



COVID-19 VACCINATION INTEGRATION ASSESSMENT

Final Report

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ABBREVIATIONS

ANC	antenatal care
CDC	Centers for Disease Control and Prevention
COVAX	COVID-19 Vaccines Global Access
COVID-19	SARS-CoV-2 virus
EPI	Expanded Programme for Immunization
HIV	human immunodeficiency virus
HMIS	health management information system
HPV	human papillomavirus
IRB	institutional review board
LMIC	low- and middle-income countries
M&E	monitoring and evaluation
MOH	Ministry of Health
NCD	noncommunicable disease
NITAG	National Immunization Technical Advisory Group
PHC	primary health care
PLHIV	people living with HIV
RI	routine immunization
SAGE	Strategic Advisory Group of Experts on Immunization
TB	tuberculosis
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

The USAID-funded Health System Strengthening Accelerator and MOMENTUM Routine Immunization Transformation and Equity projects conducted a seven-country qualitative assessment on COVID-19 vaccination integration efforts, with data collected between August 2023 and April 2024. The assessment's objectives were to:

1. Assess the status and thinking about the future integration of COVID-19 vaccination, targeting priority groups with essential health programs and health system functions.
2. Compile lessons learned concerning integration of COVID-19 vaccinations from the emergency response phase of the pandemic.

The countries covered by the assessment were: Benin, Ghana, Ethiopia, Liberia, Mozambique, Nigeria, and Tamil Nadu state in India.

Five research questions flowing from the objectives guided the assessment's data collection and analysis:

1. What have governments planned for sustaining COVID-19 vaccinations for priority populations?
2. What is the thinking (or are decisions) concerning the operational integration of COVID-19 vaccinations with:
 - Other essential health services (e.g., antenatal care (ANC), non-communicable diseases (NCDs), human immunodeficiency virus (HIV), tuberculosis (TB), primary health care (PHC), routine immunization (RI))?
 - Other health system and vaccination functions (e.g., service delivery, human resources, training, procurement, cold chain, supply/distribution systems, information systems, demand generation, supervision, and community engagement)?
3. How are COVID-19 vaccinations planned to be (or already are) part of country strategies and planning:
 - Overall health strategies.
 - Immunization strategies.
 - Monitoring and evaluation.
 - Budgeting.
4. How has integration with other essential services or health system functions helped or hindered equitable access to COVID-19 vaccination?
5. What lessons were learned from integration (or not) of COVID-19 vaccinations during the urgent pandemic response period?

The assessment collected qualitative data through semi-structured interviews of 15 to 24 key informants per country, including national and subnational policymakers, and managers and representatives of external partners supporting COVID-19 vaccination. The assessment also included data collection through focus group discussions with frontline health workers and their direct supervisors involved with the administration of COVID-19 vaccination in at least two locations in each country, except Mozambique.* Coding and analysis of the interview and focus group discussion notes was conducted using ATLAS.ti software.

*Interviews were only conducted at national level in Mozambique due to administrative delays and approvals.

The assessment produced the following major findings:

- COVID-19 vaccination uptake had declined at the time of data collection. Demand creation and communication concerning COVID-19 vaccinations also had nearly halted.
- COVID-19 vaccinations were being offered in facilities and at outreach sessions that also offered RIs.
- Nearly all the assessment countries had integrated or intended to integrate COVID-19 vaccination with other health services using various planning approaches.
- The principal form of integration planned or in planning was with the RI program. Some countries are considering how to integrate COVID-19 vaccination with ANC, services for the immunocompromised, and services for NCDs, but few concrete decisions or actions have been taken in this regard.
- The assessment interviewees reported relatively greater integration of COVID-19 vaccination with the health system components of the cold chain, financing, procurement, and leadership and governance compared to service delivery, demand creation and community engagement, information systems, and the health workforce.
- All the assessment countries depend on external funding for COVID-19 vaccines (with the exception of the state of Tamil Nadu, which depends on the Government of India for vaccine supply), and none have specific plans to procure COVID-19 vaccines if and when external funding ends. At the time of data collection, the furthest out that Gavi had approved funding for was 2025 for Benin, Ethiopia, Liberia, and Nigeria.
- COVID-19 vaccinations are gradually making their way into overall health sector plans, immunization plans, budgets, and monitoring and evaluation (M&E) systems.
- The assessment interviewees were confident that COVID-19 vaccination had been equitable during the emergency, citing numerous examples of efforts made to ensure equitable access, but none of the interviewees was able to present quantitative data to validate the reported equity.
- The experience of the emergency response generated many lessons that could be applied to the future of COVID-19 vaccination, notably synergies among collaborating programs and the mobilization of nontraditional actors to create demand and counter misinformation.

The discussion of the assessment findings includes:

- The desire to take into account how and where the priority populations for COVID-19 vaccination use the health system and can be reached while making and implementing integration plans.
- The possibility of building on COVID-19 vaccination to move RI toward a life-course approach, including additional adult vaccines beyond COVID-19.
- The need to prepare for ensuring funding and related procurement systems for the time when external assistance to purchase COVID-19 vaccines ends.
- Gradual integration of nonemergency COVID-19 vaccination into health sector strategies, plans, and M&E systems, including setting and measuring achievement of targets for vaccination coverage of priority groups.
- The need to establish mechanisms to monitor and document the degree of equitable access to COVID-19 vaccination attained.
- Identification of the relevant lessons learned from the emergency response period to apply to COVID-19 vaccination as it becomes routine.

BACKGROUND

There is a widespread perception that a transitional phase of the response to the COVID-19 pandemic began with the World Health Organization (WHO) declaration on May 5, 2023, that COVID-19 is now an established and ongoing health issue that no longer constitutes a public health emergency of international concern. Global immunization partners and implementing partners complemented governments of low- and middle-income countries (LMICs) in their response to the emergency phase by providing vaccines, technical support and guidance, and funding at an unprecedented level. With the emergency response phase ended, however, LMICs must anticipate a transition to a situation where external resources will wane and COVID-19 vaccination efforts will shift to routine programming.

WHO published an [information note](#) in December 2023 to guide countries on messaging, delivery strategies, and policy recommendations concerning COVID-19 vaccination following the end of the public health emergency phase.¹ The information note includes a recommendation to integrate COVID-19 vaccination “into primary health-care services and other approaches specifically designed to reach high priority-use groups.” This advice is timely since the reduction of cases and declaration of the end of the emergency prompted policymakers and implementers to begin thinking through, planning for, and taking steps toward the transition of the COVID-19 vaccination effort to a sustainable post-emergency phase, including consideration of whether and how to integrate COVID-19 vaccination with other aspects of health systems and programs.

The WHO information note built on the November 2023 update to the [Roadmap](#) of the Strategic Advisory Group of Experts on Immunization (SAGE) that defined priority-use groups for COVID-19 vaccination as follows:²

- High priority-use: people with immunocompromising conditions, older adults, younger adults with significant comorbidities or severe obesity, pregnant adults or adolescents, and frontline medical workers.
- Medium priority-use: healthy younger adults, children and adolescents aged 6 months to 17 years with severe obesity or comorbidities.
- Low priority-use: healthy children and adolescents aged 6 months to 17 years.

Country decision-makers and managers gained hard-earned experience through the rapid mobilization of vaccination against COVID-19 once vaccines became available in early 2021. There is interest in capitalizing on this experience for lessons learned concerning the post-emergency integration of COVID-19 vaccinations and supporting services with functions of existing routine immunization (RI) programs, other health programs, and the health system. Integration usually aims to improve effectiveness, efficiency, sustainability, and other aspects of the functions integrated versus conducting the functions individually or in parallel (see Box 1).

Box 1. WHO and United Nations Children’s Fund (UNICEF) definition of integration concerning COVID-19 vaccination

“The partial or full adoption of COVID-19 vaccination into national immunization programme services, PHC, and any other relevant health services with the overall aim of improving programme efficiency and sustainability, enhancing demand and improving user satisfaction, achieving and maintaining satisfactory coverage, and addressing inequities.”

Source: *Considerations for integrating COVID-19 vaccination into immunization programmes and primary health care for 2022 and beyond*, World Health Organization and UNICEF, draft July 2022.

In 2022, WHO and UNICEF published a report, [Considerations for integrating COVID-19 vaccination](#).³ This document presents the rationale for integration in terms of: the uncertainty of the direction of the pandemic (whether it might resurge or remain a part of the long-term epidemiological environment), the need to regularize COVID-19 vaccination, the opportunity to leverage the investments made in COVID-19 vaccination, and ways to develop or build on the people-centered life-course approach to vaccination. It also identified the benefits and risks to COVID-19 vaccination integration. The benefits identified included: efficiencies, capitalizing on investments, promoting demand, and improving outcomes and user experiences. The risks identified included: logistical challenges associated with reaching different target groups (compared to RIs), demands on human resources to deliver an additional vaccine, effects of the nonacceptance of COVID-19 vaccinations on trust in the health system, demands on the supply and cold chain systems, financial challenges to meet additional costs of COVID-19 vaccination, and the uncertain path of the pandemic.

In addition to the document discussed above, in 2023 UNICEF oversaw the development of tools for readiness assessments on COVID-19 vaccination integration. Rapid assessments were carried out in a number of countries (including Ghana and Cote d'Ivoire). The [tools](#) used a maturity model approach based on the health system building blocks. As of May 2024, the findings from the rapid assessments have not been published.

At the time that data collection for this assessment was in its final phases, *Global Health: Science and Practice* published [an issue](#) focusing on the integration of COVID-19 vaccination. The editorial by Kiarie et al. (2024) highlights several examples of strategies being undertaken to integrate COVID-19 vaccines in primary health care (PHC) and other functions of the immunization system, such as vaccine safety, supply planning, demand generation, and data systems integration.⁴ Mirza et al. (2024) highlighted enablers and challenges related to integration of COVID-19 vaccines from lessons learned in 11 African countries, noting that leveraging investments made during the COVID-19 response could help strengthen PHC and set a precedent for preparing for future public health emergencies.⁵ In Malawi, Tibbels et al. (2024) conducted a qualitative assessment on individual COVID-19 vaccine perceptions, the social context, and perceived norms around COVID-19 vaccination as the country was facing a cholera outbreak.⁶ The authors discuss how understanding vaccine hesitancy and misinformation about COVID-19 and cholera vaccines can help comprehend how individuals make decisions about adult vaccinations, and in turn can help countries and partners develop tailored communication and messaging for demand generation.

