HEALTH SYSTEMS STRENGTHENING ACCELERATOR

# CROSS-COUNTRY REPORT ON COVID-19 VACCINATION STRATEGIES IN ETHIOPIA, NIGERIA, AND TOGO

**REPORT**

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# LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| **COVID-19** | Coronavirus Disease 19 |
| **MoH** | Ministry of Health |
| **HCWs** | Healthcare Workers |
| **IDCC** | Immunization Delivery Cost Catalogue |
| **LMIC** | Low- or middle- income country |
| **TDABC** | Time-driven activity-based costing |
| **WHO** | World Health Organization |

# EXECUTIVE SUMMARY

To support low- and lower-middle-income countries in adjusting their COVID-19 vaccination strategies to accommodate anticipated diminishing external resources in the post-emergency response phase of the COVID-19 pandemic, the Health Systems Strengthening Accelerator conducted a multi-country qualitative assessment on COVID-19 vaccination delivery strategies. Data were collected between August and December 2023 in Ethiopia, Nigeria, and Togo. The assessment's objectives were:

1. Identify the challenges for reaching priority groups with COVID-19 vaccinations- including equity considerations and reporting of disaggregated service data by socio-demographic group (gender, age, urban/rural) - and solutions countries have deployed to overcome them.
2. Understand the types of vaccination strategies and vaccine modalities that successfully reach priority groups.
3. Determine the data elements that are essential for costing those strategies.

Six research questions deriving from the objectives guided the data collection and analysis:

1. What are the key priority groups targeted for COVID-19 vaccination in the assessment countries?
2. What vaccination strategies and types of vaccines have been effective at reaching priority groups?
3. What systemic factors (planning and coordination, funding, regulations, training and supervision, cold chain and logistics, safety surveillance, risk communication and demand generation, monitoring and evaluation, and data systems) made the strategies effective?
4. What are the key issues and challenges related to implementing these strategies, including reporting disaggregated service data by socio-demographic group (gender, age, urban/rural)?
5. What solutions have countries adopted to mitigate challenges in vaccination implementation strategies?
6. What procurement and delivery cost components should countries consider when budgeting vaccination strategies for reaching priority populations?

The research team collected qualitative data through semi-structured interviews of 18-24 key informants per country, including national and subnational policymakers, health program managers, and representatives of development and implementing partners supporting COVID-19 vaccination. The research team used ATLAS.ti software for data coding and analysis of the interview notes.

The assessment produced the following major findings:

- All assessment countries have established multi-sectoral immunization technical working groups (TWGs) to coordinate COVID-19 vaccination implementation.
- Immunization TWGs developed national deployment and vaccination plans, which guided the choice and implementation of vaccination strategies.
- All assessment countries followed the World Health Organization (WHO)-SAGE recommendations to determine their priority groups with some adaptations.
- All countries have implemented a combination of vaccination strategies to reach priority groups. Different strategies were implemented at various implementation phases.
- The major operational challenges were the lack of reliable data on members of priority groups, individual reluctance to be vaccinated, vaccine shortages, dysfunctions of performance data management and progress monitoring mechanisms, and inequitable vaccination outcomes.

- Policymakers and implementers believe that outreach strategies, mobile strategies, and catch-up campaigns are the most appropriate strategies to reach priority groups for COVID-19 vaccination.
- However, the high operational costs of these vaccination strategies raise questions about countries' capacity to sustain implementation when COVID-19 is not considered a major concern since the WHO declared the end of the public health emergency and donor resources are waning.

These findings suggest a need to:

- Develop sustainability measures for continued COVID-19 vaccination service delivery.
- Promote domestic resource mobilization to offset reductions in donor assistance.
- Strengthen COVID-19 data systems to facilitate vaccination equity monitoring.
- Reorganize vaccination strategies and adapt them for eligible adult populations.
- Strengthen collaboration between EPIs and other disease control programs to facilitate identifying and vaccinating common eligible populations.
- Ensure regular supply and permanent availability of COVID-19 vaccines at the service delivery level.
- Support proactive social media communications by Ministries of Health to build trust among eligible populations and avoid reactive information sharing.

# I. BACKGROUND

The COVID-19 pandemic has significantly impacted global health and the global economy, posing unprecedented challenges in reaching new vaccination target populations, managing high delivery volumes, employing a diversity of vaccine delivery strategies, and handling complex vaccine profiles. This situation has resulted in the disruption of service delivery and compromised immunization coverage around the world. According to the World Health Organization's (WHO's) most likely scenario,[1] COVID-19 will continue to evolve, but the severity of the disease it causes will decline over time as immunity increases due to vaccination and natural infection. However, periodic spikes in cases and deaths may occur as immunity declines. The continual resurgence of COVID-19 will disproportionately affect four population groups: healthcare workers (HCWs), the elderly, people with comorbidities, and pregnant women. Such periodic resurgence will require different delivery strategies that must be established or strengthened beyond childhood vaccination.

With the end of the emergency response phase announced by WHO, low- and lower-middle-income countries (LMICs) are trying to adjust their vaccination strategies to accommodate anticipated diminishing external resources. They are focusing their response on priority population groups rather than broad population coverage. However, one challenge they must anticipate is possible vaccine distribution and uptake inequities that could arise from their chosen strategies. Furthermore, there is a need for more clarity on the cost components that must be accounted for when budgeting for COVID-19 vaccination.

Through this study, the Health Systems Strengthening Accelerator (the Accelerator) captured lessons learned from three countries—Ethiopia, Nigeria, and Togo—regarding vaccination strategies found to be effective at protecting priority groups.

[1] WHO. Strategic preparedness, readiness, and response plan to end the global COVID-19 emergency in 2022. 30 March 2022. https://www.who.int/publications/i/item/WHO-WHE-SPP-2022.1

# II. PURPOSE AND AUDIENCE FOR THE ASSESSMENT

This study's purpose is to describe effective COVID-19 vaccination strategies and vaccine modalities for reaching priority populations in three LMICs to understand the implementation challenges and innovations introduced by these countries to overcome the identified obstacles and to provide step-by-step guidance for budgeting for effective vaccination strategies to reach priority groups.

This assessment's audiences are policymakers (including planners and budget-makers), implementers, and donors in LMICs who would like to adapt and strengthen their COVID-19 vaccination strategies and vaccine modalities.

# III. OBJECTIVES

The objectives of this assessment are to:

1. Identify challenges to reaching priority groups with common vaccine delivery strategies—including equity considerations and reporting of disaggregated service data by socio-demographic group (gender, age, urban/rural)—and solutions that countries have deployed to overcome them.
2. Understand the types of vaccination strategies and vaccine modalities that successfully reach priority groups.
3. Determine the data elements that are essential for costing those strategies.

# IV. RESEARCH QUESTIONS

The specific research questions derived from the objectives as mentioned above are the following:

1. What are the key priority groups targeted for COVID-19 vaccination in the assessment countries?
2. What vaccination strategies and types of vaccines have been effective at reaching priority groups?
3. What systemic factors (planning and coordination, funding, regulations, training and supervision, cold chain and logistics, safety surveillance, risk communication and demand generation, monitoring and evaluation, and data systems) made the strategies effective?
4. What are the key issues and challenges related to implementing these strategies, including reporting disaggregated service data by socio-demographic group (gender, age, urban/rural)?
5. What solutions have countries adopted to mitigate challenges in vaccination implementation strategies?
6. What procurement and delivery cost components should countries consider when budgeting vaccination strategies for reaching priority populations?

