

CommCare for Ebola Response

The Ebola epidemic in West Africa marks the largest and most complex Ebola outbreak to date, with more cases and deaths than all previous outbreaks combined. Guinea, Liberia, and Sierra Leone have been the most affected countries, with additional cases in Mali, Nigeria, Europe, and the United States. All cases were a result of human-to-human transmission, which is worsened by people's inability to seek care due to illness or properly follow safe burial practices. Resource-poor health systems and lack of sufficient trained health care personnel created a perfect storm for an Ebola epidemic. The epidemic was further exacerbated by mistrust of government entities and humanitarian response organizations in their limited capacity to care for those in need and bridge cultural differences to contain the disease.

How CommCare Can Help Strengthen Ebola Response

CommCare is an easily configurable, open source mobile platform built by Dimagi that enables frontline programs to build, adapt, and deploy mobile apps. With CommCare, frontline workers used a tailored mobile application to support their daily Ebola work, and program coordinators can access an online CommCare platform to view all incoming data.

CommCare can improve core infectious disease response roles in the Ebola epidemic and in future disease outbreaks, specifically with:

- **Adherence to screening and triage protocols**
- **Sensitization and information dissemination**
- **Surveillance and contact tracing**
- **Diagnostics and lab tracking**
- **Stock tracking**
- **Patient self-reporting**

Even as affected countries move beyond the Ebola epidemic, CommCare enables implemented programs to shift focus to other health and development areas. These include livelihoods, infectious disease surveillance, maternal and child health, diagnostics and lab tracking, and core responsibilities of frontline workers that are supported by CommCare.

Adherence to Screening and Triage Protocols

Knowledge of and best practices for handling cases and treatment change rapidly, with changing protocols burdening frontline work forces to quickly adapt for safety.

- CommCare enables new or adapted protocols to be pushed out to remote workforces
- Separate forms ensure that workers follow specific workflows in order to be able to enter ETUs
- Case management enables workers to identify previously seen patients for efficient triage

Sensitization and Information Dissemination

Lack of communication can lead to inappropriate handling of patients or unwillingness to cooperate with frontline workers.

- Multimedia-enabled behavior change messaging engages families about safe health practices
- CommCare enables new information and materials to be pushed out to a remote workforce
- CommCare provides interactive, standardized, and trusted instructions on proper burial methods, detecting symptoms, when to go to health centers, and basic infection control measures



CommCare Powered by



Surveillance and Contact Tracing

Controlling outbreaks requires identifying suspected cases before they can expose other people.

- Frontline workers can use CommCare to identify contacts and follow up with them over time
- Patients can be easily tracked across multiple visits thanks to registration modules
- In-app background validations and calculations automatically notify frontline workers when a contact needs to be followed up with, or can be declared safe after 21 days
- Application checklists and questions prompt frontline workers to check for all possible symptoms
- Patient records can be automatically sent to health facilities for up to date incidence reports

Diagnostics and Lab Tracking

During outbreaks, labs are established hastily and results to patients are delayed.

- CommCare can communicate wirelessly such that data entered at the lab site will be automatically uploaded when a connection is available
- CommCare enables different authorization levels, from government officials to clinicians, to access data on a web-based platform to consult results in real time and to upload new test results but limits app building and sensitive data sets to be viewable by specific personnel only
- All data entered into CommCare is stored on devices, and will automatically sync to the server when connectivity is available; SMS systems can be employed to send data as well
- CommCare supports user-configurable reports that can be exported via CSV or to third party analytics software such as Tableau via APIs
- Test results can be automatically sent via SMS from the central database to recipients
- CommCare is compatible with QR code readers, and can be configured to receive data from laboratory and point-of-care devices with digital outputs via APIs
- Real-time data enables live laboratory capacity assessments, preventing backlogs at testing sites

Stock Tracking

Supplies are constantly being used without consistent, timely, and accurate ways to ensure that they are always available when they are needed.

- CommCare applications enable programs and frontline workers to track stock and make predictions for future needs
- SMS interactions allow stock outs to be reported before they occur in low-connectivity areas
- Diagnostics supplies can be tracked via CommCare to improve supply chain management

Patient Self-Reporting

Community members may not be engaged in Ebola response or information-sharing.

- Interactive outlets, such as CommCare apps, can jumpstart discussions about Ebola among the community and encourage more open conversation about disease recognition and prevention
- Patients can communicate with programs and health centers via bidirectional SMS powered by CommCare

Ebola Response Template Applications on CommCare

Dimagi is developing a collection of ready-to-use or customize apps for quick deployment in Ebola response. These apps can be tailored to other outbreaks or crises and can be easily added to existing CommCare deployments. Planned or existing templates include:

- **Contact Tracing**
- **Ebola Treatment Unit (ETU) Decommissioning**
- **Psychosocial Support**

Ebola Response Projects on CommCare

The Earth Institute at Columbia University, UNFPA, Ministry of Health; Guinea

In Guinea, the Earth Institute, UNFPA, and the Guinean Ministry of Health have adapted the standardized Ebola contact-tracing form to a CommCare application. Available in both English and French, the application was designed to be quickly deployed, updated with changing protocols, and includes an instructional module with videos that contact-tracers can view for post-training guidance. The Earth Institute uses a dashboard developed by Tableau and also employs user-configurable reports that are viewable directly in CommCare. A pilot was deployed in December 2014 and has since scaled up to 5 of the 8 prefectures (Conakry, Coyah, Dubreka, Forecariah, and Boffa) that currently have Ebola, with 317 contact tracers and 50 supervisors on CommCare.

Innovations for Poverty Action, Sierra Leone

Together with the London School of Hygiene and Tropical Medicine (LSHTM) and International Medical Corps (IMC), IPA developed a two-armed cluster-randomized trial to evaluate the effectiveness of a smartphone-based CommCare data capture and management system relative to the current paper-based system for Ebola contact tracing and monitoring in Sierra Leone. The 11 chiefdoms in Port Loko district were randomized to receive either the CommCare intervention or the paper-based system control.

Other Groups; Guinea, Liberia, and Sierra Leone

As many as 10 additional groups are working to develop and pilot CommCare applications for Ebola response and system rebuilding, including Mercy Corps and Last Mile Health.

Free Licenses and Partnerships

Tableau Software – Tableau Foundation

Dimagi partnered with Tableau, a leading software company specializing in interactive data visualization, to offer free licenses for Ebola response projects. In order to coordinate response activities, visualizations developed using Tableau will be available for use by local response teams, helping them follow the health status of individual cases and analyze the Ebola outbreak patterns in the area.

CommCare – Dimagi

Dimagi has committed to offering free CommCare licenses from November 2014 through December 2016 for Ebola response-specific projects. In February 2015, USAID nominated Dimagi for the Fighting Ebola: a Grand Challenge for Development award, for the Information Communication Technology Solutions category together with Intrahealth. This has enabled Dimagi to provide additional CommCare app building and implementation support.