

STRENGTHENING PRIMARY HEALTH CARE THROUGH COVID-19 VACCINATION EFFORTS & INVESTMENTS

Vaccination will be essential to ending the COVID-19 pandemic.¹ The urgency of the pandemic has instigated unprecedented scientific speed and collaboration²⁻⁴ as well as substantial investment—by August 2020 roughly \$40 billion in funding had been committed for vaccine research and development alone.⁵ As of April 2021, 13 novel vaccines are in use around the world and more than 270 are in preclinical or clinical development.^{6,7} The percentage of the world that is vaccinated is rising daily.⁸

As COVID-19 vaccination efforts get underway, they are the subject of intense attention and focus, with rapid innovation occurring and billions of dollars being committed by governments and donors alike. Best practices for COVID-19 vaccination have been established by many bodies, including the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC), and are being

A COVID-19 Partners Platform has been established as a repository for guidance on country implementation of the updated COVID-19 Strategic Preparedness and Response Plan, which now includes a newly added pillar covering COVID-19 vaccination.^{14,15} Through this platform, countries can upload their National Vaccine Deployment Plan and request technical and resource support for implementing their COVID-19 vaccination strategy.

In addition to this strategy on Leveraging PHC for the COVID-19 vaccine rollout users can explore related Improvement Strategies for COVID-19 response and recovery efforts at www.improvingphc.org/covid-19, including:

- [Leveraging PHC for COVID-19 vaccination efforts](#)
- [Maintaining access to routine and essential services](#)
- [Surveillance, response, and management of COVID-19](#)

continually updated as new evidence and vaccines arrive.^{1,9,10} Support for countries planning vaccination efforts is also available from the WHO, World Bank and the Global Fund.¹¹⁻¹³

This pivotal moment presents an opportunity to maximize the impact and sustainability of the massive investments and rapid innovations now occurring by designing these efforts with an eye toward long-term PHC strengthening. This document takes global guidance and best practices as a starting point to suggest actionable ways in which COVID-19 vaccination investments and efforts can contribute to long-term PHC strengthening.

COVID-19 vaccination rollouts can support long-term PHC strengthening

Strong PHC systems are essential for meeting the long-term health needs of populations including related to COVID-19 management; creating resilient health systems; and responding to future epidemics.^{16,17} **Therefore, as billions of dollars are being spent to support vaccine rollout, as much as possible, these funds should be used in ways that not only distribute vaccines as quickly and equitably as possible but also strengthen—rather than detract from—underlying PHC systems.**¹⁸

Here we highlight five key opportunities for sustainably strengthening PHC via COVID-19 vaccination efforts:

1. Building systems for population health management
2. Strengthening surveillance and information systems
3. Formalizing mechanisms for multisectoral action and social accountability
4. Strengthening quality management infrastructure and building sustainable supply chains
5. Sustaining investments in the health workforce

Building systems for population health management

Efforts to vaccinate people against COVID will provide the unprecedented opportunity for the large majority of individuals in a population to interact with the health care system—including those who may never otherwise have done so.¹⁹ Although the moment of vaccination is brief, most individuals will wait in line for their turn and/or be observed for adverse events for 30 minutes following vaccination, as per international guidelines.²⁰ If the needed human resources can be marshalled, these minutes—which are longer than most routine clinical consultations—offer an invaluable opportunity for engagement and to lay the foundations of effective population health management. Areas of focus for these interactions might include:

- **Respect and trust:** This time can be used to introduce frontline service personnel and begin to build [trust](#) between the community and health system. Trust developed (and broken) during COVID-19 vaccination efforts will have a long term impact on PHC.
- **Empanelment and reinforcing PHC as the first point of contact:** For patients without a usual source of care, this time can be used to register patients with a primary care provider or facility. Additionally, basic patient demographic information can be collected to support the development of more robust empanelment information systems. (See more on information systems below.)
- **Continuity:** In addition to registering with a PHC provider, this time could be used to schedule an annual examination, wellness visit, and/or specialist visit, as needed, to start building continuity of care and ensure a second contact with the health system. This moment also offers an opportunity to provide information about long-term care needs related to COVID-19, including the need for potential boosters in the future.
- **Comprehensiveness:** COVID-19 vaccination provides an opportunity to introduce a comprehensive immunization program for adult vaccines, such as the flu vaccine, pneumococcal vaccine, zoster vaccine, and tetanus booster dose.¹⁸ Additionally, health or social workers can use this opportunity to conduct health or social needs assessments and make linkages to specialty health services and/or community-based resources as needed.

Strengthening surveillance and information systems

Distributing vaccines and verifying coverage will necessitate the rapid development or upgrading of data systems, particularly data systems capable of tracking care for *individuals* in addition to population metrics. This represents an important opportunity for long-term strengthening of [information systems](#) that are not only fit for COVID-19 but also strengthen PHC more generally.

Particularly impactful opportunities that may arise from COVID-19 vaccination efforts include:

- Establish comprehensive [empanelment](#) or patient registries with unique patient identifiers. As described above, COVID-19 vaccination efforts represent a truly unique opportunity to interact with the vast majority of people in a population. Obtaining basic demographic information and registering individuals with a primary care provider or facility offers unprecedented opportunity to rapidly establish robust empanelment systems, or at least comprehensive patient registries. Unique personal identification numbers are an essential means of accessing social services and are also a critical component of effective personal care records and enable coordinated, comprehensive, and continuous care. Yet, personal identification numbers—in the health sector or otherwise—are lacking in many countries around the world. For example, approximately 50% of children under five years of age in sub-Saharan Africa are not registered at birth, leaving many without an official government identity.²¹ COVID-19 vaccination efforts may spur innovation in these areas, as governments look for ways to verify that vaccine doses go where they are intended. Any personal identification number established for COVID-19 should ideally be transferable to or interoperable with standard health information systems in use in the country to maximize on these investments.
- [Surveillance](#) systems used for planning and conducting vaccine pharmacovigilance activities including adverse event following immunization (AEFI) reporting, investigation, causality assessment, risk communication and response, should either build upon existing surveillance systems or be designed to serve as a platform for enhanced routine surveillance systems moving forward.¹¹

Creating unique personal identification numbers through biometrics

Simprints—a UK-based non-profit—has worked since 2015 to develop biometric IDs to support health and development programs in more than a dozen low and middle-income countries.²² For example, a pilot program in Dhaka, Bangladesh found that biometric identifiers led to a 38% increase in the number of women getting appropriate antenatal care.²³ In 2019, the company initiated an agreement with GAVI and the NEC Corporation to generate scalable fingerprint identification to give children ages 1-5 in Bangladesh a digital identification that can be linked to accurate, complete medical records to improve vaccination coverage.²¹ To adapt to COVID-19, additional technologies such as touchless face or palm scans are also being explored. Biometric identifiers are not without their risks to personal privacy and data safety, and widespread and/or rapid scale-up of such technology must be accompanied by appropriate social accountability mechanisms.²³ Nevertheless, if done right, such technologies represent potential “game changers” for strengthening health systems and the COVID-19 pandemic may offer an opportunity to greatly accelerate progress.²⁴

- Information systems designed for vaccine registration and scheduling of COVID-19 vaccination may be expanded for use in scheduling routine PHC appointments to build towards more [timely access](#) to PHC services for the general population.
- Data from mapping population distribution, human resources availability, infrastructure density, and social service capacity for the delivery of the COVID-19 vaccine can feed into forecasting, budgeting, strategic planning, and designing PHC service packages. Information gathering—including database development and management—should therefore be planned with these long-term goals in mind.

