



MCSP Madagascar Technical Brief— Digital Health

Using Technologies to Build Capacity, Strengthen Data for Decision-Making, and Improve Quality of Care

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Overview of the Project

The United States Agency for International Development (USAID)-supported Maternal and Child Survival Program (MCSP) aims to support the Ministry of Health (MOH) in accelerating the reduction of maternal and newborn mortality.

MCSP’s interventions aligned with the Roadmap to Accelerate the Reduction of Maternal and Neonatal Mortality, especially Strategy 3: “Providing essential integrated and quality services around pregnancy and childbirth focusing on adolescent and youth health.”

The program intervened in the 16 USAID priority regions to:

1. Provide technical support to the MOH at the national level in the areas of maternal and newborn health (MNH), immunization, and family planning (FP).
2. Increase access to and improve the quality of MNH and immunization services in the priority regions.
3. Strengthen providers’ capacity to offer long-term FP methods.
4. Improve prevention and treatment of malaria during pregnancy.
5. Strengthen pre-service training institutions’ capacity to educate midwives according to international standards and competencies.
6. Initiate a process to increase the number of nonspecialist doctors capable of providing essential surgery services.



Photo by Karen Kasmauski, Jhpiego.

Context

According to the 2016 *Performance Evaluation Report of the Health Information System and Integrated Disease Surveillance and Response*, the current reporting system, via which data is submitted only to the central level of the Ministry of Health (MOH) without real-time feedback to facilities, does not allow providers and district managers to systematically monitor facilities’ data and make adequate decisions to improve their performances.

To complement its capacity-building and quality improvement efforts, MCSP supported the MOH to develop the use of data for decision-making at all levels. Emphasis has been placed on

strengthening the collection and use of data by regional, district, and facility health workers to guide decision-making to improve MNH services in supported facilities, while proposing appropriate technological solutions to empower providers to use data to improve the quality of health care staff services.