Two studies focus on integration of COVID-19 vaccines into RI. Kisanga et al. (2024) document COVID-19 vaccine integration into the existing polio vaccination infrastructure in South Sudan.⁷ By integrating service delivery, the authors report “improved routine immunization coverage among children, improved COVID-19 vaccination coverage among adults, reduced cost for service delivery, and increased access to more comprehensive health services in hard-to-reach communities.” Similarly, Mokaya et al. (2024) describe interventions in South Sudan and Sierra Leone, where COVID-19 vaccination was integrated with combined service delivery efforts and the country’s measles response, respectively.⁸ Integration of data systems is also underway in Nigeria, where an Electronic Management of Immunization Data (EMID) system was developed to integrate with DHIS2 to better manage immunization and other PHC service-related data.⁹ Tella-Lah et al. (2024) note that “integration of COVID-19 and RI data into one system has resulted in a significant increase in the number of vaccinations recorded; improved data synchronization, entry speed, quality, and integrity; and streamlined the health workforce to deliver COVID-19 vaccines and routine immunizations.” In Ethiopia and Pakistan, a number of capacity-building and policy/governance-related activities were critical for improving adverse events following immunization surveillance and pharmacovigilance.¹⁰ The lessons learned from these interventions can be applied to other country contexts for RI or future public health emergencies.

PURPOSE AND AUDIENCE FOR THE ASSESSMENT

The purpose of this assessment is to describe how governments in seven countries were considering, planning, and taking steps to integrate COVID-19 vaccinations with their health systems and programs from mid-2023 into 2024. It also provides evidence on the extent to which integration of COVID-19 vaccination functions with RI or other aspects of the health system was pursued during the emergency response phase and lessons learned concerning integration.

The audiences for the assessment are: (1) policymakers and implementers in the countries included in the assessment and other LMICs grappling with how to sustain their COVID-19 vaccination efforts and (2) international technical and support partners of LMICs.

To ensure relevance to the intended audiences, the assessment team engaged representatives from the United States Agency for International Development (USAID), WHO, UNICEF, Gavi, the U.S. Centers for Disease Control and Prevention (CDC), Amref Health Africa, and others in an advisory group. The advisory group shaped the assessment methods and provided information concerning other partner efforts related to COVID-19 vaccinations and integration to ensure complementarity.

The assessment was conducted as a collaboration between two USAID-funded projects: MOMENTUM Routine Immunization Transformation and Equity, and Health System Strengthening Accelerator (see Box 2).

Box 2. Projects conducting the assessment

MOMENTUM Routine Immunization Transformation and Equity 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, and is active in 12 countries and has supported over 18 countries.

The Health Systems Strengthening Accelerator increases people's access to high-performing health systems by supporting countries as they translate, adapt, and build more effective and sustainable health system interventions on their journeys to self-reliance.

OBJECTIVES

The objectives of this assessment were to:

1. Assess the status and thinking about the future integration of COVID-19 vaccination, targeting priority groups with essential health programs and health system functions.
2. Compile lessons learned concerning integration of COVID-19 vaccinations from the urgent response phase of the pandemic.

RESEARCH QUESTIONS

The specific research questions arising from the objectives were the following:

1. What have governments planned for sustaining COVID-19 vaccinations for priority populations?
2. What is the thinking (or decisions) concerning the operational integration of COVID-19 vaccinations with:
 - Other essential health services (e.g., antenatal care (ANC), non-communicable diseases (NCDs), human immunodeficiency virus (HIV), tuberculosis (TB), primary health care (PHC), routine immunization (RI))?
 - Other health system and vaccination functions (e.g., service delivery, human resources, training, procurement, cold chain, supply/distribution systems, information systems, demand generation, supervision, and community engagement)?
3. How are COVID-19 vaccinations planned to be (or already are) part of country strategies and planning:
 - Overall health strategies.
 - Immunization strategies.
 - Monitoring and evaluation.
 - Budgeting.
4. How has integration with other essential services or health system functions helped or hindered equitable access to COVID-19 vaccination?
5. What lessons were learned from integration (or not) of COVID-19 vaccinations during the urgent pandemic response period?

METHODS

Country and Site Selection

The seven countries in which case studies were carried out were: Benin, Ethiopia, Ghana, India (Tamil Nadu state), Liberia, Mozambique, and Nigeria. The countries represent a diversity of per capita income levels from low income to middle income. Four (Benin, Ghana, Liberia, and Nigeria) are in West Africa. Two (Ethiopia and Mozambique) are in East Africa. India (Tamil Nadu) is the only Asian site where the assessment was conducted. The countries selected met one or more of the following criteria:

- Innovators in integration of COVID-19 vaccinations.[†]
- Performance on COVID-19 and RIs.
- USAID and Pfizer priority countries.[‡]
- Geographic contexts.

[†] For example, COVID-19 vaccinations were offered in integrated outreach sessions with routine immunizations in Ethiopia, Ghana arranged partnerships with private waste management companies for COVID-19 vaccinations, and India used its CoWIN electronic registration system and eVIN eLMIS system for both COVID-19 and routine immunizations.

[‡] These countries were prioritized for USAID technical assistance because they had received significant Pfizer-BioNTech vaccine donations from the U.S. government in 2021.

Within each country at least two subnational sites were chosen for data collection by the assessment team in collaboration with the Ministry of Health (MOH), with the exception of Mozambique, where only national-level interviews occurred due to delays in country-level ethical clearance. The subnational sites included at least one urban and one rural setting per country.

Data Collection

The principal primary data collected for the assessment came from key informant interviews conducted with policymakers, implementers,[§] and external partners, beginning in August 2023 in Ethiopia and concluding in April 2024 in Mozambique (see Figure 1). A basic interview guide (see Annex A) was customized to specific interviewees and country contexts by modifying, adding, or removing questions as relevant, but core questions remained the same for all. The basic interview guide was reviewed and modified based on findings from internal role playing as well as training and pretesting in the first country where data was to be collected.

FIGURE 1. DATA COLLECTION TIMELINE

	2023					2024			
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Ethiopia	█	█							
Benin		█	█	█					
Tamil Nadu (India)			█	█					
Nigeria			█	█					
Liberia			█	█	█				
Ghana				█	█				
Mozambique									█

[§] “Implementers” refers to the managers of components of the health system involved with aspects of COVID-19 vaccinations, distinct from those who make the decisions concerning whether to integrate functions.

The assessment's researchers interviewed 15 to 24 key informants per country, including informants** at national and subnational levels. Across the assessment countries, 40 key informants were women and 97 were men. The following is the illustrative list of the types of individuals the assessment team sought to interview in each country.

- COVID-19 Task Force:
 - Chair.
 - Other relevant members (especially representatives of communities and private sector, if on the task force).
- MOH:
 - Expanded Programme for Immunization (EPI) director.
 - Director (or equivalent) for COVID-19 vaccination (might be outside MOH).
 - Director of preventive medicine, family health, primary care, or infectious diseases.
 - Director of planning within MOH.
 - Directors of other programs with which COVID-19 vaccination is being integrated (if any, in each country's context).
 - Managers or directors of other relevant units (e.g., medical warehouses, data management, health education, health workforce management, training institutions).
- Heads of subnational units responsible for COVID-19 vaccination, including at least one in a rural and one in an urban area, plus other personnel at the subnational level who manage program functions (e.g., supply chain management, data/records, communication/health education, training).
- Other country interviewees, as applicable:
 - Representative of civil society concerning community involvement (if not represented on the COVID-19 Task Force).
 - Representative of private providers (if not represented on the COVID Task Force).
 - Medical school professor of infectious disease.
 - Members of National Immunization Technical Advisory Group (NITAG).
 - Representative of the legislature oversight committee for health.
 - Ministry of Finance or Economic Planning person responsible for the health sector.
- External partners:
 - USAID health officer and immunization support lead.
 - UNICEF immunization support lead and other relevant staff.
 - WHO immunization support lead and other relevant staff.
 - Chair of relevant health/COVID-19 partner coordinating committee (or equivalent).

** The subnational informants included managers and health workers, but not those receiving vaccinations or community members, although the perspectives of the latter were addressed by interviewing civil society organization personnel.

- Representatives of USAID implementing partners supporting COVID vaccination, including supply chain and data management.
- Others identified as important in specific country contexts.

The assessment also conducted at least two focus group discussions in each country except Mozambique. The participants in the focus groups were health workers directly involved with the administration of COVID-19 vaccinations and their immediate supervisors. Focus groups were conducted in at least one urban and one rural location. The aim of the focus groups was to “ground truth” the actual practice of integrating COVID-19 vaccinations with other essential health programs and health systems. A basic focus group discussion guide (see Annex B) was customized as was done for the interview guide, but the core questions remained the same for all.

In addition, secondary data on COVID-19 performance, other relevant quantitative data, contextual information (such as health system organization), and documents (e.g., plans, strategies, reports, and presentations) were collected from the MOH in each country and analyzed along with the interview results.

The data were triangulated to identify coherence and inconsistency. Follow-up interviews were conducted in some cases to address apparent inconsistencies and fill gaps.

For each country, the research team collecting data included a lead interviewer (either an immunization or health systems specialist), who led all interviews and focus groups, and an assistant interviewer, responsible for note-taking and audio recording. The locally hired team used whichever language interviewees and focus group participants were most comfortable with in the given context (e.g., English, French, Portuguese, Tamil, Amharic).

Data Management and Analysis

Detailed summary notes, produced in English, included all key details from respondents’ answers to each question. Qualitative analysis of the interview notes employed ATLAS.ti software. Both deductive and inductive coding approaches were used: a priori codes were developed in a codebook based on the major research questions, and inductive coding followed as the analysis was ongoing. Intercoder reliability was ensured through discussions and comparison after independent coding of a sample of interview notes within the research team, group coding exercises, and quality checks conducted by the Principal Investigators. The qualitative findings were triangulated with data from the documents and quantitative data collected. The analysis addressed the findings in relation to the assessment objectives and research questions. To summarize the extent of integration into other health services and health system functions in each country, the research team used a maturity scale^{††} with a 1–5 rating (1 being limited/no integration and 5 being highly integrated and sustainable). Values were assigned based on the researchers’ analysis of the data, reflecting maturity at the current stage. However, the country-level maturity scores are not presented in this report because the assignments of the values across countries and researchers when aggregated could create misleading comparisons.

