

COVID-19 Integration into Primary Health Care

Resource Collection and Country Examples

As governments, donors, and program implementers reflect on key lessons from the COVID-19 response to strengthen and build health systems that can withstand future pandemics and health crises, these early adopters are identifying ways to transition from emergency to routine COVID-19 vaccination and testing and treatment within the primary health care system. [WHO and UNICEF have produced guidance](#) to assist countries with mainstreaming their COVID-19 vaccination activities into primary health care, immunization programs and other essential health services. The USAID integration definition builds on the WHO/UNICEF vaccination integration definition.¹ WHO's six building blocks on health systems provide a useful framework for countries to consider how to plan integration and/or coordination between COVID-19 programming, immunization programmes, and the broader health system. At the same time, and in alignment with the WHO and UNICEF operational framework for primary health care (PHC), there is a need to recognize the importance of engaging and co-creating strategies and approaches for demand promotion and uptake within communities. [USAID's COVID-19 integration compendium](#) takes these factors into account. This document provides links to a collection of integration briefs, each of which includes helpful resources and illustrative examples of successful country integration activities per health system building block. To move the needle on integration, multiple interventions may be more successful when implemented together, optimizing service coverage, equity, and the delivery of patient-centered services. Integration plans can be structured in different ways: 1) phased (with incremental interventions over time); 2) scenario-based (with established epidemiological trigger points to respond to renewed outbreaks), and 3) health system-based with clearly delineated interventions at each level of the health system.

Find helpful resources and illustrative examples of successful country integration activities, organized by the Health Systems Building Blocks below:

[Leadership & Governance](#)

[Health Systems Financing](#)

[Service Delivery](#)

[Health Workforce](#)

[Supply Chain Management](#)

[Demand Generation and Community Engagement](#)

[Health Information Systems \(incl. utilization and surveillance\)](#)

¹ WHO/UNICEF vaccination integration definition: the partial or full adoption of COVID-19 response activities - across prevention, diagnosis, care and treatment - into national program services, including immunization programmes, primary health care, PHC, and any other relevant health services with the overall aim of improving program efficiency and sustainability, enhancing demand and improving user satisfaction, achieving and maintaining satisfactory coverage, and addressing inequities

Leadership & Governance

Leadership and governance activities to support COVID-19 integration include linking integration planning with relevant country policy and strategy documents, identifying responsibilities among government leadership, developing timelines, and aligning technical and coordination working groups to oversee planning and implementation. It is important to note that governance for integration plans related to vaccinations usually defaults to Expanded Programme on Immunization (EPI) programs, but there are instances where other primary health care structures are leveraged to play this role. In addition to the recommendations in the [WHO/UNICEF integration report](#), WHO has produced additional resources to support specific leadership and governance activities around occupational health hazards, task shifting, gender equity, and home-based testing and care. Utilizing these resources, several countries have already conducted planning exercises to incorporate COVID-19 vaccination into national and subnational guidelines for routine immunization and primary health care (PHC) and to establish mechanisms for accountability, monitoring, and task-sharing. Preliminary activities can include partner and resource mapping, use of the [CoVDP mapping tool](#), facility readiness assessments, or documented learnings from ongoing integration activities such as the implementation of bundled campaigns or integrated supply chains.

In February 2023, the Uganda Ministry of Health (MOH) shared its integration plan, “Integration of COVID-19 Vaccination into Routine Immunization and Primary Healthcare”, developed with input and reflections from multiple national and district stakeholders on COVID-19 vaccination challenges, gaps, best practices, innovations, and potential service delivery models. The 2-year scenario-based plan provides strategic direction for protecting Ugandans from COVID-19 during non-emergency times and as part of routine health care services. The plan describes several leadership and governance activities, including developing a partner matrix to identify partners that can support specific components of the integration strategy, organizing monthly performance assessment meetings for integration plan implementation, and holding biannual events to share best practices and lessons learned. Uganda’s integration plan highlights cross-cutting activities to support COVID-19 integration across the health systems building blocks, and includes standardized COVID-19 indicators that were included in DHIS2 for monitoring.

In March 2023, the Government of Côte d’Ivoire (GoCI) organized a workshop to define an integration framework for COVID-19, develop strategies for integrating COVID-19 vaccination into routine immunization services and PHC, and identify how to implement COVID-19 integration activities at the national and sub-national levels. The workshop brought together key national and international stakeholders, including MoH, EPI, USAID, WHO, UNICEF, and several others representing national and operational level actors. By the end of the week-long workshop, the participants had developed a series of recommendations tied directly to gaps identified and had outlined an **operational** integration plan. For leadership and governance, GoCI considered several activities around policies, procedures, and

strategy documents to support COVID-19 integration: the national COVID-19 deployment plan, weekly integrated immunization performance monitoring updates, and biannual meetings with local elected officials to monitor health activities under the prefect leadership. Currently, the GoCI is working with USAID and other partners to operationalize the workshop outcomes and develop sustainable ways to push forward the strides made through Global VAX support.

