Abstract

Uganda is generating a wealth of data to support maternal and child health, including through a reproductive maternal, newborn, child and adolescent health (RMNCAH) scorecard. However, district governments and health facilities seldom discuss and use these data for planning and to improve service delivery for women and children. UNICEF Uganda has therefore developed a customized set of integrated near real-time monitoring (NRTM) dashboards for District Health Information Software (DHIS2), including a bottleneck analysis (BNA) tool to support evidence-based decision-making and action on the RMNCAH scorecard at the decentralized level. The initiative has yielded immediate results in decision-making based on district BNA data at the district level. A key lesson learned is the need to promote the multisectoral nature of NRTM beyond a focus on monitoring and evaluation (M&E), and the need to accommodate the different speeds at which various components of the health management information system (HMIS) are developing by embracing a hybrid automated and paper-based system which uses the digitization process to identify gaps in data sources.

Issue

Uganda’s Ministry of Health has adopted a national RMNCAH scorecard customized with 24 indicators to track national and subnational performance, strengthen accountability and drive focused action for improved health outcomes for women and children. The scorecard uses data from the new electronic HMIS (eHMIS) which includes DHIS2 and is available in all 112 districts and 3,500 health facilities. The SMS-based citizen engagement platform U-Report also has great potential for use in the RMNCAH scorecard accountability framework by generating feedback from health facility clients. However, districts and health facilities seldom discuss and use data for planning and often see their role only as a data providers for national HMIS reports.
UNICEF Uganda is fully automating the RMNCAH scorecard as a dashboard within DHIS2, alongside four other NRTM dashboards, including a data quality assurance dashboard, BNA dashboard, an action tracker dashboard, which acts as an accountability mechanism by monitoring the status of proposed solutions to the identified bottlenecks, and a stock management dashboard. The BNA dashboard is an important innovation that is unique to Uganda’s eHMIS and produces a graphical display of six supply-side and demand-side factors (commodities, supplies, geographical access, initial utilization, continuous utilization and effective quality coverage), which impact key child survival indicators in order to assess health system constraints. The BNA tool is focused on action and accountability through the identification of bottlenecks, root causes, and management response, and is applied to interventions in health facilities that impact on maternal, newborn and child vulnerability and deaths.

The new suite of dashboards will support more real-time evidence-based monitoring, operational decision-making, and action on the scorecard at the decentralized level by, for example, District Health Teams, Health Facility Management Teams and Health Unit Management Committees. The approach is institutionalized into new National District Health Guidelines for all district local governments.

The initiative is taking place in eight districts, Adjumani, Butambala, Isingiro, Moyo, Mukono, Nebbi, Rubirizi and Yumbe, with a total of 452 health facilities. The target districts have high levels of poverty and under-five mortality rates, and poor access to health facilities, but also a strong and committed leadership, good functionality of the eHMIS and complementary donor institutional and health system strengthening programmes.

**Figure 1: Bottleneck analysis**

![Bottleneck analysis diagram](source: UNICEF Uganda)
Lessons learned

Citizen feedback through U-Report is a core component of NRTM and is now reaping positive results. However, its development stalled early on in the project as a result of a lack of engagement with the national Government and health facility staff, causing UNICEF to adapt its approach significantly.

**Lesson 1: Communicating the initiative’s multisectoral nature**

The BNA tool combined with NRTM emphasizes the cross-sectoral nature of health system strengthening, involving M&E, information communication technologies (ICTs), and health, supported by Uganda’s strong enabling environment for ICT innovation. Ultimately the initiative is about equity because it relates to the right of all women and children to the highest attainable standard of health and because of its impact on areas such as child development, education and economic empowerment.

A big lesson has been the need to articulate this vision earlier on in the initiative. Sean Blaschke, Technology for Development Specialist and Health Systems Strengthening Specialist, UNICEF Uganda, explains: “When this project started it was seen as a small pilot and no one was talking about it other than as an M&E tool. However, M&E is not its purpose, it is about strengthening systems to improve quality of care. A health expert may not know how to read a line of code, but they know how to use the tools to impact results in their area of work. So it is in fact the programme staff who make these things succeed or fail, and we need them on board from the start.”

