

MOMENTUM

Routine Immunization Transformation and Equity



CASE STUDY: VIETNAM

USE OF DIGITAL DATA SOLUTIONS FOR THE COVID-19 RESPONSE AND BEYOND

Summary

This case study illustrates how the MOMENTUM Routine Immunization Transformation and Equity project supported Vietnam's Ministry of Health (MOH) to overcome successfully respond to data systems limitations in existing data systems to enable timely collection and use of COVID-19 vaccination data. It outlines the development and deployment of two tools in five provinces, and the resulting impact, benefits, challenges, and opportunities, and summarizes. Key lessons are summarized.

The MOMENTUM Routine Immunization Transformation and Equity project (the project) aims to strengthen routine immunization programs to overcome entrenched obstacles that contribute to stagnating and declining immunization rates and address barriers to reaching zero-dose and under-immunized children with life-saving vaccines. The project also provides technical support for COVID-19 vaccination and supports countries to mitigate the consequences of the pandemic on immunization services. The project is implemented by JSI Research & Training Institute, Inc. along with PATH, Accenture Development Partnerships, Results for Development, CORE Group, and The Manoff Group.

Global Challenges in COVID-19 Vaccination

The scale and urgency of the COVID-19 pandemic has called for rapid decision making at all levels of the health system, putting data collection, reporting, and management at the center of the COVID-19 response. Various data management systems are essential to enabling local government and health care workers to estimate resources available for COVID-19 vaccination, forecast vaccine needs, and track progress to pinpoint gaps in coverage, particularly in hard-to-reach communities. However, existing data systems do not always fit context and needs of COVID-19 vaccination rollout, including different target populations and inputs for needs forecasting, and increased need for rapid data updates. These challenges create data gaps that can hinder COVID-19 vaccination implementation.

Background and Context

By April 2022, Vietnam's COVID-19 vaccination first dose coverage exceeded 80 percent of the total population, making it one of the leading countries in COVID-19 vaccination. However, lower coverage persisted among the hardest-to-reach populations, such as those residing in remote, mountainous areas with transportation disruption, ethnic minority populations, migrant workers, older adults, and people with pre-existing conditions. From November 2021 to September 2022, the project built on its strong partnership with Vietnam's MOH and deep immunization experience in the country to assist the National Expanded Program on Immunization (NEPI) to reach remote populations in the northern mountainous provinces of Dien Bien, Son La, Hoa Binh, Quang Nam, and Ninh Thuan.

In Vietnam, vaccines were promptly allocated and administered at the outset of the pandemic since demand was high and vaccine shipments to the country were limited. The vaccines were used immediately upon arrival as the majority of the population still needed to be vaccinated. In contrast to initial efforts, due to a lower demand for vaccines, it required more planning to determine who had not yet been reached in the last-mile vaccination for hard-to-reach populations. In contrast to initial efforts, last-mile vaccination for hard-to-reach populations required additional planning at local levels. Despite this, data systems were not developed or adapted quickly enough to keep pace with the urgency of COVID-19 vaccination planning.

For example, the national COVID-19 vaccination system's planning module was not fully developed by the time vaccination began in February 2021. In Vietnam, microplanning for routine immunization had been conducted manually at the district and community level,

but this process had to be adapted significantly because COVID-19 vaccination required different forecasting, priority populations, and staffing requirements. Additionally, planning challenges for communes in remote areas were especially acute due to limited resources and infrastructure. Long travel times to remote and resource-limited areas, combined with little notice on the timing of COVID-19 vaccine distribution and various types of vaccines with different and rapidly approaching expiration dates meant that without sufficient resource planning, the potential for vaccine wastage was high. When COVID-19 vaccination began, many communes did not have a reliable way to estimate the number of vaccines they could use at a given time, leaving them to guess at the number of vaccines they could manage.

The existing system also had limited functionality for data reporting. As of September 2022, the national COVID-19 vaccination system did not allow entry of people who lacked a national ID number, making it impossible to record any vaccine doses administered to them or register them in the system for reminders. Additionally, the system's report module was not fully developed, requiring health workers to manually extract data and calculate aggregated daily reports. Health workers at the commune level entered daily data on paper or into Excel files, requiring time-consuming and error-prone manual data aggregation at the district level. This in turn delayed data reporting to the provincial level, hindering timely data for decision-making at upper levels. It also burdened district and province staff who were often forced to work long hours, aggregating data and resolving data quality issues. Although improvements to the national system were under development, the need for complete and timely data to aid COVID-19 vaccination called for an immediate response. While some district and province staff adapted by creating their own tools, the need for a unified, standardized system was soon recognized.

