Lessons Learned in Health Information System Strengthening: What Worked in the Democratic Republic of the Congo

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Introduction

MEASURE Evaluation, a project funded by the United States Agency for International Development (USAID), works in 50 low- and middle-income countries, implementing 300 health system strengthening activities to generate high-quality health information.

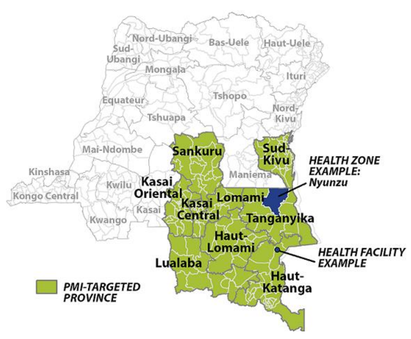
Since 2014, MEASURE Evaluation has helped the National Malaria Control Program (NMCP) of the Democratic Republic of the Congo (DRC) streamline and improve routine malaria data collection, reporting, management, and use at all levels of its health system. The DRC previously reported malaria data in an Access-based system that limited the NMCP's ability to collect and analyze them.

We provided technical and financial support and collaborated with the NMCP to achieve the following:

- Supported the rollout of the electronic health information platform—District Health Information Software, version 2 (DHIS2)—at all levels of the health system: in all 178 health zones and 77 health facilities (designated as Centers of Excellence [COEs]) in 9 priority provinces of the U.S. President's Malaria Initiative (PMI)
- Integrated malaria indicators in DHIS2
- Trained more than 400 staff in monitoring and evaluation (M&E), data collection, analysis, and use
- Developed health information system (HIS) management resources and implemented data-review and data-quality-check mechanisms
- Created and convened technical working groups (TWGs) to manage M&E and malaria intervention activities at the national and provincial level

We documented the outcomes of our work with the NMCP and identified effective HIS-strengthening interventions to improve the quality of health data, including routine malaria data.

Figure 1. Map of the DRC with 9 PMI-targeted provinces



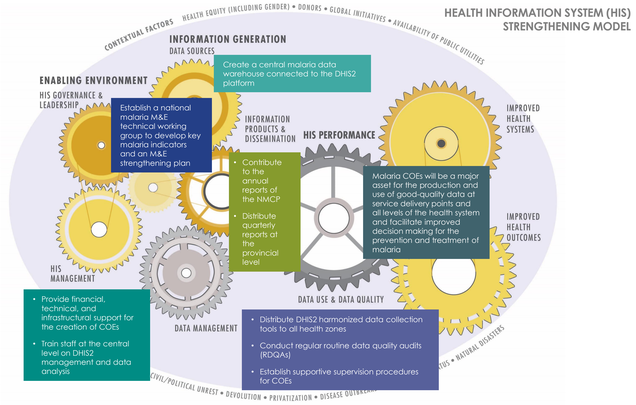
Health Information System Strengthening Model

MEASURE Evaluation developed the Health Information System Strengthening Model (HISSM) to help guide the design, development, and implementation of HIS to support health systems and improve health outcomes. This model is intended to help users promote HIS as an essential function of health systems, define HIS strengthening, measure HIS performance, and monitor and evaluate HIS interventions. The HISSM describes four components of HIS:

- Human element
- Enabling environment
- Information generation
- HIS performance

MEASURE Evaluation's support of the DRC's NMCP spans all four of these components. HIS performance is measured by data quality and data use, which are the outputs of a strengthened HIS. (see https://www.measureevaluation.org/his-strengthening-resource-center/his-strengthening-model)

Figure 2. MEASURE Evaluation HISSM, with examples of HIS interventions implemented in the DRC



Methods

We conducted 13 in-depth interviews with staff members at national, provincial, health zone, and health facility levels. Interviews included questions about engagement with MEASURE Evaluation, any trainings attended, and perceived facilitators of and barriers to a strong HIS. Additionally, we conducted a desk review of all HIS-strengthening interventions completed to date. The audio-recorded interviews were used to develop in-depth notes, which we analyzed with thematic coding.

