Reducing data entry errors for improved data use to target malaria interventions in Ghana

Background

Samuel Twum Andoh knows that targeting malaria interventions based on evidence is the best way to eliminate the disease in Ghana. But he also knows that garbage in means garbage out, meaning the quality of information to make decisions is only as good as the quality of the data that is collected. As a Regional Malaria Focal Person in Ghana's Western Regional Health Directorate, Samuel is in charge of ensuring the quality of malaria data reported through DHIMS2, the country's health information system. The Country Health Information System and Data Use (CHISU) program in Ghana supports the National Malaria Elimination Program (NMEP) to improve malaria data quality in eight of the regions designated by the Ghana Health Service. In the Western Region, the Regional Health Directorate is undertaking several malaria data quality improvement initiatives in partnership with CHISU.

Steps Taken

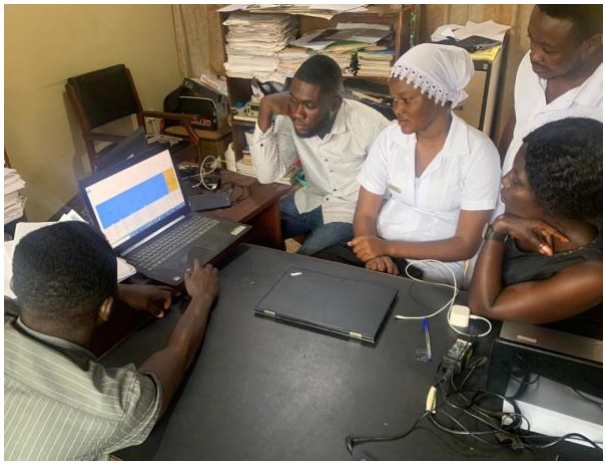
CHISU collaborated with Isaac Koronkye, the Regional Health Information Officer, and the Western Regional Technical Data Management Team to identify the factors contributing to the region's persistent malaria data quality issues. One factor within their control was the regional team's approach to validating data quality in the districts they oversee. To validate data, district data officers and regional officers had to download malaria performance data from DHIMS2 each month, enter a validation formula to generate validation feedback, and manually count the errors using MS Excel. This multi-step process was time-consuming and prone to errors.

CHISU supported the regional team by first developing a semi-automated data validation and analysis tool in MS Excel. This facilitated timely feedback on malaria data quality, providing an important feedback loop for the team. CHISU then deployed the Excel tool across regional and district levels to help data officers efficiently identify

malaria data inconsistencies and incompleteness. The tool includes a data dashboard that visualizes the performance of malaria-related indicators, such as malaria test positivity rates and levels of intermittent coverage, prompting action when needed.

Results

This new process significantly reduced the time data managers spend compiling malaria data and feedback from an average of four hours to one hour. “Now the regional team doesn’t spend much [time] on validation and feedback for the entire region on malaria data” Samuel said. Officers are now able to easily identify facilities with incomplete malaria data and data entry errors with the semi-autonomous Excel tool. “This tool is a powerful one,” he added.



Juaboso District Team at a data validation session using the new validation tool. Photo credit: Emmanuel Yirbuor

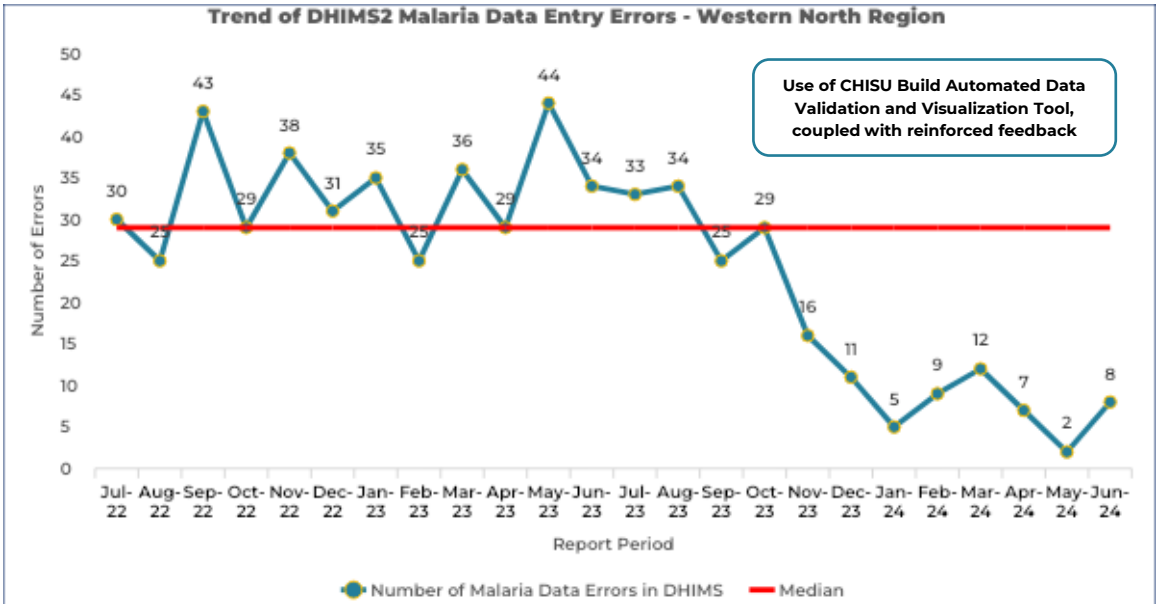
“I only spent ten minutes for validation and feedback instead of two hours,” said Emmanuel Yirbuor, a health information system officer in Juaboso District. “It makes data quality checks very simple at a go. Just a few minutes and I'm done checking my data.”

Samuel and his colleagues are now able to send feedback to staff at health facilities to correct data errors before the closure of the DHIMS2 data entry window. Data managers have more time to study the results of the analysis and use the information to help improve the quality of care and other malaria interventions.

“This tool is impressive,” said Shaibu Seidu, Bia East District Health Information Officer. “It has cut my malaria data validation time by over 90 percent. I am happy for the time it has saved me and the enhanced efficiency of my data validation with the help of the tool. I wish it was designed to cover all service areas.”

Corrections made through the feedback system have improved by 51.5 percent from October 2023 to June 2024 since its deployment across all districts in the region.

Figure 1: Trend of DHIMS2 Malaria Data Entry Errors - Western North Region



The use of the Excel tool not only saved time, it also reduced DHIMS2 malaria data entry errors. The number of data inconsistencies detected while deploying the validation rules declined from a maximum of 44 to as low as two errors per month in the region from July 2022 to June 2024.

Next Steps

This innovative validation and visualization tool has demonstrated significant improvement in malaria data quality. CHISU will deploy it in the seven regions the program is supporting. CHISU also plans to discuss the possibility of incorporating it into the DHIMS2 data quality features with the DHIMS2 engineer at the Ghana Health Service so it can be deployed to other health service areas.

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