Innovative Response

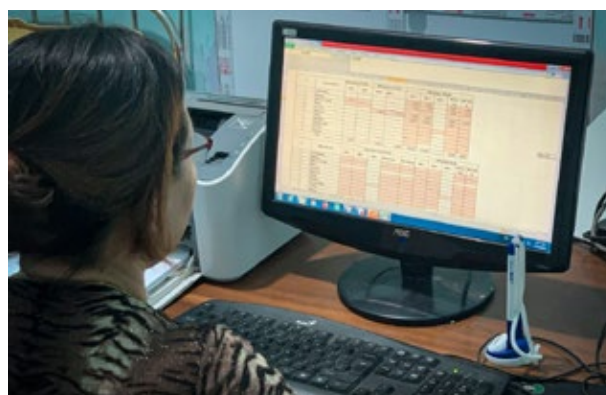
In response to these challenges, the project worked with NEPI to develop, implement, and scale the use of two digital tools in project provinces, which together support data management at multiple levels: an Excel-based microplanning tool, and a Google form for daily data reporting.

MICROPLANNING TOOL

The project analyzed user needs and adapted WHO's 2020 microplanning tool for COVID-19 vaccination into two versions to fit the Vietnam context: one for the commune level, and one for the district and province levels. After sharing and incorporating input from partners (NEPI, regional EPIs, provincial Centers for Disease Control), the tool was piloted in Son La Province, revised and finalized based on health worker feedback, and scaled up to the four other provinces.

The microplanning tool is a pre-formatted Excel file, providing step-by-step instructions for commune health workers to enter inputs such as the priority population for the vaccines; target vaccine coverage levels; cold chain capacity in liters (including the number of and type of refrigerators, accounting for the storage taken up by routine immunization); number of staff and volunteers available each day; vaccine brand; shelf life at 2–8 degree Celsius; and expiration dates. Based on these inputs, the tool automatically calculates the number of vaccines and supplies required. District staff then aggregate the commune-level microplans into the district-level microplan, and communicate vaccine needs to the provincial level, allowing reallocation of vaccines in the event that the number of doses allocated to the district is too high.

The Excel-based microplanning tool provides instructions for district and commune staff to estimate amounts of vaccines and supplies needed.