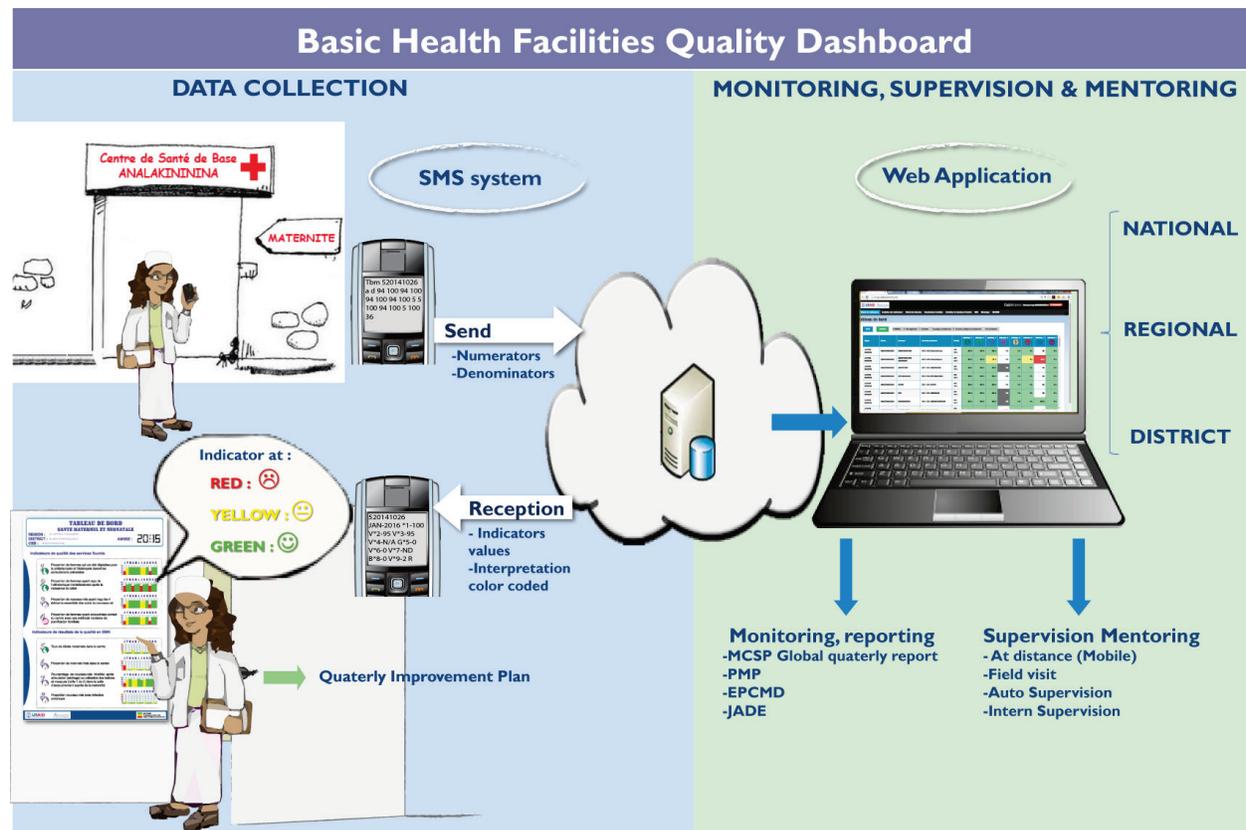
Interventions and Approach

The use of technology focused on strengthening the health system and improving the quality of service providers. MCSP optimized the use of digital health approaches through the integration of electronic and technological tools (e.g., computers, Internet, specific software) and mobile communication tools (mobile phones, smartphones, and tablets).

Supporting Data Use for Decision-Making via Simple Technologies

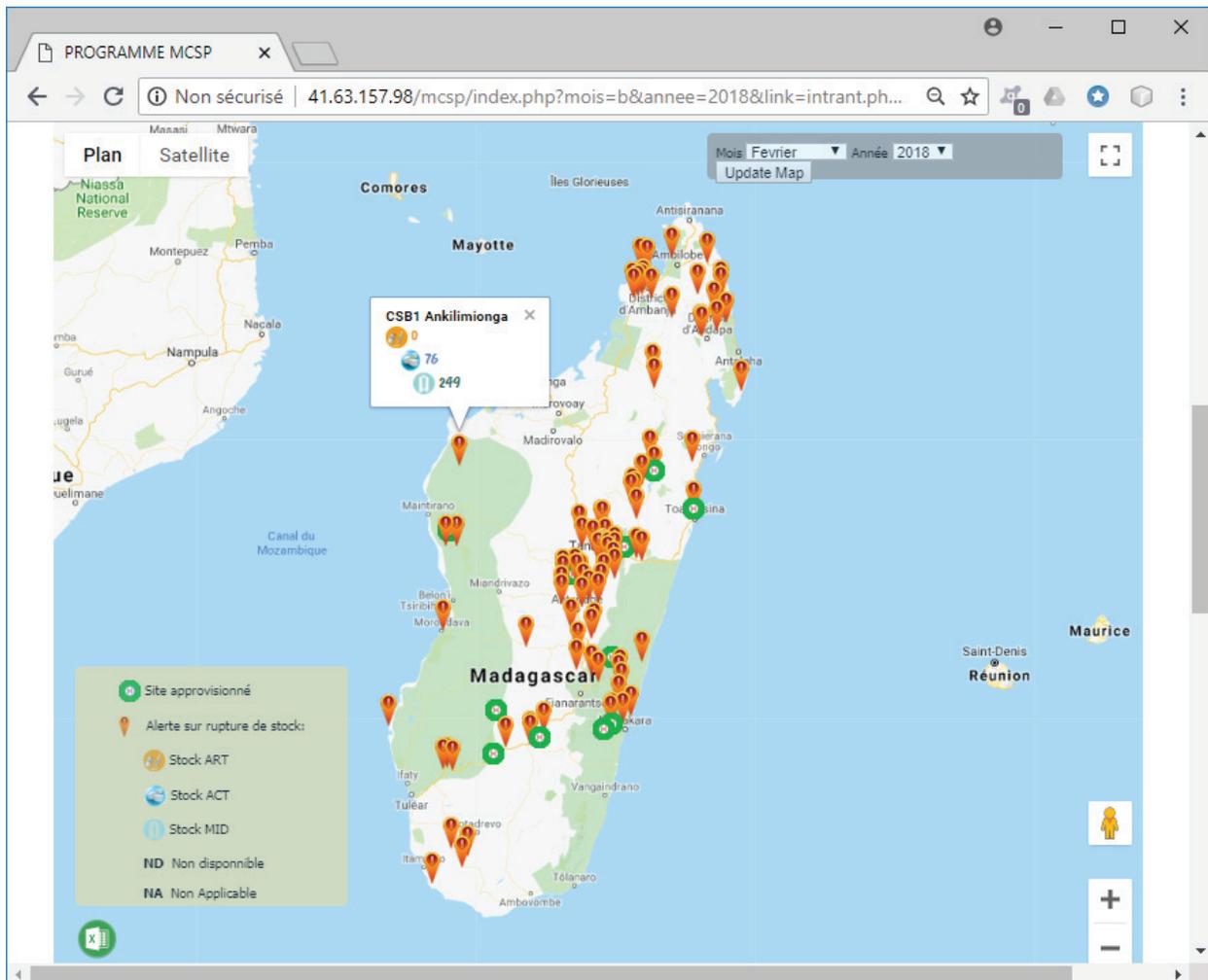
MCSP introduced a facility data dashboard to monitor eight quality of care indicators in primary health care centers (*centres de santé de base*, or CSBs, the lowest-level health facilities in Madagascar) and district hospitals in support of quality improvement efforts. Data were extracted from existing registers and reporting forms. Health providers at each facility were trained to use standard mobile phones to transmit data from the facility to a Web-based platform. The results were forwarded via short message service (SMS) back to each facility with a color assignment indicating the overall performance of each indicator result (green: standard is met, yellow: improvements can be made, red: alert/corrective action is needed). Health care providers displayed indicator results over time in each facility on a large laminated wall poster to encourage regular analysis of data for decision-making and accountability. Dashboard data, disaggregated by facility, could also be accessed by regional and district managers on a website, enabling them to monitor indicators for each health facility, guide management decisions, and support individual facilities.