^{††} Adapted from: [WHO/UNICEF, 2023. Operational framework for demand promotion: Integration of COVID-19 vaccination into routine immunization and primary health care](#)

Data analysis was completed in two phases:

- The first phase of analysis was at the individual country level. The country interview team (with support from the overall assessment co-Principal Investigators and participation from technical staff/consultants) performed qualitative analysis of the country’s data and compiled and summarized major findings to produce seven individual country case studies.
- The second phase assessed trends, commonalities, and differences among the full set of country findings and findings from other assessments and studies. However, the research team did not compile the assigned values on the maturity scale in this report, as such aggregation risked not fully representing the richness of information on the multifaceted areas of COVID-19 vaccination integration (see the limitations section).

Peer Learning

In February 2024, the assessment convened a “peer learning” workshop in Accra, Ghana, to provide an opportunity for representatives of each country to share results with others, allow for cross-country learning, and provide a space to 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 next steps for carrying over lessons learned for the future of COVID-19 vaccination as well as related initiatives, such as outbreak preparedness, new vaccine introduction, and life-course vaccination strategies, building on learning from the workshop.

The takeaways from the workshop are included in the findings below.

Advisory Group

The assessment received valuable assistance from an Advisory Group of external parties interested in the transition of COVID-19 vaccination (see Annex C for Advisory Group membership). The Advisory Group met three times during the assessment. In the first meeting, the Advisory Group provided input on the methods to be used by the assessment. In the second meeting, the Advisory Group provided feedback on the data collected and analyzed from Ethiopia—the first of the seven countries. In the third meeting, the Advisory Group provided feedback on an initial draft of the cross-country assessment. Some Advisory Group members also participated in the peer learning workshop in Accra.

ETHICAL APPROVALS

The overall protocol for the assessment, including the basic interview guide, was reviewed and granted approval by the JSI Institutional Review Board (IRB) and each country’s own IRB; see Annex D for a list of the IRBs. Where required, approval by the MOH or subnational bodies was also obtained.

FINDINGS

The findings of the assessment begin with some context information about the state of COVID-19 vaccination at the time of data collection. Findings are subsequently presented by each research question.

COVID-19 CONTEXT AT THE TIME OF DATA COLLECTION

Most countries identified health workers, the elderly, immunocompromised people, adults with comorbidities, and essential workers (e.g., teachers) as priority populations for COVID-19 vaccination during the early part of the emergency response phase, when vaccines were in limited supply. In addition, Ethiopia defined internally displaced people and refugees as a priority. As vaccine supplies increased, eligibility in all countries expanded to the general population.

Interviewees in all countries stated that the actual uptake of COVID-19 vaccination in late 2023 and early 2024 was low, if not close to zero. COVID-19 vaccines were available in PHC facilities, with the exception of some stockouts reported in Ghana and Mozambique; COVID-19 vaccines were no longer provided to Tamil Nadu by India's national government. Several countries (Benin, Ethiopia, Ghana) were conducting limited catch-up campaigns at the time of data collection.

All countries except Mozambique reported that demand generation activities of all types, from community-based efforts to mass media messaging, had declined or halted due to competing priorities, limited resources, and low threat perception. As of early 2024, Mozambique's MOH had taken measures to increase the public demand for COVID-19 vaccination, such as using radio and television advertisements and holding meetings with community leaders and activists. While they'd reached their 70% coverage target in 2022, these strategies had not been effective in further generating demand beyond this. Respondents noted this may be due to the side effects of the vaccine and the numerous rumors associated with it, contributing to the lack of public acceptance now that the emergency phase has passed. Interviewees in the other assessment countries also stated that the overall population perception is that COVID-19 is no longer a problem, so there is no need to be vaccinated. Stakeholders noted that most current (early 2024) demand for COVID-19 vaccination was coming from individuals planning to travel internationally or among those who anticipated that prospective employers might require evidence of COVID-19 vaccination.

1. What have governments planned for sustaining COVID-19 vaccinations for priority populations?

Three scenarios were observed with regard to country plans to continue COVID-19 vaccination delivery. Some countries (Liberia, Ghana, Ethiopia, Mozambique) developed or were developing COVID-19 integration plans. Others (Benin, Nigeria, Ghana) devised or were devising integration operationalization guidelines or directives. Finally, one location (Tamil Nadu, India) had not developed an integration plan or guideline.

All countries except India planned to carry on with COVID-19 vaccination using RI. Many noted an intent to use internal counseling and referral from ANC, HIV/TB, and NCD service units to be vaccinated by the immunization unit. Few countries planned to directly administer COVID-19 vaccines in these other service delivery units.

The assessed countries, except India,** have adopted or plan to adopt combined vaccination strategies to ensure continued COVID-19 delivery. The approach consisted of routine facility-based vaccination with periodic campaigns. COVID-19 vaccination would then be permanently delivered by all health facilities along with other health services

** Data collection in India was conducted only at the Tamil Nadu state level; COVID-19 vaccination policy is made at the national level. The assessment did not obtain information about whether India has developed or is planning to develop COVID-19 vaccination integration plans.

(maternal and child care, general outpatient services, other new vaccines). Some countries have started to concentrate their campaigns on areas with low coverage; that was the case for Ethiopia, Benin, and Liberia.

Only respondents from two countries (Ethiopia and Ghana) reported that the MOH has included COVID-19 vaccination in multiyear programming to identify the resources necessary for the continuation of the service delivery, especially at a time when donor funding is dwindling.

2A. What is the thinking (or are decisions) concerning the operational integration of COVID-19 vaccinations with other essential health services (e.g., ANC, NCDs, HIV, TB, PHC, RI)?

Improving access to immunization services, capitalizing on COVID-19-related resources to further strengthen RI, maximizing efficiency in the use of limited resources, and enhancing equity in service delivery were the main reasons countries decided to implement COVID-19 integration. However, policymakers highlighted the complexity of the integration process and the need for additional resources to achieve it. Overall, countries were in the strategic planning or early deployment phase of COVID-19 integration.

Assessed countries were using or intend to use one or more of three possible integration modalities. The first is internal referrals, whereby COVID-19 counseling is provided to eligible clients attending various clinics who are then directed to the RI vaccination room. The second approach consists of administering COVID-19 vaccines in general outpatient and ANC clinics after counseling eligible persons. Combined outreach or mobile service delivery strategies to provide both RI and COVID-19 vaccines is the third integration modality.

Ethiopian and Mozambican interviewees stated that they expect some form of referrals of people seeking care for HIV, TB, and NCDs to places within health facilities where they can obtain COVID-19 vaccination. Benin, Ghana, Liberia, and Nigeria reported integration of COVID-19 vaccination with one or more of the following programs: RI, ANC, antiretroviral therapy, and NCD services. In practice, little COVID-19 vaccination was happening at the time of data collection, so the integrated service delivery mechanisms described by respondents was more theoretical than actual.

The highest level of integration with other programs was with RI. The level of integration with any other program was only in planning or beginning of implementation in all countries. The expected integration with RI in all countries will mean that COVID-19 vaccination would be integrated with PHC to the extent that RI is integrated with PHC.

2B. What is the thinking (or are decisions) concerning the integration of COVID-19 vaccination with other health system and vaccination functions (e.g., service delivery, human resources, training, procurement, cold chain, supply/distribution systems, information systems, demand generation, supervision, and community engagement)?

None of the countries reported comprehensive integration of all health system and vaccination functions. However, interviewees reported relatively greater integration of the cold chain, financing, procurement, and leadership and governance compared to service delivery, demand creation and community engagement, information systems, and the health workforce.

LEADERSHIP AND GOVERNANCE

The staff and structures from RI programs played a prominent role in the emergency response to the pandemic. The responsibility for managing COVID-19 vaccination post-emergency phase has been assigned to the EPI. The role of

other disease control programs in delivery of COVID-19 vaccination remains uncertain and was a topic of consideration in only some of the assessment countries.

In Benin, Ethiopia, Ghana, Liberia, and Nigeria, interviewees stated that the decision to put the immunization program in charge of COVID-19 vaccination had been agreed upon in the vaccine rollout planning processes in 2021. In Tamil Nadu, interviewees assumed that the immunization program would direct COVID-19 vaccination integration.

COLD CHAIN

Integration of the cold chain resulted from the reinforcement and use of the RI cold chain for COVID-19 vaccines during the emergency response phase. All countries highlighted the efforts made in the acquisition of new equipment, including the ultra cold chain devices. The simultaneous use of the cold chain for COVID-19 and routine vaccines was continuing as of the time of data collection.

Benin, Ghana, Liberia, and Tamil Nadu received external support for additional cold chain equipment as part of the emergency response. This equipment is now used for both RI and COVID-19 vaccines. Benin interviewees said separate compartments are maintained within cold chain equipment for COVID-19 and routine vaccines. Interviewees reported that this separation is done to assure those who (mis)perceive that COVID-19 vaccines could “contaminate” routine vaccines and that the latter are “safe.” Ghana and Benin interviewees also mentioned the need to maintain the additional cold chain equipment over the long term in the interest of sustainability. Ghana reported that external support for its cold chain allowed regional cold chain facilities to have walk-in equipment for all vaccines, and that regular preventive maintenance would continue to ensure its ongoing functionality. Similarly, the majority of Liberia’s counties now are reported to have cold storage infrastructure for all vaccines as a result of COVID-19 support. Mozambique interviewees noted the crucial role the well-structured EPI logistics system played in COVID-19 vaccine distribution and its contribution to the country’s high performance in COVID-19 vaccination.

FINANCING AND PROCUREMENT

Respondents described financing and procurement as relatively highly integrated functions in part because of continued reliance on external funding for COVID-19 vaccines. Procurement relies on well-established procedures for RI vaccines received with external support in all countries except Tamil Nadu. The latter relies on Government of India procurement for all vaccines, but no COVID-19 vaccines have been provided to Tamil Nadu since the end of the emergency. There is a perception that reliance on external funding is and will be the norm for COVID-19 vaccines.

Benin, Ethiopia, Liberia, and Nigeria have applied to and been approved by Gavi for COVID-19 vaccines for 2024, with shipments starting in April. Ghana and Mozambique did not apply to Gavi for additional COVID-19 vaccines in 2023, but Mozambique has access to World Bank support for vaccine purchases. However, none of the countries has a specific plan for procuring COVID-19 vaccines when external support ends. Respondents in all of the countries assumed that operational costs (supply chain, communications, service delivery) of COVID-19 vaccination will be covered by general immunization budgets.