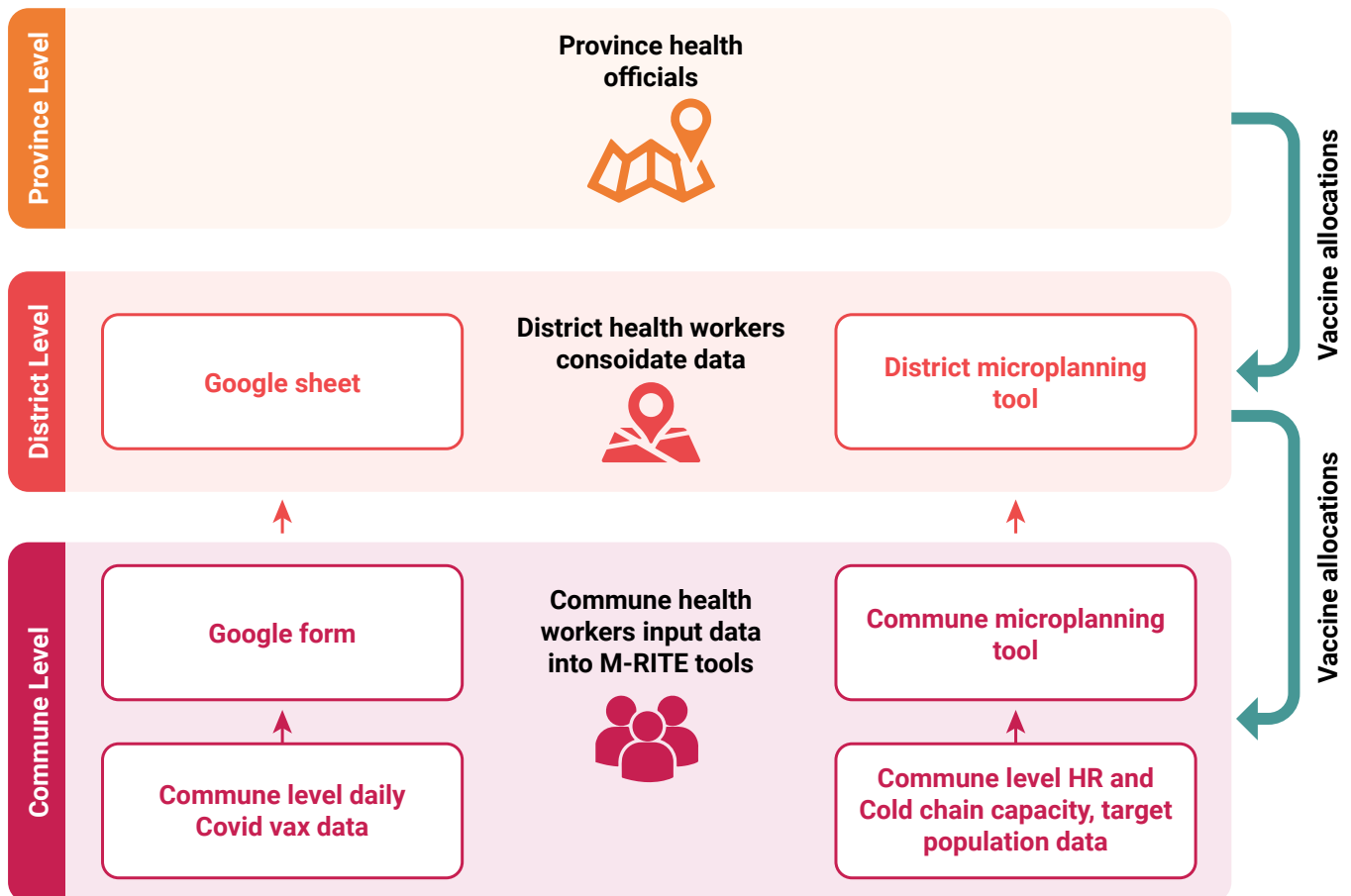


A health care worker uses the microplanning tool in Ta Poo Commune, Nam Giang District, Quang Nam Province.

GOOGLE FORM

Manual data aggregation on doses administered necessitated by Excel-based reporting was burdening health workers and causing delays to timely data use at upper levels. The project developed a Google form that incorporates daily aggregate reporting data elements, such as the number and type of vaccine doses administered and number of people vaccinated by age group and gender, that are required by the government. This form was meant to capture aggregate rather than individual-level data, which is entered into the COVID-19 vaccination system. Commune health workers enter aggregate daily data into the Google form on any available connected device (e.g., mobile phone, tablet, laptop, computer), which automatically generates aggregate data for the district and provincial levels. Data quality checks are conducted daily at the district level, and the Zalo messaging app (similar to WhatsApp) is used to communicate to communes for same-day resolution of data quality issues. Reporting data from the Google form can be fed into the commune microplanning tool, completing the data feedback loop. As with the Excel-based microplanning tool, the Google form was chosen for its accessibility to health workers, as most are already familiar with Google applications.

Figure 1



Outcomes

IMPACT

As of August 8, 2022, 100 percent of communes in Son La, Dien Bien, and Hoa Binh Provinces reported using both the microplanning and Google form tools. To date, 1,485 facilities across the five project provinces have used the microplanning tool to develop vaccine arrival or disbursement and immunization plans. As a result, these communes and districts have been able to more accurately plan according to their resources, resulting in the reallocation of vaccines, reduction of wastage, and more people vaccinated overall. The Google form allows rapid data transmission to higher levels, enabling faster problem solving and strategy adaptation. Additionally, the Google form alleviates time burden on district staff in particular, lessening potential for burnout and staff turnover, critical during the COVID-19 pandemic when human resources shortages drastically increased.

