



DSME

Digital Solutions
for Malaria Elimination

Transitioning
to a New Digital
Solution

The Digital Solutions for Malaria Elimination Community of Practice is a community of technology organizations and subject matter experts who use, develop, or support digital tools in country-led efforts to eliminate malaria. [LEARN MORE](#)

LAO PDR AND CAMBODIA

Real-time malaria case reporting: from custom apps to global goods

PSI is transitioning from its custom-developed Malaria Case Surveillance (MCS) app to the new DHIS2 Android Capture app, a global good supported by DSME. The new tool was chosen as a more sustainable solution for real-time reporting and case notification.

After two months of testing, field-piloting and iteration, field officers are replacing the app across 500 private sector providers, with completion expected in January 2019.

Challenges included tight timelines related to planned DHIS2 upgrades; differentiating between bugs, configuration errors, and user errors; and navigating change management across stakeholders.



A worksite malaria provider in Cambodia is trained to use DHIS2 Android Capture for malaria case reporting.

Several factors contributed to a relatively smooth and quick transition:

- 1) With the backend (DHIS2) remaining the same, no transition of legacy systems or re-wiring of integration solutions was required.
- 2) Field staff have built capacity and refined approaches to implementing digital tools in recent years.
- 3) Feedback mechanisms were in place to translate user experience into technical solutions, with several features from the MCS app now built into Android Capture to maintain similar user experience.

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<https://www.psi.org/GEMS>

Rebecca Potter,
Evidence & Monitoring Adviser

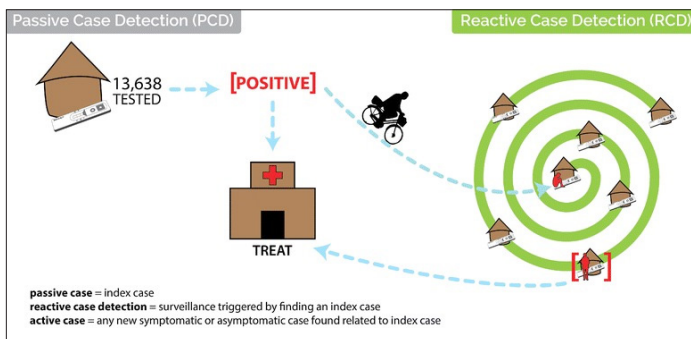
Rebecca@psi.org

ZAMBIA

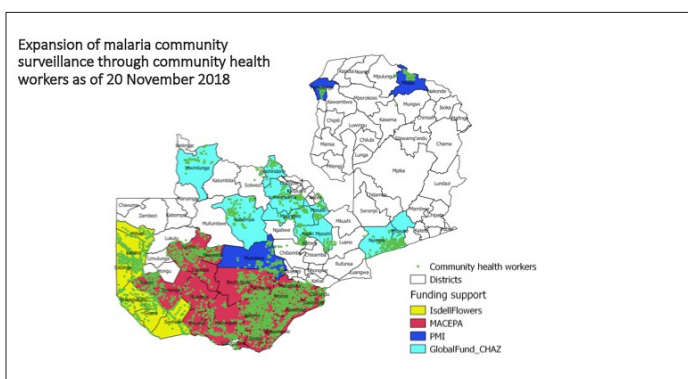
Wrapping technology to optimize impact: community malaria surveillance for elimination in Zambia



Community health workers (CHWs) provide malaria testing and treatment. Line-lists in paper registers are aggregated by 'data' CHWs and submitted to DHIS2. Malaria data are mapped to both CHW posts and health facilities.



Component D utilizes a reactive case detection approach to follow-up malaria cases (index cases) identified at a clinic, or at a community health worker post by testing and treating neighbors of that index case. Figure from <https://www.ncbi.nlm.nih.gov/pubmed/26586264>



Component D was initially implemented in districts of Southern, Central and Western Province. Now multiple partners are supporting the rapid scale up of Component D across Zambia improving malaria surveillance data, while also expanding access to care across the country. Thanks to PATH-MACEPA for this map.

To support the Government Republic of Zambia (GRZ) in its malaria elimination goal, Akros through PATH-MACEPA developed a community-based malaria surveillance system called "Component D". Component D improves access to malaria testing and treating, and provides information of where malaria transmission is happening.

Discovery began in 2010 and implementation occurred in districts of Southern, Central and Lusaka Province over 3 years. Districts were determined based upon their malaria burden and existing leadership. Component D brought more rigorous 'structure' to existing CHW registers while relying on the familiarity of these registers and introducing simple aggregation processes for digital reporting of data. Data validation includes periodic record reviews against aggregated figures and DHIS2 in-built validations.

Resources to transition to digital data have been greatest up front including technical support to prototype, train, and conduct 'supervision visits' to support system continuity and health. As the system has become embedded in the GRZ, external supervision visits have reduced while internal GRZ supervision has increased.