# V. METHODOLOGY

## Country and Site Selection

The research team implemented this study in low- and lower-middle-income countries that were selected using the following criteria:

1. High coverage of priority groups
2. Geographical diversity
3. Purposeful mix of high and low vaccination performance for the general population
4. Range of priority groups being targeted
5. USAID Target Surge or Pfizer priority country
6. The Ministry of Health's interest in participating in the assessment

Based on these criteria, the research team conducted this assessment in Ethiopia (East Africa), Nigeria (West Africa), and Togo (West Africa). In each assessment country, the research team collected data at the central level and two to four sub-national sites. The sub-national sites, purposively chosen in collaboration with the Ministries of Health, included at least one urban and one rural setting.

## Data Collection

Primary data were first collected via an inception workshop in each assessment country, during which conversations with select COVID-19 response task force and Essential Programme on Immunization (EPI) team members helped explain the context of the implementation of COVID-19 vaccination. Additionally, the research team conducted key informant interviews at central and sub-national levels using a generic interview guide tailored to specific interviewees and country contexts. In each assessment country, the general interview guide was adapted based on findings from internal role plays as part of the data collector training. The assessment team interviewed 18-24 key informants per country.

The illustrative list of the informant profiles is as follows:

- **COVID-19 Task Force**
  - Chairperson/Coordinator
  - Other relevant sub-committee members
- **Ministry of Health**
  - EPI Director
  - Director of preventive medicine, family health, primary care, or infectious diseases
  - Director of planning, logistics
  - Head of budget committee
- **Heads of subnational (state, regional, district, facility) units responsible for COVID-19 vaccination**
- **Other country interviewees:**
  - Representative of civil society organizations
  - Representative of private providers
  - Members of the National Immunization Technical Advisory Group (NITAG)
- **External partners**
  - Representative of donors (USAID, UNICEF, WHO, etc.)
  - Representative of implementing partner organizations

The research team collected secondary data on COVID-19 vaccination performance, other relevant quantitative data, contextual information (such as vaccination delivery configuration), key policies (e.g., national deployment and vaccination plans, COVID response strategies, etc.), and reports (health management information system reports, presentations). The research team analyzed and triangulated these documents with interview transcripts to identify coherence and inconsistencies.

## Data Management and Analysis

Data analysis was completed in two phases:

- The first phase of analysis was at the country level. The country interview teams (with support from the overall assessment Principal Investigator and participation from technical staff/consultants) performed qualitative (and, where possible, quantitative) analysis of the country's data and compiled and summarized major findings to produce three country case studies.
- The cross-country synthesis phase used a mixed methods approach to assess trends, commonalities, and differences among the country findings.

In each assessment country, the research team diligently produced detailed interview notes that included key points from the interviewees' answers to each question. A priori codes were listed in a codebook based on the major research questions, and inductive codes followed as the analysis progressed. To ensure the highest level of quality, interview notes were coded using the qualitative research analysis software, Atlas.ti v23. Inter-coder reliability was maintained through thorough discussions, group coding exercises, and stringent quality checks overseen by the Principal Investigator.

The research team analyzed data using a thematic approach. Data extraction, guided by the themes in the codebook, examined the differing perspectives of informants, highlighting similarities and differences and generating unanticipated insights. The research team captured summaries of emergent themes and subthemes and collected relevant quotes. The qualitative findings were triangulated with data from the documents and quantitative data collected. The analysis extracted findings about the assessment objectives and research questions.

## Peer Learning

After completing the three country cases, the research team convened a "peer learning" workshop in Accra, Ghana in February 2024. This allowed representatives from assessment countries to share results with others, engage in cross-country learning, and build on ongoing planning efforts at the country, regional, and global levels. The objectives of the workshop were to:

- Understand the state of planning and practices for sustaining COVID-19 vaccination at the country level with a focus on health systems strengthening and reaching priority populations as strategies for sustainability.
- Share lessons learned and challenges for COVID-19 vaccination planning between countries and with regional and global policymakers.
- Identify the next steps for carrying forward lessons learned for the future of COVID-19 vaccination and related initiatives, such as outbreak preparedness, new vaccine introduction, and life course vaccination strategies, building on the workshop's learning.

The takeaways from the workshop are also reported in the findings below.

## Ethical Approvals

The study received an exemption from Health Media Lab's IRB in accordance with the requirements of the US Code of Federal Regulations for the Protection of Human Subjects 45CFR46.104(2 & 4) (Protocol #2285) on March 5, 2023. The research team obtained ethical approval from the College of Health Sciences of Addis Ababa University's institutional review board (064/23/M), the Nigeria Health Research Ethics Committee NHREC (01/01/2007), and the Bioethics Committee for Health Research CBRS (no. 037/2023) in Ethiopia, Nigeria, and Togo, respectively.

# VI. FINDINGS

## 1. Contextual Factors Affecting COVID-19 Vaccination

Several circumstances influenced the overall delivery of COVID-19 vaccinations in the three countries. These included vaccination rollout planning; regulatory provisions to ensure vaccine availability; involvement of political, religious, and community rulers in demand generation activities; COVID-19 data integration into routine health information systems to facilitate data-driven decision-making; and healthcare worker capacity strengthening, both to mitigate vaccine hesitancy among the health personnel and develop skills to manage COVID-19 vaccine introduction.

### Vaccine Deployment Planning

All three assessment countries established multi-sectoral immunization technical working groups (TWGs), coordinating technical preparations for the COVID-19 vaccine rollout. The multisectoral TWGs developed COVID-19 vaccination deployment plans (NDVP), which guided the operationalization of COVID-19 vaccination strategies. One country (Nigeria) went further by developing a series of operational guidelines to orient NDVP implementation at the sub-national level.

Representatives of government agencies, development partner staff, and subject matter experts composed the immunization TWGs. Essential Programs on Immunization (EPI) were the main coordinators and implementers of vaccination plans. As the pandemic progressed, the three countries revised their NVDP to adjust vaccination delivery strategies and eligible populations to the evolving epidemiology based on recommendations made by global and national immunization advisory groups.

Ethiopia set up an inter-agency coordination committee (ICC), which comprised government stakeholders (Federal Ministry of Health (FMoH), Ethiopia Public Health Institute (EPHI), Ethiopia Food and Drug Authority (EFDA), and Ethiopia Pharmaceutical Supply Services (EPSS)), development partners and experts. Nigeria created the COVID-19 vaccine introduction TWG, which was composed of representatives from the Nigeria Primary Healthcare Development Agency (NPHCDA), National Agency for Food and Drug Administration and Control (NAFDAC), Nigeria Center for Disease Control (NCDC), WHO, UNICEF, World Bank, and US CDC. Togo established the immunization TWG with representatives from the Ministries of Health, Territorial Administration, Digital Economy, development partners, and scientists.

### Regulatory Provisions for Vaccine Availability

These countries adopted two regulatory provisions aimed at facilitating vaccine importation and stimulating demand for COVID-19 vaccines. The first type eased the procurement and rapid distribution of COVID-19 vaccines through accelerated marketing authorizations. The second type of regulation, heavily emphasized by policymakers, concerned mandatory proof of vaccination, which catalyzed vaccine uptake.