Figure 1. Dashboard System Used by Health Facilities for Monitoring Key Indicators and a Web Version for Management Staff



Frequent stock-outs of malaria commodities affected facilities' performance for intermittent preventive treatment of malaria in pregnancy. Thus, MCSP capitalized upon the same SMS system to support and improve management of malaria commodities. Data on stock status were sent by SMS by health providers, feeding into a central system generating a Web mapping of stock-out of malaria commodities. This allowed the MOH and key stakeholders in the supply chain to make decisions for resupply or stock redeployment.

Figure 2. Screenshot of Web Mapping Showing Stock Out of Malaria Commodities Across Supported Regions

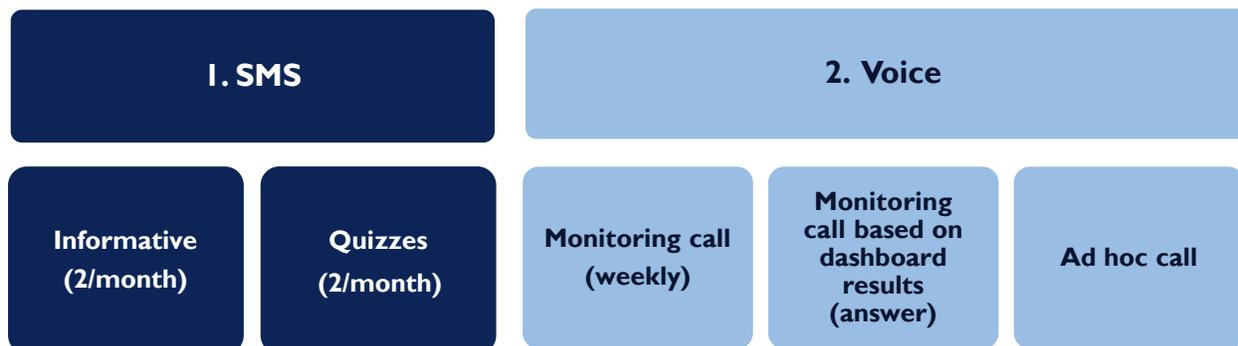


Use of Technology to Support Capacity-Building: Mobile Mentoring

To support provider capacity-building efforts and complement onsite supervision visits, MCSP introduced a mobile mentoring (mMentoring) system based on voice calls and informative SMS messages and quizzes. The mMentoring system aimed to reinforce the skills and knowledge given to providers via MCSP's integrated MNH training and to support practice of acquired skills, resulting in better quality of care in the following ways:

- Regular monitoring calls were conducted by mentors to support providers and included reviews of the quality dashboard for each facility.
- Informative SMS messages were sent to disseminate key educational messages, reminders, and encouragement to use training materials.
- SMS quizzes were sent to providers to evaluate retention of knowledge and encourage the use of learning tools.

mMentoring/Supervision



Results

Increased Use of Data for Decision-Making by Providers

All 822 supported facilities were trained on the use of the dashboard to track key indicators for decision-making. Over the life of project, 69% of facilities transmitted monthly data by SMS on time.

About 83% of facilities fully used the dashboard to monitor and improve the quality of MNH services, and develop a recovery action plan based on dashboard results to improve their performance.

Improved Supportive Supervision

All regional and district teams in 16 interventions regions were also trained on the use of the dashboard, which was available on a Web platform for district and regional teams, and had a monthly average of 196 visits. The availability of data via the Web platform allowed district and regional managers to monitor the performance of CSBs within their catchment areas and to discuss solutions with CSB providers during supervision visits and quarterly review meetings.

Findings from supportive supervision implementation show that each supervision included a review of dashboard data and indicators, which both supervisors and supervisees considered a helpful practice.

The mMentoring system linked 26 mentors in eight regions to 370 trained providers. While providers preferred onsite supervision to mMentoring, describing onsite supervision as “better and more effective,” they suggested that telephone calls should be conducted once per week, which demonstrates that mMentoring is helpful to providers.

Improved Procurement System of Malaria Commodities

Providers sent monthly data via SMS, which included stock levels of malaria commodities, enabling them to track stock-outs of these via Web-based mapping. This served as an alert for partners involved in malaria control, and allowed the MOPH to react more quickly to stock-outs and improve forecasting. As a result, more than 50% of the centers were replenished with antiretroviral therapy (injectable artesunate) and artemisinin-based combination therapy following the establishment of the stock-out warning system.