SERVICE DELIVERY

At the time of data collection, the limited service delivery of COVID-19 vaccination that was occurring across countries had varying levels of integration with RI. EPI vaccinators were most often leveraged to administer COVID-19 vaccines, but service delivery strategies ranged from holding specific COVID-19-only campaigns, to multiple antigen campaigns (e.g., COVID-19 and measles in Ethiopia), to internal referral and “walk-up” to the EPI unit at the facility.

Specific COVID-19 campaigns in Benin (using World Bank funding to reach population pockets with low coverage), Ethiopia (to address conflict-affected areas), Liberia, and Nigeria continue on a limited basis. Mozambique has discontinued COVID-19 campaigns to rely on delivery at health centers because of the costs of campaigns. The COVID-19 vaccination camps Tamil Nadu organized for the emergency response have ended.

In Ethiopia there was ongoing debate at the time of data collection about how to organize service delivery to ensure that immunocompromised and elderly populations received COVID-19 vaccinations. This debate revolves around within-facility referrals to vaccination rooms or areas where RI focuses on children and ANC participants versus offering COVID-19 vaccination at different service units. An expected benefit of the first option is the need for fewer personnel trained to administer vaccinations, but it would require other service units to identify unvaccinated people and comply with going to the vaccination rooms to obtain the vaccination. Interviewees in Mozambique said the MOH's prevailing vision was that health staff working at different entry points in health facilities would counsel patients for COVID-19 vaccination and systematically refer them to routine immunization posts.

Tamil Nadu's experience with providing influenza vaccination to populations not targeted for traditional RI made respondents more confident that the state could employ similar strategies to reach all priority populations with COVID-19 vaccinations.

DEMAND GENERATION

All countries conducted major efforts to create demand by engaging with communities, employing mass media, and combating misinformation focused on COVID-19 vaccinations during the emergency response. Interviewees said these efforts largely are in the past, though Mozambique has tried to continue to create demand. Three countries reported they had integrated COVID-19 vaccine messages with other health promotion messages at the time of data collection; respondents from Benin, Liberia, and Nigeria said that they had no specific COVID-19 messaging, that all immunization messages were integrated into combined communication packages. Mozambique integrated communication about COVID-19 vaccination with RI, nutrition, HIV, malaria, and mental health messages during the emergency response with great success (attaining relatively high COVID-19 coverage), but now is struggling to create further demand. Informants from Ethiopia preferred nonintegrated messaging, as they perceived difficulty in disseminating several relevant messages at a time without creating confusion among the targeted audience.

Respondents reported that misinformation about COVID-19 vaccination persists in all countries.

INFORMATION SYSTEMS

The scale of the pandemic pushed certain countries (Benin, Ethiopia, Liberia, Nigeria) to develop new systems to meet pressing data needs. The separate applications deployed for COVID-19 vaccination continue to be used, but all four countries have started to merge these data platforms or develop interoperable modules to exchange COVID-19 data with their respective health management information systems (HMIS). Ethiopia interviewees said the country planned to integrate COVID-19 reporting with RI reporting. Mozambique interviewees said COVID-19 vaccination is integrated into the HMIS. It is worth noting that Nigeria has incorporated RI data into the COVID-19 management platform and piloted the integrated solution in two states with the intention to expand it across the country.

Despite some adaptation difficulties, Ghana and Tamil Nadu used their existing RI data system to collect and report on COVID-19 data during the emergency phase and will continue to do so.

HUMAN RESOURCES FOR HEALTH

Additional health workforce personnel were recruited during the emergency response in all countries, but nearly all of these workers now have been released. As discussed above under service delivery, the few COVID-19 vaccinations administered at the time of data collection were done by existing RI personnel. COVID-19 vaccines are administered intramuscularly, so little specific training is needed for health workers experienced with RI. However, specific guidance on proper vaccine handling and management is needed for some vaccines with nonstandard cold chain requirements. Respondents from Benin, Ghana, and India expressed some worry about the possibility of overwork for workers who already provide RIs if COVID-19 were added to their workload.

In Ghana, Nigeria, and Liberia, the supervision checklist for immunizations has items for both RI and COVID-19 vaccination, while respondents from Benin reported that COVID-19 items were not integrated into their supervision checklists. In Ethiopia, interviewees said the inclusion of COVID-19 vaccination on supervisor checklists is planned. When Tamil Nadu had vaccine supply, supervision for COVID-19 vaccination was conducted using existing supervisors and tools.

To summarize, the cold chain, supply chain, and leadership and governance building blocks are relatively more integrated. All the other building blocks are less integrated.

3. How are COVID-19 vaccinations planned to be (or already are) part of the country's overall strategies and systems?

Countries have adopted various approaches to include COVID-19 into their health programming, monitor performance, and allocate resources to immunization activities including the integration aspect. The incorporation of COVID-19 vaccination concerns into various health plans and strategies was based on opportunities to review these strategic documents. Only Liberia has developed a COVID-19 transition plan. Some have started including or intend to include COVID-19 in their national immunization plan (Benin, Ghana). Very few countries (Ethiopia, Ghana) have made COVID-19 a focus of their multiyear programming. All assessed countries have gradually updated their monitoring and evaluation (M&E) systems to support COVID vaccination performance. With the exception of India, all evaluation countries benefited from donor assistance, particularly for vaccine procurement and the implementation of vaccination campaigns.

Liberia has developed a COVID-19 transition plan (2023–2025) for the shift from emergency response to a sustained response. In Ethiopia, COVID-19 vaccination is included in the nation's Health Sector Medium Term Development and Investment Plan and Woreda-Based Health Sector Annual Plan FY 2016 [Ethiopian Calendar–2023/2024 Western Calendar]. Benin's EPI intends to eventually include COVID-19 into the national immunization strategy, which should be finalized in the first quarter of 2024. Respondents from Ghana reported that the MOH has included COVID-19 vaccination into the comprehensive multiyear programming (2020–2024). Mozambique formulated an integration plan for COVID-19 vaccination in 2023 but has yet to formally approve it and make it operational. There is discussion in Mozambique about development of a new immunization strategy focused on a life-course approach. This could be an opportunity to include COVID-19 vaccination. Since Tamil Nadu has not yet received guidance nor vaccines for continuing COVID-19 vaccinations from the Government of India, it is not yet planning to include COVID-19 in its strategies.

With regard to M&E, plans are in development in Benin, Ethiopia, and Liberia to make COVID-19 vaccination part of overall M&E systems. Benin has initiated the process of migrating the parallel COVID-19 monitoring system established during the emergency response phase to the vaccination component of the community health portion of the national HMIS. Interviewees said COVID-19 vaccination in Ethiopia would be monitored along with the EPI, using the same reporting cadence, until full vaccination data integration is achieved. Liberia plans to finalize its new five-year sectoral M&E plan in 2024, which will integrate COVID-19 vaccination among key health performance areas. In Tamil Nadu, the CoWIN web-based portal and mobile application has been used to track COVID-19 vaccination uptake. The eVIN portal was used to monitor COVID-19 vaccine supply and use.

During the emergency response phase, all except India depended on Gavi for financing vaccines. A majority had support from Gavi, the World Bank, WHO, UNICEF, Africa CDC, and a number of implementing partners for technical assistance and large-scale rollout. Most have anticipated continued reliance on external funding for both vaccine doses and integration activities, and assumed that operational costs would be charged to RI budgets without providing clear details on how those additional costs would actually be funded. The overall longer-term picture seems uncertain at the country level, likely contributed to by the fact that Gavi only has plans in place through 2025 at the

global level and the perception by both policymakers and the general population that COVID-19 is no longer a major threat.

Maturity scores for strategies and planning indicate that all categories' cross-country averages are clustered around level 3, indicating an intermediate level of integration.

4. How has integration with other essential services or health system functions helped or hindered equitable access to COVID-19 vaccination?

None of the countries explicitly measured the equity of COVID-19 vaccinations in terms of gender, income, underserved populations, or other categories, although they have tried to establish disaggregated data per priority group. The specific steps taken to reach underserved populations with COVID-19 vaccinations during the emergency period had largely stopped by the time of data collection (exceptions being the targeted, but limited, campaigns conducted in Benin and Ethiopia). Despite these challenges, interviewees in all countries except Mozambique stated that equity overall was ensured through a variety of approaches during the emergency response. Mozambique interviewees said disparities in the supply of vaccines for urban versus rural areas were apparent, with easy access to vaccination points in urban areas but active searches necessary in remote rural areas, where supplies were limited because of costs.

In Tamil Nadu, micro plans were drawn up in every locality to ensure access; COVID-19 vaccination camps were held in locations and at times that corresponded to specific population needs (e.g., after normal working hours); private providers participated in COVID-19 vaccination to reach those who sought privately provided care; vaccinations were set up to serve otherwise underserved populations, such as transgender people and people with intellectual disabilities; and overall “no discrimination” was practiced. Liberian interviewees reported special outreach programs targeting hard-to-reach areas and vulnerable populations. Ghana interviewees cited outreach to underserved populations; COVID-19 vaccinations offered in shops, factories, and on farms; and use of the “snowball” approach to reach hard-to-reach and reluctant populations. Benin interviewees said equity was largely attained even though there was no specific effort to ensure it and there are differences in coverage across districts (departments). Benin has organized targeted campaigns to reach low-coverage geographical areas. Some populations in Benin could not be reached because of security concerns. Interviewees in Ethiopia said populations in conflict-affected areas had compromised access to COVID-19 vaccinations. Therefore, mini-campaigns to address this situation were conducted, but interviewees indicated that more would be needed; they also underscored the need to reach internally displaced people in Ethiopia.

5. What lessons were learned from integration (or not) of COVID-19 vaccinations during the emergency pandemic response period?

The six countries integrated COVID-19 vaccination in a variety of ways during the emergency response phase. The integration generated the following lessons (more detail about each can be found in the individual country reports):

INTEGRATION IMPLEMENTATION CONTEXT

- The general population perception that COVID-19 is no longer a threat has led to a dramatic drop-off in the uptake of COVID-19 vaccination, including among priority groups. Demand generation activities for COVID-19 vaccination also have nearly halted.
- Hesitancy concerning COVID-19 vaccination persists and is fueled by mis- and disinformation. Indeed, communications on social media have been mainly reactive and lagging behind misleading information.