BENEFITS

The Google form and microplanning tools provide the benefits shown in the table below:

Google Form	Microplanning
<ul style="list-style-type: none">● Reduces reliance on computers; many health workers in rural areas share computers, which can cause access problems.● Saves time by eliminating the need for manual district-level data aggregation.● Increases timeliness and accuracy of COVID-19 reporting, enabling faster data use for decision-making.● Systematically aggregates data for not only daily but weekly, monthly, and any requested time frame.	<ul style="list-style-type: none">● Increases accuracy of local needs forecasting and planning.● Reduces vaccine wastage by allowing reallocation of excess vaccines to communes and districts with shortages.● Saves commune-level staff time.● Provides district and province staff with a standardized tool with a high level of buy in from national and local government agencies.● Changes model from passive receipt to proactive local resource assessment and needs forecasting.

CHALLENGES

Implementation of both tools faced pushback from commune health workers and district staff alike, who were reluctant to change systems and learn how to use new tools. However, the provincial Centers for Disease Control and Prevention issued official documents to mandate the tools, which required compliance at lower levels, and trainings of trainers for both tools were conducted at the province and district levels, followed by cascade trainings to the communes. While official documents provided the formal framework for tool use, hands-on training and technical support from project staff clearly demonstrated their benefits and encouraged buy-in at lower levels.

After training however, some commune health workers found the microplanning tool complicated to use and required additional mentoring from the district level. One health worker in Hoa Binh estimated that it took her about two months to become comfortable using the tool. But after sufficient supportive supervision and mentoring, the benefits became clear; the planning process that used to take her 1–2 hours now took only 5–10 minutes. The same time-saving benefits are not experienced by district officials because the microplanning tool currently requires manual aggregation of commune microplans at the district level. A future improvement could involve transferring the tool onto a web-based platform with automatic aggregation functionality.

Challenges to scaling up the Google form remain. For example, its use requires access to a laptop or a smartphone, as well as internet connection, which can be a barrier to use in some mountainous regions. Furthermore, data from before use of the Google tool are not currently included in the system, although efforts are underway to back-enter the data.

Opportunities Beyond the COVID-19 Vaccine Response

Both tools provided a rapid and much-needed solution to data use challenges presented by COVID-19 vaccination. While the Google form has provided a quick fix to data aggregation problems in the national system, it is recognized as a temporary solution. Sustainable change at scale will require investments to improve the current system. The project's lessons in implementing the Google form could be leveraged to inform such system upgrades, but until sufficient resources are mobilized, the Google form will continue to provide important benefits to data use during COVID-19 vaccination. Additionally, in the event of future system failures or upgrade delays, the Google form could be used as a stopgap measure. Handover of Google form management to district and provincial Centers for Disease Control/CDCs is underway.

The microplanning tool has the potential to be adapted to routine immunization, particularly for catch-up campaigns and supplementary immunization activities that call for resource mobilization beyond the norm. The NEPI and regional EPIs have called for national scale up of the microplanning tool, but scaling the tool to additional provinces and other interventions will require considerable resources to provide adequate training, supportive supervision, and mentorship for health care workers. This is especially relevant in the context of COVID-19, in which the unpredictable nature of vaccine disbursements also means that health care workers may only need to use the tool once every few months, making it difficult to maintain skills.

Lessons Learned

- The use of the Google form and microplanning tools improved the quality and timeliness of data for COVID-19 vaccination planning while reducing burden on health care workers. The microplanning tool in particular provided communities and district officials with increased agency in decision-making and resource forecasting for COVID-19 vaccination, contributing to improved service delivery in resource-limited areas for hard-to-reach populations.
- Investing in a standardized tool with high levels of buy-in from all levels of the health system across geographic areas improves efficiency and coordination.
- Digital solutions are most effective when they are fit-for-purpose and tailored to local contexts.
- Providing sufficient initial training and ongoing mentorship on the use of digital tools is critical to success and sustainability of COVID-19 vaccination service delivery.

Additional Resources

The project's microplanning tool was adapted from WHO's microplanning tool. Access the WHO microplanning guideline here: <https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccination-microplanning-2021.1>

If you would like to learn more about MOMENTUM Routine Immunization Transformation and Equity's project in Vietnam, read more here: <https://usaidmomentum.org/resource/country-program-in-review-vietnam/>

Additional information on the project's tools is available through a webinar recording: <https://usaidmomentum.org/webinar-covid-19-vaccination-implementation-lessons-learned-from-vietnam/>

Acknowledgements

Most information in this case study came from key informant interviews with project staff in Vietnam, provincial health officials, and commune-level health workers.