Despite improvements in infrastructural access and efforts to reduce financial barriers for maternal, newborn and child health (MNCH) services, overall usage of health services and shortages of human and financial resources have slowed Uganda’s progress towards the Millennium Development Goals (MDGs). In addition, supply chain management has faced challenges, resulting in stock-outs of life-saving medicines, including artemisinin-combination therapies (ACTs) used for the treatment of malaria.

Research in Uganda has shown that strengthening social accountability mechanisms can lead to dramatic improvements in health indicators. People who were involved in a community-based monitoring project, which provided citizens with information on the quality of local health services and engaged them in the planning and supervision of health services, experienced a 33% reduction in the underfive child mortality rate, a 20% increase in the use of outpatient services, and improvements in the quality of care delivered after one year (1).

Strengthening accountability chains within the health sector may also be a promising path, but as yet there is little evidence of the potential impact of such mechanisms.

The Ministry of Health’s mTrac, supported by UNICEF, WHO, and DFID, aims to strengthen the national health management information system (HMIS) to empower the Government of Uganda to monitor health system performance by providing access to real-time data and improving health sector accountability. The focus of mTrac is on disease surveillance, monitoring stocks of medicines to prevent stock-outs, and generating reports on health service quality based on direct client complaints.

**How mTrac works**

mTrac makes use of a central server that automatically aggregates and checks weekly reports on notifiable diseases, malaria case management and stock quantities of ACTs submitted by health workers via their mobile phones. District health team members then review, edit and approve the data through an online dashboard before submitting it to the Ministry of Health (MOH). In case of notifiable disease outbreaks, health workers immediately alert the concerned officials at the national and district levels by text messaging (SMS). These alerts are flagged on the dashboard of the concerned district, triggering further SMS alerts to other members of the district health team and selected officials from the MOH, who are all listed in mTrac’s database. This provides the MOH and district health offices with timely, accurate data for programme planning and monitoring. District health teams are able to shift medicines from overstocked to under-stocked facilities, and they now have access to accurate, up-to-date data in order to lobby the National Medical Stores for additional supplies.

The second component of mTrac is an anonymous toll-free SMS hotline for complaints about health services (U-Report). Anyone can report any issue related to health services, such as health centre closures during working hours and stock-outs of essential medicines at hospitals. This service is rapidly gaining popularity among people with low incomes who do not have access to computers but own mobile phones.

**Supporting national public health programming**

mTrac aims to address problems with the provision and use of MNCH services in Uganda by...
strengthening the national HMIS and gathering feedback from community members. Current mTrac data show that stock-outs of ACTs have decreased from 25.2% at the start of the initiative in 2011 to 13.8% over a period of 18 months. Further, the names of the facilities that report complete stock-outs of ACTs are noted weekly for further follow-up and action. Disease case reports coming into mTrac have also been extremely useful at the district level, helping health officials identify problems in service delivery. For example, in January 2012 in Kotido District, health officials noticed a spike in reported cases of rapid breathing (a sign of pneumonia). On investigation, the District Health Team discovered that community health workers were misdiagnosing and mistreating cases of pneumonia, and retraining was conducted immediately.

**Partnerships for support and sustainability**

In the implementation of mTrac, high priority is placed on ensuring that health workers and community members can use phones they already have, rather than introducing expensive and hard-to-maintain smartphones or other devices. UNICEF and WHO have been working closely with the MOH on various activities to strengthen the health system. mTrac is currently the only mHealth platform that has been endorsed and used by the MOH for communicating with health-care providers. mTrac has achieved national-level coverage of providers, and efforts are under way to strengthen the quality of the services and the data collected from this system across Uganda. mTrac data are already fully incorporated into the MOH’s Surveillance Unit’s weekly news bulletin, which includes reports of medicine stock-outs, and these data are now being integrated into the national district health information system (DHIS2) database. In addition, UNICEF will be collaborating with its research partners to conduct an evaluation of the effectiveness of disseminating service delivery data collected from mTrac and U-Report on measures of MNCH service quantity and quality.

**IWG catalytic grant for mHealth programme scale-up**

UNICEF was awarded a grant to scale up the mTrac initiative in Uganda by the United Nations Innovation Working Group’s (IWG’s) catalytic grant competition for maternal, newborn and child mobile health (mHealth), managed by the United Nations Foundation. UNICEF was successful in the grant competition because it employs an effective delivery strategy for an evidence-based maternal and child health intervention to contribute to Millennium Development Goals 4 and 5.1 Through IWG, UNICEF is receiving assistance from the World Health Organization’s Department of Reproductive Health and Research to support the MOH to optimize scale-up of the mTrac programme while contributing to the mHealth evidence base and best practices on implementation and scale-up. Please visit http://www.who.int/reproductivehealth/topics/mhealth/en/ or http://www.unfoundation.org/features/mhealth/iwg.html for more information.

**Partners:** Uganda Ministry of Health, Makerere University, Innovations for Poverty Action (IPA) – Uganda, New York University, and Georgetown University

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1. MDG 4 is to reduce child mortality; MDG 5 is to improve maternal health (www.unmillenniumproject.org/goals/gti.htm)

**Reference:**