DELIVERY-CLIENT RELATIONSHIP

- Community engagement during the COVID-19 emergency period involved many nontraditional partners (e.g., community and traditional leaders, faith-based leaders, private sector actors) with reported significant success. The relationships built during the emergency represent an asset to be capitalized on for both nonemergency and emergency risk communication.
- There was only limited integration of COVID-19 vaccination messages with RI communications. However, interviewees were of the opinion that communication integration could weaken COVID-19 messaging when combined with multiple other vaccination messages.
- Mechanisms set up during the emergency to obtain feedback from communities provided important information to shape the response and should be continued.

COLLABORATION AND COORDINATION BETWEEN IMMUNIZATION AND OTHER PROGRAMS

- Intra- and intersectoral collaboration (e.g., between COVID-19 vaccination and health promotion, community-based nutrition programs) and systematic use of client records attending health care facilities for non-COVID-19 reasons helped identify eligible persons and orient them for COVID-19 vaccination. These practices demonstrated how concerted efforts between various service delivery units and the immunization program made it possible to reach more targeted people for COVID-19 vaccination.
- Integration of COVID-19 with other program services (e.g., HIV, TB, ANC) was mostly done opportunistically rather than planned. Few countries deployed systematic planning and operational guidance instruments for COVID-19 vaccination and other services before launching COVID-19 integration with the other services.

SYSTEM STRENGTHENING

- All assessed countries leveraged the acquisition of COVID-19 vaccine storage equipment to improve their cold chain for RI. However, the capacity to maintain these installations remains uncertain in many countries.

LIMITATIONS

As described in the methodology section, this report does not include the individual country reports' maturity scale scores. The research team found the maturity scores a relatively simple way to summarize the extent of integration across various domains in the country reports, supplemented by more detailed information concerning why a score was assigned. However, the team found that the assignments of the maturity scale values across countries and researchers, when aggregated, could create misleading comparisons.

Another limitation is that the study was conducted against a backdrop of many uncertainties about both the pandemic (e.g., emerging variants of concern) and the optimal use of vaccines against COVID-19 (e.g., required frequency of boosters, protection against different variants, and new vaccine products). The latter uncertainty was addressed to a certain extent by the information note released by WHO in December 2023 (see Background). However, at the time of release of the information note, data collection for this assessment had been completed for Benin, Ethiopia, and Tamil Nadu; was in progress in Ghana, Liberia, and Nigeria; and had not yet begun in Mozambique.

A final limitation of the study concerns the speed of study implementation against the backdrop of a changing and transitional context of COVID-19 vaccination in many countries. Efforts were made to receive approval from country-level IRBs in all seven countries in a timely manner and to conduct data collection and analysis as expeditiously as possible. However, these processes can take time, and given the changing nature of plans and strategies for COVID-19 vaccination, it may be the case that changes or updates have occurred in countries in the months after data collection

and before publication. To the extent possible, the study team took into account known changes post-data collection to inform discussion points and broader takeaways.

PEER LEARNING EVENT TAKEAWAYS

The February 2024 workshop in Accra, Ghana, brought together MOH participants from all study countries (national-level EPI staff and several participants from other health programs and higher-level management). Conversations during the workshop made clear that the greatest challenge for COVID-19 vaccination is declining demand among populations, health workers, and governments alike. This is due to the perception that COVID-19 now is a low risk and there are other health priorities of greater importance. Most countries are now vaccinating at very low levels, with travel or employment requirements being the main motivator for the vaccination. Some countries have ceased procurement of COVID-19 vaccines.

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 health systems' strengthening 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 multisectoral 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, future vaccine introductions, and PHC integration.
- Countries perceive that COVID-19 vaccination integration requires a high level of resources and effort. Although there is donor funding available, the cost goes beyond the financial to include health worker and government official workloads, significant disruption to other health activities, political and social will, and the risks that COVID-19-driven hesitancy and low demand pose to related health services.

Given these considerations, workshop participants indicated a pragmatic view of integration, seeking to implement it in places and services where the benefits to the health of their populations and their broader health priorities outweigh the costs. Additionally, participants indicated several areas where donors and partners can support them in these efforts. These included:

- Supporting countries to strengthen national and subnational multisectoral 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 allow for 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 low risk perception, low trust in government, misinformation and hesitancy, or low quality of health services.

DISCUSSION

The conduct of this assessment revealed many details of the context of the transition of COVID-19 vaccination from an emergency response to a more routine status. As with any transition, some elements are relatively easy and obvious, while others are more complex and come with risks and costs. The assessment identifies both categories of elements of the transition. By doing so, the assessment points to important issues, decisions, and actions that could make the transition more successful.

The discussion below attempts to draw conclusions and suggest directions from the assessment findings to indicate options for countries concerning COVID-19 vaccination as it transitions from the emergency response. The discussion is organized by the objectives of the assessment to cover what might be needed in terms of COVID-19 vaccination-specific strategies and planning; integration of COVID-19 vaccination with essential health programs, especially RI; integration of COVID-19 vaccination with health system functions; integration into overall health sector strategies and systems; ways to ensure equitable access; and lessons from the emergency that can be applied.

COVID-19 Strategies and Planning

It would seem critical that governments make concrete strategies for integrating COVID-19 vaccinations, and many countries are already in the process of doing so. Once the strategies are in place, follow-through to implementation will be required to make them real, but the situation of COVID-19 vaccination moving from an emergency response to a longer-term sustainable approach calls for strategic decisions to be made and codified. The assessed countries' COVID-19 vaccination efforts seem somewhat suspended, awaiting finalization of defined strategies for future delivery. As of late 2023/early 2024, the uptake of COVID-19 vaccination was low, and almost no effort was being made to promote COVID-19 vaccination and generate demand. The de facto assignment of responsibility for COVID-19 vaccination to the RI program (which typically is focused on vaccinating infants and young children, who are low priority for COVID-19 vaccination) makes sense on its face, given the many practical requirements of both RI and COVID-19 vaccinations. However, this approach risks the omission of consideration for the specificity of COVID-19 vaccinations reaching groups at highest risk of serious illness and death if proper coordination and collaboration with other programs that already access these populations is not put in place. In places where life-course vaccinations (including human papillomavirus [HPV] and influenza) are not yet the norm, COVID-19 vaccination might lead the way to adapting RI programs to address nontraditional age groups. The foregoing issues should be addressed in specific strategies for sustainable COVID-19 vaccinations.

It is also worth noting that in all assessment countries and at a global level, there is considerable uncertainty about the future of COVID-19 vaccination programs beyond 2025. All countries (with the exception of Tamil Nadu state in India) are dependent on Gavi funding for COVID-19 doses and seem unlikely to self-fund if these global resources expire. In Gavi's upcoming [Vaccine Investment Strategy for 2026–2030](#), there is deliberation on whether to continue financing COVID-19 vaccination for Gavi-eligible countries. While these deliberations are ongoing, it is clear that the

outcome would have major implications on six of the seven assessment countries: In the event Gavi decides to stop funding COVID-19 vaccines, COVID-19 vaccination in these countries would likely cease. Given this possibility, it would be important for countries to consider how to prioritize those integration activities over the 2024–2025 period in ways that would be beneficial to meet multiple needs. These include continuing to vaccinate and protect the most vulnerable priority populations against COVID-19 while also laying the groundwork for stronger life-course vaccination and system strengthening strategies that could be employed for future adult vaccines even if COVID-19 vaccination ceases in two years (e.g., a novel TB vaccine expected to become available in the next several years). Given that many assessment countries were finalizing integration plans or just beginning to deploy them, there is still an opportunity to consider prioritization of activities from this perspective. Some examples of such mutually beneficial activities include: strengthening coordination mechanisms (and lines of accountability) between different health programs; strengthening intrafacility referral processes; boosting counseling skills for all providers; strengthening community engagement structures; maintaining new partnerships (e.g., civil society organizations, private providers, or patient advocacy groups) that were initiated during the pandemic; and leveraging mechanisms for identifying nontraditional groups for immunization and methods for tracking coverage among them.

Integration with Other Essential Health Services (with a focus on RI)

As stated above, the integration of COVID-19 vaccination with RI for many practical aspects of delivery makes sense. COVID-19 vaccines benefit from central procurement, require estimation of demand, need a cold chain, can be distributed to vaccination sites along with routine vaccines, and are administered using the same health worker skills as RIs. However, the priority populations for RI and COVID-19 vaccination (as defined by SAGE and adapted to local contexts) differ. The differences are important in several ways: (1) where and how often the populations use the health system and how to motivate them to make use of the system to obtain COVID-19 vaccinations; (2) how health workers who deliver vaccinations are habituated to work and are supervised; and (3) how the priority population groups are perceived by each other.

The priority population for RI is principally infants and young children and those who are pregnant or of childbearing age. The priority populations for COVID-19 vaccinations (the groups with highest risk of serious illness and death) are the elderly, the immunocompromised, and those who are pregnant.

The elderly may or may not make much use of health care facilities where RIs are offered. The elderly do not have the habit of seeking vaccination, as the majority of the study countries do not have existing adult vaccination programs (prior to COVID-19).

The immunocompromised, such as people living with HIV (PLHIV) and people living with TB, use health care facilities to access diagnosis and treatment, but not always the same health care facilities that offer immunizations and not *for* immunizations.

Without strong referral systems by providers of NCD, HIV, or other related services who know how to talk about and refer patients for COVID-19 vaccine, and without dedicated outreach and ongoing community engagement for high-priority groups who may not have any existing link with the health system, the ability of EPI programs to reach these highest priority groups is severely limited.

An alternative to assigning responsibility for COVID-19 vaccinations for the elderly and immunocompromised to the RI program would be to administer COVID-19 vaccinations within NCD, HIV, and related services used by the priority groups. This approach would require changes to logistics systems, information and monitoring systems, skills of workers in the services, communications, supervision, and more.

The assessments show that uptake of COVID-19 vaccination at the time of data collection is very low for any population group, including priority groups, and that little specific effort is being made to adapt the approach to RIs when COVID-19 is applied to the differing circumstances of priority populations.

Pregnant women use health care facilities for ANC that generally includes vaccination against tetanus. Many pregnant women have children who have been or will be vaccinated. Thus, pregnant women may be more likely to be reached with COVID-19 vaccination than the elderly or immunocompromised, as they have more frequent touchpoints with the health system.

There is a risk that the vaccinators who implement RI will not think of the elderly and immunocompromised as “their” populations when the longtime focus has been on young children. The same goes for the vaccinators’ supervisors. Even if the priority groups that are not the usual for RI are considered, health workers may not have the training, skills, bandwidth, or resources to develop local strategies to effectively identify and reach COVID-19 high-priority groups in their community.