Recommendations for Leadership & Governance Integration Activities:

- Before integrating COVID-19 vaccinations or testing and treatment with PHC, consider the context, compatibility, feasibility, acceptability, accountability and equity of the COVID-19 response activities within the PHC system.
- Ensure leadership gender balance at national and sub-national levels; in many countries women make up the bulk of the health workforce but only occupy a small percentage of leadership roles.
- Developing a partner matrix can simplify intersectoral collaboration and coordination.
- Consider joint planning for procurement and delivery of COVID-19 vaccines, testing and treatment in national plans such as a national immunization, health, PHC or universal health coverage plans.
- Developing or repurposing existing immunization-related technical working groups or task forces to lead, plan, coordinate, implement and monitor COVID-19 vaccination integration with PHC can quicken operationalization and improve accountability.

| Integration Resources for Leadership and Governance Activities | |
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| <i>Suggested Activities</i> | <i>Existing Guidance</i> |
| C19 response included in the national policies and guidelines for providing integrated PHC and life course vaccination | Considerations for integrating COVID-19 vaccination into immunization programmes and primary health care for 2022 and beyond Working Together: an integration resource guide for immunization services throughout the life course TechNet-21 resources on Life Course and Integration |
| Joint planning of C19 response as part of PHC activities at national and sub national levels | A system-wide approach to analyzing efficiency across health programmes |
| Set up joint governing bodies or task forces for national and sub-national coordination and accountability mechanisms | Change Cannot Wait: Building Resilient Health Systems in the Shadow of COVID-19 |



| Integration Resources for Leadership and Governance Activities | |
|---|--|
| Develop norms and standards for the prevention of occupational risks (i.e. respiratory infections) in the health sector. | Occupational hazards in the health sector |
| Develop/strengthen policies that encourage task shifting and task sharing to optimize health workforce during health crises | Global Recommendations and Guidelines on Task Shifting |
| Develop and disseminate policy on booster shots for high risk populations | Interim statement on the use of additional booster doses of Emergency Use Listed mRNA vaccines against COVID-19 |
| Facilitate home-based care and access to C19 self-testing | Use of SARS-CoV-2 antigen-detection rapid diagnostic tests for COVID-19 self-testing Home care for patients with suspected or confirmed COVID-19 and management of their contacts |

Health Systems Financing

Health systems financing refers to the mobilization, accumulation and allocation of money to ensure funding is available to cover the health needs of the people, preferably without the risk of severe financial hardship on households. This includes a wide range of activities from raising funds at national levels for public health financing to setting financial incentives for health workers at the point of care to ensure access to services.

These principles still apply when considering integration in primary health care. Ensuring budget line items and exploring the right incentives are still main functions of public health and health system financing. However, the emphasis in integrated health systems financing is on efficiency and joint planning. In raising funds, for example, countries can consider piggybacking on the momentum of various well-funded programs. Private sector engagement and market shaping initiatives can improve access to essential products and services. In spending efficiently, countries might focus on joint planning and financial forecasting. Engaging the private sector may elicit efficiencies in both resource mobilization and planning while expanding access to services.

USAID and implementing partners have already demonstrated success in integrating financing activities for COVID-19 into the health care infrastructure. [Nigeria](#) ramped up private sector engagement during the pandemic by developing the Coalition against COVID-19 (CACOVID), which includes WHO and provides additional support to the Nigeria Centre for Disease Control. This partnership pulls resources across industries to provide technical and operational support and equips medical facilities in six zones with testing, isolation and treatment centers, molecular testing labs and with Intensive Care Units (ICUs).

Many USAID-supported countries have demonstrated successful health system financing integration efforts to support other disease priorities. Integrating COVID-19 services within the health system, including within primary health care (PHC), is important to withstand shocks in preparing for future pandemics and outbreaks and in building capacities for life course vaccination and for routine COVID-19 testing and treatment.

Recommendations for Health Systems Financing Integration Activities:

- Countries are likely to achieve the best outcomes if they take learnings into account, have a plan in place before shocks occur and align the flow of funds with country priorities.
- Consider both vertical (e.g., HIV/AIDS, TB, and malaria) and multisectoral coordination platforms, such as One Health, to mobilize and leverage existing investments.
- For private sector engagement, consider a fit-for-purpose approach, as well as having contingency contracts in place to strengthen the agility and adaptiveness of partnerships. Private sector engagement may help mobilize domestic funding from manufacturers and businesses to produce Personal Protective Equipment (PPEs), support obtaining essential goods, and contribute to the transportation and distribution of health commodities.

