



DATABASE AT A GLANCE: HOW IS TECHNOLOGY BEING USED TO TREAT TB?

Last week, as the global health community recognized World TB Day, we were combing through CHMI's 1,200 program profiles for innovative ways to improve privately delivered TB care. With our colleagues at the University of Toronto, we will soon launch a brief summarizing our findings. This blog post draws upon some of this preliminary research and analysis.

While the mortality rate associated with TB has, excluding HIV-positive cases, decreased 41%, an estimated 8.7 million new cases of infections occur each year. Adherence to TB treatment is both difficult and critical—the disease carries a high mortality rate if not treated, and breaks in the recommended regimen can lead to drug resistance.

▶ Governments are invested in TB treatment—why involve the private sector?

While many patients eventually seek care for TB from government facilities, the private sector is often the first point of care for patients in the 22 countries with the highest TB burden. In India, where nearly 2 million people develop TB annually, a study found that 86% of patients first consulted private practitioners after experiencing symptoms, and two-thirds of patients that continued treatments stayed in the private sector.

For TB patients, private providers—including physicians, nurses, traditional healers, and

pharmacists—offer advantages including greater flexibility, value, convenience, and privacy. As noted in the WHO's Public Private Mix Toolkit, TB strategies that engage private providers can increase case detection, reduce diagnostic delays, and lower the cost of care, in part because private providers are often closer to patients' homes or workplaces.

Key Takeaways:

- Among the TB programs CHMI profiles, information communication technology is used by one-third as a core part of their model.
- Innovation hotspots East Africa and South Asia do not correlate with incidence in Southern Africa
- Programs are engaged in a range of activities, from improving diagnosis and patient tracking, to boosting adherence, to strengthening the supply chain for TB drugs.

▶ Where are innovators developing TB solutions?

CHMI's data set includes 58 programs that work on TB in 33 countries. While many TB-

▶ Ensuring treatment adherence with mobile technologies

Many programs use mobile technologies to improve patient adherence to TB medication. In South Africa, On Cue Compliance uses specially designed pill bottles that are fastened with a SIM card and transmitter. When the pill bottle is opened, the transmitter relays a text message to a designated healthcare worker. If patients do not open pill bottles on time, they receive a text message reminding them to take their medication. According to this program's reported results in the CHMI database, 90% of patients complied with their medication regimen, compared to a compliance rate of 22-60% without the system.

▶ Using mobile technology to improve the supply chain of medications and reduce stock-outs

Ensuring effective drug management and reliable drug supply is essential for high-quality TB treatment. Stock-outs of TB medicines cause interrupted or delayed treatment, which can increase drug resistance and prolong illness. CHMI-profiled programs such as TextTB, in the Philippines, and the Uganda Health Information Network have used technologies to monitor and manage stocks of TB medications. In Uganda, officials in five districts monitor drug and supply levels at health centers via PDAs. Independent assessments have shown the system is 24% more efficient than paper-based data management.

▶ Providing diagnostic tools for health workers

For secondary care, which requires health workers with strong diagnostic skills and

knowledge, technology is often used to enhance the abilities of health workers. The MOTECH Suite—featuring Dimagi CommCare mobile phone-based tools for community health workers—provides health workers with text messages, electronic forms, job aids, medical protocols, alerts, and other features to identify and respond to symptoms for high-burden health issues like TB. World Health Partners uses text messages included in the MOTECH Suite to enable rural medical providers and consumers alike in Bihar, India, to better manage their TB. D-tree International is developing a TB module to help health workers in Tanzania identify TB among HIV-infected clients; the module will suggest diagnostic tests to perform even when clients miss a visit.

Which of these practices is showing evidence in peer-reviewed or gray literature? We'll share this information in future CHMI publications. For now, we wanted to highlight the innovative ways in which technology is being used to combat TB, given that the use of information technology is the most utilized health market innovation among TB programs profiled in the CHMI database. As discussed, these programs are engaged in a range of activities, from improving diagnosis and patient tracking, to boosting adherence, to strengthening the supply chain for TB drugs. We look forward to following these and many more innovations to come and will share our findings in future posts and analytical products.

**Photo at top: Clinic officer with Access Afya*