Further, stigma unfortunately remains around many of the immunocompromised, which could cause reticence among the non-immunocompromised about being vaccinated in the same places as the immunocompromised.

Another issue that should be addressed is demand for COVID-19 vaccinations. The assessment found that the overall population, specific priority population groups, and health policymakers and managers no longer perceive COVID-19 as an important threat. Further, the assessment found that misinformation and hesitancy concerning COVID-19 vaccination (spreading to other vaccinations and trust in the health system overall) persists. These perceptions and misconceptions need to be addressed to take COVID-19 vaccination forward successfully and to benefit other vaccinations and the whole health system.

To assist with the integration with other health services, it would be useful to understand the costs⁵⁵ of such integration. The questions to be answered might include how much it costs to: deploy or retrain personnel to administer COVID-19 vaccinations in NCD, HIV, and TB facilities; add to the supply and distribution system additional delivery points at NCD, HIV and TB facilities; supervise additional service delivery points; create and implement communications systems to reach priority populations; and procure appropriate levels of vaccine supply to meet COVID-19 targets. UNICEF will soon be undertaking studies in a small number of countries to better understand the direct and indirect costs of such integration efforts.

Integration with Other Health System Functions

The assessed countries report full integration of COVID-19 vaccines into the RI supply chain, cold chain, and distribution systems. This all seems sensible since there is little about COVID-19 vaccines (except in some cases the need for ultra cold storage)^{***} that differs from routine vaccines. The integration of COVID-19 vaccination data into the HMIS (they already are in the information system in Tamil Nadu and Ghana) as planned in Benin and Ethiopia also seems sensible. However, more work may be needed to redefine responsibilities for programs involved in the management of COVID-19 vaccination (e.g., integrated supervision, information systems, and service delivery). In terms of leadership and governance, all study countries assumed EPI would have responsibility for COVID-19 vaccination going forward, but open questions remained around coordination mechanisms and accountability lines

⁵⁵ In addition to estimating costs of integration for budgeting purposes, it would be useful for policymakers to study cost effectiveness of integration and the costs and benefits of integration with other programs, such as those for hypertension and diabetes.

^{***} The external emergency support usually included ultra cold storage equipment when the country received donations of COVID-19 vaccines requiring this.

with other health programs, particularly whether or how EPI could be accountable if service delivery is integrated in other health programs.

All assessed countries report reliance on funding outside their budgets for procurement of COVID-19 vaccines. Tamil Nadu reports that procurement is a central government function, with the state as the recipient. Benin, Ghana, Ethiopia, Liberia, and Nigeria have received vaccines funded by external partners. The COVID-19 Vaccines Global Access (COVAX) initiative that financed much of the supply of COVID-19 vaccines (nearly 2 billion doses) to LMICs closed on December 31, 2023. UNICEF Supply Division was instrumental in COVID-19 vaccine procurement as a part of COVAX. Gavi will continue to provide COVID-19 vaccines and delivery support to low-income countries and LMICs in 2024 and 2025. As noted above, Benin, Ethiopia, Liberia, and Nigeria have applied to and been approved by Gavi for COVID-19 vaccines for 2024. Important discussions are ongoing within Gavi's Vaccine Investment Strategy (the prioritization process for inclusion of new and underused vaccines made available to countries through Gavi support) on whether to support COVID-19 vaccines in 2026 and beyond. Given that external support for COVID-19 vaccine is not ensured beyond 2025, countries like those involved with this assessment should begin to prepare for this eventuality. The preparations would include provision for COVID-19 vaccines for priority populations in national health budgets; demand estimation; procurement processes (including possibly working with UNICEF's Supply Division); and, possibly, creative domestic resource mobilization approaches, such as public-private partnerships.

Supervision and the human resources to deliver COVID-19 vaccinations are areas that may need attention, given the different priority populations for COVID-19 vaccination compared to RI. The health workers who provide services to the elderly (e.g., diagnosis, treatment, and disease management for hypertension and diabetes) and the immunocompromised (e.g., diagnosis, treatment, and monitoring of PLHIV and people with TB) may be better placed to administer COVID-19 vaccines than the vaccinators who administer children's vaccinations. This is the kind of choice that needs to be made in a strategy for COVID-19 vaccinations and is being debated in Ethiopia; our interviewees thought it feasible in Tamil Nadu. If so, training of these health workers will be required, complemented by supportive supervision.

In addition, community health workers who are charged with communicating with populations to raise awareness, create demand, counter misinformation, and encourage specific individuals to take advantage of available services will need training and tools adapted to COVID-19 vaccinations and priority group populations.

Finally, COVID-19 vaccinations are understandably perceived by vaccinators as additions to their current tasks of responsibility—a concern raised by informants in Benin, Ethiopia, and Ghana. Workload analysis should be conducted to identify where additional staffing is needed and/or adjustments to compensation would be warranted for vaccinators to account for additional work required by COVID-19 vaccination.

Integration into Overall Health Strategies and Systems

The integration of COVID-19 vaccinations into the strategic documents, monitoring systems, and budgeting systems of MOHs likely is mostly a matter of time, but there are some aspects of this integration that might require specific attention.

Overall health and immunization strategies are renewed only after several years (often for five-year periods). Thus, the inclusion of COVID-19 vaccinations in strategies should be expected at the time of the most recent renewal following the global pandemic. When including COVID-19 vaccinations, these strategies should account for decisions taken about the long-term direction of COVID-19 vaccination, including: (1) definition of priority populations; (2) assignment of governance and management; (3) decisions on how COVID-19 vaccinations will interact with other programs (related to priority populations); (4) indication of COVID-19 integration with systems functions (procurement, cold chain, distribution systems, information systems, etc.); and (5) decisions on how the costs of

COVID-19 vaccinations (vaccines and delivery costs) will be covered (e.g., how reliant on external versus domestic funding, how funding will be ensured when external support ends).

The decisions codified in the strategy documents should be reflected in the M&E indicators and targets set for COVID-19 vaccinations. It is likely these would include coverage targets for priority groups (such as the elderly and immunocompromised), as similar coverage targets are set for childhood vaccinations (such as coverage with DTP3-containing vaccinations for 12- to 24-month-olds). Setting coverage targets for priority groups was identified as an ongoing challenge during the peer learning event.

The stated funding mechanisms in the strategy documents should be reflected in budget requests. They might include funding for procurement of some or all of the COVID-19 vaccines needed to reach targets (depending on the availability and durability of external support). The budget requests for delivery costs might be part of overall requests for vaccination delivery but should account for the costs of training, communication and demand creation, data management, and additional facilities and personnel that might be specifically needed to reach priority groups different from the mothers and children addressed by traditional RI.

Ensuring Equitable Access to COVID-19 Vaccinations

Efforts to ensure equitable access to COVID-19 vaccinations begun during the emergency response should be continued. However, specific and good-quality measurement of the degree to which equitable access is attained is needed. Disaggregated coverage data was required for global reporting to COVAX, but generally the quality of this data was poor, and most respondents interviewed did not discuss measurement of priority groups at all. Systems to break down coverage information for the overall population and priority groups by sex, rural and urban residence, membership in underserved or priority groups, and socioeconomic status should be put in place. In addition, mechanisms and funding to use the data produced to design and implement interventions to address inequities will be needed.

Lessons from the Emergency Response to Apply to Continued COVID-19 Vaccinations

Many lessons learned about integration from COVID-19 vaccinations during the emergency response could or should be applied in the post-emergency period. The platform of RI is a valuable asset for COVID-19 vaccination, including trained personnel, cold chain and supply distribution systems, and primary care facilities (all assessment countries). The RI platform should be employed in pursuit of continued COVID-19 vaccinations. However, this platform likely is not sufficient to optimally reach priority populations for COVID-19 vaccinations, so additional components must be deployed.

Since PLHIV and people with TB are among likely priority populations, the practice of referring them to sites where they can receive COVID-19 vaccinations (Ethiopia) or providing them with COVID-19 vaccinations where they obtain HIV and TB services should be pursued. The coordination across programs (such as between nutrition and COVID-19 vaccinations in Ethiopia) to promote or refer from one to the other should be pursued, especially among programs that address priority populations.

Another valuable lesson is to employ contacts with the health system other than specifically for COVID-19 vaccinations as an opportunity to: (1) refer the unvaccinated to COVID-19 vaccination and (2) to provide information about COVID-19 vaccinations (and counter misinformation) (Tamil Nadu).

All assessed countries learned lessons about how to involve community leaders effectively and build new partnerships to generate demand and counter misinformation during the urgent response. The lessons could be leveraged for the post-emergency phase for COVID-19 vaccinations and for the countering of vaccination hesitancy more broadly.

CONCLUSION

The assessment provided information critical to the future of COVID-19 vaccination. The assessed countries all face major decisions about how to transition from the emergency response phase to a more routine approach to COVID-19 vaccination. Uptake of COVID-19 vaccination in all assessment countries has fallen to a trickle. Nearly all the assessed countries are integrating COVID-19 vaccination with RI either by explicit decision or by default. There are many practical reasons for doing so. There also are risks to integration with RI without accounting for the differences in the priority populations. The differences also offer an opportunity for RI previously focused mainly on infants and young children to begin to take a life-course approach to immunization, including additional adult vaccines. A looming but not immediate challenge for the assessed countries is the funding of COVID-19 vaccines and vaccination when external support ends. Valuable lessons from the emergency response, such as collaboration among programs and the mobilization of communities for demand generation, could and should be applied to the future of COVID-19 vaccination and more broadly within the health system.

ANNEX A. BASIC INTERVIEW GUIDE

COVID-19 Vaccination Integration Assessment

Key Informant Interview Guide

Introduction

My interview with you is part of a seven-country assessment focusing on the future of COVID-19 vaccination integration as COVID-19 vaccinations move from the urgency of the pandemic to targeting priority groups. My colleagues and I are interviewing people in your government, in the private sector, and external partner representatives about the plans for integration of COVID-19 vaccinations and lessons learned about integration from the period of the urgent response to COVID-19.

By integration, I mean the degree to which COVID-19 vaccination has been or will be integrated with other components of the health system in terms of governance, management, procurement, supply chain, information systems, financing, and service delivery (including integrating with other health services).

I will have specific questions for you about all these topics.

I'm also interested to know about how the integration or not of COVID-19 vaccination might affect the equity of access to COVID-19 vaccination with particular interest in gender equity.

