Project Overview

Photo: PATH/Brian Mushaukwa

Strengthening immunization systems and improving equitable vaccine access, uptake, and reach through digital and data tools

BACKGROUND

Digital opportunities for pandemic preparedness

The COVID-19 pandemic challenged immunization programs around the world, resulting in decreased uptake of routine vaccinations as well as limited uptake of COVID-19 vaccines in many settings.[1] These vaccination gaps put populations at risk of preventable diseases and increase vulnerability to future epidemics. To help accelerate COVID-19 vaccination and catch young children up on missed routine immunizations, many governments introduced, adapted, or expanded the use of digital health tools in their immunization and health systems.

When used appropriately, digital tools and approaches can provide critical data and communication channels to aid public health authorities in their overall immunization microplanning and response. They can rapidly identify which populations are hesitant or unvaccinated, where they are located, and why they remain unvaccinated—and then target them with evidence-based communications to trigger action. However, given the rapidly unfolding nature of the pandemic and the need to get systems implemented or adapted quickly, many digital tools utilized during the pandemic were implemented without a long-term strategy for their cross-cutting applications and potential for future uses or created in parallel to other systems.

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By adapting, expanding, or switching to new digital health tools that better meet the needs of the health ministry, a country can strengthen its immunization system to increase coverage now while also improving preparedness for future public health needs and emergencies.

DRIVE Demand took a user-centric approach to technology development and adaptation. Here, members of the team conduct user testing for the Zambia Electronic Immunization Registry. Photo: PATH/Brian Mushaukwa

THE DRIVE DEMAND PROJECT

With support from The Rockefeller Foundation, Digital Square at PATH launched the Digital Results Improve Vaccine Equity and Demand (DRIVE Demand) project in June 2022 to aid and inform efforts to increase vaccine demand and acceptance rates in six countries through digitally enabled interventions. The six countries chosen were Honduras, Mali, Tanzania, Thailand, Uganda, and Zambia. The project's approach leveraged digital and data tools to drive more effective and proactive vaccine interventions in these countries while simultaneously addressing barriers to vaccination such as access, trust, and information sharing. DRIVE Demand is guided by The Rockefeller Foundation's Global Vaccination Initiative, which is focused on supporting iterative, country-driven, hyper-local efforts to increase demand for vaccination.

DRIVE Demand Project countries

Honduras Mali Uganda Tanzania Zambia Thailand

Conducting research to better understand barriers and enablers to vaccination

Digitally enabled vaccine promotion communications are only effective if the messaging is relevant to the target population's localized concerns around vaccination. To better understand the essential behavioral dynamics impacting routine and COVID-19 vaccination uptake in low- and middle-income countries, DRIVE Demand partnered with the Busara Center for Behavioral Economics to conduct a literature review as well as behavioral research via focus group discussions with target vaccine-hesitant audiences in Mali, Tanzania, Uganda, and Zambia. Conducted in parallel with other country-specific DRIVE Demand activities, Busara's research was designed to help inform the development and implementation of innovative, human-centered Social and Behavior Change (SBC) messaging optimized for mobile platforms to drive demand for vaccines in the target populations.

The research findings are presented in *Dynamics of Vaccine Hesitancy: A Practitioner Playbook.*[2]
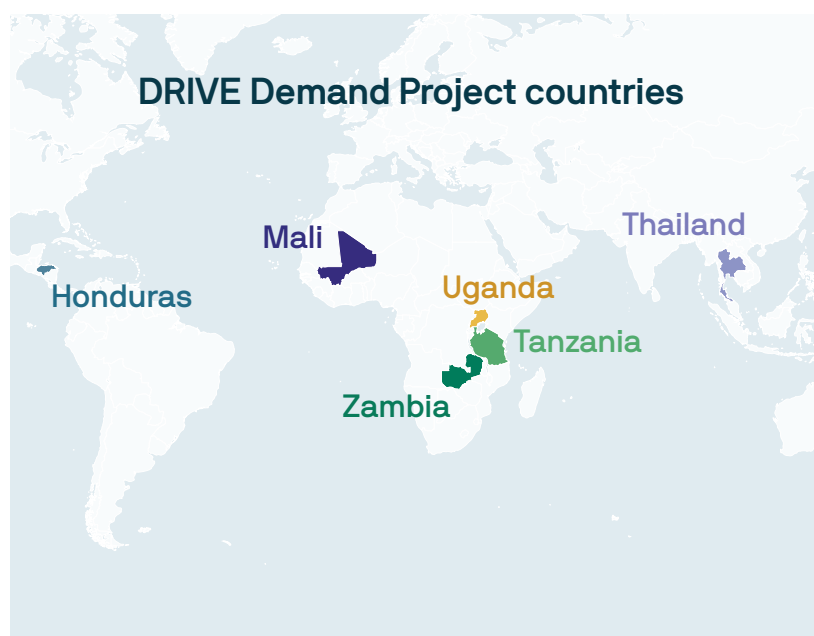
Country-specific activities

Each country's activities were identified in partnership with the national health authority and fully customized according to the country's needs and preferences. Below, find a high-level summary of DRIVE Demand activities in each focus country, and learn more in the country-specific reports.