The Government of Togo adopted a series of Presidential Decrees and orders that granted an exceptional authorization for COVID-19 vaccine importation to accelerate their procurement and ensure prompt distribution. The Governments of Ethiopia, Nigeria, and Togo ordered compulsory “vaccination pass” policies in the initial stages of COVID-19 vaccination, mandating proof of vaccination to access public services or attend large gatherings in places like markets and stadiums. All groups of informants explained that these regulations strongly encouraged people to get vaccinated, especially those wishing to travel.

**Engagement of Political, Religious, and Community Leaders**

All three assessment countries involved community leaders, religious leaders, as well as high-level political officials in demand generation activities, leveraging their influence and capacity to cascade COVID-19 vaccination messages within communities and encourage vaccination uptake among priority groups. Though this engagement was not a completely new practice, it reached an unprecedented level with COVID-19 mass vaccinations. Each country leveraged its established community structures and the social capital of community leaders to manage speculation and dis- or misinformation regarding COVID-19 vaccines' efficacy and safety.

Ethiopia mobilized high-profile government officials, ministers, members of parliament, regional presidents, and religious and clan leaders ("Dalas") to partake in sensitization activities to obtain political buy-in and boost community demand for COVID-19 vaccination. Nigeria's Advocacy, Communication, and Social Mobilization (ACSM) strategy tapped into influential figures within communities (gatekeepers), religious leaders, market women, and youth leaders in conveying COVID-19 vaccination messages. Also, Civil Society Organizations (CSOs) actively participated in vaccination campaign activities. Togo publicized the vaccinations of members of the government, the National Assembly, traditional chiefs (referred to as "Togbuis"), and voodoo leaders to build confidence in immunization among eligible groups.

**Strengthening the Capacity of Healthcare Workers**

All three countries put significant effort into strengthening capacity for their health workforce to vaccinate an unprecedented number of eligible persons by equipping them with the knowledge, skills, and tools essential for safe and efficient administration of COVID-19 vaccines. All three countries conducted trainings of trainers (ToT) at the national level, which were then cascaded down to health districts and facilities. Physicians, nurses, and community health workers participated in training sessions.

The training modules covered vaccine administration, dosage, data management, handling of potential dis- or misinformation or queries from the public regarding various vaccine types, and vaccine administration schedule management.

The three assessed countries also reinforced the supervisory structures of COVID-19 vaccination teams at national and subnational levels. The provision of increased supportive supervision to the operational levels (Woreda and primary health care units PHCUs in Ethiopia, Local Government Areas (LGAs) in Nigeria, and districts in Togo) strengthened coordination. The introduction of digitized supervision checklists reportedly facilitated the capture of lessons learned from field observations, which, in turn, supported course corrections for COVID-19 vaccination delivery.

## 2. Key Priority Groups Targeted for COVID-19 Vaccination

All three countries followed the WHO SAGE group recommendations to determine their priority groups for COVID-19 vaccination. They started by prioritizing HCWs, the elderly (with slightly differing age ranges between Ethiopia and the two other countries), people with comorbidities, and essential workers (such as teachers, military, etc.) in about April 2021. Two countries added groups to the SAGE list at that time. Ethiopia decided to include internally displaced persons (IDP) to account for the impact of drought and security concerns that provoked population displacement, and Togo added prisoners and pupils. In practice, priority groups have changed as the pandemic has evolved and experience has been gained in its management.

The three assessment countries extended COVID-19 vaccination to lower-priority groups, such as adolescents, once coverage targets for health workers had been achieved but before achieving target coverage rates for other high-priority groups. Thus, Togo launched adolescent vaccination in September 2021, and Ethiopia and Nigeria started mass campaigns in November 2021 – a few months after the beginning of COVID-19 vaccinations.

All assessed countries opted for a stepwise rollout strategy to cover all priority groups. Ethiopia began COVID-19 vaccination with health workers, immunocompromised persons, and older adults over 65. Vaccination of adults with comorbidities, people aged 55 years and above, essential workers including teachers and long-distance drivers, and IDPs started when the country received more vaccines. Nigeria prioritized health workers and government leaders (phase 1), the remaining health workers and people aged 50 years and above (phase 2), people with co-morbidities aged less than 50 years (phase 3), and other at-risk groups with high disease burden not covered in the previous phases (phase 4). During its first phase, Togo prioritized front-line public workers in the fight against COVID-19 (such as health personnel), defense and security forces, people aged over 50, and people suffering from comorbidities. The second phase targeted prisoners, refugees, students, company employees, and civil servants. In the third phase, vaccination was extended to the general population, specifically people over 12.

## 3. Effective Vaccination Strategies Effective to Reach Priority Groups

All assessment countries adopted a staggered vaccination roll-out approach to reach priority groups. Ethiopia, Nigeria, and Togo adopted this implementation approach due to uncertainty over vaccine availability at a time when most of the first vaccines were purchased for the global North.

The three countries used a combination of vaccination strategies, starting with facility-based provision to vaccinate the elderly and essential workers, including health workers who could be reached at their workplace. As vaccines became available, they implemented outreach and mobile vaccination strategies to reach people with comorbidities, IDPs, and remaining essential workers. Thereafter, they used catch-up campaigns and established large vaccination sites to increase delivery capacity and quickly provide a large quantity of vaccines when vaccination coverage was low.

Mobile delivery addressed the needs of people living in areas with limited access to health services, such as conflict-affected regions and pastoralist communities in Ethiopia.

Ethiopia began COVID-19 vaccination delivery at health facilities under the assumption that they could better manage potential adverse events following immunization, at a time when there was a lot of dis- and misinformation regarding the safety of vaccines. Later, vaccination teams implemented temporary fixed post-delivery at industrial parks, established institutions, internally displaced persons (IDP) sites, elderly residences, and refugee camps. Additionally, the FMoH used mobile health and nutrition teams to provide COVID-19 vaccines in areas with poor access to health services and basic infrastructure, including pastoral and drought- and conflict-affected areas. As Ethiopia received more COVID-19 vaccine doses, the country organized four nationwide campaigns.

Nigeria named the three phases of its COVID-19 vaccine rollout strategy. Phase one, “TEACH,” started in March 2021, focused on the education and preparedness of the public for the vaccination process, vaccine registration, and logistics for efficient movement to reach priority groups. In July 2021, phase two, “PSI-COVID,” emphasized immediate public safety and health measures related to COVID-19 and vaccination procedures. In November 2021, phase three, “SCALES,” involved integrating the COVID-19 vaccine into routine health service delivery and emphasized improvements in service delivery, communication, accountability, logistics, electronic management of immunization data, and supportive measures to optimize the vaccination campaign. Nigeria first used facility-based vaccination and mobile vaccination units (including visits to institutions, and traveling to remote or densely populated areas) before conducting large-gathering vaccinations. Nigerian policymakers underscored that the country made substantial progress in vaccination coverage only after implementing mass vaccinations.

Togo began with the fixed-post strategy to vaccinate health personnel and security and defense forces. The Immunization TWG added outreach efforts, followed by mobile units to reach people over 50 and people suffering from comorbidities using "vaccinobuses" to bring vaccines closer to priority groups targeted by this strategy. In February 2022, Togo implemented supplementary catch-up vaccination activities in two-week campaigns. Temporary fixed vaccination sites, known as "vaccinodromes", were set up in almost all health centers, stadiums, markets, and high-traffic areas to vaccinate the eligible population by reducing travel barriers.

