Use of Malaria Mobile Dashboard and Scorecard Applications at Health Facilities to Improve Malaria Prevention, Service Delivery, and Commodity Management

In Côte d'Ivoire and Madagascar

PMI U.S. PRESIDENT'S MALARIA INITIATIVE

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WHO ARE WE?

The U.S. President's Malaria Initiative (PMI) Measure Malaria (PMM) project is funded by the United States Agency for International Development (USAID). Its main objective is to support strengthening of the routine health information system and malaria surveillance, monitoring, and evaluation in the 20 USAID-supported districts in Côte d'Ivoire and 12 USAID-supported regions in Madagascar.

Building on the lessons learned and successes of USAID's MEASURE Evaluation project in scaling up web-based health information models and approaches, the PMM project seeks to support the improvement of malaria service delivery and commodity management by developing, implementing, and promoting the use of the innovative malaria mobile dashboard and scorecard applications to increase real-time data access at the health facility level and empower health providers to make evidence-based decisions.

Where Are the Malaria Mobile Applications Used?

The use of the malaria mobile applications in Côte d'Ivoire and Madagascar contributed to the improvement of malaria prevention, service delivery, and commodity management.

In Côte d'Ivoire, PMM selected 20 health facility managers from the districts of Adjame-Plateau-Attecoube, Anyama, Grand Bassam, and Port Bouet-Vridi to survey on the use of the mobile apps. In Madagascar, the 79 selected and trained health facility managers were from Brickaville, Tamatave II, Toliara II, and Vatomandry districts.

During district coordination and health facility meetings, supervisors and health service managers analyzed outcomes and developed action plans to monitor and review progress. The implementation of the action plan recommendations at the health facility empowered health facility managers to improve their services.
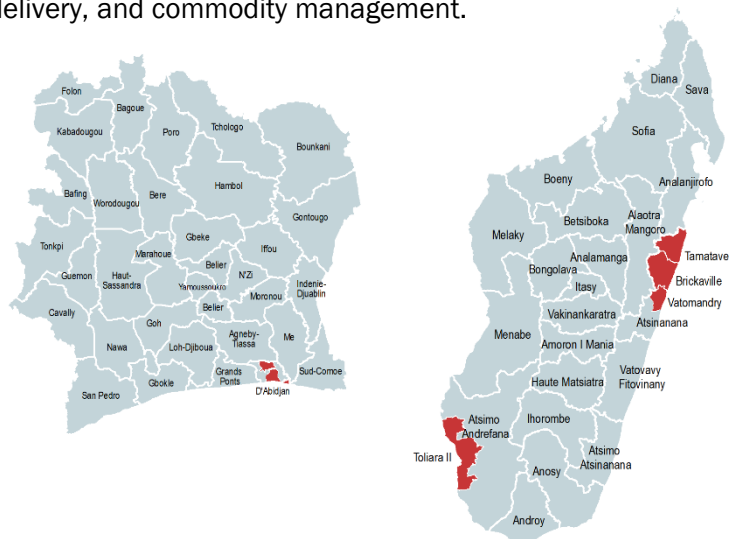
The Use of the Malaria Mobile Dashboard and Scorecard Applications Increased Health Facility Capacities to Use Information for Decision Making

With the goal of improving access to malaria information, the capacities of 79 health facilities in Madagascar and 20 health facilities in Côte d'Ivoire using the malaria mobile apps are as follows:

Côte d'Ivoire, from March 2022 to March 2023

87% of health facilities have tablets and smartphones to run the applications

100% of health facilities developed plans of action based on the malaria mobile apps

65% of health facilities monitored and updated the implementation of their plans of action

Madagascar, from August 2021 to March 2023

95% of health facilities have smartphones to run the applications

100% of health facilities developed plans of action based on the malaria mobile apps

92% of health facilities monitored and updated the implementation of their plans of action

Source: March 2023 Supervision Results

Increased Malaria Service Prevention

The supervision results on the use of malaria mobile applications revealed an increase in the number of health providers who said increasing community sensitization on improving environmental hygiene, the use of mosquito nets, and the systematic Intermittent Preventive Treatment (IPT) of pregnant women are the best methods to prevent malaria. In Madagascar, the number who agreed with these methods increased from 31% in November 2021 to 38% in March 2023, and in Cote d'Ivoire they increased from 47% March 2022 to 80% in March 2023.

The scorecard results of the 69 supervised health facilities in Madagascar showed an increase in the distribution of mosquito nets to pregnant women at the first antenatal care visit from 82% in November 2022 to 93% in March 2023, for children less than 1 year from 18% in August 2021 to 100% in March 2023, and for pregnant women receiving IPT3 from 27% in August 2021 to 63% in March 2023. In Cote d'Ivoire within the 20 health facilities supervised using malaria mobile apps, distribution of mosquito nets for pregnant women increased from 23% in March 2022 to 100% in March 2023 and for children less than 1 year from 21% in March 2022 to 34% in March 2023.

Cote d'Ivoire district data review meeting facilitated by PMM and NMCP using malaria mobile applications. Photo courtesy of PMI Measure Malaria.