Again, I'll have specific questions on these topics.

The assessment will culminate in reports for each of the seven countries and an overall report. We also expect to do a briefing for each country on our findings. We will provide you with access to the reports and we will invite you to the briefing.

This interview should take about 60 minutes to complete.

Do you have any questions for me before I begin with my specific questions?

I. Role concerning COVID-19 vaccinations

1. Please describe for me your role in COVID-19 vaccination and how long you've been supporting these efforts.

Let me begin with a broad question – later we'll get to more specifics.

2. Have changes been made already or has planning been done concerning the transition of COVID-19 vaccinations from the acute pandemic phase to the longer-term, post-pandemic situation? If so, tell me the major lines of how COVID-19 vaccinations will be implemented, especially any integration with essential health programs and health system functions.

II. Governance and Management

3. How will COVID-19 vaccination be managed and governed in the post-emergency phase? Please describe any changes, and how integration may change collaboration or involvement of different departments/sectors at policy and management levels.

PROBE: [Will COVID-19 vaccinations be overseen through the regular MOH organizational structure? Describe the oversight hierarchy and how information flowed through it.]

- Will COVID-19 vaccinations be managed by the regular EPI/RI management team?
 - If it is not overseen by the regular EPI/RI team that manages implementation, what other management arrangement will be used? Please explain the rationale for the approach.
 - Will there be shared functions with EPI/RI such as procurement, cold chain, distribution, and information and reporting?
 - What will be the management arrangements at the sub-national level?
 - Will COVID-19 vaccinations be included in the national immunization plans and strategy?
 - Will COVID-19 vaccinations be included in the national health plan/strategy?]
4. Will there be a collaboration with private providers to offer COVID-19 vaccinations? If so, how will the participation by the private sector in vaccination be overseen?

III. Delivery

Next, I'd like to discuss how COVID-19 vaccinations will be delivered.

5. Will COVID-19 vaccinations be delivered along with regular EPI vaccinations through ordinary health facilities?
- PROBE:** [Will they be delivered in any specialized facilities (such as HIV/ART clinics, NCD clinics)?
- [IF THE ANSWER TO THE Q ABOVE ABOUT COLLABORATION WITH THE PRIVATE SECTOR IS NEGATIVE, SKIP THIS Q] Will they be delivered in private health facilities (such as individual doctor practices, private clinics, private hospitals)?
 - Will they be delivered in any other places?]

IV. Human Resources

6. How might the human resources be managed differently to deliver COVID-19 vaccinations?
- PROBE:** [Will they be the same health workers who provide routine immunizations or other services? Any potential changes to which health workers will be primarily responsible? Changes to per diem/incentives? Changes to supervisory/management responsibilities?]
7. Were additional health workers hired for the urgent phase of COVID-19 vaccinations? Will any of them carry out other vaccination tasks as the urgent phase of the pandemic has passed?
8. How will COVID-19 vaccination personnel be supervised?

V. Procurement, Storage, and Distribution

Let's talk about the supply of COVID-19 vaccines.

9. How will COVID-19 vaccines be stored and distributed?
- PROBE:** [Will COVID-19 vaccines be stored in the same cold stores as routine vaccines?
- Will this include any additional cold chain equipment introduced with COVID-19 vaccines?
 - If yes to the above, concerning additional cold chain equipment for COVID-19 vaccines:
 - Are there technicians trained in maintaining the new cold chain equipment?
 - Will there be spare parts for the new equipment?
 - Will COVID-19 vaccines be included in logistics management systems? Using an alternative system? Please include the rationale.]

VI. Financing, Information Systems, Demand Generation, and Equity

Now, I'm moving onto a conversation about financing.

10. What will be the major costs to integrate COVID-19 vaccinations with routine immunization or other essential health programs or health system functions beyond the vaccines themselves?
11. Do you expect the financing arrangements for the delivery of COVID-19 vaccines to priority groups to change in the coming years? If so, how will they change and how will it affect the program?

The next topic I'd like to take up is information systems.

12. How will COVID-19 vaccinations be tracked and reported?
PROBE: [Through the existing HMIS? If so, has this already been done? If not yet done, when will it be done?
 - Will an electronic medical record system be put in place for COVID-19 vaccinations? Will the system be continued? Expanded to cover other health items?
 - Did you introduce individual trackers/electronic immunization registers/individual registers for COVID vaccination? Did those work well? Will they be continued? Expanded?]

Now let's speak about demand generation.

13. How will demand and community engagement for COVID-19 vaccination be carried out in the future?
PROBE: [Will communications about COVID-19 be integrated into other approaches to communications about health? For example, will community health workers be used to provide information about COVID-19 vaccination?
 - Will community leaders be engaged to promote COVID-19 vaccination?
 - Will community health structures (village health committees, health center committees) be used to address concerns and misinformation about COVID-19 vaccines?
 - Will differentiated strategies be used to reach priority groups such as: health workers, older adults, pregnant women, and immunocompromised people?]

My discussion topics focus on equity.

14. How will COVID-19 vaccinations address equity of access for priority groups including older adults, those immunocompromised people, pregnant women, health care workers?
15. How will COVID-19 vaccinations address gender equity and hard-to-reach populations?
PROBE: [Will women and representatives of hard-to-reach communities, priority groups be involved in planning and providing feedback on COVID-19 vaccination strategies?]

VII. Success, Vision, and Challenges

Now, I'd like to step back and ask you to take a broader view of the future of COVID-19 vaccinations.

16. What would you say that success would look like for COVID-19 vaccinations going forward?
PROBE: [What might be the most important challenge to address, in order to reach that vision of success?
 - What will it take to make the rollout of the integration guideline successful? (e.g. resources, technical assistance, health worker training/behavior change, etc.)
 - How might integration impact equitable access to COVID-19 vaccination, impact other health services, or impact the overall health system?]

VIII. Lessons learned from the urgent phase

My final set of questions concerns lessons learned concerning integration from the urgent phase of COVID-19 vaccinations.

17. What was learned from how COVID-19 vaccinations were overseen strategically?

PROBE: [Were they overseen by the Ministry of Health or by another unit of government?

- What were the major lessons for oversight and governance going forward?]

18. What lessons were learned from how COVID-19 vaccinations were delivered?

PROBE: [What were lessons from where COVID-19 vaccinations were delivered (primary care facilities, hospitals, specialized facilities for HIV services, NCD clinics, private practices, other)?

- What were lessons from the personnel employed to administer COVID-19 vaccinations?
- What lessons were learned concerning supervision and quality?
- What lessons were learned concerning supplemental pay for those delivering COVID-19 vaccinations?
- What were lessons from collaboration with private providers on COVID-19 vaccinations?]

19. What lessons were learned about procurement and distribution of COVID-19 vaccines, cold chain, financing, demand generation, information systems, safety surveillance, etc.? Please elaborate on any functions you're familiar with.

20. What other lessons were learned about how to prepare for future pandemics?

IX. Closing

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

Could we contact you again if we have additional questions or clarification to follow up?

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

ANNEX B. BASIC FOCUS GROUP DISCUSSION GUIDE

COVID-19 Vaccination Integration Assessment

Focus Group Discussion Facilitation Guide

[OBTAIN SIGNED CONSENT FROM EVERY FGD PARTICIPANT AND PLACE NUMBERED CARDS IN FRONT OF EACH PARTICIPANT – Fill table below with respondent info while obtaining individual consent for FGD]

ID	Department/Unit	Position (vaccinator, nurse, supervisor...)	# years exp.	# years exp. w/ COVID-19 vax	Remark
R1					
R2					
R3					
R4					
R5					
R6					
R7					
R8					
R9					
R10					

Introduction

Welcome to this focus group. Thanks for agreeing to participate in discussing the integration of COVID-19 vaccinations with other health functions and essential health services. My name is XXX and YYY is assisting me. [Country xx]’s Ministry of Health suggested that we come to ZZZ to speak with you about COVID-19 vaccination integration. Today’s focus group is part of an assessment of the integration of COVID-19 vaccinations involving seven countries. It is

funded by the US Agency for International Development, and it is conducted in collaboration with your country's Ministry of Health.

The purpose of the assessment is to learn about how COVID-19 vaccinations have been integrated with other health services and other parts of the health system. The assessment team is interested to learn what has already been done in terms of integration, how well it's worked, and perspectives on what integration could be done in the future to make things work better. Therefore, your participation in this focus group is an important part of the assessment because you are the ones delivering the COVID-19 vaccinations or directly overseeing the delivery of the vaccinations.

Do you have any questions about the overall assessment and the part this focus group will play in it?

We will be discussing your experience with the delivery of COVID-19 vaccination. There are no right or wrong answers to my questions. Your frank and truthful explanation of your experiences is what will help the assessment to achieve its objectives.

Ground rules

We are recording this session and my colleague is taking notes, so please speak one at a time so we can document everything you say. I would like to hear from all of you so please let everyone speak and be sure to speak up when you have something to say. I may call on those who do not speak much, and I might ask those who speak a lot to shorten their comments to be sure to let others speak. You do not need to agree with what others say, but you must listen respectfully while they speak. We are on a first name basis, so please address me as XXX. Please turn off the ringers on your phones and if you must reply to a call, please signal me, step away, and return as quickly as possible. My role as facilitator is to moderate the discussion by asking questions and managing your responses, but please speak to each other when you would like to. If you'd like to address each other, please refer to your colleague by the numbered card they have in front of them. Raise your hand if you would like to make a comment but have trouble getting into the flow of the discussion. Are there any other ground rules the group would like to set?

Discussion points

1. My first discussion point concerns the roles that each of you played in COVID-19 vaccinations. Please tell us what your principal role has been related to COVID-19 vaccination? [CALL ON EACH PARTICIPANT IN TURN]
2. How is COVID-19 vaccination provided in this facility?

Now let me give you a working definition of integration of COVID-19 vaccinations: Let us consider integration to mean the degree to which COVID-19 vaccination has been or will be merged with other health services, like ANC, HIV, NCDs, RI, or the degree to which COVID-19 vaccination functions have been merged with other components of the health system blocks - for example, supply and logistics, information system and reporting, and training, etc. that were in place before the COVID-19 pandemic. Any questions about that working definition of integration?

Let me hear from you about your experiences and the new insights you've gained through practicing COVID vaccination.