- Pool resources into one common basket to enable quick decisions on reprogramming and reprioritizing funds and facilitate allocation of adequate resources, which can be used to procure cold chain equipment and COVID-19 and other vaccines for national immunization programs.

| Integration Resources for Health Systems Financing Activities | |
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| <i>Suggested Activities</i> | <i>Existing Guidance</i> |
| Joint financial forecasting, planning, and management of PHC & COVID-19 response supplies and programs | <u>A system-wide approach to analyzing efficiency across health programmes</u> |
| Ensure budget line items for integrated Emergency Operations Centers (e.g. polio, measles, COVID-19) | <u>Public financial management for effective response to health emergencies. Key lessons from COVID-19 for balancing flexibility and accountability</u> |
| Identify opportunities for resource mobilization and cost sharing across interventions | <u>Change Cannot Wait: Building Resilient Health Systems in the Shadow of COVID-19</u> |
| Encourage reliable & affordable access to bulk liquid oxygen (LOX) through market shaping activities | <u>Business Models in Respiratory Care</u> |
| Test innovative incentive approaches to increase vaccine uptake and delivery | <u>Designing and Implementing Health Care Provider Payment Systems</u> |

Service Delivery

A central element of countries' integration plans is the articulation of approaches for integrated delivery of COVID-19 vaccination and primary health care services, including routine immunization. Countries' immunization systems administer vaccines through different strategies that could be used for integrated delivery of vaccines across the lifecourse, including routine childhood vaccination and COVID-19 vaccination. These strategies include utilizing new vaccination sites, mobile teams, or existing public health facilities, partnering with private-sector health facilities, and organizing integrated or multi-antigen campaigns and stand-alone vaccination campaigns for COVID-19 vaccines. Leveraging existing, operational adult service delivery platforms such as HIV, noncommunicable disease, and antenatal care clinics provides system efficiencies and patient-centered care. A combination of outreach approaches may be needed to achieve high vaccine coverage to prevent outbreaks and to maximize health service utilization, because health center-based services alone will not reach all eligible populations.

For example, in [Somalia](#), the accelerated COVID-19 vaccination campaign provided an opportunity to improve routine immunization by identifying and vaccinating zero-dose children. Integrated outreach teams were deployed in underserved and drought-affected districts to provide routine immunization, COVID-19 vaccination, zinc and vitamin A supplements, oral rehydration salts, as well as basic clinical consultation and medicines. Since March 2022, integrated teams in Somalia have identified and vaccinated more than 69,000 zero-dose children, more than 113,000 children needing the measles vaccination, and more than 25,000 pregnant women needing the tetanus vaccination.

In Ethiopia, the MOH is offering COVID-19 vaccines at primary health facilities and strengthening use of health posts to bring the services closer to the community. At some health facilities, when children are brought for immunization, caregivers are screened for COVID-19 and vaccinated. Healthcare program managers have started bundling COVID-19 vaccines with routine immunization and other health services, e.g. integrating measles and vitamin A distribution.

It is important to consider issues related to access and overcome these barriers, as well as adjust service experience to make receiving services more acceptable and convenient. Communities that are hard to reach with COVID-19 vaccines are also most likely to be underserved communities with high numbers of under-immunized and zero-dose children and require specialized strategies to deliver care. In [Pakistan](#), refugee populations were reached through a combination of enhanced services at refurbished health facilities and with mobile teams. The integration of vaccination with other services provided through these activities increased convenience to accessing healthcare, improving uptake of all services and building trust in government provided healthcare.

In addition to vaccination service delivery, other COVID-19 response activities can be effectively integrated into ongoing health service delivery to strengthen the health system and improve services for patients. Rapid diagnostic testing and oral antiviral treatment for COVID-19 can be integrated into primary health care services and become part of routine services. In some countries, COVID-19 testing and treatment has become part of respiratory infection detection and treatment programs. Oxygen

therapy is critical to treat many different illnesses, so any support for oxygen ecosystems such as infrastructure improvement, training and other support will result in both improved services for patients and health system readiness to respond to new disease outbreaks through emergency oxygen supply at the PHC level.

Recommendations for Service Delivery Integration Activities:

Planning and design

- When designing integrated service delivery, assess **feasibility, accountability, and compatibility** between interventions, as well as acceptability to individuals, caregivers, health workers and communities. Account for different levels of health system capacity and resources, such as HR and supply chains.
- Avoid developing integration plans based on assumptions or outdated information; **collect and analyze additional routine service delivery information** sources or sociobehavioral data if a gap is identified in the planning process.
- Service delivery integration strategies should be mixed to match country and/or locality contexts and may need more adaptation and resources to ensure that **integration is mutually beneficial**.

Capacity building, updating of policy and procedures

- Assess and address any **capacity-building needs of health workers** when promoting integration of health services because health workers may be asked to take on new medical tasks, report data in new ways, or serve populations that they are not familiar with. New health system-wide integration strategies and policies will require engagement of health workers before being rolled out more widely.
- Where possible, link COVID-19 vaccination to service delivery points for MNCH and primary healthcare with a focus on reducing missed opportunities for vaccination on a **routine basis** via updated training curricula and delivery, policies, and supportive supervision.

Implementation

- Regularly **update and review microplans** at health center catchment area level for immunization and integrated health service delivery and utilize quality improvement processes to identify and address pockets of lower coverage.
- Continue to **build trust and confidence in health interventions, services, health workers and the health system** by continuing to adapt SBC and demand strategies.

