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# Real-Time Monitoring for Vaccination

## Campaigns in Malawi


Gavi
The Vaccine Alliance

health.enabled

# 1. Why

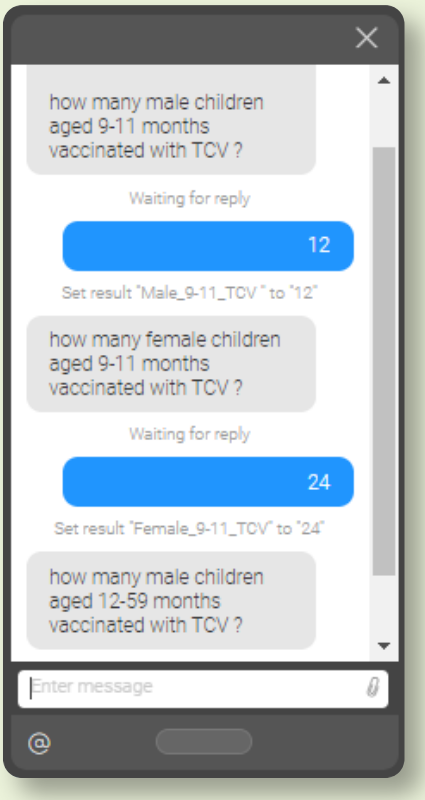
Vaccination campaigns allow countries like Malawi to vaccinate large numbers of people in a short period of time against vaccine-preventable diseases such as polio and cholera. The monitoring of vaccination campaigns in Malawi has traditionally been undertaken using paper forms and analysed after a campaign. Through this approach, there was no possibility of using data in real-time to identify problems as they arose and to course-correct during the campaign. The paper-based reporting rate was also low. At the end of a typical campaign, reporting rates were often less than 50%.

The Essential Programme for Immunisation (EPI) division of the Malawi Ministry of Health, along with UNICEF and other partners, implemented digital real-time monitoring of vaccinations in 2022 with the objective of improving coverage of vaccination campaigns through improved management informed by rapid collection of data.

# 2. What

The Ministry of Health developed a simple digital system that could be implemented with little training and scaled nationally. To reach maximum scale, the system needed to run on basic phones (using SMS and USSD) that would enable all community vaccinators to submit aggregate campaign data daily. It also needed to allow district and national level officials to send mass messages to vaccinators easily. UNICEF's RapidPro system was chosen, as it allows an SMS dialogue where the vaccinator responds with numbers to various question prompts from the system (see screen shot).

RapidPro data was combined with other digital data sources for vaccination campaigns, including DHIS2 Tracker for facility level data along with Covid-related information systems. The data was then combined and made available through data visualization dashboards.




UNICEF's RapidPro system

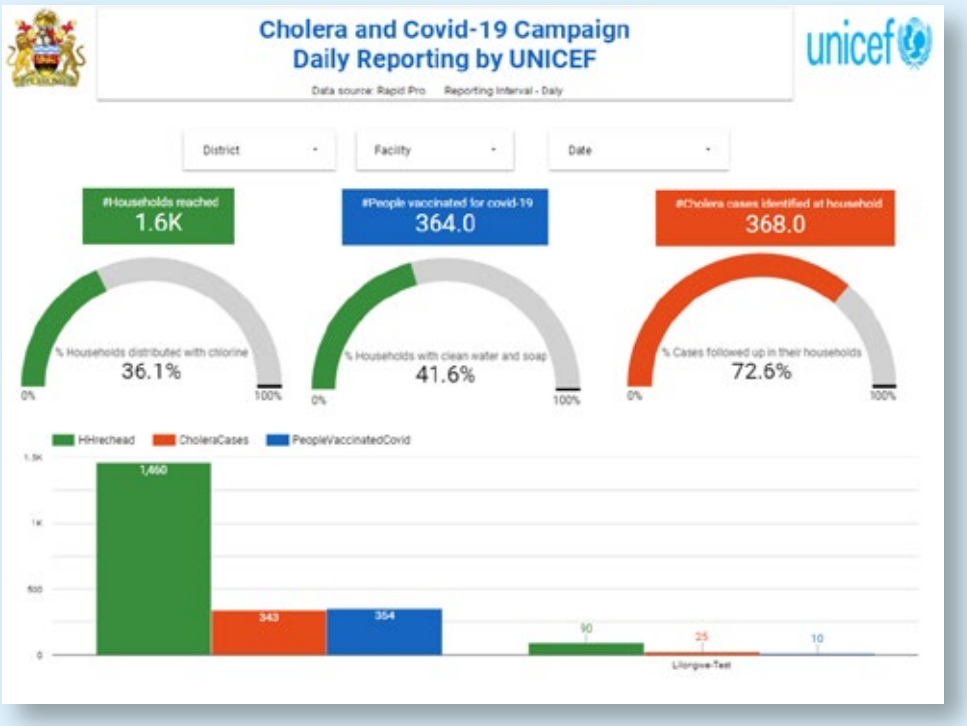
# 3. How

This nationally scaled approach to digital real-time monitoring began with the polio vaccination campaign in June 2022, which involved approximately 11,500 vaccinators in the country.

