Beyond COVAX

The Importance of Public-Private Partnerships for Covid-19 Vaccine Delivery to Developing Countries

By Conor M. Savoy and Elena Méndez-Leal

As of September 8, 2021, 58.9 percent of adults worldwide have not received even one dose of a Covid-19 vaccine. Low vaccination rates are particularly severe in the developing world; in Africa, for example, only 3.2 percent of people are vaccinated. This significant disparity between high-income and low-income nations will grow more acute before it diminishes. As vaccination efforts increase globally, the international community and local governments will take center stage directing and organizing the various aspects comprised in vaccination efforts.

The immense scale of this problem, however, will require cooperation with the private sector to effectively address the continuing challenges of the pandemic on both the supply side and the demand side (e.g., vaccine hesitancy in certain countries). Additionally, there is an urgency to meet these challenges before the emergence of newer and stronger Covid-19 variants that could reduce vaccine efficacy. Supplying, distributing, and administering Covid-19 vaccines should be optimized by using public-private partnerships (PPPs) that focus on the production, supply, and distribution of vaccines alongside public-led targeted outreach to unvaccinated populations.

The COVAX Global Vaccine Initiative and Challenges to Distribution

On June 21, 2021, the Biden administration announced the distribution of 80 million vaccine doses to developing countries, 75 percent to be distributed via its partnership with COVAX, a global vaccine distribution initiative, and 25 percent to be distributed bilaterally from the U.S. government to partner countries. COVAX, co-led by the Coalition for Epidemic Preparedness Innovations, Gavi, the Vaccine Alliance, the World Health Organization (WHO), and the United Nations Children’s Emergency Fund (UNICEF), aims to ensure global equitable Covid-19 vaccine delivery to developing nations with the goal of providing vaccines for at least 20 percent of the population of every participating country. COVAX is an example of a multilateral initiative that receives donations from both governments and the private sector.
COVAX’s efforts to supply and distribute vaccines to the developing world are essential, but they are insufficient and face various obstacles. Initially, COVAX planned to provide 2 billion doses by the end of 2021. As of September 8, however, it had only delivered 243 million doses, short of the expected 640 million target planned for this timeframe. Given this, it is unlikely that it will reach its original goal in the remaining time. Moreover, global vaccine manufacturing capacity is limited, so consistently acquiring vaccine doses is not simple. For example, COVAX’s largest designated supplier, the Serum Institute of India, suspended vaccine exports in March, following a large outbreak in India.

Challenges complicating the COVAX initiative include supply bottlenecks; distribution and transportation issues, such as infrastructure challenges that impede successful delivery (e.g., lack of cold chain storage); and additional supply-side challenges. For example, some countries are not able to accept and use donated doses on the intended timeline or before they expire. COVAX has struggled to meet the needs of ultra-cold vaccine supply chains, including providing supplies, training, and support. In practice, COVAX is challenged by outdated technology compared to the private sector (e.g., cold chain boxes that last six hours compared to boxes that maintain 2°C–8°C temperatures for five days) and bureaucratic obstacles that hinder clear accountability over vaccine doses that arrive through different international organizations (e.g., UNICEF, WHO). The private sector, even when willing, has found it exceedingly difficult to offer delivery solutions to COVAX in countries that have limited infrastructure and mechanisms. In fact, some developing countries that rely on COVAX (e.g., Malawi) have been unable to work with the private sector due to contractual limitations with COVAX.

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Coordinated and weaponized vaccine misinformation and disinformation efforts are also having an impact in certain countries, affecting how quickly they can get shots in arms, even when supply is available. Even before the Covid-19 outbreak, vaccine hesitancy was an issue in some regions, and that message has been amplified during the current pandemic. UN agencies report that “between February and November of this year, information about the virus has been shared and viewed over 270 billion times online, and mentioned nearly 40 million times on Twitter and web-based news sites, in the 47 countries of the WHO African Region.”