Monitoring and adaptation:

- Drawing on patient-level data, health facility-level and district-level data, identify a limited number of indicators and a timeline by which to regularly track progress against and to work to improve performance on a continual basis.

- Develop a rhythm of **information sharing and coordination with other health programs** that are involved in integrated health service delivery and to aid in planning for future programmatic and policy shifts.
- Consider **engaging a wider range of partners on a more sustainable basis**, leveraging NITAGs and other multi-sectoral groups stood up during the pandemic to provide feedback on implementation of integration plans and work together to promote COVID-19 vaccination, health service integration, and health for all.

| Integration Resources for Service Delivery | |
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| <i>Suggested Activities</i> | <i>Existing Guidance</i> |
| Co-administration of COVID-19 vaccination with other vaccines at fixed, mobile, outreach, or other sites | Considerations for integrating COVID-19 vaccination into immunization programmes and primary health care for 2022 and beyond |
| Schools utilized as platforms for providing RI and PHC services, and IPC sensitization | Meeting Report: Stocktake on COVID-19 Vaccination and Integration |
| Outreach services and PHC facilities have the tools and resources available to rapidly test and treat COVID-19 positive patients or refer positive patients for nearby treatment | Test-to-treat algorithm |
| Integrated management of respiratory infections implemented at PHC sites, inclusive of T2T | Integrated Triage, Testing and Treatment for Ambulatory Settings in the Context of COVID-19; Navigating COVID-19 Clinical Care Pathways Across the Health Care System: A practical guide for primary health care workers |

Additional Resources on Service Delivery Integration:

- [Reaching Every District Quality Improvement planning guidance](#)
- [Engaging the private sector to deliver COVID-19 tools and achieve health for all e-course](#)
- [Reducing missed opportunities for vaccination \(MOV\) guidance](#)
- [Main Delivery Strategies to Reach Priority Populations with the COVID-19 Vaccine](#)
- [Foundations of medical oxygen systems](#)
- [Geo-enabled Microplanning Handbook](#)

Health Workforce

The need to provide COVID-19-related services, including vaccination, on top of the burden of maintaining routine and essential service provision has resulted in the expansion of the health workforce. New health workforce networks developed for the COVID-19 response play a critical role in the equitable delivery of vaccines and strengthening of primary health care services in a post-pandemic world. As countries move past the emergency period of the COVID-19 pandemic, there may be opportunities to maintain this expanded workforce to support routine and lifecourse immunization, mobile teams, new vaccination sites, multi-antigen vaccination campaigns, and routine health screenings.

For example, [Nigeria](#) previously established a vast network of frontline providers and community health workers specifically focused on eradicating polio. In 2016, health workers were mobilized to reach and administer vaccines to children in insecure and remote areas. The enhanced workforce capacity, training opportunities, and innovative outreach strategies established through Nigeria's polio eradication program were a valuable asset for rapidly organizing COVID-19 response infrastructure, particularly for vaccine delivery. The national polio emergency operations center functioned as the hub for Nigeria's COVID-19 response, providing coordination, facilitating community engagement, providing surveillance, infection prevention and control, and overseeing screening at points of entry. Now polio free, and with the emergency phase of the COVID-19 pandemic at a close, Nigeria is considering a [national transition plan](#) that would make this vast network of providers, infrastructure, and human resource support available to support other national and local public health efforts and priorities. In particular, lower-skilled workforce brought on to support COVID-19 vaccination efforts may present an ideal pool of candidates for expanded community health worker (CHW) roles.

Like Nigeria, [Somalia](#) leveraged its robust polio workforce to conduct training of trainers for COVID-19 vaccination, recruiting vaccinators, and for developing vaccination micro-plans. Polio staff have established strong relationships within communities, helping them reach zero-dose children, who often live in remote or conflict-affected areas. These relationships were important for the COVID-19 vaccine rollout, as many polio staff worked as vaccinators or social mobilizers and had already established trust with the communities.

Sustaining and building on progress for health workforce development also requires an understanding of workforce needs and capacities to better support health facilities during health emergencies and with routine health services. Health workforce information systems contain data on the number of health workers in specific geographic areas, helping to identify shortages and gaps in workforce capacity and training, availability of services, and personal protective equipment (PPE) and infection prevention and control equipment needs. In [Indonesia](#), the Ministry of Health utilized the System Informatasi Sumber Daya Manusia Kesehatan (SI-SDMK), a human resource for health information system, to strategically deploy health workers and maintain essential services with access to data on staffing, workload, incentives, and PPE needs. The data also helped health leaders in Indonesia develop daily situational reports during the COVID-19 pandemic, allowing districts and local health teams to make data-driven

decisions based on how health workers were distributed across the country relative to the epidemiologic situation and availability of infection prevention and control resources.