Component D has now become the GRZ policy for community malaria surveillance in Zambia with multiple partners scaling and improving the system (PATH-MACEPA, Global Fund – CHAZ, USAID-PMI, Isdell Flowers).

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<https://akros.com/five-steps-to-wrap-technology-and-optimize-impact-community-malaria-surveillance-for-elimination-in-zambia/>

<https://www.nmec.org.zm/enhanced-surveillance>

<https://akros.com/malaria-prevention/community-surveillance>

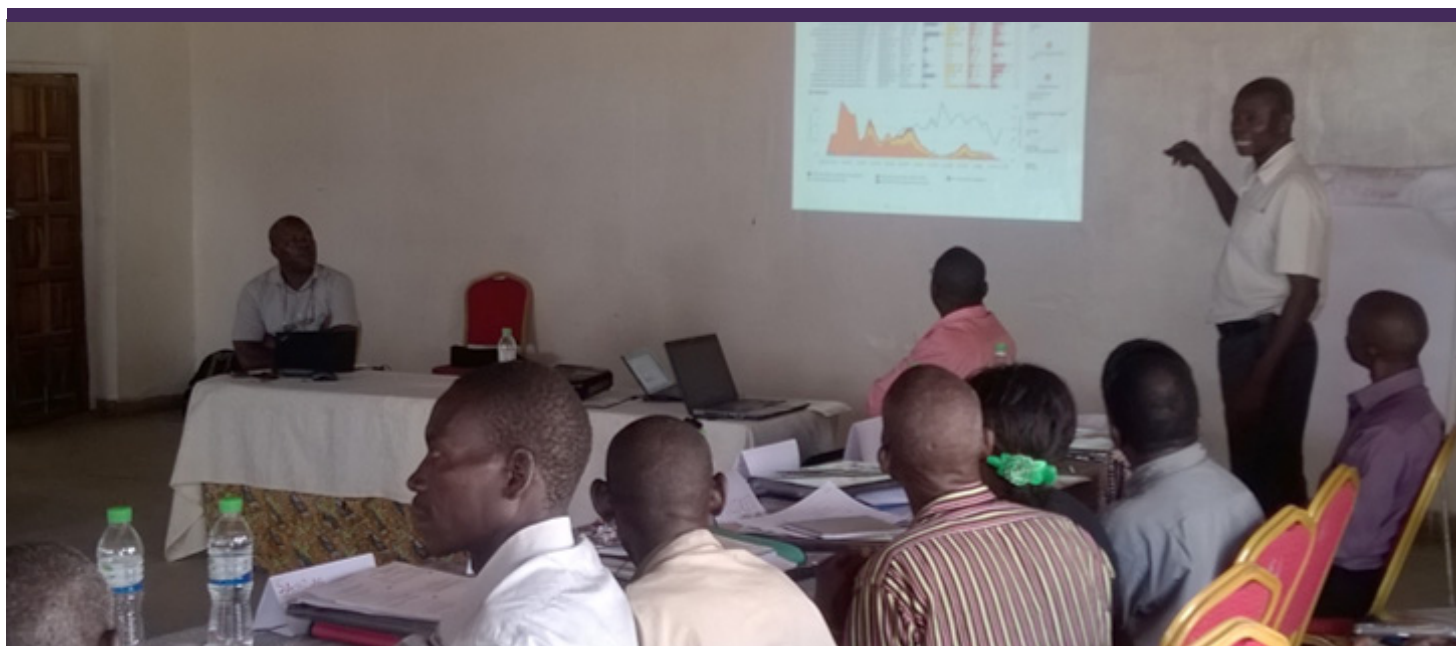
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Anna Winters awinters@akros.com

ZAMBIA, SENEGAL

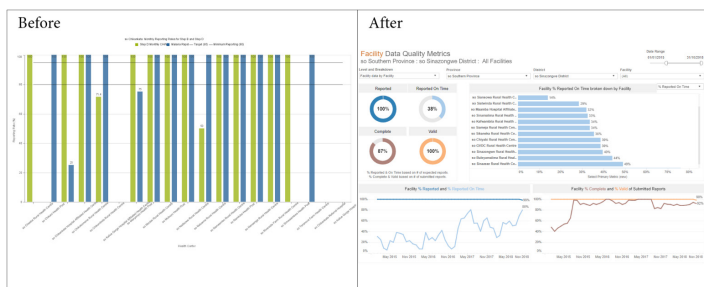
Visualize No Malaria (VNM) initiative enhances DHIS2 with dashboards co-developed by users



District health teams use VNM dashboards to provide feedback to facilities during district data review meetings.



Data sources include DHIS2 (~500 facilities & 3,000+ CHWs), spatial data, and timing and location of interventions including MDA, IRS data from mSpray, bednet distribution, and household-level reactive case detection.



DHIS2 dashboard showing single-month data reporting rates; interactive VNM dashboard showing 4 data quality attributes by facility and over time, plus aggregated by district.