The United States should play a larger, more decisive role in leading vaccine distribution. It has already committed to various efforts regarding the Covid-19 pandemic, including vaccine supply chains. The Biden administration recently released a framework on Covid-19 response and recovery, which includes supporting last-mile vaccination strategies and bolstering vaccine supply. The U.S. International Development Finance Corporation has also committed to boosting vaccine production in Africa in a joint PPP with Senegal-based vaccine manufacturer Fondation Institut Pasteur de Dakar, the International Finance Corporation, the European Investment Bank, and the French Development Agency. But the United States must also lead a cooperative force between the government, multilateral institutions, and—most importantly—the private sector to address the critical and relentless nature of the Covid-19 pandemic and probable future pandemics. Importantly, the United States should play a stronger leadership role in COVAX, ensuring that the entity is able to deliver and administer vaccines where promised.
For the remaining 25 percent of U.S. vaccine commitment outside of COVAX, the U.S. government should engage the private sector in distribution, data, and technological resources to provide end-to-end vaccine distribution and combat coordinated anti-vaccine misinformation campaigns. Importantly, this will require considering new PPP models that seek to move beyond the old paradigm of simply looking at the private sector as a source of funds.

*Previous Vaccine Development and Supply Chain PPPs*

PPPs have been essential to vaccine development, especially beginning in the 1990s with the efforts to create vaccines for HIV/AIDS, malaria, and tuberculosis. Gavi used a pre-licensure procurement commitment to fund the development of the Ebola vaccine. Other programs include the [President’s Malaria Initiative](https://www.gavi.org/pmi), launched in 2005, which has relied on partnerships between U.S. government agencies, multilateral organizations, and the local private sector to combat malaria. For example, in Madagascar, the United States Agency for International Development (USAID) worked with the American Red Cross and the nongovernmental organization Malaria No More to increase mosquito net access and malaria awareness education campaigns in the region. Similarly, the U.S. [President’s Emergency Plan for AIDS Relief](https://www.pepfar.gov) (PEPFAR), created in 2003 under the Bush administration, currently operates in over 50 countries and has invested $85 billion to address the HIV/AIDS epidemic. PEPFAR employed PPPs to upgrade medical laboratory infrastructure in sub-Saharan Africa and improve logistics to help deliver medicines and sustain numerous other PPPs to maintain epidemic control. Other examples include the [DREAMS partnership](https://www.dreamspartner.org), focused on HIV/AIDS relief for women and girls, and the [Go Further program](https://pox.gov), launched in 2018, that targets AIDS and cervical cancer.

Such forms of public sector support were dramatically expanded to fight Covid-19, including the U.S. government’s [Operation Warp Speed](https://www.hhs.gov), instituted to accelerate the development and mass production of Covid-19 vaccines. Its efforts were quantifiably successful: they led to viable vaccines in a dramatically short timespan: 12–18 months compared to the average of 8–15 years for previous vaccines.

These past efforts offer valuable lessons for utilizing PPPs to address pandemics and contribute to existing infrastructure that can be deployed in furtherance of global Covid-19 vaccine supply chains.

*Current Role of PPPs in Meeting Covid-19 Vaccine Supply, Transport, and Distribution Needs*

The private sector is a critical partner in meeting the immense challenge of supplying, distributing, and vaccinating people around the world. Moving supplies of vaccines from the United States and other Western countries will require working closely with multinational freight shippers, including FedEx, UPS, and DHL. This will necessitate coordination at the global level, a role that the U.S. government and its partners should undertake. Once vaccines arrive in-country, efforts will need to shift to the local level, where the U.S. government and its local partners can engage with the private sector in the country to tap into existing distribution networks. Before vaccines can be administered, they must be transported and stored, with some vaccines requiring temperatures as low as -80°C. This is especially difficult in contexts where local health systems lack existing storage facilities. Finally, working with local pharmacies and community organizations to provide vaccination centers will continue to be useful in maximizing completed vaccinations from the delivered supply.
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PLANNING AND SUPPLY
The private sector has already played a crucial role in Covid-19 vaccine procurement in many developing countries. For example, mPharma joined a PPP with the Ghanaian government to supply 2.5 million vaccines to Ghana’s population. PPPs have also been formed to increase the manufacturing of Covid-19 vaccines. For example, Pfizer and BioNTech SE have negotiated with the U.S. initiative to provide 500 million doses to be donated to developing countries.