Overall, policymakers and field implementers in the three assessment countries agreed that facility-based vaccination strategies did not attract as many members of priority groups as expected, except for health workers. They found that outreach, mobile, and catch-up campaigns helped them accelerate the vaccination of priority groups. Nonetheless, the absence of robust, disaggregated data on priority group vaccination made it difficult to substantiate this perception. Some partners underscored the high costs of these vaccination strategies and questioned their sustainability if countries were to use them as preferred delivery strategies in the context of decreasing resources for COVID-19 vaccination.

## 4. Vaccination Implementation Challenges

Implementing COVID-19 vaccination strategies to reach priority populations has been fraught with a myriad of operational impediments in Ethiopia, Nigeria, and Togo. The most cited challenges can be grouped into three categories: the exposure of eligible people to incorrect information on COVID-19 vaccines, vaccination process management, and vaccination outcomes. The major impediments included social media infodemics, imprecise identification of eligible persons, use of suboptimal data systems, vaccine stock-outs, discontinued incentives for vaccination teams, and unequal uptake among population subgroups or geographies.

### Social Media infodemics

The COVID-19 vaccination rollout took place against a backdrop of dis-and misinformation. All informant categories noted the influence of infodemics on eligible people's behavior and highlighted negative repercussions on demand for COVID-19 vaccination. Social media platforms were the major channel for disseminating rumors and false information about COVID-19 vaccination. The most shared content included disinformation, concerns about adverse effects, and conspiracy theories. Heavy traffic of misleading information on vaccine efficacy and safety bred hesitancy among priority groups, particularly health workers in Ethiopia and Nigeria.

Interviewees perceived that the continued spread of dis- and misinformation has extended beyond COVID-19 vaccination and that they believed it harmed routine vaccination, which was relatively well accepted before the pandemic, as reported in Nigeria and Togo.

### Challenges Identifying Eligible Persons

One of the most significant management challenges was identifying priority individuals who were not included in the health service delivery registries. Interviewees in the three assessed countries reported that immunization TWGs struggled to quantify eligible populations accurately. They gave two main reasons for this challenge — first related to the overlap among various priority groups, given that many people have multiple comorbidities. The second reason was the lack of robust medical records data to determine which groups individuals belong to assess the size of priority groups to be vaccinated. Consequently, two countries (Nigeria and Togo) started producing disaggregated data and stopped it due to these troubles. Data on the number of people in priority groups was recognized as essential for determining vaccination coverage rates and analyzing vaccine equity.

**Suboptimal Vaccination Data Management Systems**

The scale of the pandemic and the urgency of curbing the spread of the disease through vaccination pushed countries to develop new management platforms to respond to pressing data needs. Two countries (Nigeria and Togo) deployed internet-based applications to register eligible people and track their vaccination status. However, these applications proved ineffective in low literacy contexts and/or low internet connectivity. Interviewees in the two countries reported data incompleteness due to poor internet connections, leading to a lack of access to databases to enter and/or retrieve information on individual vaccination status and to limited organizational capacities for continuous data recording during periods of high administrative workload for vaccination teams.

Interviewees in Ethiopia noted data discrepancies between administrative reports and source documents at health facilities during the emergency phase.

Only one country (Ethiopia) had COVID-19 vaccination coverage broken down by priority groups at the time of this assessment's data collection (September to December 2023) – well after the start of vaccination. Despite progress in reporting disaggregated data, this data did not cover all priority groups.

**Vaccine Shortages**

The three assessed countries sourced their first COVID-19 vaccines from the COVID-19 Vaccines Global Access (COVAX) program, the African Union's African Vaccine Acquisition Trust (AVAT) initiative, or private, bilateral, or multilateral donations at a time of procurement challenges. Two assessment countries (Ethiopia and Nigeria) reported temporary vaccine stock-outs. Poor forecasting, insufficient stocks, and weak intra-regional or intra-state distribution of vaccines and commodities were the main causes. Shortages did not affect all types of vaccines at the same time. However, they were reportedly triggered by the demand generated by the receipt of the first vaccine deliveries. Some people who received their first dose could not complete their vaccination series due to stock-outs.

At the start, few vaccine substitution policies were in place. Policymakers in one country (Togo) cited a long waiting time for guidelines on vaccine substitution when the national immunization advisory group consulted vaccine manufacturers to determine potential combinations — the waiting period bred fears among partially vaccinated individuals about possible adverse effects from vaccine substitution.

**Overcrowding at Vaccination Sites**

Interviewees in one country (Nigeria) reported unique challenges in managing large populations to be served. Insufficient staff to vaccinate large numbers of people and manage administrative tasks made it difficult to deploy effective queue management mechanisms at vaccination sites. The resulting congestion placed additional strain on the delivery system. Added to this was the perception that vaccination sites had become areas of rapid disease transmission due to overcrowding. These day-to-day implementation constraints discouraged the enthusiasm of certain priority populations to seek COVID-19 vaccination services.

**Interrupted or Unpaid Incentives**

Paying incentives to health personnel involved in COVID-19 vaccination activities was widespread during the emergency phase. The three assessment countries implemented different modalities to motivate health workers when they were faced with exceptional professional risks and workload. However, the disruption of these incentives constituted an obstacle to the implementation of COVID-19 vaccination strategies. The lack of financial resources prevented vaccination TWGs from paying for the operational costs of catch-up campaign activities, such as vaccinator and supervisor allowances, travel costs, and airtime for data recording.

One country (Nigeria) raised equity concerns due to inter-state disparities in payments to vaccination teams. Two countries (Nigeria and Togo) reported a temporary interruption of incentives and/or partial payments of allowances owed to the vaccination teams deployed during catch-up campaigns.

Interviewees in one country (Nigeria) noted the detrimental effects of non-payment of incentives on health workers' trust in government activities.

**Unequal Uptake Among Population Subgroups or Geographies**

COVID-19 vaccination outcomes varied across the three assessment countries, with two achieving high coverage rates (primary series completion of 61% in November 2023 and 72% in December 2023, respectively, for Ethiopia and Nigeria) while around a third (33%) of the population was vaccinated in Togo by September 2023.

Interviewees pointed out noticeable inequalities in vaccination outcomes in all three countries, either between geographical areas or population sub-groups. Two countries (Nigeria and Togo) reported disparities between northern regions or states with higher coverage rates (50% and above) and those in southern regions or states, home to large or mega cities like Lome and Lagos, where coverage was lower (17 to 35%).

Finally, one country (Ethiopia) reported disparities between social groups. According to interviewees, vaccination uptake was low among urban residents, youth, and people with a high school education. Religious leaders' influence in these groups and reluctance among HCWs were the most cited reasons for lower coverage.

## 5. Solutions and Innovations

The Immunization TWGs in each country adopted a multi-sectoral, whole-of-society approach to address the foregoing implementation challenges. Their main initiatives consisted of strengthening the cold chain and logistics to ensure continuous vaccine availability, introducing mega mass vaccination strategies, and collaborating with intermediary organizations to reach eligible persons, including heightened collaboration and coordination between EPI teams and other key players for demand creation. This section sheds light on the solutions that Ethiopia, Nigeria and Togo produced to overcome the complexities of COVID-19 vaccination to reach large priority populations.