Recommendations for Health Workforce Integration:

- Consider ways to **improve health workforce data** collection and data quality to build or strengthen health workforce management information systems (HRHIS). Strategies that strengthen local HRHIS, including geographic information systems to monitor the location and activities of health workers on COVID-19, could be used to inform broader national health workforce strategies and workforce distribution policies.
- **Leverage COVID-19 training platforms** and expanded knowledge and institutionalize these new capacities to ensure that investments in health workforce readiness can improve future population health and resilience and build capacities to prevent and respond to future epidemics
- Sustain and continue to **build on progress in services and resources** for workforce well-being and burnout.

| Integration Resources for Health Workforce Activities | |
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| <i>Suggested Activities</i> | <i>Existing Guidance</i> |
| Adjusted HR needs assessment and recruitment to the increased workload due to C19 response & other disease outbreaks | Health workforce policy and management in the context of the COVID-19 pandemic response. Interim guidance |
| Standardized and timely payment of HWs' incentives & compensations | |
| Integrated training, capacity building and job aids for COVID-19 response and RI/PHC providers | Considerations for integrating COVID-19 vaccination into immunization programmes and primary health care for 2022 and beyond Health workforce policy and management in the context of the COVID-19 pandemic response. Interim guidance |
| HWs trained on safe and effective use of oral antivirals, clinical care and triage, IPC, and referrals for O2 treatment | Health workforce policy and management in the context of the COVID-19 pandemic response. Interim guidance WHO Coronavirus disease (COVID-19) training: Online training |



| Integration Resources for Health Workforce Activities | |
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| Joint supportive supervision to C19 response and PHC activities | <p>Considerations for integrating COVID-19 vaccination into immunization programmes and primary health care for 2022 and beyond</p> <p>Global Health Workforce responses to address the COVID-19 pandemic</p> <p>What policies and practices to recruit, retain, reskill, and support health workers during the COVID-19 pandemic should inform future workforce development?</p> <p>Health workforce policy and management in the context of the COVID-19 pandemic response. Interim guidance</p> |
| HWs vaccinated against C19 and empowered to promote vaccination according to the national immunization policy | <p>Implementation guide for vaccination of health workers</p> <p>Health Worker Vaccination Programmes: Opportunities beyond COVID-19</p> |
| Integrated capacity building of laboratory technicians | <p>ACT-A Dx Knowledge Hub</p> <p>ASLM's LabCoP COVID-19 ECHO Sessions</p> <p>ASLM Academy</p> |

Supply Chain Management

The COVID-19 pandemic introduced new challenges for supply chain management. The need for expedient action to provide essential COVID-19 commodities (personal protective equipment (PPE), vaccines, diagnostics, therapeutics, and infection prevention and control equipment) highlighted resource availability gaps. As countries begin to integrate COVID-19 response activities into routine health services, innovating and creating “resilient” supply chains is critical. A “resilient” supply chain exists when its systems, institutions and actors have the capacity to handle change and unexpected disturbances. There are a few conditions that make up a resilient supply chain. First, a supply chain must have an adaptive capacity to learn and adjust to changing internal and external factors. Second, the supply chain must have transformative abilities that allow the supply chain to reorganize itself to facilitate an improved response to the unknown emerging health threats. Finally, the supply chain must have forethought and planning by leaders, donors, and implementers regarding the supply chain’s operating environment, past experiences, and potential innovation.

Several countries implemented new approaches to adapt their supply chain activities for managing COVID-19, and assuring access to-, and distributing needed COVID-19 commodities. These examples may inform COVID-19 integration activity design and planning.

Supply Chain Data and Logistics Management/Visibility for COVID-19 Commodities

In [Ethiopia](#), USAID’s Digital Health Activity (DHA) customized three digital systems to ensure end-to-end visibility to vaccine distribution. This included a warehouse management tool to control the inventory of health commodities, a dashboard to allow real-time data visibility for decisions, and a vaccine inventory and distribution system which allows electronic submission of supply requests. In [Uganda](#), the Ministry of Health, with support from the USAID Uganda Health Supply Chain project and Management Sciences for Health (MSH), developed the electronic Emergency Logistics Management Information System (eELMIS) in response to the 2018 Ebola outbreak, and leveraged the eELMIS investment to streamline COVID-19 supply chain coordination and ensure that medicines and medical supplies reached points of need.

Transportation Resources

During the height of the COVID pandemic emergency, numerous countries assessed transportation resources and created partnerships with donors, donor contractors and most notably the private sector to access additional transportation to rapidly distribute COVID vaccines. This included organizing mobile vaccine teams using motorcycle taxis in [Tanzania](#). A similar approach for future COVID vaccine distribution can be devised during integration, with countries considering current vaccine and other health commodity transport networks, and adding resources for incorporating COVID vaccines into the existing commodity transport systems. However, countries should still consider innovative vaccine transport. As reported in Village Reach’s “Equitable Delivery of COVID-19 Vaccines”, [Malawi and DRC](#)

introduced drones as part of their COVID commodity transport, to provide vaccines and laboratory services for difficult to reach areas.

