

mHERO

Communicating with Health Workers on the Front Lines of Pandemics

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THE PROBLEM

In August 2014, the world's largest-ever outbreak of the Ebola virus disease was emerging in West Africa. There were about 2,000 reported cases in Liberia, Guinea, and Sierra Leone, and the number was growing rapidly. Already-weak health systems were overwhelmed, and officials had no instantaneous way of reaching frontline health workers with critical, lifesaving information or support. With each passing day, communications gaps accelerated the spread of the virus.

For responding organizations, health workers served as critical eyes and ears, identifying Ebola cases as they emerged. Tragically, with a risk-of-exposure rate up to 42% higher than the average person, many fell ill or abandoned their posts. Compounding the crisis, governments lacked a clear picture of where health workers were located and what services they were providing. To fight the spread of Ebola, they needed real-time information on the availability, location, and needs of their health workforce. Health workers, in turn, needed information about how to protect themselves against the virus and the ability to share critical data about the disease's spread.

OUR INNOVATION

As the world became alarmed about what could become a global pandemic, staff from IntraHealth International and UNICEF brainstormed ways to connect with the health workforce through an instant, two-way communication platform between health workers and health officials. IntraHealth and UNICEF raced against the clock as Ebola spread through the streets of Monrovia and the hills of Sierra Leone.

Without the time and resources normally required to create new technologies, IntraHealth decided to build on its open source human resources information system, iHRIS, which helps ministries of health and other stakeholders in more than 25 countries to collect, analyze, and use data on their health workforces.

Fortuitously, IntraHealth had already been in discussions with UNICEF about integrating iHRIS with UNICEF's RapidPro software so that ministries could use their employee data to send targeted text messages (SMS) to health workers. With the urgency of the Ebola outbreak, IntraHealth and UNICEF sped up the timeframe.

The resulting platform, mHero (mobile health worker electronic response and outreach), brings together the following open source technologies:

- **iHRIS:** The free suite of software developed by IntraHealth for managing health workforce information that supplies decision-makers with high-quality data on employee contact information, deployment, position, cadre, skills, qualifications, and more.

- **DHIS2:** The web-based health management information system with robust visualization features supported by the Health Information System Programme (HISP) at the University of Oslo, which helps governments and organizations manage operations, monitor processes, and improve communications.
- **RapidPro:** An open source communication platform owned by UNICEF to send and receive data using basic mobile phones, manage complex workflows, automate analysis, and present data in real time by using texts to monitor programs, track activities, or engage with beneficiaries.

mHero leverages the principles of OpenHIE, a global community of practice dedicated to improving the health of the underserved through open, collaborative development. The platform operates on the basic mobile phones that most health workers already own—no smartphones or tablets are required. It is compatible with any health workforce information system or communication software that uses OpenHIE. A distinguishing feature of mHero is that it allows health workers to initiate direct contact with health officials—allowing data and information to be “pushed” by health workers, in addition to being “pulled” at the request of health officials.

Within weeks, IntraHealth, with financial support from UNICEF, was able to provide on-the-ground support to test the technology and plan implementation in Liberia. This led to a pilot by the Ministry of Health (MOH) in four counties in early December 2014.

WHAT WORKED

The pilot test in Liberia reached 289 health workers in four counties. The ministry used SMS exchanges to validate health workers' contact information, including their phone numbers, job titles, supervisor information, and health facility association.

Early in the development and testing phases, the ministry indicated it wanted mHero to be used beyond the Ebola response to strengthen overall communication and the country's health system. Consequently, other capabilities developed for mHero include the ability to conduct "flash" surveys, share inventory reports, send messages regarding refresher training and courses, and inform new employees about payroll IDs.

mHero was deployed to varying degrees in Guinea and Sierra Leone in the aftermath of the Ebola response and has since been implemented in Mali and Senegal as part of the Global Health Security Agenda to support integrated disease surveillance and response.

