Streamlining data quality assessments to strengthen malaria efforts in Kenya

Background

Malaria is a significant public health problem in Kenya, with nearly 4,000 people (most of them children) dying from the disease every year—and a significant proportion of the population is at risk of getting it.[1] But the disease burden has changed in recent years, which means that having high-quality data is that much more important for targeting the country's malaria control efforts.

Kenya's National Malaria Control Program (NMCP) uses routine health information system (HIS) data for trend analysis, stratification, and allocation of malaria control resources. NMCP previously used an Excel-based malaria Routine Data Quality Assessment (mRDQA) tool that was limited in its ability to track data quality improvements across time and administrative levels. Malaria program officers relied on external technical support to merge data from various subcounties, which has led to delays in implementation of malaria control activities and follow-up on data quality improvement plans.

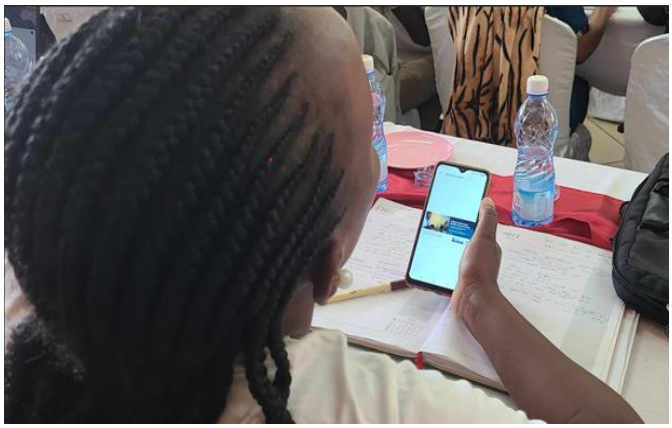
USAID's Country Health Information Systems and Data Use (CHISU) program supported the transformation of the mRDQA tool so that it is now accessible as an Android application that allows users to analyze malaria data as well as coordinate and plan routine data quality activities. This application helps streamline data quality assessment processes.

[1] Elnour, Zuhal, Harald Grethe, Khalid Siddig, and Stephen Munga. "Malaria Control and Elimination in Kenya: Economy-Wide Benefits and Regional Disparities." *Malaria Journal* 22, no. 117 (2023). https://doi.org/10.1186/s12936-023-04505-6.

Country Health Information Systems and Data Use (CHISU) is USAID's flagship data and information system program to strengthen host country capacity and leadership to manage and use health information systems to improve evidence-based decision-making. **www.chisuprogram.org**

Steps Taken

CHISU piloted the mRDQA Android application and its associated District Health Information Software 2 (DHIS2) digital instance application in Vihiga County (one of the eight malaria lake endemic counties, with its headquarters situated in Mbale Town). Comprising five subcounties (Hamisi, Emuhaya, Luanda, Sabatia, and Vihiga), Vihiga County was selected for the pilot due to its preparedness, particularly as other counties were engaged in other important malaria control activities.



Beryl Nyayiera, a subcounty pharmacist in Rarieda Subcounty, which is part of Siaya County. Photo credit: George Wadegu, JSI

CHISU prepared for the mRDQA application pilot with the setup and configuration of the mRDQA application on Google Play. CHISU also developed a comprehensive guide providing step-by-step instructions on application configuration and use. CHISU county officers then initiated the pilot by entering previous mRDQA data into the application—enabling them to provide valuable feedback for further enhancements.

CHISU staff then conducted the pilot in Vihiga County, where the program trained 25 malaria surveillance monitoring and evaluation mentors on how to use the application. The training covered how to download the application from Google Play, user configuration, data entry, development of data quality improvement plans, exporting data, and reviewing district health information system dashboards. Participants practiced entering data using previous mRDQA data, which helped refine the application. The CHISU system and software advisor incorporated feedback from the Vihiga County pilot to further improve the mDQA application before officially rolling out the county's data quality assessment (DQA) using the improved application.

CHISU conducted the assessment between February 5 and 9, 2024 and evaluated various parameters for hospitals and health facilities selected, including reporting rate, timeliness, report and register completeness, accuracy of select indicators, and more.

Trained mentors conducted facility DQAs using the mRDQA application—and as a backup, they also collected data using the original Excel tool. Each facility developed a data quality improvement plan, and 18 out of 21 health facilities assessed successfully transmitted their DQA data to DHIS2 in real time. Subcounties were able to monitor their data quality performance instantly in DHIS2.

Results + Next Steps

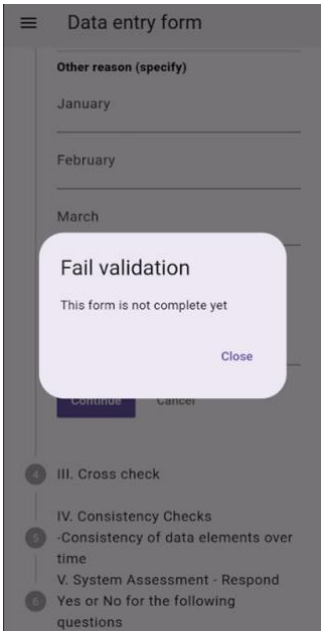
The improved mRDQA application is making health workers' jobs easier, particularly in the way it lets them compare findings across different levels of the health system.

"I am able to instantly compare performance across different counties, subcounties, and health facilities. Previously we had to wait for data to be merged centrally before being shared with us," said Judith Mirenja, a health records and information officer (HRIO) in Lurambi Subcounty (part of Kakamega County).

Data collection has also become more efficient for health workers using the application.

"The Android application is easy to use and the mRDQA tool is embedded with data validation checks that prevent common errors (like missing information)," said Adel Musung, an HRIO in Emuhaya Subcounty (part of Vihiga County).

Building on the success of the Vihiga County mRDQA pilot, the application has been rolled out in all eight lake endemic counties. Approximately 90 percent of participating health facilities successfully transmitted data for the October–December 2023 DQA to DHIS2 in real time—whereas previously, data was stored in Excel files and had to be manually transmitted in DHIS2. The Android application made this process more efficient and prevented delays in transmitting the data.



Screenshots of the mRDQA application showing the built-in data validation checks.

"The DHIS2 instance provides a good mechanism to archive historical data on all DQAs that will be conducted moving forward," said Faustina Sakari, a county malaria coordinator in Kakamega County. "The previous Excel files could get misplaced and relied heavily on external expertise for merging and also to carry out complex analysis. This centralized analysis and accessibility of the dashboard for all counties in real time is very good."

The findings from this pilot will inform decision making and priority intervention areas for county malaria surveillance, monitoring, and evaluation mentorship in the future, including potentially developing a video tutorial on using the mRDQA application.

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