 data in DHIS2 increased substantially. The number of people enrolled in DHIS2 was remarkably greater in project-supported districts than in those without project support (Figure 1).



103,704 individual data records were captured in DHIS2 in Gao, Ansongo, Niafouké, and Timbuktu health districts between October 2022 and November 2023.

Figure 1. Population data entered into DHIS2 in four project-supported districts in Gao and Timbuktu regions (October 2022–November 2023)



*There are two districts in Gao region and three districts in Timbuktu region without project support.

Once collected, COVID-19 data were reported to the central level to help inform data-driven decisions. In collaboration with the NCI, the project organized an immunization collection form orientation session for 97 data managers and COVID-19 focal points in Gao and Timbuktu. The session included demonstrations on reporting aggregate data in the daily and weekly immunization reports, reporting individual data in the immunization register, and generating digital vaccination cards. The project sent a total of 26 weekly reports summarizing DHIS2 data to the four health districts.

Lessons Learned



Tailored community engagement strategies increase vaccine uptake.

- Identifying and contacting people who are eligible for vaccination through the national immunization database reiterated the importance of immunization to those who might not otherwise seek vaccination services.
- Educating community members on COVID-19-related topics increased their understanding of the benefits of vaccination.
- Involving community leaders in mobilizing and raising awareness about COVID-19 vaccination reduced doubts and suspicion.



Collective efforts with partners increase immunization coverage.

- Mapping implementing partners' roles and responsibilities achieved synergy of efforts.
- Regular meetings with the national logistics group facilitated decisions about vaccine availability, distribution, and management.
- The national COVID-19 vaccination data review workshop allowed regional data management teams to share experiences and correct data entry errors.



Strategic guidance documents and tools support well-coordinated and sustainable service delivery.

- Revising the NVDP provided clear goals and a vision for the immunization system, taking into account the strengths, weaknesses, and challenges of previous plans.
- Tools such as the Collaborative Supply Planning Tool can streamline and facilitate more accurate forecasts of vaccine requirements and ultimately improve vaccine availability.
- Developing a national plan to integrate COVID-19 vaccination into RI and other health services through the EPI can support long-term access to COVID-19 vaccines.

A Way Forward

The project worked closely with the Government of Mali to increase access to and uptake of COVID-19 vaccines. Community engagement initiatives, such as a national call center, not only reach eligible populations with COVID-19 information but can also be used to identify and reach underserved populations with primary health care and RI services in the future. In addition, the project's participation in various coordination mechanisms that involved people from all levels of the health system was a critical component of planning campaigns, allocating responsibilities, and ensuring vaccine availability. Strong leadership and collaboration between health system staff and implementing partners will lay the foundation for sustainable, high-quality service delivery. These collective efforts inform the development of national guidance documents and tools that facilitate implementation of activities and processes, such as data and supply management.

In Mali, the COVID-19 response relied largely on vaccination through campaigns that functioned separately from primary care health facilities. Beyond the emergency phase of the pandemic, the EPI is planning to integrate COVID-19 vaccination into RI services. To ensure that all Malians, in particular priority populations, continue to have access to COVID-19 vaccines, the project designed activities that will benefit the broader health system beyond vaccination. These measures, such as increasing internet availability and access to tablets installed with digital health information systems, will strengthen both COVID-19 vaccination and RI long after the project ends.

In November 2023, the project organized a trip to Benin for NCI staff to share experiences and discuss plans for further integration of COVID-19 vaccination into the systematic EPI. These conversations identified the need to ensure that COVID-19 vaccination will not be deprioritized as countries shift focus to rebuilding RI services. Ultimately, the project contributed to building a robust, well-coordinated immunization program in Mali.

Readers can find additional information about MOMENTUM Routine Immunization Transformation and Equity's work in Mali at the following website: <https://usaidmomentum.org/where-we-work/mali/>





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