Development finance institutions are also working with the private sector and WHO’s COVAX global vaccine alliance to increase the supply of Covid-19 vaccines in low- and medium-income countries. On July 26, 2021, the World Bank and COVAX announced a new deal that implements a financing mechanism to allow COVAX to make advance purchases of vaccines from pharmaceutical companies at more competitive prices. Using World Bank funds, COVAX hopes to supply more than 430 million doses between late 2021 and mid-2022. Additionally, the World Bank signed a $710 million agreement with the South African pharmaceutical company Aspen Pharmacare in early July to allow the company to manufacture more than 500 million doses of the Johnson and Johnson Covid-19 vaccine by late 2022.

Nevertheless, supply challenges remain as COVAX struggles to acquire the vaccines it has organized to distribute through partners. There is still room for the governments and the private sector to improve vaccine procurement and management (e.g., building in-country vaccine manufacturing capacity).

DISTRIBUTION AND VACCINATION
Private distribution entities have unique capacities to provide cold chain storage for vaccines, including in areas with little infrastructure. There are already innovative private sector-led solutions for storage and transportation challenges. For example, Zipline and the UPS Foundation are using drones to deliver vaccines in Ghana, and several Nigerian companies have made commercial refrigerators available to the national government for vaccine storage. Also, in Nigeria, multiple private-sector companies have designed an app that assists the Nigerian government in tracking new shipments of the Covid-19 vaccine in the country.

Worldwide, PPPs have also helped to establish mass vaccination sites. In the United States, the Federal Retail Pharmacy Partnership allowed 40,000 pharmacies to distribute vaccines by providing them with liability protection under the Health and Human Services Secretary’s Public Readiness and Emergency Preparedness (PREP) Act. As other countries adopt similar distribution partnerships, this regulatory issue of liability protection is critical for attracting private-sector participation.

PPPs should prioritize face-to-face personal delivery of the vaccine, with simultaneous outreach to global corporations, local private institutions, and empowered stakeholders (e.g., pharmacists, chemists, civil society actors). Partnerships will also be essential in leveraging the latest technologies to maximize the scale and reach of supply chains.
PPPs have also proven effective in delivery of and education about the Covid-19 vaccination education efforts. In the Democratic Republic of the Congo and Mozambique, Village Reach, an NGO, has trained local health professionals to properly administer vaccinations.

**PPPS AND VACCINES—LATIN AMERICA AND THE CARIBBEAN**

Latin America and the Caribbean is the region with the highest percentages of Covid-19 deaths worldwide. The region is now seeing notable success with their vaccination programs. Nevertheless, only an average 23 percent of the population has been fully vaccinated and vaccine distribution inequities remain, particularly for countries in Central America and for small island states such as Jamaica and Haiti. The WHO recently called for more donations from countries with vaccine surpluses to Latin American and Caribbean countries with labored Covid-19 vaccine campaigns.

**COVID-19 VACCINE DISTRIBUTION IN HAITI**

Amidst another catastrophic earthquake, tropical storm, and ongoing unrest and violence, including the assassination of Haiti’s president on July 7, 2021, Haiti, the poorest nation in the Western hemisphere, is struggling to advance its vaccination program, let alone maintain supplies of other medical necessities. Moreover, the number of Covid-19 cases is suspected to be underestimated. On top of all that, Haiti already had low vaccination rates for other preventable diseases prior to Covid-19. Thus far, Haiti has yet to vaccinate 98 percent of its population against Covid-19.

*The courtyard of the hospital “Communautaire de Référence” of Port-Salut welcomes the victims of the earthquake out of several towns such as Coteaux, Les Anglais, Tiburon, and Port-à-Piment, Haiti, on August 16, 2021.*

Photo by REGINALD LOUSSAINT JR./AFP via Getty Images
Under the COVAX program, Haiti expected to receive more than 750,000 doses of the AstraZeneca vaccine, but delays have occurred due to documentation issues, requests for a different vaccine that is more acceptable to the population, and an export ban on AstraZeneca doses from India. Haiti only recently received its first delivery of 500,000 doses of the Moderna vaccine from the United States, through COVAX, on July 14, 2021. Timing aside, this vaccine delivery only represents a small portion of Haiti’s population, which is concerning given Haiti’s challenges with rising Covid-19 cases, other medical needs and the reversal of many public health measures to contain the spread of Covid-19. Prior to receiving its first vaccine delivery from COVAX, the Haitian government turned down an initial shipment of AstraZeneca due to concerns about side effects, but accepted them when other vaccines were not available, only to find out that the initial shipment could not be delivered due to India’s export control.