3. Were COVID-19 vaccinations integrated with routine immunization sessions? If yes, what have you learned about it?
PROBE: [What made it easy or hard? Did you feel it was feasible and efficient for you to manage? Did you feel it was effective in vaccinating target populations?
 - If not, I'd like to hear your ideas about if COVID-19 vaccinations should be integrated with routine immunization sessions? If so, how? Advantages/challenges?]

4. Were COVID-19 vaccinations integrated with antenatal care sessions to reach pregnant women? If yes, what are some of the lessons you've learned?
PROBE: [What made it easy or hard? Did you feel it was feasible and efficient for you to manage? Did you feel it was effective in vaccinating target populations? Did you counsel pregnant women on COVID-19 vaccination when they came for ANC consultations?
 - If no: I'd like to hear your ideas about if COVID-19 vaccinations should be integrated with antenatal services? If so, how? Advantages/challenges?]

5. Were COVID-19 vaccinations integrated with services provided to immunocompromised people such as PLHIV? If yes, could you share some lessons you've gained over this experience?
PROBE: [What made it easy or hard? Did you feel it was feasible and efficient for you to manage? Did you feel it was effective in vaccinating target populations? Did you counsel PLHIV on COVID-19 vaccination when they came for ordinary consultations?
 - If not, I'd like to hear your ideas about if COVID-19 vaccinations should be integrated with HIV services? If so, how? Advantages/challenges?]

6. Were COVID-19 vaccinations integrated with services provided to NCD patients (e.g., older adults), such as screening and treatment for hypertension, diabetes, or other non-communicable diseases? If yes, what are some of the lessons you can share with us?
PROBE: [What made it easy or hard? Did you feel it was feasible and efficient for you to manage? Did you feel it was effective in vaccinating target populations? Did you counsel NCD patients on COVID-19 vaccination when they came for ordinary consultations?
 - If not, I'd like to hear your ideas about if COVID-19 vaccinations should be integrated with NCD services? If so, how? Advantages/challenges?]

7. Were COVID-19 vaccinations integrated with any other health services? If yes, what lessons have you learned through this experience?
PROBE: [What made it easy or hard? Did you feel it was feasible and efficient for you to manage? Did you feel it was effective in vaccinating target populations?
 - If not, I'd like to hear your ideas about if COVID-19 vaccinations should be integrated with any other health services? If so, how? Advantages/challenges?]

8. Was demand generation for COVID-19 vaccination integrated with similar efforts for other vaccines? If yes, could you please elaborate on the lessons acquired from this practice?
PROBE: [Were communications about COVID-19 delivered with other integrated services or into other approaches to communications about health? (For example, did you provide information about COVID-19 vaccination and ART adherence or good nutrition?)
 - Were community leaders engaged to promote COVID-19 vaccination? Were/Are these leaders involved in other health programs?
 - Were village health committees, health center committees, or similar groups used to address concerns and misinformation about the vaccine? How were they engaged, what information was provided to them?]

9. In your opinion, what would your suggestions be on how best to deliver integrated COVID-19 vaccination with other health services?

PROBE: [From the list you mentioned, which would be most feasible for you to implement? What would be the most effective way to reach priority populations like pregnant women, older adults, those with NCDs, HIV, and IDPs?]

10. What would you suggest for demand generation strategies moving forward to improve COVID-19 vaccine uptake?
11. What opportunities exist with integrating COVID-19 vaccination into the overall health system? What would you suggest, related to:
 - a. Data reporting?
 - b. Oversight and management?
 - c. Personnel and training?
 - d. Supply and cold chain?
12. What challenges exist with integrating COVID-19 vaccination into the overall health system? What would you suggest, related to:
 - a. Data reporting?
 - b. Oversight and management?
 - c. Personnel and training?
 - d. Supply and cold chain?

Conclusion

13. Is there anything important you'd like to comment on that we haven't discussed today, but that is very important for you?

Can we get back to you if we have any additional questions or clarifications to follow?

Thank you for your participation in today's session. The information and thoughts you have provided are valuable to the assessment, to [country], and to the other countries participating in the assessment.

ANNEX C. ADVISORY GROUP MEMBERSHIP

Name	Organization
Viorica Berdaga	UNICEF
Graca Matsinhe	JSI Mozambique
Bob Ferris	USAID
Jackline Kiarie	AMREF Health Africa
Ciara Sugerman	US CDC
Alba Vilajeliu	WHO
Marta Urrutxi Gallastegi	Gavi
Kaitlyn Moberly	USAID
Amanda Paust	USAID
Abdul Wali Ghayur	USAID
Jodi Charles	USAID

ANNEX D. ETHICAL REVIEW BOARDS

Country	IRB/Ethics Review Committee
Ethiopia	College of Health Science - Institutional Review Board Zambia street CHS building #710 Addis Ababa University Addis Ababa, Ethiopia Email: chs.irb@aau.edu.et Tel: +251 11896 1396
India	Sigma IRB C 23, South Extension I, First Floor New Delhi-110049 Telephone: (+ 91 11) 41063450 Email: irb.sigma@sigma-india.in
Mozambique	Comité Nacional de Bioética para Saúde (CNBS) Ministerio da Saude -22 andar dto Av. Eduardo Mondlane / Salvador Allende Maputo, Moçambique C.Postal: 264 Telephone: +258 82 406 6350 E-mail: cnbsmocambique@gmail.com
Ghana	Ghana Health Service Ethics Review Committee P.O Box MB 190 Accra, Ghana Phone: +233-50-3539896 Email: ethics.research@ghs.gov.gh
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Liberia	ACRE Institutional Review Board University of Liberia Capitol Hill, Monrovia, Liberia Mobile: +231 77 749 8386 +231 88 658 3774 +231 88 654 1706 E-mail: ulpireirb@gmail.com
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ANNEX E. COVERAGE DATA QUESTIONNAIRE

Instructions: Please fill out the below table, noting the following –

- Categories of target populations may vary by country, so please revise any categories, as needed, to be in line with what is included in your country’s reporting system for COVID-19 coverage.
- If additional disaggregation is available (e.g. by sex), please revise the table and include it.

COVID-19 Vaccination Coverage (%)	Introduction through End of 2022		Cumulative coverage through latest available 2023 (specify month)	
	One dose of COVID-19 vaccine**	Completed primary series***	One dose of COVID-19 vaccine**	Completed primary series***
Total population*				
Elderly (ask for the age threshold for “older” for the country)				
Health workers				
Pregnant women				
Immunocompromised people				
Younger adults (specify age group used by country)				
Other priority groups (e.g. adults with other comorbidities; teachers or military; other first responders; refugees or others - please specify)				

*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)

**Definition: coverage for those who have received a dose, but not completed, a primary series

***Definition: coverage for those who have completed the primary series or course of vaccination (may require one or more doses depending on the specific vaccine administered)

REFERENCES

- 1 World Health Organization. (2023). *Increasing COVID-19 Vaccination Uptake: An update on messaging, delivery strategies, and policy recommendations*. https://cdn.who.int/media/docs/default-source/agenda-sage/information-note---increasing-covid-19-vaccination.pdf?sfvrsn=6ce03e0c_2&download=true
- 2 World Health Organization. (2023). *WHO SAGE roadmap on uses of COVID-19 vaccines in the context ofOMICRON and high population immunity*. Immunization, Vaccines and Biologicals (IVB), Strategic Advisory Group of Experts on Immunization. <https://www.who.int/publications/i/item/WHO-2019-nCoV-Vaccines-SAGE-Prioritization-2023.1>
- 3 World Health Organization and UNICEF. (2023). *Considerations for integrating COVID-19 vaccination into immunization programmes and primary health care for 2022 and beyond*. Immunization, Vaccines and Biologicals (IVB). <https://www.who.int/publications/i/item/9789240064454>
- 4 Kiarie, J., Oladele, E., De Silva, G., Nybro, E., & Yacobson, I. (2024). Integration of COVID-19 vaccination into primary health care as an opportunity to leverage investments and build a more resilient health system. *Glob Health Sci Pract*, 12(Suppl 1):e2300420. <https://doi.org/10.9745/GHSP-D-23-00420>
- 5 Mirza, I., Ameda, I. M., Ba A. E., Traore, C., Hagos, M. T., Gbaya, A. A., & Schreiber, B. (2024). COVID-19 vaccination integration: efforts in 11 African countries to strengthen the primary health care system. *Glob Health Sci Pract*, 12(Suppl 1):e2300251. <https://doi.org/10.9745/GHSP-D-23-00251>
- 6 Tibbels, N., Ksaeghe, R., Chisambi, A. B., Ndovi, V., Mang'ando, A., & Figueroa, M. E. (2024). Perceptions of the COVID-19 vaccine and other adult vaccinations in Malawi: a qualitative assessment. *Glob Health Sci Pract*, 12(Suppl 1):e2300146. <https://doi.org/10.9745/GHSP-D-23-00146>
- 7 Kisanga, A., Stamidis, K. V., Rumbe, S., Lamunu, D., Ben, A., Thomas, G. R., & Berchmans, J. (2024). Leveraging the CORE Group Partners Project polio infrastructure to integrate COVID-19 vaccination and routine immunization in South Sudan. *Glob Health Sci Pract*, 12(Suppl 1):e2300178. <https://doi.org/10.9745/GHSP-D-23-00178>
- 8 Mokaya, E. N., Atem, N. A., Awzenio, G., Mukombo, L., Sesay, T., Kangbai, D. M., Nyandemoh, H., & Musanhu, P. (2024). Lessons from the COVID-19 pandemic response implementation: a case study of South Sudan and Sierra Leone. *Glob Health Sci Pract*, 12(Suppl 1):e2300180. <https://doi.org/10.9745/GHSP-D-23-00180>
- 9 Tella-Lah, T., Akinleye, D., Aliyu, A. S., Falodun, T., Okpere, S., Akpan, D., Orefunwa, O., Metiboba, L., Owoicho, J., Okposen, B., & Nwabufu, A. (2024). Achieving COVID-19 and routine immunization data systems integration on the Electronic Management of Immunization Data system in Nigeria. *Glob Health Sci Pract*, 12(Suppl 1):e2300149. <https://doi.org/10.9745/GHSP-D-23-00149>
- 10 Hagos, A. A., Sahile, Z., Ahmed, W., & Phanouvong, S. (2024). Leveraging COVID-19 vaccine safety monitoring in Ethiopia and Pakistan to enhance system-wide safety surveillance. *Glob Health Sci Pract*, 12(Suppl 1):e2300161. <https://doi.org/10.9745/GHSP-D-23-00161>