To support this effort, UNICEF Malawi received funding from Gavi for 12,000 basic mobile phones. In two days, all phones were registered with SIM cards added and distributed to vaccinators nationally.

A training of trainers model was used in which all vaccination supervisors were trained in Lilongwe. The supervisors then conducted training in each district for District EPI staff, who then trained all vaccinators who were existing Health Surveillance Assistants (HSAs) – the cadre of trained community health workers in Malawi who are embedded in their communities and deliver comprehensive primary health care services. Training was delivered in one day due to the simplicity of the digital system and the ability of HSAs to learn how to use the system quickly.

During the campaign, HSAs conducted vaccinations during the day, and then submitted data by SMS. Data submitted included the number of households visited, the number of children vaccinated by age groups, and the number of missed children. In addition, they also maintained paper records.




Dashboard of Cholera and Covid-19 daily reporting

# 4. Results

The main benefit of the digital real-time monitoring system is that quality data is captured and actively used at the district and national level daily during vaccination campaigns. This allows management to identify low coverage areas and implement strategies to improve coverage in a timely fashion.

In practice, the great majority of vaccinators were able to submit data during the campaign. While a few individuals had some difficulty, the vaccinators were organised in teams of four and all teams were able to use the system. Where a vaccinator had difficulties, their supervisors or another vaccinator were able to support them.

Since the initial Polio campaign, this digital real-time monitoring system has also been used for Covid-19 vaccination campaigns, an Oral Cholera Vaccine campaign during a cholera outbreak, Oral Polio Vaccine campaigns, as well as for routine immunisation. The Ministry of Health has now decided that all vaccinations (routine or during campaigns) should be reported digitally. National management believes that the daily reporting requirement has encouraged vaccinators to work harder and vaccinate more children.

> *Timely data reporting from the household and community straight to the District and Ministry of Health has improved the quality of campaign activities by helping decision-makers review progress against targets, identify emerging issues and gaps, track vaccine supplies, and take prompt corrective decisions.*
>
> ***Dr. Ghanashyam Sethy, UNICEF Malawi***

## Challenges & enablers

While the real-time monitoring approach was largely successful, there were some challenges, including cases of inaccurate data and several cases where further training and supervision was needed. In each district, an EPI coordinator and a data manager review the data to provide a quality check, updating the national data where necessary.

Limited network coverage is a difficulty and sometimes data was submitted only after vaccinators returned to health facilities, delaying receipt of some digital data. The electricity supply is also poor in some areas, but since the basic phones have batteries that last up to four days, vaccinators were able to recharge when they visited health facilities (which all have reliable power) so this did not affect reporting.

UNICEF's experience with RapidPro greatly helped the implementation. There were no technical problems with the interface, data processing or visualizations – and the training of vaccinators was straightforward. UNICEF teams working in the field helped deal with problems and built capacity during implementation as needed.

# 5. So what

Digital real-time monitoring in Malawi has improved the management and performance of vaccination campaigns, initially demonstrating the model's ability to scale nationally within a couple of weeks.

This system is widely welcomed throughout the Ministry of Health, in particular the dashboard of information which provides data updates in real-time. All partners now agree that monitoring of immunisation in Malawi must be digital – no one wants to go back to paper records alone.

In the future, as digital health initiatives mature, there are plans to secure smartphones for all vaccinators and expand functionality of the vaccination reporting system using mobile internet, and to integrate RapidPro into DHIS2 to increase sustainability, accessibility, and utilization by both national and district levels. Digital platforms for data visualization, which are currently only available at the national level, could be built for district and facility level to enable more decentralized data use and quicker action. Also, real-time monitoring tools for immunisation could be integrated more fully with other digital health systems for full interoperability.

***"The future of vaccination campaigns in Malawi is digital, and no one wants to go back to paper records alone," is the shared sentiment of the Ministry of Health", UNICEF, and other partners. The success of the RapidPro initiative has paved the way for a new era of data-driven campaign management, promising improved coverage, enhanced program performance, and a brighter future for public health in Malawi.***

Malawi's experience of real-time monitoring of vaccination campaigns shows that digital health tools can improve coverage of immunisation by providing better and more timely information. These systems can be implemented in low-resource settings rapidly at national scale when there is a strong partnership between the Ministry of Health and supportive organisations such as UNICEF and Gavi.

> *This is why the Ministry of Health, through the Digital Health Section and the Expanded Programme on Immunization, including the Community Health Services Section, has started this new system called RapidPro to send data and information from the communities.*

***Hon. Khumbize Kandodo Chiponda, Minister of Health, Malawi***