While tuberculosis (TB) incidence has decreased worldwide, developing countries still bear the greatest burden of TB, with 95% of TB deaths occurring in low- and middle-income countries (WHO, 2014). At the same time, multidrug-resistant (MDR)-TB rates continue to rise. Programs such as DOTS (Directly Observed Therapy Support) assist countries in treating TB, however, ongoing supervision and support can be difficult to provide, resulting in limited success of otherwise effective programs.

CommCare for TB Prevention, Detection, and Treatment

Mobile technology can help build TB treatment capacity. Limited health care personnel, insufficient training, and counterfeit medicines are significant contributors to the TB epidemic, all of which can be improved with mobile technology. CommCare, in addition to CommCare Supply features and SMS tools for patient engagement, can be used together or separately to support TB programs.

TB Programs and Clinics

TB programs and clinics have limited trained personnel to register and follow up with TB patients and provide treatment.

- Collect patient information to create **real-time TB and MDR-TB profiles** of specific areas
- **Integrated system** allows lab results to be easily shared between clinics in different communities
- **Automatically alerts** district health center of new cases and others that miss subsequent visits
- Basic **web reporting** detailing system utilization facilitates data management
- Automatic patient **appointment reminders** can be configured to reduce staff time contacting patients
- GPS integration creates data for a **map visualization** of MDR-TB spatial spread and progression
- **Interactive voice response** (IVR) triages cases, reducing burden on clinic staff

Health Workers

Patients are lost to follow-up due to lack of communication and sharing of records.

- Mobile applications improve health worker **monitoring** and **adherence to TB protocols**
- **Escalation workflows** support health workers by automatically sending SMS messages to possible TB-positive cases that miss scheduled clinic visits
- Online reports show aggregated **patient load summaries** for each health worker, enabling cases to be better managed and distributed
- **Geo-tagging** of MDR-TB cases allows health workers to **identify and track possible TB cases**
- Application can be **translated into different languages** to enable use across language barriers

Patients

Patients are lost to follow up or do not adhere to medication regimens.

- Integrated system enables **follow-up** between health workers and clinics, preventing patients from falling out of the system
- **Two-way SMS** interactions empower patients to report medication schedule
- **Interactive voice response** increases TB patient access to professional health care
- In targeted exposed areas, **SMS outreach** encourages patients to present to health facility for clinical review in early stages of disease, improving patient outcomes and reducing hospitalizations

Highlighted Projects

The International Center for AIDS Care and Treatment Programs at Columbia University (ICAP), Lesotho

ICAP is using CommCare to improve treatment outcomes of TB patients and their household contacts by strengthening their DOTS system and improving follow-up. Nurses use CommCare in government clinics to register TB patients, schedule appointments, and follow up on missed appointments. CHWs use the application during home visits to screen household contacts for TB and refer potential cases to clinics. CommCare also helps ICAP supervise DOTS supporters and provide additional TB education and counseling through the use of multimedia.

University Research Company, South Africa

University Research Company (URC) and partners, including USAID, are strengthening TB care at the provincial, district, and community levels in South Africa, as well as strengthening the health system. URC is digitizing TB registers with CommCare to: (1) support client registration and tracking at facilities; (2) enable community based organizations to do community tracking of TB contacts and defaulters; (3) aggregate data in real time coming from treatment sites and community based efforts.

The International Union for TB and Lung Disease, India

In rural Jharkhand, Rural Health Care Providers (RHCP) and Lab Technicians (LT) use CommCare to improve TB case detection, follow-up rates, symptomatic case management, and DOTS adherence. RHCP refers symptomatic cases to LT where sputum is tested for TB. If lost to follow up, an SMS is sent to the patient, RHCP, and LT. An SMS is also sent to the patient with lab results.