**Public, (some) Private, and Community Partnerships**

Faced with an unprecedented pandemic that impacted all development sectors, all three assessment countries established a whole-of-society approach aimed at mobilizing government, community, and (to a certain extent) private actors to prevent COVID-19. This public/community collaboration consisted of leveraging community leaders' social capital to influence priority groups' behavior and encourage their adherence to COVID-19 vaccination.

In general, policymakers (Ethiopia, Nigeria, and Togo), front liners including health workers (Ethiopia and Nigeria), development partners (Togo), and CSO representatives (Nigeria and Togo) judged that these forms of collaboration were particularly useful in reaching priority groups in the context of vaccine hesitancy.

Furthermore, in Nigeria, private institutional stakeholders such as foundations and the Private Sector Coalition Against COVID-19 (a group of business leaders and philanthropists) played a considerable role in resource mobilization and distribution to increase testing capacities and access to protective equipment at the start of the pandemic.

**Vaccine Availability through Integrated Logistics Management**

Interviewees cited the management of vaccine storage and distribution as one of the greatest successes of COVID-19 vaccination, enabling considerable quantities of vaccine to be made available to reach priority groups. All three assessed countries considerably strengthened their cold chain and logistics for COVID-19 vaccination. These reinforcements involved the entire vaccine storage process, including very low-temperature storage, from central warehouses to delivery sites inside and outside health facilities. The countries renovated or acquired new equipment, including cold rooms, freezers, refrigerators, vaccine carriers, and remote temperature monitoring devices for vaccine transit monitoring. Interviewees described COVID-19 vaccination as an opportunity to integrate the cold chain system with routine immunization.

All EPI teams (Ethiopia, Nigeria, and Togo) used the COVID-19 vaccination equipment for routine vaccines. Concurrent use of cold chain for COVID-19 and routine vaccines was ongoing during the assessment.

Togolese interviewees stated that the Ministry of Health used military logistics to transport vaccines from the EPI central store to regional depots. This collaboration between the Ministries of Defense and Health was crucial to swiftly move vaccines into all vaccination sites when the immunization program's transport capacity was extremely limited. Interviewees in Nigeria stated that logistics managers received technical support from State Primary Healthcare Development Agencies in forecasting and intra-state vaccine movement. This helped reduce expirations considering the short shelf life of certain vaccine batches received during the emergency-response phase. Interviewees from Togo said the Ministry of Health also put up new incinerators and rehabilitated old ones.

**Introduction of Mega Mass Vaccination Strategies**

As vaccines became available, the assessment countries introduced large-scale delivery strategies in contexts where health facilities could not absorb the influx of all eligible people. All three countries assessed invested heavily in new delivery modalities that improved geographic accessibility and convenience regarding flexible opening hours at vaccination sites. Interviewees from all assessment countries explained that new mass vaccination delivery modalities helped reach priority groups in areas farthest from health centers.

Togo implemented for the first time a mobile strategy using new "vaccinobuses" equipped with vaccines and refrigerators, stopping off at markets and large social gatherings to reach priority groups living in areas farthest from health centers. Most Togolese policymakers stressed the contribution of vaccinobuses to improved immunization coverage, thanks to the increased delivery capacity. Togo intends to institutionalize and continue using the concept in routine immunization in the future.

Interviewees from Nigeria noted that mass vaccination events called "storms," implemented at sites with large populations and involving music and dramas like a fair, ensured wide vaccine distribution to diverse segments of the population, particularly eligible populations living in remote or densely populated areas.

**Collaboration with Intermediary Organizations to Reach Eligible Persons**

Togolese interviewees reported purposeful actions taken by the COVID-19 vaccination TWG to engage with intermediary organizations that work with certain priority groups, such as associations of people living with HIV (PLHIV), diabetics, civil society organizations (CSOs) providing services to PLHIV, and women's cooperatives and youth groups, to identify eligible people within their memberships or networks. Interviewees stated that such collaboration allowed the COVID-19 vaccination TWG to develop tailored messages for priority groups and disseminate them using intermediary organizations' established communication channels.

# VII. PEER LEARNING EVENT TAKEAWAYS

The research team brought together Ministry of Health participants from all assessment countries (national-level EPI staff and several participants from other health programs and higher-level management) in February 2024 to discuss the findings of this assessment as well as those of a COVID-19 vaccination integration study co-led by the Accelerator and the Momentum for Routine Immunization Transformation and Equity MRITE project. Conversations during the workshop clarified that the greatest challenge for COVID-19 vaccination is declining demand among populations, health workers, and governments. This decline is due to the perception that COVID-19 is now minimal risk, and other health priorities are of greater importance. Most countries are now vaccinating at extremely low levels, with travel or employment requirements being the main motivators for vaccination.

Workshop participants shared how COVID-19 currently fits into countries' larger health priorities. Considerations include:

- Momentum for emergency preparedness remains high, with countries agreeing that strengthening health systems is the key to resiliency in the face of outbreaks and pandemics. Countries are particularly interested in using COVID-19 funding and lessons learned to strengthen multi-sectoral coordination, community health, data digitization, human resources for health, cold and supply chains, surveillance systems, and communications capacities in anticipation of future emergencies.
- Countries are also interested in leveraging COVID-19 investments and lessons learned for life course vaccination and future vaccine introductions.

Participants indicated several areas where donors and partners can support them in their COVID-19 delivery efforts. These included:

- Supporting countries to strengthen national and sub-national multi-sectoral coordination mechanisms for immunization and emergency response – identified by all countries as the clearest low-hanging fruit.
- Improving coordination at the global level for pandemic response.
- Simplifying procurement procedures and funding mechanisms to activate prompt emergency response.
- Developing mechanisms to ensure equitable vaccine supply for LMICs during emergencies.
- Ensuring that emergency support to countries is coordinated at the country level, builds on existing country structures (particularly data and surveillance systems), is considerate of country contexts (including electricity and internet infrastructure), is developed in collaboration with country stakeholders, and is sustainable beyond the period of initial donor investment.
- Supporting countries to sustain COVID-19 emergency-era gains with significant health system implications – particularly gains around cold chains, data systems, community partnerships, and coordination.
- Supporting countries to update policies and laws, particularly emergency procurement regulations and social protection mechanisms for vulnerable populations, to address policy challenges that became apparent during the pandemic.
- Supporting countries to generate context-specific evidence needed for policy

decisions around COVID-19 and emergency preparedness, including models of health system burden, cost-effectiveness analyses of various vaccines and delivery strategies, and value analyses of investments in data digitization.

- Supporting countries to continue building learning and capacities around communications and demand generation – including analyzing the root causes of low demand, which may include such diverse factors as minimal risk perception, low trust in government, misinformation and hesitancy, or low quality of health services.

# VIII. DISCUSSION

The assessment has surfaced operational details, challenges for COVID-19 vaccination, and varied perspectives of policymakers, donors, and implementers on appropriate strategies to reach priority groups. Further, it has shed light on circumstances and events that have played a catalytic role in implementing these strategies. Drawing on the understanding of the implementation context and operational intricacies, this section highlights key takeaways from the assessment results. It discusses implications or considerations for priority groups' vaccination in the future. Discussions are organized around the assessment's key objectives.