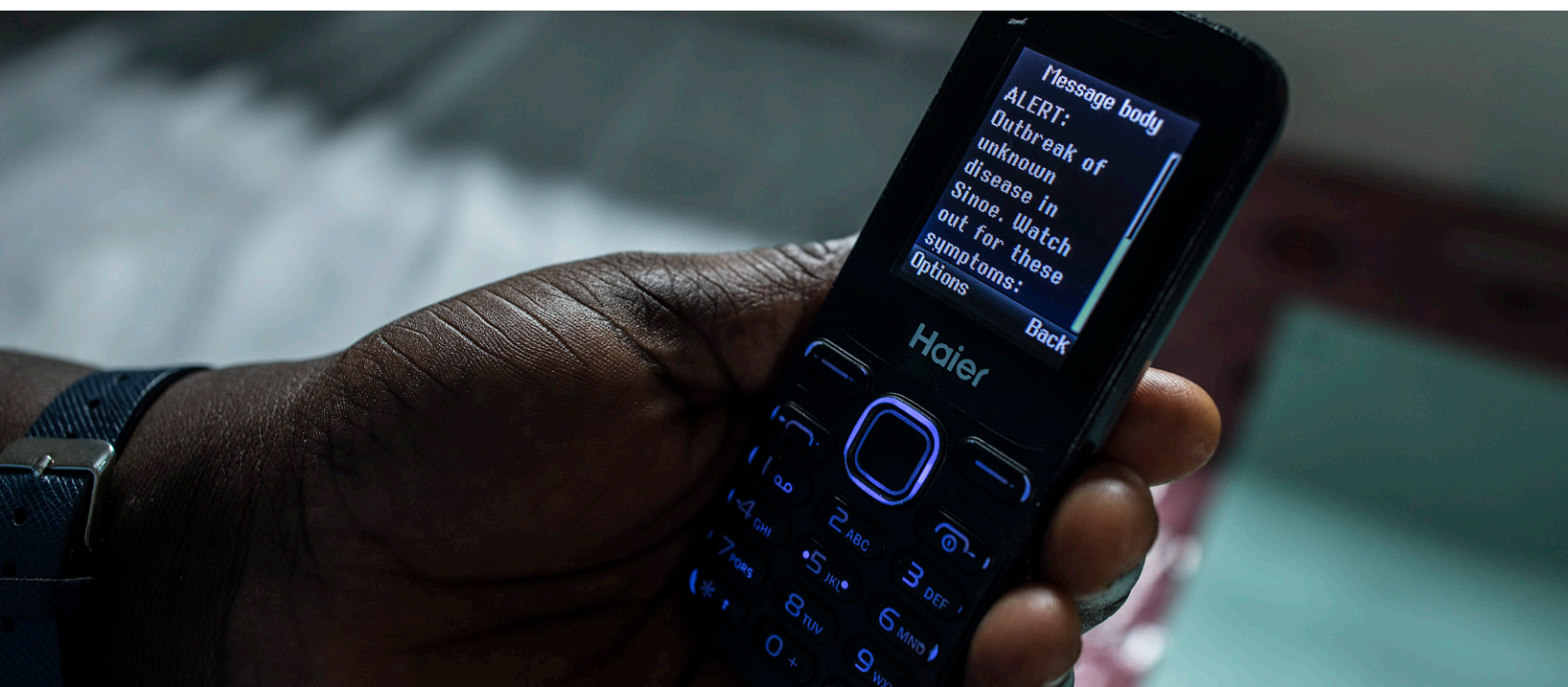
IntraHealth and UNICEF worked with Liberian stakeholders to improve and scale mHero and build institutional capacity within the ministry to guide and manage the platform. In December 2015, the ministry formally integrated mHero into its Health Information

System (HIS) and ICT Strategic Plan for 2016-2021, which made its use an official part of the government's health strategy and HIS architecture. By January 2018, more than 17,000 health workers throughout Liberia had been contacted via mHero.

WHAT WE LEARNED

There was a significant learning curve with mHero in Liberia, starting with the fact that many health workers were unfamiliar with how SMS worked, and were afraid to respond for fear of incurring charges. (Due to a UNICEF-negotiated short code with mobile network operators, it did not cost health workers to send messages.) Health workers were not accustomed to receiving messages from the ministry on their personal phones and often ignored them. Simultaneously, the ministry did not know how to respond to messages from workers. Additionally, the system was only as good as the cellular networks, which, at the time, did not cover 30% of Liberia's population. Due to overwhelmed cellular networks during the Ebola crisis, text messages would sometimes take as long as 24 hours to arrive, negating the rapid response mHero promised. Finally, the pilot revealed that some of the data and contact information in iHRIS was out of date, making it impossible to contact those health workers.

While poor infrastructure delayed mHero implementation, IntraHealth worked strategically with other partners and donors to improve infrastructure in Liberia, Guinea, and Sierra Leone by investing in basic Internet connections and providing servers and backup servers for data. IntraHealth also worked with mHero teams in the respective ministries to foster skills-building in systems operations and data use.





NEXT STEPS AND OPPORTUNITIES FOR REPLICATION AND SCALE-UP

Using OpenHIE's open data exchange standards means that mHero is replicable in multiple countries and contexts. With funding from the USAID K4Health project, collaborators were able to document mHero's capability and modify it to serve as an electronic integrated disease surveillance and response system.

After the phase-out of IntraHealth from the Liberia mHero project in 2018, additional funds were provided for UNICEF to work with the ministry to sustain the platform, as it had become an integral part of the ministry's HIS. USAID is supporting an activity to strengthen mHero in Liberia through September 2019. The goals of this activity are to make mHero the go-to resource in routine and emergency situations, build the capacity of the ministry to use information mHero gathers for informed decision-making, and fully transition the management of mHero to the ministry.

In 2019, IntraHealth was awarded funding from Digital Square for a project called Zero to mHero, which will enhance functionalities and make the platform easier to deploy. Other plans to expand the capability of the mHero platform include streamlined integration for health worker contact information and integration with iHRIS version 5.

This brief is part of a larger publication about IntraHealth's innovative approaches to global health—one output of a 2019 landscape analysis of innovation at IntraHealth commissioned by its chief technical officer, Dai Hozumi.

Read the full report at www.intrahealth.org/7-creative-approaches

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