To enable successful vaccine delivery and complete vaccinations, Haiti will need large improvements in its cold chain infrastructure (e.g., receiving facilities). UNICEF had already been working over the past three years to install solar refrigerators in Haiti to provide adequate vaccine storage systems, even before the Covid-19 pandemic. Beyond supply chains, violence, and the recent earthquake, other obstacles hindering vaccinations include mistrust of government and healthcare institutions, low expectations of people returning to receive a second dose or booster, and misinformation/disinformation campaigns.

Haiti is a clear example that given these supply limitations, PPPs are essential for promoting an effective vaccination program. Examples of current PPPs in the country include a Vianmo and Mercy Corps partnership running a coronavirus hotline (to provide information and combat misinformation) launched in March and Care 2 Communities’ seven clinics around Haiti actively caring for Covid-19 patients. UNICEF, Gavi, and WHO also have an existing multi-year vaccination program in Haiti.

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Despite existing partnerships, there remain many opportunities to improve vaccine distribution in the country. Both the global community and in-country government should look to leverage PPPs while promoting strong governance of these partnerships for maximum synergy, sustainability, and impact to help solve pressing issues amidst rising political and social turmoil in Haiti.

Recommendations: Leveraging PPPs to Address the Covid-19 Pandemic and Increase Global Vaccinations

Harnessing the knowledge and resources of the public and private sectors in partnership has been critical in the fight against Covid-19. Without PPPs, the development and production of effective vaccines would not have materialized so quickly. With much of the world population in need of vaccines, there is clear space for PPPs to rapidly scale supply and distribution systems for vaccines in support of existing multilateral efforts such as COVAX. The United States experienced significant success in catalyzing private-sector support for more efficient and effective distribution and promotion of vaccines. Such strategies, deployed to address the global vaccine divide, could help speed the delivery of vaccines to the rest of the world.
Time is of the essence—the United States and other multilateral actors must act quickly to ensure that vaccines are delivered to developing countries in an efficient and effective manner with minimal waste. The efforts of COVAX on its own may not be enough to meet the needs of the developing world. The U.S. government should expand and use its existing network of PPPs to help support the COVAX initiative and increase the number of vaccinations in developing countries.

**PLANNING AND SUPPLY**

1. The U.S. government, COVAX, the multilateral community, and recipient countries should draw on the resources, technology, and solutions offered by private companies for widespread benefits in PPPs for Covid-19 vaccine supply and distribution. The private sector can help with the manufacturing of vaccines and non-vaccine commodities (e.g., oxygen, testing supplies). The United States can also build on a combination of geographic information systems, data, and site-level information. This can also be tied into USAID’s [digital strategy](#) to partner with the private sector to assist in developing governments’ micro-planning initiatives.

2. The U.S. government should partner with the private sector, multilateral institutions such as the World Bank, and low- to middle-income countries to build local capacity (e.g., vaccine manufacturing to address supply limitations) and invest in long-term infrastructure to improve supply chains and overall resilience for vaccine distribution networks. This includes navigating export controls and ensuring that supplies necessary for vaccine distribution and delivery exist and are viable in-country.

3. Governments and multilateral institutions should prepare for possible private-sector fatigue. Various private-sector pandemic relief efforts have not been based on for-profit models. Instead, companies such as Google, Cisco, Amazon, UPS, and Abbott are using their own networks and resources to combat the pandemic.

