



# Increased Access and Use of Malaria and Other Health Program Data in Madagascar Has Improved Decision Making

## WHO ARE WE?

The PMI Measure Malaria (PMM) project is funded by the U.S. Agency for International Development's (USAID) President's Malaria Initiative (PMI). Its main objective is to support the strengthening of the routine health information system (RHIS) and malaria surveillance, monitoring, and evaluation (SME) in the 12 USAID-supported regions of Madagascar.

Building on the lessons learned from and successes of USAID's MEASURE Evaluation project in scaling up web-based health information models and approaches, the PMM project seeks to improve access to health information by strengthening the use of District Health Information Software, version 2 (DHIS2) through the integration of hospital, community, and private sector data, as well as the implementation of mobile and web-based scorecard and dashboard applications (apps) to enable health service managers and providers to access health information and make evidence-based decisions.

## Strengthening Access to Comprehensive Health System Information

Following the deployment of DHIS2 for the management of health data from basic health centers (CSB), PMM supported the integration of community, hospital, and private sector data to ensure that users have access to comprehensive health system data. Activities for improving data access include the:

- Review and updating of community and hospital data collection tools and reports;
- Configuration of hospital and community data reporting mechanisms in DHIS2;
- Training and retraining of DHIS2 users on data entry and data quality review; and
- Development of dashboards for the visualization and analysis of health data.

In collaboration with the Directorate of Studies, Planning, and Health Information Systems (DEPSI), PMM organizes sessions with national health programs, partners, and the private sector to review community, CSB, and hospital-level data collection and reporting tools.

PMM supported DEPSI to set the parameters of the private health facilities (PHFs) officially recognized by the Ministry of Public Health (MSANP) in DHIS2. According to their level of health service provision, facilities were classified as private health centers or private hospitals and received appropriate training in the use of data collection and management tools and DHIS2. Community, health center, hospital, and private sector data are currently reported in the national DHIS2.

## Health Data Reports Available in the National DHIS2

**100%** of health center reports

**77%** of community site reports

**59%** of hospital reports

**56%** of private health facility reports

## Building the Capacity of Users of DHIS2 to Access Health Information for Data Visualization

PMM worked with DEPSI to build the capacity of more than 104 data managers from the national health programs, implementing partners, and regional and district managers to access their data by using the DHIS2. These stakeholders include the Family Health Directorate (DSFA), the National Malaria Control Program (DLP), the Directorate of the Expanded Program on Immunization (DPEV), DEPSI, the Directorate of Basic Health Care (DSSB), and the Regional and District Hospitals Department (DHRD), as well as USAID's technical partners Accessible Continuum of Care and Essential Services (ACCES) and Improving Market Partnership and Access to Commodities Together (IMPACT). This access to data allowed trainees to determine and visualize the:

- Reporting completeness and timeliness status;
- Data consistency and inconsistency with the use of validation rules and data quality review;
- Program data trends progress with the use dashboards;
- Performance on service delivery and quality with the use of web and mobile malaria apps;
- Performance on data quality with the use of the data quality review app;
- Project target progress and achievement with the use of dashboards; and
- DSSB monitoring of key health district and community health indicators.

Access to health information allowed all these stakeholders to regularly review and monitor data reporting and consistency as well as the progress of their activities toward the achievement of their goals. With use of DHIS2 at all levels of the health system, health service managers and providers were able to identify problems in real time on data and service quality and regularly develop action plans to improve service delivery.

## Developing Mobile Malaria Performance Scorecard and Dashboard Applications for Health Facilities

Due to the lack of computer equipment and landline internet access, CSBs, which collect and report health data on paper-based management tools, did not have access to health information. Given the availability of tablets/smartphones and mobile internet coverage in health facilities, PMM developed mobile apps with malaria dashboards and scorecards linked to DHIS2. These applications allowed CSB managers to view real-time charts and graphs that track trends and the performance of their service offerings.

These mobile malaria apps were tested in the 42 CSBs of the Toliara II district. Scale up was initially implemented in the 36 CSBs of the districts of Brickaville, Toamasina II, and Vatomandry. The use of these mobile applications has allowed health facilities to access their health information with mobile internet connections. Once the information is uploaded, it can be used offline to identify problems and formulate solutions into action plans.

Evaluation of the use of these applications in health facilities shows that access to malaria information has reduced stock-outs of drugs and antimalarial products

and has enabled the implementation of activities that have led to a reduction in malaria cases.

The Ministry of Health has validated and adopted these mobile apps as national data visualization and utilization tools that all stakeholders have taken ownership of and are implementing.

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*A regional supervisor said: "Mobile apps allow me to see the malaria situation at the district level at any time."*

*A district-level supervisor said: "Mobile applications are easy to handle and do not require any particular skill."*

*A Ministry of Health partner said: "Apps make our work easier, when preparing presentations on the malaria situation, you just need to generate charts and performance maps from apps."*

*A health training manager said: "Using applications not only allows me to see the performance of the CSB, but also triangulates data between the RMA, DHIS2, and data displayed in the applications."*

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## Perceptions of Regional and District Management Teams on Mobile Malaria Applications

When asked about their use of the mobile malaria apps, a member of the district executive team responded by saying: “Mobile applications are easy to handle and do not require special skill.”

He also underlined the contribution of these mobile apps to the use of data by stating that “using applications not only allows us to see CSB performance, but also allows us to triangulate data between RMA, DHIS2, and those displayed in applications.”

## Partners’ Perceptions of Malaria Mobile Applications

A partner in the Ministry of Health said: “Apps make our work easier; when preparing presentations on the malaria situation, we can generate graphics and performance maps from the applications.”



From left: Quarterly data review meeting at the Toliara II district; from right: Training on the use of mobile malaria apps at the Toliara II district. Photos courtesy of PMI Measure Malaria.

## Results Observed with the Use of Mobile Applications in Health Facilities

While monitoring the implementation of the action plans and the review of the trends and performance scores of the mobile malaria apps, the basic health centers selected for the evaluation recorded the following results:

**5%**

of health centers saw a reduction of ACT stock-outs

**74%**

of health centers had a reduction in malaria cases

**5%**

of health centers saw an increase in fever cases tested with RDT

The CSBs’ organize monthly data reviews with the participation of community leaders and community health workers. In addition to monthly data reports and registers, CSBs also use the mobile malaria apps and action plans developed during the quarterly health district meeting. During quarterly meetings, participants analyze trends, performance scores, and progress made in the implementation of the action plan and propose solutions for strengthening or changing health service delivery strategies. In order to maximize the use of these mobile applications, the World Health Organization (WHO) has offered new tablets and an internet connection to the 42 CSBs of Toliara II.



## Developing Mobile Applications for Access to Maternal And Child Health (MCH) and Immunization Data at the Basic Health Center Level

With the successful deployment of the malaria mobile apps, the Ministry of Health requested support from the PMM project to develop mobile apps for maternal and child health (MCH) and immunization. PMM supported DEPSI in collaboration with the DPEV and the DFSA to lead the selection and parameterization of the indicators contained in DHIS2 based on the mobile malaria applications.



Training on the use of mobile apps in the Toliara II district. Photo courtesy of PMI Measure Malaria.

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