Improvement of the Malaria Service Delivery

With use of the malaria mobile applications, 58% of the Madagascar and 45% of the Cote d'Ivoire health providers said they were able to monitor and act on the treatment and the Rapid Diagnosis Test (RDT) performed in their health facilities.

In Cote d'Ivoire, the results show an increase of use of the RDTs on the suspected cases of fever from 97% in March 2022 to 100% in March 2023. In Madagascar, 100% of the positive malaria cases tested with RDTs continued to receive the artemisinin-based combination therapy (ACT) treatment during the period of the use of malaria mobile applications. In Cote d'Ivoire, ACT treatment slightly increased from 95% in March 2022 to 96% in March 2023.

Madagascar district data review facilitated by PMM using malaria mobile applications. Photo courtesy of PMI Measure Malaria.

User Perceptions of the Malaria Mobile Applications in Côte d'Ivoire and Madagascar

Madagascar supervision using the malaria scorecard and dashboard. Photo courtesy of PMI Measure Malaria.

One health facility manager in Madagascar said, "Currently, with the results of the malaria mobile apps, we intensify our sensitization campaign to encourage population on the use of mosquito nets and to systematically provide preventive treatment."

The district supervisor for Brickaville in Cote d'Ivoire said, "With these applications, health facilities can view their service performances and discuss and adjust their strategies."

Progress on Malaria Commodity Management

The Cote d'Ivoire malaria mobile applications include only the use of commodities but not the stock management indicators. These indicators exist in the logistic database, but they are not yet in the District Health Information Software (DHIS2). When the health facility managers find a decrease in the distribution of mosquito nets and ACT, they use the logistic management database during the district quarterly meetings to review and monitor the level of the commodity stock. The supervision results showed that because of mobile malaria apps, 80% of health providers were able to monitor their stock and 70% of them were able order mosquito nets and malaria drugs in a timely manner.

In Madagascar, the supervisions results of the use of malaria mobile apps showed 81% of health providers in November 2021 and 75% of health providers in March 2023 could monitor and order their malaria mosquito nets and drugs on time. Through the use of the malaria mobile apps, the availability of mosquito nets increased from 0% in August 2021 to 100% in March 2023, while the availability of ACT was maintained at 100% from August 2021 to November 2023.

Improved Data Access and Use at the Health Facility

The supervision results in Madagascar showed an increase from 29% in November 2021 to 62% in March 2023 of health providers who said the malaria mobile applications encouraged them to verify the quality of the aggregated data and to use real-time access to their data in order to monitor the trends and visualize performance. With the results displayed on the mobile applications, the supervision interviews showed an increase from 29% in November 2021 to 39% in March 2023 of health providers were motivated to submit complete and timely data at the district level.

In Cote d'Ivoire, the results of the March 2023 supervision revealed that the use of the malaria mobile apps helped more than 80% of health providers obtain real-time access to data and achieve the capacity to submit timely and complete data at the district level.

Madagascar supervision using the malaria scorecard and dashboard. Photo courtesy of PMI Measure Malaria.

The Anyama health facility manager in Côte d'Ivoire said, "The use of the mobile malaria applications provided us information on the level of our commodity stock and the ability to quickly make an order in case of low stock."

The district supervisor of Vatomandry said, "The applications helped our health facility managers to have immediate access to their information to understand our performances and to take quick actions."

Another health facility managers stated, "With the plans of action developed from the results of the mobile malaria applications, we are able to monitor our performances on service prevention and delivery as well on stock management."

Challenges to the Use of Malaria Mobile Applications at the Facility Level

The scale up of the use of malaria mobile applications has been limited because of insufficient electronic devices (tablets, smartphones, etc.) and internet access. In both countries, the coverage of landline internet is very limited, but many rural and urban areas are connected to mobile data networks. To address these limitations, partners such as the WHO, the Global Fund, and USAID-funded projects are providing newer version of tablets to help health facilities use the malaria mobile apps.

The mobile applications are specific to malaria, however, users would prefer to use the same tools to access other health indicators to better understand the overall health facility performance. Funding the development of an integrated health service app will help facilities to review all health indicators.

Côte d'Ivoire supervision using the malaria scorecard and dashboard. Photo courtesy of PMI Measure Malaria.

Lessons Learned and Malaria Mobile App Use Sustainability

An increase in the accountability of health facility providers is needed to implement the plan of action recommendations to address low performance in malaria prevention, service delivery, and commodity management with the use of malaria mobile applications. In Madagascar, an increase from 31% in November 2022 to 48% in March 2023 of health facilities have implemented more than 75% of the activities in their plans of action. In Cote d'Ivoire, the percentage of health facilities that have implemented more than 75% of the activities of their plans of action, increased from 25% in November 2022 to 70% in March 2023. With the use of the malaria mobile applications, health facilities have immediate access to their data and can use the results to address low performance.

Attecoube health facility manager in Côte d'Ivoire said, "The plans of action developed based on the mobile apps results are critical to the changes in our performances."

The district supervisor of Toliara II in Madagascar said, "The real-time access to our data has significantly helped us to periodically review our performances and find solutions to address our issues in order to improve our malaria services."

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