CO-WIN 2.0: A digital platform for advance vaccine registration, cohort registration, and vaccination certificate in India

CO-WIN 2.0 is a vaccine tracking and registration app designed to manage, deliver, and track India’s mass vaccination campaign.^{25,26} CO-WIN 2.0 is a public-facing version of the CO-WIN 1.0 system, which is used by administrators, supervisors, and vaccinators to plan and implement vaccine efforts in their facilities/planning units. Eligible citizens can use either the CO-WIN 2.0 platform or Aarogya Setu, India’s COVID-19 contact tracing app, to book a vaccine appointment anytime, anywhere.^{25,26} Integration with Aarogya Setu enables CO-WIN 2.0 users to download a QR-coded vaccine certificate and stay up-to-date about their COVID-19 risk via contact-tracing and self-assessment features. At the PHC level, health workers are using the CO-WIN 2.0 platform to register villagers for vaccinations at their local primary health care center. While the app is still in the early phases of rollout, it’s expected to help streamline appointments and ease the registration process for both health workers and the public.^{27,28} As the vaccine becomes available to more and more of India’s citizens, the app’s tracking and registration functions may help to make for a more efficient, timely rollout of the vaccine. If used beyond COVID-19, this integrated platform could help PHC centers to improve or build virtual appointment systems that allow for more [timely delivery of care](#). Further, health workers and patients could use the platform to track and manage their immunization history and other health data.

Formalizing mechanisms for multisectoral action and social accountability

Successful vaccination efforts will rely on multiple stakeholders and multisectoral action at all levels of the health system. Consultations, relationships, and partnerships that were initiated and brokered during the vaccine rollout should be formalized with longevity and sustainability in mind while the attention and energy to do so is available. In particular, private sector support to the vaccination efforts--such as supply chain logistics, infrastructure, and human resource-- could translate into future collaborations in PHC and health systems strengthening. While there is significant momentum and political interest around the vaccination efforts, [social accountability](#) mechanisms should be formalized as a sustainable part of the public health system. For example, lessons on overcoming gender-related and social inequities during vaccine roll out could be integrated into the design of primary care service delivery.¹⁸

Strengthening quality management infrastructure and building sustainable supply chains

National and global investments on COVID-19 vaccine rollout are likely to prioritize strengthening supply chain management and monitoring. These investments are a first step towards establishing more robust supply chain infrastructure and management for other [drugs and supplies](#) for PHC. The COVID-19 vaccine rollout presents an opportunity to create a sustainable, efficient, and environmentally-friendly cold chain that could be of use well beyond the pandemic.¹¹ Lessons from the development of strategic quality action plans aligned to vaccine rollout--such as population prioritization, tailoring to local context, and stakeholder mapping--should also be applied to PHC to promote drug and supply systems resilience beyond the pandemic.^{15,29} For countries that did not have [quality management infrastructure](#) (QMI) in place before the pandemic, regulatory systems built for the vaccination strategy (for example, pre-qualification/essential medicines lists or supply chain management and tracking) could serve as the foundation for a longer-term PHC QMI.

Sustaining investments in the health workforce

The PHC workforce has been at the center of the COVID-19 crisis and will be the target of immense investment in support of vaccine rollout. The following four actions can help ensure that investments made in the PHC workforce now are sustainable and contribute to long-term improvements:

- In many countries, the provision of 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.^{15,30,31} Beyond the acute COVID-19 crisis, there may be opportunities to maintain this expanded workforce to grow the size of the baseline health workforce. New health workforce networks for COVID-19 response will play a critical role in the equitable delivery of vaccines and other preventable diseases in a post-pandemic world. For example, Nigeria previously established a vast network of frontline providers specifically focused on eradicating polio.³²⁻³⁵ Now polio free, the West African nation is also considering a national transition plan that would make this vast network of polio providers and infrastructure available to support other national and local public health efforts and priorities.³⁶ In particular, lower-skilled workforce brought on to support COVID-19 contact tracing and vaccination efforts may present an ideal pool of candidates for expanded community health worker (CHW) roles. Doing so effectively will require following WHO Guidelines and best practices to formally employ and remunerate employees and link them to integrated data systems and PHC teams, as well as significant training and capacity building after the acute COVID-19 crisis.³⁷
- The WHO SAGE guidelines recommend vaccinating health workers first. As countries seek to do this, they should consider ways of collecting basic data about the health workforce to build or strengthen their 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.