Similarly, Muyomba Siraj Wagwa believes that extending the programme within individual health facilities would be beneficial: “My advice is to involve all health workers at a facility and to extend the knowledge to other departments, not isolate the programme within maternal health alone. The same applies to different levels of government.”

**Lesson 2: Investing in hybrid systems**

Many related aspects of the health system in Uganda are undergoing reform, digitization and strengthening. However, this is occurring at different paces which means that while the framework for the BNA has already been built into DHIS2, the associated feeder systems, such as medical commodity and human resources information systems, are not at scale or in a format required to supply data. Sean Blaschke comments: “There were huge expectations that once the BNA tools were developed for DHIS2, you would immediately get nice colour-coded charts saying exactly what the level of a particular medical stock is in a facility and what the bottleneck was to be addressed. But if this information is being collected on scraps of paper in clinics, of course it is not in the tool at this stage.”

The full potential of the digitized BNA tool is therefore lacking and UNICEF Uganda has had to explain to stakeholders that building the BNA analysis is not going to create the other seven systems that are required to provide the data to populate the BNA tool.

A key to progress is therefore combining existing legacy systems with automated systems that are making greater progress. So, for example, the medical commodity system has functional paper stock cards in many districts and the BNA process is currently most successful as a hybrid model of paper-based and digitized systems. One of the benefits of this approach is that digitizing systems is a way to demonstrate where the gaps in data are. Sean Blaschke adds: “When we started on the scorecard, we had great data on institutional healthcare delivery, but no data on maternal death audits. But no data are good data, because if a scorecard is all red and the data fields are blank, that draws attention to an issue.”

**Progress and results**

District Hcath Teams are supported with funding and technical assistance to review their performance during standard monthly and quarterly meetings using data presented on the new dashboards. This is combined with U-Report citizen feedback linked to a complaints hotline, information from poll findings, community scorecards and anonymous input, to understand the demand side of health service delivery. A retrospective analysis is conducted to ensure that the causal analysis underpinning the identified bottlenecks is accurate and to determine if interventions will be effective.
comments: “We now have a results-oriented facility leadership and the scorecard is one of the most important tools we have. At a glance it shows where to focus resources. We have improved data quality through periodic data quality checks, and through the BNA and causal analyses this project has trained health workers to examine the root causes of poor health service delivery and to suggest solutions themselves”.

Eunice Esule, Consultant Monitoring Specialist (Real-Time Monitoring) and Citizen Engagement at UNICEF Uganda, agrees: “We are starting to see real life in this initiative, with districts using the BNA tool to make better informed decisions and create evidence-based plans. In the past, districts would have just photocopied inputs from the previous year and taken the data to the next, without analysis.” A three-day BNA workshop in Butambala District attended by 45 health workers led to a range of planned interventions. For example, the BNA revealed that 70% of adolescents are not reached with sexual and reproductive health (SRH) services due to misconceptions about family planning methods and untrained health workers. Training will now take place for village health teams and health workers, as well as outreach to schools and communities on SRH.

The initiative has yielded immediate results in regard to the adoption of the RMNCAH scorecard. Muyomba Siraj, Biostatistician, Butambala District Local Government,
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Next steps

The next stage of the initiative will be expanding direct support to NRTM in 27 more districts in Uganda which have been selected to receive a full package of lifecycle interventions supporting maternal and child health from other partners, as well as UNICEF.

In addition, plans are being developed for locally customizable versions of the tools, which take into account the maturity of a country’s HMIS and how the data will be populated. Sean Blaschke comments: “We have two goals: a functional NRTM system for Uganda and a set of global goods that other countries can invest in. Government systems are generally not responsive to citizens and if we can shift that it will be huge for Uganda in terms of the country’s quality of governance. This could be an incredible model, not just for the region but for the world.”

Dr. Flavia Mpanga Kaggwa, Health Specialist, UNICEF Uganda, agrees: “Local managers and clinicians in developing countries such as in Uganda have the responsibility to set health priorities and allocate resources accordingly. Although tools exist to aid this process, they are not widely applied for various reasons, including non-availability, poor knowledge of the tools and poor adaptability into the local context. This initiative has set a firm foundation where tools have been developed, adapted and automated and are ready to be scaled up for district planning, implementation and monitoring. It is my firm belief that if the districts are supported in the short term they will be able to fully institutionalize these processes to improve service delivery, which will ultimately close the equity gap.”

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**Further information**

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