Figure 3. Use of dashboard



Improved Quality of Care

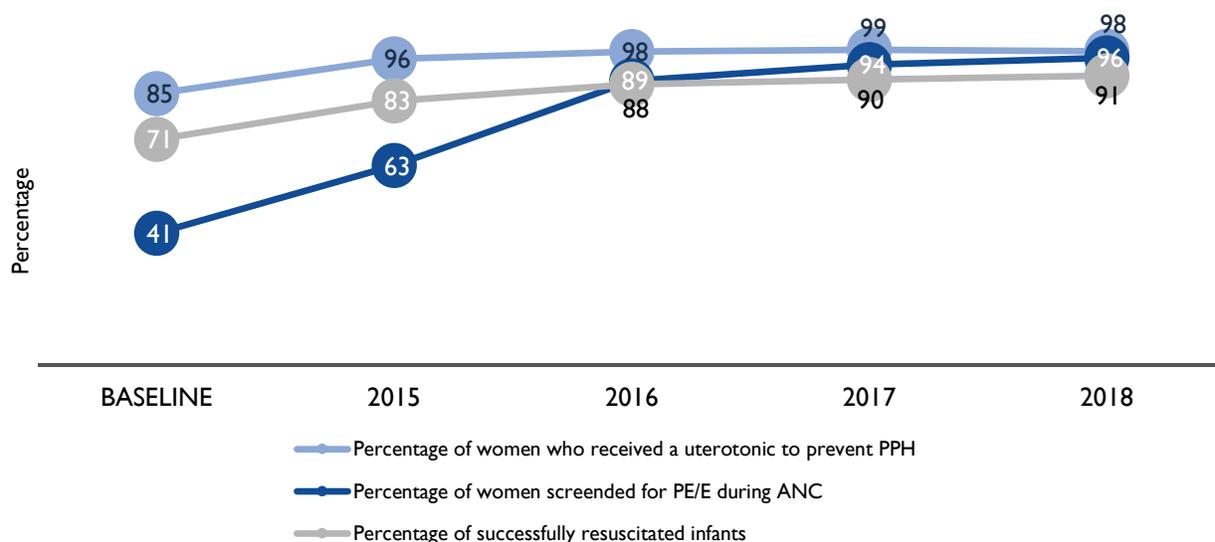
The implementation of digital tools (quality indicator dashboard and mMentoring) contributed to improved quality of care at targeted health facilities. Figure 4 below demonstrates how the monitoring of key indicators via the dashboard, and the subsequent recovery action plan, contributed to improvements in the quality of care at targeted health facilities.

The percentage of women screened for pre-eclampsia and eclampsia (PE/E) via routine blood pressure measurement during antenatal care (ANC) visits increased from 41% at initial assessment in 2015 to 96% (187,226/194,332) in 2018.

The percentage of women who received a uterotonic immediately after delivery to prevent postpartum hemorrhage (PPH) increased from 85% to 98% (36,470/37,055).

The percentage of babies who were not breathing or crying at birth but were successfully resuscitated by stimulation or with bag and mask use increased from 71% to 91% (2,273/2,504).

Figure 4. Contribution of Dashboard Use to Improve MCSP Interventions Quality



By word of mouth, the quality of service at the Anjiamangirana CSB2 in Sofia Region is spreading among the population. Many women come for ANC, childbirth, or FP. Dr. Eddy, head of the CSB2, says that after the training supported by MCSP and using the dashboard, she started to see her work from a different angle, and she undertook changes in this direction. She reorganized her work, applying acquired skills.



Photo by Zo Harifetra, MCSP.

"We must not always wait for support to improve the quality of our services."

- Dr. Eddy

"After seeing the proportion of umbilical infection at 40% in December 2015, with the color red, I decided to reorganize the ward and keep the mother and newborn for 48 hours after birth for better follow-up. And a clear improvement was found the following months showing always green."

- Noëline Ramananjahary



Photo by Benjamin Fanomezantsoanahary, MCSP.

Lessons Learned

- The introduction of data dashboard with quality indicators at health facilities addressed a need for service providers to visualize, monitor, improve their performance, and identify barriers to providing quality services. From the early stages of implementation, the dashboard generated high interest among regional and district teams, who saw it as a real-time monitoring and management tool. Consequently, data dashboards should be scaled up to facilitate data visualization in all facilities and encourage decision-making based on data.
- SMS-facilitated immediate feedback and visualization of facility performance influence the overall positive rate of SMS data response by providers. Depending on the region and district, the SMS response rate varies between 40% and 80%. Facility workers report that the color dashboard prompts them to take immediate action when they see an indicator result flagged as yellow or red.
- Engagement of in-charge providers and managers, and the commitment of the district and regional management teams supporting them, are essential for supporting and sustaining reporting of results and improvement efforts based on results.
- Despite the availability of three toll-free numbers of three main cellular operators, telephone network coverage in some localities influenced data transmission for the dashboard; many facilities were not able to transmit data. A good mapping of network coverage and collaboration with telephone and Internet operators to improve network coverage is essential. mMentoring can be explored further, especially to support hard-to-reach facilities and follow up on persistent issues more regularly.
- Spatial analysis and geographic information systems, coupled with real-time data transmission via SMS, will facilitate visualization for good decision-making of input stock-outs and facilitate coordination of interventions.

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