Ultra Cold Chain Storage

Given the development of new mRNA vaccines for COVID vaccination efforts, Pfizer, Moderna, and other COVID vaccines required storage conditions in ultra cold chain (UCC) freezers at -60C to -90C to assure their viability. Collaborative efforts in [Angola](#) between the Ministry of Health, UNICEF, USAID implementing partners, and private sector logistics companies led to the reorganization and redeployment of existing cold chain systems for UCCs across eight provinces to maximize COVID vaccine storage conditions from last mile transportation to vaccine administration. In [Namibia](#), USAID implementing partners worked with NamPost (the postal system parastatal) to equip vehicles with specialized ultra cold chain units (which include bluetooth locks and special batteries to assure continued power supply during long transit trips) to transport COVID vaccines to hard to reach areas.

Waste Management

In reaction to the additional commodity inventory from COVID-vaccine programming, countries in Africa, Asia, and the Americas have innovated and implemented various activities from cell phone data collection (to quantify and locate vaccine campaigns wastes) to relocating and redesigning waste collection/disposal centers to adapt to the increase in wastes and limit reverse logistics. As noted in this case study from [Nepal](#), countries also reacted expediently to advance waste management practices and policies to include COVID-vaccine wastes for the short and long-term.

Recommendations for Supply Chain Management Integration Activities:

- **For National Integration Plans:** Develop clear coordination principles for national entities and local partners to ensure deployment of the right vaccine, diagnostic, or therapeutic products in the right quantity to health facilities, to prevent duplication and wastage.
- **Update Forecast/Supply Plan Often-** Several tools (please see table below) are available from the WHO, USAID implementing partners, and other organizations to help model and consider the forecasting for COVID-19 commodities. However, countries should consider COVID-19 commodities similar to HIV, laboratory, other vaccine programs, and other health commodities, and update forecasts and supply plans regularly, adding-in and recognizing COVID program results, and changes in inventory levels. This will help keep information current, allow for adjustments for future vaccine orders especially if a COVID outbreak occurs and more commodities are needed quickly, and establish supply chain data for a country's COVID program, to help inform future forecasting and supply planning. Further, a forecasting best practice by several countries was to also include estimates regarding the wastes resulting from COVID programming, and the expected location of the wastes. This helped countries re-design and deploy assets to assure an efficient COVID vaccine waste management system.

- **Consider Flexible Ordering-** Countries should consider smaller regular shipments over a period of time, such as ordering and receiving 200,000 vaccines every two months for one year, rather than requesting/procuring 1.2 million vaccines for a one-time delivery to cover a country's vaccine needs for the year. This allows countries to gain the same number of vaccines needed for programming, but allows for more flexibility, as countries can observe the results of vaccine programming and monitor stock levels and adjust future shipments/procurements (such as requesting a future shipments increase to 300,000 vaccines instead of 200,00 vaccines, due to low stock levels and successful vaccine programming).
- **Assess and Leverage the Private Sector-** Regular analysis and documentation of the private sector's abilities and services for supporting COVID programming, can determine how the private sector can be engaged for a variety of supply chain activities ranging from extra storage and transport, waste management and disposal, procuring hard to access commodities, and/or providing consulting/management services to support supply chain changes and restructuring. Please see the resources below for ideas on how to contract with the private sector to expand supply chains.
- **Complete More Dialogue with Other Country Counterparts-** While countries may have their contextual differences, country health teams and leaders should reach-out to their counterparts in other countries to discuss supply chain issues. Supply chain counterparts in other countries are well-positioned to share their respective COVID program supply chain success and challenges, and to brainstorm innovative and realistic ideas to further COVID supply chain integration into the larger health system.

| Integration Resources for Supply Chain Management | |
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| <i>Suggested Activities</i> | <i>Existing Guidance</i> |
| Joint forecasting and planning of C19 vax, vax supplies, rapid diagnostic test kits, and antivirals | Test-to-Treat Quantification Tool WHO COVID-19 Essential Supplies Forecasting Tool |
| Integrated co-distribution of C19 supplies with other PHC/RI vaccines | Deliver. Together: partnerships to deliver vaccines in a pandemic — learning from COVID-19 vaccine delivery |
| Incorporating C19 vax and supplies into eLMIS for stock monitoring, and forecasting /supply planning | COVID-19 Vaccine Collaborative Supply Planning Initiative (VCSP) |
| Methods for organizing and commodity transport (contracting with the private sector and reverse logistics for waste management) | Contracting for Transportation of Public Health Commodities to the Private Sector Waste management and reverse logistics in the |

| Integration Resources for Supply Chain Management | |
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| | humanitarian context |
| Develop joint cold chain maintenance plans with RI | Keeping the Cold Chain Cold: The Importance of Maintenance |
| Joint planning and management of medical waste | Standard Operating Procedure (SOP): Waste management of used COVID-19 vaccines vials and ancillary supply |
| Incorporate digital temperature monitoring devices to sustain cold chain | Vaccine Management Handbook: How to monitor temperatures in the vaccine supply chain Case Study: Niger How the COVID-19 Response Is Strengthening the Cold Chain |