**Effective Delivery Strategies**

Policymakers and implementers cited outreach, mobile, and catch-up vaccination as the most appropriate strategies to reach priority groups. They stated that these strategies made it possible to increase vaccination coverage after implementing facility-based strategies during the early days of COVID-19 vaccination.

However, donors traditionally pay for implementation costs of vaccination activities in low-income countries. There is a perception that the costs of outreaches, mobile, and catch-up campaigns are higher than for routine immunization. However, a systematic literature review on the use of campaigns to strengthen routine immunization and health systems Accelerator Campaigns-and-RI-Literature-Review suggests that the cost-effectiveness of different campaign designs and the cost-effectiveness of campaigns against other delivery modalities vary and are highly context-specific. Therefore, there is a need for more robust, disaggregated data on the cost and effectiveness of these strategies for reaching eligible populations – see How to cost COVID-19 vaccination for priority groups guidance manual. This data would be useful for new vaccine introductions and life course vaccinations in addition to COVID-19.

Altogether, the costs of outreach, mobile, and catch-up vaccination strategies constitute one of the main obstacles to their sustainability. The continued availability of donor resources is questionable due to the decline in attention paid to COVID-19 vaccination since WHO declared the end of the pandemic as a global health emergency of international concern in May 2023. Additionally, the transition to the post-emergency phase means that other health priorities will continue to emerge and thus compete resources available for vaccination activities. This implies that countries wishing to prioritize outreach, mobile, and catch-up vaccination strategies will undoubtedly have to prepare for mobilizing domestic resources to ensure continual delivery of COVID-19 vaccination services.

As to COVID-19 vaccination delivery modalities, it is important to consider that priority populations are vulnerable, harder-to-reach populations for the most part. So, simple delivery schedules (preferably one dose) are better delivery modalities. There is also a need to invest in new technologies that make vaccine delivery easier (oral vaccines, simple syringes, mobile cold chain, for example) so that less training is required to deliver vaccines.

**Equitable Access to COVID-19 Vaccinations**

Coverage disparities have been observed either between geographic regions or between population subgroups. At the time of data collection, efforts were particularly directed towards implementing catch-up campaigns to increase coverage in low-uptake areas. However, it is important to understand the root causes of coverage disparities to ensure that vaccination delivery is adapted to priority groups' healthcare-seeking behaviors and varied demands.

The study findings show how collaboration between immunization teams and CSOs, and partnership with trusted leaders improved the reach of eligible groups who would not spontaneously come to vaccination centers. In the future, reaching priority groups will require a strong level of community participation, which should not just consist of informing communities of vaccine availability but collaborating with community-based organizations to develop partnerships and empower the communities to make decisions as well as to implement and manage the COVID-19 vaccine distribution and sensitization interventions.[2]

Concurrently, efforts to improve COVID-19 vaccination progress monitoring must be strengthened to establish data systems capable of disaggregating vaccination coverage for priority groups by various equity dimensions (sex, residence, socioeconomic status, membership in underserved groups, etc.). Solutions must take into consideration technical, organizational, and behavioral determinants of digital solution uptake and be adapted to conditions of low literacy and connectivity so as not to experience dysfunctions of internet-based technologies and applications.

Finally, fair distribution of vaccines between countries is paramount for global equity. This will help avoid a repeat of the emergency phase situation in which low-income countries were excluded from access to the first COVID-19 vaccines. This equity can be reached if applications for funds and vaccines are simple and efficient in emergency/outbreak contexts.

**Challenges and Solutions in Reaching Priority Groups**

COVID-19 vaccination implementation still faces a major operational constraint linked to the reach of population sub-groups who are not traditionally eligible populations of routine vaccination. Vaccination efforts during the emergency phase concentrated on essential workers and people with comorbidities. With this phase passed, unvaccinated adults are not spontaneously seeking COVID-19 vaccines at health centers. However, the post-emergency phase does not provide appropriate resources for massive vaccination of remaining adults. This situation implies that governments will need to choose pertinent sets of vaccination strategies adapted to the available resources to vaccinate priority populations.

Reaching high-priority groups (oldest adults, older adults with multiple comorbidities, other adults with severe obesity or comorbidity) and sub-populations with special considerations (people with moderate or severe immunocompromising conditions, pregnant women, health workers with direct patient contact) according to the SAGE November 2023 classifications[3], will require an approach oriented towards coordinated delivery with other health programs that interact with these population categories. All assessment countries have already developed plans for COVID-19 vaccination integration with routine immunization and have started implementation – see methodological guidance note on COVID-19 vaccination costing. Efforts should now expand and focus on integrating COVID-19 vaccination into service packages provided by other disease control programs (HIV, TB, NCD) to reach these high-priority groups. However, country representatives at the peer learning workshop perceived integration to be costly in terms of human resources and disruption to health systems. So, countries may need to carefully select programs to be integrated and clearly define operational integration modalities. In any case, COVID-19 integration with essential services will require close collaboration with new actors who will play an increasing role in vaccination implementation in the future.

[2] Addressing COVID-19 vaccine hesitancy: Lessons from the role of community participation in previous vaccination programs, AA Afolabi, OS Ilesanmi, https://hpp.tbzmed.ac.ir/Article/hpp-34609

[3] https://iris.who.int/bitstream/handle/10665/373987/WHO-2019-nCoV-Vaccines-SAGE-Prioritization-2023.2-eng.pdf?sequence=1

Coordination between the EPI and these programs must be institutionalized and strengthened. New shared leadership mechanisms may need to be implemented to bolster the operational effectiveness of integrated COVID-19 vaccination delivery.

The use of integrated COVID-19 vaccination services by priority groups supposes consistent vaccine availability. Going forward, governments must ensure regular procurement and distribution of COVID-19 vaccines and limit stock-outs that could discourage priority populations from taking up COVID-19 vaccines. The three assessed countries have received vaccines from donors and report reliance on their assistance for procurement in the future. However, the COVAX initiative that financed much of the supply of COVID-19 vaccines to LMICs ended on December 31, 2023. Assessed countries received vaccine procurement support from the UNICEF Supply Division as a part of COVAX. Gavi will continue to provide COVID-19 vaccines and delivery support to low- and lower-middle-income countries in 2024 and 2025. However, assistance beyond 2026 is uncertain. Discussions within Gavi's Vaccine Investment Strategy (VIS – the prioritization process for inclusion of new and underused vaccines made available to countries through Gavi support) have not yet been completed. Therefore, countries like those involved with this assessment should prepare for reduced donor assistance. Consequently, they should start making provisions for COVID-19 vaccines for priority populations in national health budgets, demand quantification, and procurement processes.

All these efforts will achieve little if the delivery system cannot convince eligible groups to take up vaccines. Interviewees said the rapid dissemination of misleading information accessible to large proportions of priority groups was a notable factor in vaccine hesitancy. This phenomenon is likely to persist and against which countries must develop and implement adapted demand generation strategies to counter its effects.