In partnership with the Zambian Ministry of Health, PATH, and several tech companies since 2015 the VNM initiative has introduced enhanced data analytics and visualization tools to supplement DHIS2 modules in support of Zambia's efforts to eliminate malaria. We found that a co-development approach using several prototype visualizations and sharing with eventual end-users led to dashboards that decrease time required by district officers to monitor data reporting and improve decision-making by health managers.

Since 2017 weekly e-mail and text alerts are pushed to district and health facility staff to prompt submission of missing reports and correction of errors. To date, 12,000+ text messages have been sent to 239 facilities, leading to 30% decrease in missing reports in some locations. Increased confidence in data quality enabled leaders to make informed decisions about where to target interventions (e.g., IRS and MDA campaigns), deploy resources, and which facilities to include in data quality audits.

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<https://www.path.org/articles/it-helps-to-have-friends-in-tech/>

<https://www.path.org/visualize-no-malaria/>

[@MACEPA_tweets](#)

Jeff Bernson jbernson@path.org

Michael Hainsworth mhainsworth@path.org

OPERATING IN TWO REGIONS IN NIGERIA: AKWA IBOM STATE AND RIVERS STATE

Transition to Fionet malaria surveillance and program management tool increases accuracy and reliability of data

Africare and Exxon selected Fio to provide quality assured care, malaria surveillance, and enhanced case-based diagnosis and treatment services in Nigeria, reducing over-diagnosis, over-treatment, and improving data quality. Africare's existing malaria programming was the foundation for implementation, while Fio provided software, hardware and training. Target facilities used paper reporting alongside the digital Fionet system, allowing for evaluation of comparable health outcomes.

The program identified large differences in the positivity rate between manually entered, and automatically collected digital data. Data reliant on manual entry by health workers varied widely between facilities, whereas Fionet data showed consistent positivity rates, suggesting that Fionet's quality control measures prevent common data collection errors such as facility non-reporting, biased reporting of results, false positives, or non-entry by data clerks. Fio's data validity is insured using time stamps, user IDs, ongoing monitoring, and GPS, providing context for each disaggregated data point- this data can be integrated with existing databases such as DHIS2. Fionet's capability to improve data accuracy has been replicated in multiple deployments in Kenya, DRC, Ethiopia, Tanzania, and more.



Health worker preparing to use the Deki Reader. The Deki guides users, automatically collects patient health and user data, and uploads to the cloud.

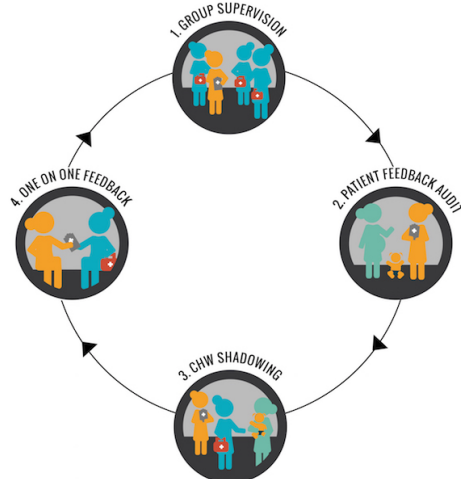
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<https://www.fio.com>

Info info@fio.com

MALI

Precision Supervision and Personalized Feedback Dashboards Improve CHW Performance in Mali



1. GROUP SUPERVISION

Supervisor leads a group discussion of the common challenges and potential solutions faced by CHWs, reviews and reinforces key competencies and skills, coordinates stock monitoring and resupply for each CHW, and organizes the month's individual monthly supervision sessions.

2. PATIENT FEEDBACK AUDIT

Supervisor conducts home visits without the CHW present to receive performance feedback on a monthly basis.

3. CHW SHADOWING

Once per month, supervisor directly observes as the CHW provides care during home visits.

4. ONE ON ONE FEEDBACK

Supervisor and CHW sit down together to set goals and identify areas of strength and improvement using personalized performance metrics and visual displays.

Researchers at the Malian Ministry of Health and several universities partnered with Muso and Medic Mobile to test a CHW Dashboard and Muso's 360° Supervision approach through a randomized trial. The study found that using personalized analytics during face-to-face supervision increased CHW's average number of house visits, without compromising the quality or timeliness of care. Quality and timeliness improved in intervention and control groups, suggesting that these improvements were due to supervision in general, rather than to dashboards in particular.

While these CHWs implement an integrated model of care called Proactive Community Case Management (ProCCM), the results are particularly relevant to malaria elimination, because rapidly treating malaria at home is an important opportunity to raise awareness and implement other malaria control strategies. While dozens of countries are deploying or improving community health programs, many of these national efforts are not providing high quality or frequent supervision. This study tested strategies that could help.

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<https://medicmobile.org/blog/new-study-precision-supervision-and-personalized-feedback-dashboards-improve-chw-performance-in-mali>

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