Additional Resources for Supply Chain Management and Integration:

- Compendium of documents to establish a resilient supply chain: [20 Essential Resources: Resilient Supply Chains During Public Health Emergencies](#)
- Creating small stockpiles of commodities to assure readiness for disease outbreaks: [How small vaccine stockpiles can stop outbreaks of infectious disease from becoming big](#)
- Restructuring procurement processes to create resilience and preparation for outbreaks:
 - [Pooled procurement in pandemic preparedness and response: leveraging the PAHO Revolving Funds to strengthen health equity and resilience](#)
 - [Strategic purchasing and health systems resilience: Lessons from COVID-19 in selected European countries](#)
- Best Practices and Innovations for COVID Vaccine Waste Management:
 - [Management and safe disposal of COVID-19 vaccination waste at health facility level](#)
 - [Waste Management during the COVID-19 Pandemic: from response to recovery](#)
 - [Healthcare Waste Management Rapid Assessment Tool \(RAT\)](#)

Demand Generation and Community Engagement

Demand generation and community engagement use social-behavioral evidence to understand the beliefs, perceptions, and experiences of health service recipients to inform the design of targeted strategies to increase uptake of vaccines and other COVID-19 services, including testing and treatment. It also includes leveraging trusted health access points to target priority populations through existing communication channels to increase demand for vaccines, testing, and treatment. By understanding what resources and actions are needed to successfully reach priority populations and engage trusted community messengers, demand generation & community engagement strategies can help ensure equitable access to and increased uptake of services. This critical building block includes several sub-activities, including: social listening to track and address questions, information gaps, and misinformation; leveraging existing networks to create demand among priority populations for COVID-19 vaccination, testing and treatment; and developing communication strategies delivery of COVID-19 vaccines, testing and treatment. Many USAID-supported countries have demonstrated successful integration efforts with cross-cutting activities to support other disease priorities. [Routinizing demand for COVID-19 vaccines](#) within the health system, including with health workers and in primary health care, is important not just for closing coverage gaps, but also in preparing for future disease outbreaks and in building capacities for life course vaccination.

USAID, its implementing partners, and community organizations have already demonstrated success in integrating demand generation & community engagement activities for COVID-19 into primary health care infrastructure. In [Nigeria](#), the Centre for Disease Control (NCDC), in partnership with USAID's implementing partner, Breakthrough ACTION-Nigeria and African Field Epidemiology Network, has utilized a robust infodemic management system to scan social media and online discourse for emerging and trending narratives and classify misinformation and address common questions and misperceptions. The NCDC system also counters misinformation with evidence-based, credible information that is accessible and relevant to the public. This system was established prior to the COVID-19 pandemic, but expanded its capacity when the COVID-19 health emergency began in 2020.

Breakthrough Action also supported the [Ghana Health Service \(GHS\)](#) in developing a Myth, Misinformation and Rumours (MMR) dashboard to collect trending conversations and potential misinformation to inform effective risk communication strategies during the COVID-19 pandemic. The goal of MMR was to understand public beliefs and fears and sources of vaccine hesitancy to create targeted and well-structured public health messages to improve vaccine confidence and promote high levels of COVID-19 vaccine coverage. As part of this effort, health care workers in Nzema East, Ellembelle, Jomoro, and Prestea Huni-valley were shown how to use the MMR dashboard to input circulating information gaps, concerns, questions, and misinformation within their community. GHS has also built social listening capacity within MMR for additional outbreaks as well as reproductive health topics.

Several other activities have been undertaken by USAID-supported countries, including awareness-raising sessions with trusted community leaders and working within pre-existing community networks established by [local NGOs](#) to communicate with faith leaders, youth clubs, and schools about the importance of routine immunization and COVID-19 testing and treatment. Such examples demonstrate the flexibility of these activities for responding to ongoing and future health priorities.

Recommendations for Increasing Demand and Strengthening Community Engagement:

- To address **low trust** in the health system and when COVID-19 vaccines are already integrated alongside delivery of other health services, communicate availability of integrated services to the community to underscore the importance of responding to community health needs.
- Where **pandemic fatigue** and **competing priorities** are the main barriers to reaching high coverage, “mainstream” how COVID-19 is discussed in message development, alongside other regularly recurring public health threats that have effective and routine prevention measures associated with them (such as routine vaccines) and position COVID-19 vaccination, testing and treatment as routine measures.
- To help maintain **high vaccine coverage**, consider identifying future health events and opportunities for integration of COVID-19 vaccination and/or messages at other community and health events (e.g. promoting malaria prevention treatment in pregnancy, World Diabetes Day outreach and testing, World AIDS Day commemoration). Work with health programs responsible for these initiatives to coordinate.
- Where possible, link COVID-19 vaccination to service delivery points for MNCH and primary healthcare with a focus on reducing missed opportunities for vaccination on a **routine basis**.