DRIVE Demand Honduras exemplified the impact of integrating digital health tools and data management methodologies for enhancing immunization coverage, particularly in regions with historically low coverage rates. The project expanded on work begun by the Data for Implementation (Data.FI) Project to understand the digital ecosystem and establish people-first data practices. By building local capacity in data management for 39 health workers and establishing six digital "situation rooms" for advanced immunization analytics, the project not only helped address immediate disparities in vaccine distribution but also laid a foundation for sustained improvements in digital health governance in the Gracias a Dios and Colón regions.

DRIVE Demand Mali showcased the effectiveness of adapting existing digital tools and processes within health systems to support communication aimed at enhancing vaccination uptake. By leveraging multilingual and multi-channel SMS and audio messages and engaging directly with communities through District Health Information Software 2 (DHIS2) and WhatsApp, the project added a key functionality for the Ministry of Health and Social Development (MOHSD) to increase awareness and acceptance of vaccination in Mali. Combined with robust community engagement, Busara's research, and the evaluation of pop-up vaccination clinic models that reached over 3,000 people with easily accessible vaccination services, this approach positioned the MOHSD to continue advancing public health outcomes in Mali.

DRIVE Demand Tanzania exemplified the impact of strategic investments in digital health tools and communications to enhance public health responses, particularly in immunization. Through the development of a national health communications repository, the project strengthened the Ministry of Health's ability to share timely and accurate health messaging—informed by Busara's research—sending over 300,000 SMS messages. Additionally, the project enhanced existing digital health immunization platforms and local capacity to use these for optimal impact.

DRIVE Demand Thailand underscored the effectiveness of hyper-localized SBC messaging via common digital health channels to address vaccine hesitancy and improve health outcomes in remote settings. By investing in community-focused strategies and digital engagement, Thailand can continue enhancing its public health response and foster more equitable vaccine access across all regions.

DRIVE Demand Uganda successfully leveraged geographic information system (GIS) technology and enhanced data management practices to help improve vaccination coverage across the country. The project trained 147 local biostatisticians in GIS, strengthened data utilization, supported policy updates, and engaged in multisectoral collaborations to reach local community champions with accurate and timely immunization data, information, and messaging informed by Busara's SBC research. These activities support and amplify the existing strong MOH leadership in digital health and will inform future epidemic and pandemic preparedness in Uganda.

DRIVE Demand Zambia demonstrated the importance of adaptable digital health solutions and strong stakeholder collaborations in enhancing public health systems. The project made enhancements to the Zambia Electronic Immunization Registry (ZEIR) for interoperable data sharing and then identified ways that the adaptations could inform other platform uses, such as DHIS2. These efforts helped move the country toward a national unified electronic immunization platform.

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As part of the end of the DRIVE Demand project, detailed country reports with strategic recommendations for sustainable integration and country ownership were presented to each country's health ministry. While the needs, activities, and recommendations in each country were diverse, the project identified four lessons that applied across all country contexts:

1. **Strong partnerships lead to localized interventions:** Driving resilient, country-led, pandemic-prepared digital health systems requires adaptability and strong coordination among different community-based stakeholders.

2. **Capacity strengthening pays off:** Supporting capacity strengthening is a high-impact investment that improves the quality, utility, and sustainability of digital health interventions.

3. **Understanding the local context is crucial:** Listening to communities to address hyper-local needs, scale bright spots, and amplify community voices is central to developing effective approaches.

4. **Creating and leveraging digital systems enables mass communication:** Digital tools for health messaging can be used to trigger behavior change to increase vaccine demand and uptake by putting the right messages in the right hands at the right time.

Child immunizations are modern miracles!

More and more parents are realizing that vaccines work! To prevent serious illness, bring your child to a health facility today to complete all recommended immunizations!

This image and message were created as part of DRIVE Demand Thailand based on a hyper-local study on how to drive demand for vaccines in under-immunized regions. Messages like these were given to the Ministry of Public Health for delivery via existing digital communication channels.

References

1. O'Brien K and Lemango E. The big catch-up in immunisation coverage after the COVID-19 pandemic: progress and challenges to achieving equitable recovery. *The Lancet*. 2023. 402(10401), P510-512.
2. Busara Center for Behavioral Economics and PATH. *Dynamics of Vaccine Hesitancy: A Practitioner Playbook*. 2024.

About DRIVE Demand