4. The U.S. government and partners must consider ways to incentivize and empower in-country resources and small local businesses to continue and sustain efforts to combat Covid-19 and future pandemics. Additionally, global or regional business coalitions and industry associations can assist in connecting the local private sector with multinational corporations to find mechanisms to work within existing infrastructure and relationships and to mobilize local efforts for vaccine supply chains.

**DISTRIBUTION AND VACCINATION**

5. The U.S. government should establish an effective government public-private taskforce to effectively procure and deliver doses. This taskforce should welcome engagement and investment from the private sector to contribute to vaccine supply chains based on respective capabilities, capacity, and willingness. More specifically, the U.S. government should marshal and contract private companies and actors that have the most impactful, effective, and already existing resources and tools to solve the problems at hand and provide end-to-end vaccine supply chains. A U.S. government PPP should work directly with in-country partners to increase country readiness and acceptance and to secure resources and long-term, scalable solutions for delivering and administering vaccine doses. Some existing examples include the U.S. Chamber of Commerce’s Global Taskforce on Pandemic Response, where the U.S. government has engaged private-sector partners to share expertise on infrastructure and help model more robust pandemic preparedness and response planning in South Asia.
6. The U.S. government should incentivize and invest in private-sector innovation to bolster, optimize, and work around existing cold chain infrastructure and delivery systems in developing countries. For example, a large purchase of phase change material (PCM) cold chain boxes or portable freezers would help solve the issue of moving vaccine doses from capital cities to secondary health facilities without the necessary infrastructure.

7. PPPs should work on country readiness and must operate within a country’s existing public health infrastructure. Thus, initial targeting may include countries that have strong existing supply chain infrastructure for vaccine distribution (e.g., countries with existing PEPFAR infrastructure). Additionally, PPPs can and should create small, agile supply chains that deliver more frequent smaller shipments. These can then be managed without requiring large freezer farms and thus facilitate vaccine delivery logistics to developing nations.

8. PPPs should rapidly and consistently debrief to share best practices, guidance, and tools to improve distribution mechanisms for vaccines, and share lessons learned from previous projects so as to employ similar strategies that identify and implement possible local, pre-existing solutions to distribution challenges. Examples include Operation Warp Speed (the U.S. Covid-19 domestic effort) and Project Last Mile, which uses Coca-Cola supply chain infrastructure and has previously been used to deliver vaccinations to combat tuberculosis, AIDS, and malaria in remote sections of Africa.

9. The U.S. government and multilateral organizations should use marketing, advertising, and consumer-facing companies from the private sector to leverage more advanced models and technology to address distribution; data; and public perception, misinformation, and disinformation challenges. Maintaining positive public perception for vaccine campaigns will be critical in ensuring that increased manufacturing of vaccines does not go to waste, outside of supply chain complexities.

Future pandemics or global health crises are inevitable. Moreover, the current Covid-19 pandemic will likely require booster vaccines. A collaborative public-private approach is essential to facilitate increased immunity against the various existing and emerging variants of Covid-19 and, more generally, to improve and secure a durable vaccine supply chain. Traditional models have limits: the United States and the multilateral system need to recruit new partners, new methods, and new models that include local institutions and people who can help deliver healthcare more effectively for the long term. Nevertheless, not all PPPs are created equal, and the immediate focus must be on creating a seamless end-to-end distribution of vaccines that relies on best practices and minimizes lost doses. Moreover, challenges for the U.S. government to implement the above recommendations remain, including appropriating flexible funding to catalyze cross-sectoral PPPs in the vaccine effort and coordinating a comprehensive, unified effort between and across the most relevant players in the development community, private sector, and government agencies.

Traditional models have limits: the United States and the multilateral system need to recruit new partners, new methods, and new models that include local institutions and people who can help deliver healthcare more effectively for the long term.
Addressing the Covid-19 pandemic demands collective action between governments, multilateral organizations, and, importantly, the private sector, which is uniquely suited to help address some of the specific challenges related to distribution and data gathering required to maximize global vaccination rates. Covid-19 will not be overcome with a single solution but rather with multiple, multilateral actions and partnerships that treat the most urgent “symptoms” and, simultaneously, endeavor to improve global preparedness for possible post-Covid-19 pandemics.

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This report is made possible by the generous support of UPS.

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