Tackling health worker hesitancy is probably the biggest need as it addresses a key priority population and helps reduce the anti-vaccination messages reaching people through the health workers they trust the most. Experiences with social media content monitoring in Ethiopia and Togo have proven useful in understanding the circulated narratives. However, they remain reactive activities that are always a step behind dis-misinformation. A proactive approach with a more visible presence of health professionals is likely to rebalance the level of knowledge of priority groups on the benefits and risks of COVID-19 vaccination. The implications are not negligeable for awareness-raising strategies. Indeed, communications on COVID-19 vaccination must innovate to find novel content development approaches, develop priority population-specific messages, and disseminate them through appropriate platforms to convince adults to be vaccinated, which is different from communications for decision-making for children.

Finally, as countries define vaccination strategies for priority populations, they can consider their broader health priorities and how COVID-19 vaccination could provide resources, platforms, or learning opportunities for other life-course vaccines or preparedness for future epidemics.

**Delivery Strategies Costing Guidance**

Considering the evolution of technical assistance configuration and the need for more domestic resources discussed above, countries must establish clear processes and adopt robust tools to build solid budgets, ensuring COVID-19 vaccination activities are appropriately resourced in the future. In that regard, budgeting for vaccine delivery strategies is just as important as budgeting for vaccine procurement.

Some evidence exists on the costs of reaching the general population with COVID-19 vaccines, but the costs of reaching priority groups may be higher. The cost per vaccine dose delivered can vary significantly by delivery strategy.

However, it is generally more expensive to utilize outreach or mobile strategies as opposed to fixed-site delivery due to the additional per diem, travel, and transport costs associated with non-facility-based delivery[4]. The cost per dose delivered at a mass vaccination site may be higher than if delivered using another delivery strategy due to the significant start-up costs and large staff present at these sites unless these costs can be spread across very high delivery volumes.

Costs for reaching priority groups have not been estimated specifically but may be higher than the costs associated with vaccinating the general population, given that specific targeted social mobilization messaging may be needed, and health workers may need to travel outside facilities to reach the priority groups. Also, the costs of reaching priority groups may be higher than current estimates based on a large number of doses delivered and high population coverage. Altogether, the costs of COVID-19 vaccination delivery for priority groups will depend on the combination of strategies that countries will choose to reach these eligible populations.

Overall, the steps to follow when estimating current or future costs of delivering COVID-19 vaccines to priority groups include first defining the priority groups and determining the approach to reach them (or to be used). The second step consists of identifying the purpose of estimating delivery costs for budgeting, cost variations identification, advocacy, efficiency analysis or reimbursement/ tariff setting. The next step is to choose the appropriate methodology and type of costs to estimate, given the intended use of the data. Time-driven activity-based costing (TDABC), ingredients-based costing, top-down costing, or modeled cost estimation are the four methodologies most suited for COVID-19 vaccination delivery costing – See methodological guidance note on COVID-19 vaccination costing. The final step is to carry out a cost analysis.

Primary cost data collection will be required when using TDABC, ingredients-based approaches, or top-down methods. Where applying these costing methods is not possible, modeled estimates using secondary data from the literature can be useful. However, having a clear policy purpose for using cost data is crucial, which should be considered when selecting the most suitable costing methodology.

# CONCLUSION

The study indicates immunization policymakers perceive outreach, mobile, and catch-up supplementary immunization as effective COVID-19 vaccination delivery strategies to reach priority groups. However, certain partners point out the high cost of these strategies and question their sustainability in the post-emergency context where COVID-19 vaccination receives less attention and, hence, resources.

Equitable access to COVID-19 vaccination in the future necessitates greater involvement of other health programs in service delivery and greater coordination between the EPI and these stakeholders. The shift towards shared leadership provides a springboard for integrated COVID-19 vaccination to priority groups so that efficiency gains ensure continual delivery despite resource constraints.

[4] Vaughan, K., Ozaltin, A., Mallow, M., Moi, F., Wilkason, C., Stone, J., Brenzel, L. The costs of delivering vaccines in low- and middle-income countries: Findings from a systematic review. Vaccine X. 2019 Jul 15;2:100034. https://www.sciencedirect.com/science/article/pii/S259013621930035X

# ANNEXES

## Annex 1: Interview guide

**Key Informant Interview Guide**

**Introduction**

Thank you for meeting with us today. We are interested in learning about which COVID-19 vaccination *strategies* (meaning delivery methods, such as campaigns or school-based vaccination activities, for example) and *modalities* (meaning vaccine formulas and delivery schedules) have been found to be successful at reaching priority groups, and under what contexts these strategies were successful. We would like to understand what choices stakeholders have made in the implementation of immunization efforts to reach priority groups, and any actions stakeholders have taken to deliver vaccines in an equitable manner.

Findings from this assessment will be shared with you, which may provide you with key learnings on the COVID-19 response in your country and could inform future improvements in immunization implementation. We greatly appreciate your voluntary participation in this assessment.

**Your Role**

1. Please describe your role in the COVID-19 vaccination effort and the responsibilities you have since COVID-19 vaccination efforts began to present. Please let us know if any of these responsibilities have changed over the course of COVID-19 vaccination implementation.
    a. How long have you been working on COVID-19 vaccination?

**COVID-19 vaccination delivery**

Tell me more about the COVID-19 vaccination efforts you support and how the vaccines were delivered to the priority groups.

2. What have the goals been?
    a. During the inception workshop, it was agreed that the priority groups were [], which of these groups do you focus on?
    b. Have these goals changed between COVID-19 vaccine introduction and now? If so, when, and how? What are some of the reasons for that shift?
3. How were the vaccination strategies and vaccine formulas chosen to reach your priority groups?
    a. What staff were involved in the implementation of these strategies beyond traditional vaccination staff? (For example, HIV staff, maternal and delivery staff, primary care doctors, etc.?). What was their role?
    b. How did implementation of these strategies differ from guidance on paper?
    c. To what extent were these strategies adapted during implementation? Why were they adapted?
4. How were the vaccination and other staff (vaccinators, managers, community health workers, staff from other health programs etc.) mobilized, trained and motivated?
    a. Did you hire new staff or borrow from other programs?
    b. What types of training did these staff receive?
    c. How are these staff supervised?
    d. How are the staff compensated for their time?

Let's talk about the challenges that you've encountered with vaccination strategies that are related to priority groups profile.

5. Were there any specific characteristics of the priority groups or cultural, societal, behavioral barriers that hinder their demand for services?
   a. If so, what were they and how did you address these challenges?
6. Were there any specific characteristics of the priority groups or cultural, societal, behavioral barriers that hinder their access to services?
   a. If so, what were they and how did you address these challenges?
7. How did you ensure COVID-19 vaccine availability for priority groups?
   a. Did you have any systems for monitoring in place?
8. Did you coordinate with other health programs, such as the EPI, HIV program, or maternal health program to reach priority groups you mentioned?
   a. Did you collaborate with other disease control initiatives that allowed you to identify priority groups' members? If so, how?
   b. How has coordination with the maternal health program helped reach pregnant women with COVID-19 vaccination services?]

**Demand generation**

My next questions relate to how the community was engaged to help reach these priority groups.

9. What were the main challenges to create demand for vaccine in your priority groups and how did you overcome them?
10. How did you identify any specific needs or demand issues for these groups?
    a. How did you track demand for vaccination in your priority groups?
11. How were priority groups' members engaged in decision-making around COVID-19 vaccination strategies' design, implementation, and evaluation?