| Integration Resources for Demand Generation & Community Engagement Activities | |
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| <i>Suggested Activities</i> | <i>Existing Guidance</i> |
| Joint communication strategy development and coordination of C19 and other vaccines | Operational framework for integrating COVID-19 demand into RI, PHC and beyond |
| Coordinated research & assessments of Knowledge, Attitude & Practice (KAP) regarding T2T and C19 & other vaccines | Behavioral and Social Drivers of Vaccination (BeSD) |
| Co-creation and implementation of sociobehavioral interventions for C19 and routine vaccines | Human-centered design for tailoring immunization programmes |
| Conduct social listening and rumor management to track and address C19 questions, concerns, | UNICEF, SBC Guide for Social Listening |

| Integration Resources for Demand Generation & Community Engagement Activities | |
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| information gaps, and misinformation | |
| Integrated community engagement for supporting C19 response as part of PHC | <u>Role of community engagement in situations of extensive community transmission of COVID-19</u> |
| Leverage existing networks to create demand among priority populations for C19 vaccination | <u>Ensuring COVID-19 Vaccination for People Living with HIV and Key Populations</u> |

Health Information Systems (incl. utilization and surveillance)

During the COVID-19 pandemic, access to data dashboards, maps, and information systems provided essential information to understand the spread of the disease and roll out response measures, including to reach priority populations. Many health teams utilized data systems and digital technologies established for routine health services; others implemented new systems to expand access and strengthen data quality.

Microplanning is a critical component of vaccine programs, and several countries have demonstrated success in utilizing different tools to drive implementation. In [Nigeria](#), the National Primary Health Care Development Agency (NPHCDA) used [GRID3](#) data and maps to support microplanning for distribution of COVID-19 vaccines. GRID3 is a data solutions company that partners with governments and development organizations to strengthen geospatial data infrastructure. GRID3 helped NPHCDA create hyperlocal planning maps to show priority and target population estimates, determine staff resources needed to deliver vaccines, locate [potential vaccination sites](#), and support strategy development for last-mile delivery of COVID-19 vaccines. GRID3 maps produced for COVID-19 vaccine distribution showed locations of healthcare facilities and other distribution centers which helped shape immunization registration planning and determine vaccine supply chain requirements.

In [Indonesia](#), the government launched the PeduliLindungi mobile app for contact tracing purposes, allowing users to store their digital COVID-19 vaccination records and test certificates. Use of this app will be expanded to all essential vaccinations, including influenza and other routine immunizations. In [Ethiopia](#), the Ministry of Health used a DHIS2-based tracker as the country's main platform to track the vaccination status of individuals during the COVID-19 pandemic. Implementation of DHIS2 first began in 2016 in Ethiopia and achieved national scale in 2019, just before the pandemic struck the country. Before launching use of the tracker, the Ministry of Health worked with local partners to troubleshoot challenges with the tracker and develop solutions for common issues.

Recommendations for Health Information System Integration Activities:

- Assess the country landscape for health-sector digital systems and data management and use leveraging past country landscapes and tools such as the WHO Digital Health Atlas (an index of tools in use to support country HIS needs), and the Global Digital Health Monitor (an index of country digital health capacity). Understand country strengths/weaknesses and tailor USAID investments in digital and data systems accordingly, in particular to build the capacity necessary for optimized management and use of digital systems and the data they enable.
- Consider the needs and gaps in the health system as a whole, and how integration could build on and enhance existing systems and capacity versus building something new unless absolutely necessary.

- Establish a culture of data use by establishing an iterative feedback process on electronic data collection tools, and revised paper forms, by engaging facility, district, regional and provincial stakeholders.
- In situations where EPI and COVID-19 vaccine reporting systems are different, the co-delivery of both interventions might require planning to shift to electronic platforms and ensure interoperability of systems. Support the alignment of data tracking and reporting methods including reporting frequency through development of SOPs and training to ease staff burden and ensure consistency across systems.
- Consider the creation of peer-data-support networks to connect health workers with others in their district to help in troubleshooting and in understanding the importance of data collection.

| Integration Resources for Health Information Systems | |
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| <i>Suggested Activities</i> | <i>Existing Guidance</i> |
| Unified data collection and entry for C19 response and PHC data | Monitoring COVID-19 vaccination: Considerations for the collection and use of vaccination data |
| Integrated dashboards at national and sub-national levels for C19 response and PHC indicators | |
| Interoperability between digital data management/electronic health record systems to allow aggregate data push | Digital Implementation Investment Guide (DIIG): Integrating Digital Interventions into Health Programmes |
| Integrated disease surveillance & AEFI tracking | COVID-19 Vaccines: Safety Surveillance Manual |
| Joint data management training and proactive data backlog management | Stocktake on COVID-19 Vaccination and Integration |
| Joint monitoring and evaluation of PHC and C19 response programs | |
| Leverage quarterly RI meetings for reviewing and utilizing data on C19 vaccination rates | |