Findings

Findings from this qualitative data collection activity demonstrate how respondents at the health facility, health zone, provincial, and national levels of the DRC health system perceive MEASURE Evaluation's contributions to facilitate HIS strengthening. Three main lessons regarding our HIS interventions emerged.

I DHIS2 access at all levels of the health system has facilitated capacity strengthening in data collection and reporting, thereby increasing the availability of data for decision making.

- MEASURE Evaluation provided financial and technical assistance to deploy DHIS2 and train more than 250 staff on data collection and reporting.
- Respondents said that the availability of DHIS2, along with training on using data collection tools to record and enter data in DHIS2, increased capacity for data collection, reporting, and management at all levels of the health system.

> "Before, there was very poor data capturing/recording. After the installation of DHIS2, different registers were being correctly kept; [the] software was assisting with the collection and coding of data; and we are able to analyze the data using the built-in graphs."
>
> –Health facility (COE)-level respondent

> "[It is] no longer a purely paper-based system. [It has changed] to one in which we have an available database which allows access. Reporting is 100 percent on time now. Also, for facilities that have DHIS2, we can analyze multiple facilities at the same time. It reduces the time the zone needs to spend doing analysis."
>
> –Health zone-level respondent

II Participating in data quality assurance practices has increased capacity to produce more timely and complete data for decision making.

- Starting in 2015, MEASURE Evaluation began introducing data quality assurance practices, including supportive supervisions visits and routine data quality assessments (RDQAs), to health zones and COEs.
- MEASURE Evaluation's approach involved engaging staff at the provincial level by building their capacity to oversee supervision visits and RDQAs with health zones and COEs through training, on-the-job coaching, and "learning by doing."
- RDQAs provide an opportunity to document data quality improvements, provide feedback to address challenges, and monitor progress over time.

- Among 20 pilot COEs: Routine data timeliness increased from **32%** to **98%**, and routine data completeness increased from **60%** to **100%** between 2015 and 2018.
- Among 57 newly established COEs: Routine data timeliness increased from **25% to 86%**, and routine data completeness increased from **27%** to **100%** between the first and third quarters of 2018.

> "These skills have been of major added value. It has allowed the senior zonal health team to improve the way they analyze data. It has helped to reinforce follow-up in the health facilities."
>
> –Provincial-level respondent

> "Before making [data quality] changes, data collection and reporting was often delayed. Similarly, data and reporting were not always complete. There was no data validation happening. The result was you felt that the data/information couldn't really be used. Now, we feel the data is good and can be used ."
>
> –Health Facility (COE) level respondent

III Data review mechanisms at all levels of the health system provide opportunities for stakeholders to review, validate, and share data to make key decisions.

- With MEASURE Evaluation support, all levels of the health system have successfully established data review meetings and regularly convene stakeholders to review data.
- Data quality review mechanisms allow for all levels of the health system to convene data generators and data users in the same room, providing an opportunity to review and validate data, develop information-sharing products, and make data-informed decisions on policies and service delivery.

> "We more closely follow evolution of the health situation, trends, take action more quickly, [and] to better coordinate [with stakeholders]. [What we learned from participating in this TWG] is the need/advantage of being able to look comprehensively at the health situation in the province, and effectiveness, efficiency of good coordination."
>
> –Provincial-level respondent

> "The recent malaria data showed a spike in suspected malaria cases—fevers—in Kivu Nord, which was of epidemic interest. Since that is also part of the area affected by the Ebola epidemic, it was important to investigate. By being there early, [NMCP] teams were able to begin implementing responses, including mass treatments for malaria."
>
> –National-level respondent

Conclusion

We found that our comprehensive HIS strengthening interventions with the NMCP were complementary and mutually reinforcing. Some challenges in strengthening the performance of the HIS remain, but the milestones described in our findings have been reached at all levels of the health system. These findings demonstrate the effectiveness of these HIS interventions and represent best practices that could be adapted and implemented in other country contexts.

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