Example of service delivery
report vis SMS

A=# clients attended
B=# U5 attended
C=# U5 with malaria
G=# U5 with pneumonia
F=# U5 with diarrhea
D=# U5 referred
E=# clients received FP pills

ACCREDITED Drug Dispensing Outlet

IMPLEMENTATION DATE: April 2012 to May 2015

*Improving regulatory capacity to enhance pharmaceutical
product and service quality*

Many people in rural Tanzania seek health care and medicines from retail drug shops, which historically had unqualified, untrained and unsupervised sellers.[1] I Launched in 2003, the Accredited Drug Dispensing Outlet (ADDO) program sought to improve access to affordable, quality medicines and pharmaceutical services in underserved areas through a combination of training, incentives, and regulatory oversight of set standards.[2] One of the goals of Management Sciences for Health (MSH)'s Sustainable Drug Seller Initiatives (SDSI) program was to assure the ADDO program's long-term sustainability by increasing access to data for informed program decision-making. With nationwide scale-up and over 9,000 shops accredited or nearly accredited in Tanzania, the Pharmacy Council of Tanzania (PC) needed a comprehensive database to organize information on ADDO and pharmacy facilities and personnel. In addition, PC was interested in using mobile technology to improve its communication, reporting, and fees collection systems for these facilities. SDSI collaborated with Invention and Technological Ideas Development Organization (ITIDO), a local group, to help PC meet its needs.

About ADDO

Working with MSH and PC, ITIDO developed a web-based database of information on private sector drug outlets' premises and personnel, including facility registration, personnel qualifications and certifications, inspections, and payments of associated fees. ITIDO also developed mobile applications that link to the database and include a mobile payment component for premises and personnel fees, a short message service (SMS)-based reporting module for outlets to report on standard service delivery-related indicators, and an SMS-based information exchange module, which allows ADDO and pharmacy personnel to send and receive information, for example, on accreditation requirements or drug recalls. The applications work with the basic mobile phones that ADDO personnel

already own, precluding the need for smartphones.[3] SDSI tasked ADDO, pharmacy, and PC personnel with identifying features they wanted to see in the system; stakeholder input on the system design helps ensure sustainability. In addition, ITIDO developed the technology using JAVA-based open source software to ensure affordability and adaptability.

PC, MSH, and ITIDO introduced the technology in the Dar es Salaam and Pwani regions in May 2014 to determine its ease of use and whether it improves regulatory capacity and efficiency. The pilot involved 289 ADDO owners and dispensers from Pwani, 218 pharmacy owners and personnel from Dar es Salaam, and PC staff. A process evaluation and qualitative interviews were conducted to assess user experiences with the integrated mobile technology and database.

After the pilot, ITIDO used the findings to refine the applications. PC has entered into the system basic information on ADDOs and pharmacies nationwide, including GIS coordinates, in preparation for the technology's scale-up. SDSI and ITIDO also helped PC draft a technology scale-up and sustainability strategy. Drug shop regulatory agencies in other countries have already expressed interest in adapting and implementing the technology.

Evaluation and Results

During the four months of the pilot, all applications worked well: 129 people used mobile money to pay more than 12 million Tanzanian shillings or 6,443 USD in fees; over three months, more than 750 service delivery reports were received from participating ADDOs (illustrated top left); and PC sent out 13,000 text messages and received over 200 queries.[4] In-depth interviews were conducted with 28 ADDO owners/dispensers in Pwani region, eight pharmacy representatives in the Dar es Salaam region, and five PC staff members.[5] Interviews provided perspectives on the utility of service delivery reports, the two-way helpline, and mobile money.

Respondents reported that all three applications saved them time and money:

- Service reports: "This has made not only our life easier but also for PC themselves. They do not need to come to the outlets to collect the reports, and we do not need to go all the way to the district councils to submit them. It saves time and money." (Dispenser, Kibaha)

- Helpline: "Oh yes, this service is good. You can send a question asking about the process of opening a drug shop and you get all the information." (Dispenser, Bagamoyo)

- Mobile money: "It is also safe, you don't need to carry money every time; you might get robbed. Paying through M-Pesa is very safe." (Dispenser, Bagamoyo)

Although feedback was mostly positive, some pharmacy personnel felt their training on the helpline was inadequate. Others noted delays in receiving report confirmations or answers to queries from PC. Mobile money had allowed PC to collect fees quickly, and PC staff reported that mobile technology had improved communication between themselves and ADDOs. A challenge was that not all PC departments were using the database, which limited its usefulness. Despite challenges, PC staff were eager to see that the tools were used effectively to improve their own operations and those of ADDOs and pharmacies.

Lessons Learned

- Engaging and training all potential technology users in the regulatory organization is critical to realizing the technology's full potential and benefits.

- Something as simple as a helpline may not be intuitive to all, which limits its use; therefore, training time needs to be adequate to suit everyone's needs.

- End-users, such as ADDO and pharmacy personnel, should receive aggregated feedback on service reports so that they know the data are being used.

Conclusion

The pilot of the database and mobile applications suite demonstrated that low-cost technology using basic mobile phones is a viable option for regulatory authorities seeking to collect data from remotely located private sector outlets. The majority of ADDO and pharmacy users picked up the mobile applications with ease and expressed appreciation for the technology. If taken to scale, the technology has the potential to improve PC's ability to locate and manage rural ADDO facilities, track professional licensing status and collect related fees, and better communicate with the outlets. In addition, MSH has been working with regulatory authorities in Uganda and Liberia to adapt this database and applications to increase their own oversight efficiencies related to their accredited drug seller initiatives. ■