    [PROBE: were CSOs, community leaders, religious leaders, professional associations or others engaged in this process?]

    a. Have you engaged them in COVID-19 vaccination efforts focused on reaching any of the following areas or population sub-groups? If so, how?
       i. Rural or geographically hard-to-reach areas, urban poor areas, under-performing districts?
       ii. A specific gender, ethnic or religious minorities, migrants, refugees, or internally displaced people?
       iii. How did this engagement (if any) specifically influence the design of the strategy to generate demand?
12. How did vaccinators identify members of these priority groups in their communities?
13. Did you notice any specific issues around vaccine hesitancy and/or adverse events following immunization (AEFIs) among these priority groups? If so, what were the concerns and how did you respond?
14. Did you develop specific communications messages for reaching these priority groups? If so, how did you go about developing them?
    a. Who was involved in developing the messages and how were they engaged?
    b. What is contained in the messages?
    c. How were these messages disseminated? Who delivered them?

**COVID-19 vaccination management**

I want to ask a few questions about how you managed the vaccination strategies specifically for your priority groups.

15. Did you engage decision-makers (political class, parliamentarians, other ministries' officials, etc.) to secure political buy-in to prioritize these groups? If so, how did you conduct that policy dialogue?

16. Did you develop new policies and regulations specific to COVID-19 vaccination for the priority groups? If so, what were they? How did you develop them? When did this occur?

17. How did the government fund the COVID-19 immunization effort for priority groups?

    a. Are there specific allocations being made to prioritize specific populations for COVID-19 vaccination? How much was spent for the priority groups? What are the sources of funding for these specific populations?

18. What challenges did you face regarding the delivery functions such as planning, resource mobilization, regulation, vaccine distribution, human resources for vaccination, supervision, supply chain, safety surveillance, M&E to reach priority groups?

    a. How have these challenges evolved over the course of the pandemic?

    b. Have any of these challenges been specific to certain geographic areas or types of health facility? How have you tried to address these challenges?

**Progress monitoring**

My final questions in this section relate to how you are monitoring progress on vaccinating these priority groups.

19. How did you monitor and evaluate COVID-19 vaccination performance regarding priority groups?

    a. How have you used the information gathered from monitoring activities to change strategies?

    b. Did you have any challenges collecting or using vaccination delivery or coverage data for priority groups and how did you address them?

20. How have you monitored the quality of services being delivered to the priority populations? [PROBE: Have you measured adherence to guidelines? Coverage amongst priority population groups? Conducted any surveys on patient experiences?]

**Future**

21. What is [your country]'s plan for the future of COVID-19 vaccination efforts and reaching vulnerable populations?

    a. Will funding be available specifically to support vaccination of priority groups, especially high-priority groups, in the future?

    PROBE: Will external funding continue to support implementation, or will it be absorbed into other funding streams?

    PROBE: Will domestic funding remain, or will it be absorbed into other funding streams?

22. How will COVID-19 vaccine delivery be integrated into the health systems in [your country] moving forward?

    a. What funding is expected?

    b. What systems are in place to monitor coverage of priority populations moving forward?

**Conclusion**

Is there anything else you would like to say or that you think might be important that we have not taken up concerning reaching priority populations with COVID-19 vaccinations?

Thank you for your time, the information you provided, and your thoughts and insights about COVID-19 vaccinations in your country.

## Annex 2: Questionnaire

**Part 1 - Disaggregated coverage data**
What are the recorded coverage rates for priority populations?

Region [please fill out one table per region that data is available]:
Data period/timeframe:

| TABLE 1 | Vaccination coverage for priority groups, by region, by sex | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Vaccination coverage** | | **Total population** | **Older adults (60+)** | **Health-care workers** | **Immuno-compro-mised persons** | **Adults with Co-mor-bidities** | **Pregnant women** | **Teachers and other essential workers** | **Lower socio-economic groups** |
| Partially vaccinated (%) | M | | | | | | | | |
| | F | | | | | | | | |
| Fully vaccinated (%) | M | | | | | | | | |
| | F | | | | | | | | |
| Fully vaccinated plus at least one booster (%) | M | | | | | | | | |
| | F | | | | | | | | |
| Tests Given (#) | M | | | | | | | | |
| | F | | | | | | | | |
| Percentage of positive tests (%) | M | | | | | | | | |
| | F | | | | | | | | |

*Note: For “total pop”, please confirm what denominator is being used for all data being reported – either % of the total population, or % of the target/eligible population (e.g., ages 12 and up)

**Part 2 – Budgeting and Costing**

**Costs mapping**

1. Please describe how you budgeted for COVID-19 immunization and if that budgeting specifically considered priority groups. [**PROBE:** use of any tools/Excel spreadsheets, if there are line items for the priority groups, etc.]

2. Where are operational costs for COVID-19 vaccination for priority groups budgeted? For each resource type / line item, place a "X" in the relevant cell(s) to indicate at what level these items are budgeted for. Do not collect any actual budget or cost data.

| **Resource types/ line items** | **No specific budget** | **National level** | **Regional / State level** | **District level** | **Other - Specify (donors, etc.)** | **Specific budget for different priority groups** | **Important line items in future budgeting** |
|---|---|---|---|---|---|---|---|
| Vaccines | | | | | | | |
| Vaccine injection and safety supplies | | | | | | | |
| Paid labor | | | | | | | |
| Volunteer labor | | | | | | | |
| Per diem and travel allowances (for example, for outreach, etc.) | | | | | | | |
| Workshops, trainings, and meetings | | | | | | | |
| Cold chain equipment (for example, cold boxes) | | | | | | | |
| Cold chain repairs and energy costs | | | | | | | |
| Information, Education and Communication and other printing costs | | | | | | | |
| Transport and fuel | | | | | | | |
| Vehicle maintenance | | | | | | | |
| Utilities (for example additional building) | | | | | | | |
| Communication (for example airtime or data bundles for health workers) | | | | | | | |
| Stationery and other supplies | | | | | | | |
| Other recurrent | | | | | | | |

3. How was the COVID-19 immunization effort for priority groups funded by government, partners/donors and others?

   [**PROBE:** Are there specific allocations being made to prioritize specific populations for COVID-19 vaccination?

- What are the sources of financing for these specific populations?]

**Cost sharing**

4. How do you estimate or allocate shared costs across programs (for example staff who split their time between COVID-19 vaccination and programs (NCDs, HIV, TB, etc.)?

   [**PROBE:** space used in facility/ site out of total site space, share of nursing staff time, other]

5. Please share any COVID-19 vaccination budget and/or expenditure records for the most recent closed financial year.

**Data collection challenges**

6. What are the limitations or challenges to gathering existing COVID-19 expenditures for vaccinating priority populations?

7. Where is this data available, and what will be required to obtain them?

**Costing data needs**

8. For future planning, budgeting and/or implementation, for what purposes do you envision using costing data? For each purpose, circle "yes" or "no". Multiple options may be possible.

   For budgeting? Yes / No

   For advocacy for additional funding Yes / No

   To improve efficiency Yes / No

   To set payment/reimbursement rates (insurance, etc.) Yes / No

   Other (specify) Yes / No

## Contact Information


**USAID**

USAID missions and country representatives interested in buying into the Accelerator project should contact Jodi Charles, USAID Agreement Officer's Representative, at jcharles@usaid.gov.

**Accelerator**

Other interested parties should contact Nathan Blanchet, Accelerator Project Director, at nblanchet@r4d.org.



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