- Workforce training on health communication and the use of digital innovations for COVID-19 may build skills and capacities that can be generalized beyond COVID-19-specific content and adapted to help make PHC service delivery more effective and efficient.³⁸ There is an opportunity to leverage these training platforms and expanded knowledge and institutionalize these new capacities to ensure that investments in health workforce readiness made now can improve future population health and resilience and build capacities to prevent and respond to future epidemics.¹⁵
- COVID-19 has put enormous strain on the health workforce and drawn attention to long-overlooked issues of workforce well-being, including burnout. This attention to and care for the health workforce must be sustained beyond COVID-19 to find meaningful, actionable, and sustainable solutions to this slow-burn crisis.³⁹

Indonesia's human resource information system may improve HRH planning and build resilience against future outbreaks

In Indonesia, a human resource for health information system, known as System Informatasi Sumber Daya Manusia Kesehatan (SI-SDMK), is enabling a data-driven response to the COVID-19 pandemic and the continued delivery of essential services.^{40–42} SI-SDMK is predominantly used by the Ministry of Health's Human Resources for Health (HRH) Directorate (BPPSDMK, Badan Pengembangan dan Pemberdayaan SDM Kesehatan) to support strategic planning of the health workforce. Throughout the pandemic, a variety of HRH stakeholders have used the SI-SDMK to inform strategic planning decisions such as where to deploy health workers and how to maintain essential services based on factors such as the number of health workers in health facilities, PPE needs, incentives, and the workload of the facility. At the national level, Indonesia's COVID-19 Task Force Team uses HRH data to develop daily situational reports for the BPPSDMK. The BPPSDMK and Task Force Team access these reports via a COVID-19 data visualization platform that enables them to use data to make decisions based on where health workers are throughout the country relative to COVID-19 cases, district level risks, and the availability of infection prevention control material, along with other HRH data. Continued use of this platform is expected to improve data-driven decision making for HRH management and other purposes well beyond the pandemic.^{40–42}

Relevant Resources

World Health Organization

- [COVID-19 Vaccines](#)
- [COVID-19 Vaccine-Specific Courses \(in multiple languages\)](#)
- [The Access to COVID-19 Tools \(ACT\) Accelerator](#)
- [The COVAX Facility](#)
- [Vaccine Introduction Readiness Assessment Tool \(VIRAT\)](#)
- [WHO SAGE Roadmap for Prioritizing Uses of COVID-19 Vaccines in the Context of Limited Supply](#)
- [Coronavirus disease \(COVID-19\): Vaccine access and allocation](#)
- [COVID-19 Strategic Preparedness and Response Plan \(2021 Update\)](#)
- [Health Services Learning Hub for Maintaining Essential Health Services During the Pandemic and Post-Covid recovery](#)
- [COVID-19 vaccination training for HRH](#)
- [WHO vaccine-preventable diseases: monitoring system](#)

The World Bank

- [Assessing Country Readiness for COVID-19 Vaccines : First Insights from the Assessment Rollout](#)

UNICEF

- [UNICEF Framework for Health Systems Strengthening and COVID-19 Vaccine Delivery and Program Implementation](#)
- [Rapid Guidance for Strengthening Human Resources for Health in the context of COVID-19](#)
- [COVID-19 vaccination: supply and logistics guidance](#)
- <https://www.corecommitments.unicef.org/latest-covid-19-guidance>

CDC

- [COVID-19 Vaccination](#)
- [COVID-19 Vaccine Checklist](#)
- [COVID-19 Vaccine Training Modules](#)

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