CASE STUDY

ACCESS Madagascar

Improving Health Outcomes in Remote and Low Connectivity Settings with CommCare

OVERVIEW

The Accessible Continuum of Care and Essential Services Sustained (ACCESS) program is a five-year project funded by USAID, led by Management Sciences for Health (MSH) and dedicated to strengthening Madagascar's health system.

The goal of the project is to accelerate sustainable health impacts for the Malagasy population through three primary objectives:

- Quality health services are sustainably available and accessible to all Malagasy communities in the program's target regions
- Health systems function effectively to support quality service delivery
- The Malagasy people sustainably adopt health behaviors and social norms[1]

Since 2016, the program has been using CommCare in order to improve the quality of services by adapting the Madagascar Ministry of Public Health (MOPH) paper-based forms to facilitate patient support and decision making, as well as provide job aids, counseling and disease classification tools.

SUMMARY

LOCATION

Madagascar

SECTOR

Maternal & Child Healthcare, Family Planning

PARTNERS

Ministry of Public Health of Madagascar, Management Sciences for Health (MSH), USAID, ACOG Foundation, Action Socio-sanitaire Organisation Secours, American Academy of Pediatrics, American College of Nurse-Midwives, Catholic Relief Services, Johns Hopkins Center for Communication Programs, Population Services International

OTHER STAKEHOLDERS

Pivot, ONN (Office of National Nutrition) PARN, World Bank

NUMBER OF USERS

Goal- 5000 users, Current phase- 3500 users (out of 18,000 Community Health Volunteers nationally)

FEATURES

Case Management, Mobile Reporting, DHIS2 Integration, SMS Functionality, Supply Management, On-Premise self-hosted, E-Learning

[1] ACCESS Program : Project fact sheet

PROBLEM

The maternal mortality ratio in Madagascar is 335 per 100,000 live births and the child mortality rate is 51 deaths among children under 5 per 1,000 live births.[2]

The African region carries a disproportionately high percentage of global malaria cases, and those most at risk of developing severe symptoms are infants, children under 5, and pregnant women. In 2019, children under 5 accounted for approximately 67% of all deaths caused by malaria.[3] It was also noted that 30% of Community Health Volunteers (CHVs) were not reaching the minimum requirements for family planning and Integrated management of childhood illness (IMCI).[4]

With a population of 28 million distributed in 22 regions and an internet penetration of 19% (as of February 2021), it was crucial to have a system in place that not only allows CHVs to use their application offline, but also to enable CHVs with no connectivity to submit their indicators in a timely manner to allow ACCESS and the MOPH to have access to the data.

SOLUTION

The USAID-funded ACCESS Program, led by Management Sciences for Health and in partnership with Dimagi, is supporting the Madagascar Ministry of Public Health (MOPH) to scale up the use of the CommCare mobile health application to CHVs. While the application was initially piloted to improve the quality of data reported and the quality of care provided at the community level in Madagascar in 2016, it has since been expanded to include additional functionality.
To support child care, the CHV is able to register a child and ensure follow up as well as register a consultation in the device. The details entered during the follow up allow the CHV to classify the child, initiate referrals to the health center, and provide recommendations, all thanks to the job aids in the application.

In order to address the connectivity challenges faced by CHVs, an SMS gateway was configured. This allows CHVs with no internet to use their application, collect data and have their indicators automatically calculated based on the different follow up and activities they conducted throughout the month. One priority for the MOPH is to receive key indicators collected by the field worker in a timely manner. Data is collected through the CommCare application, then aggregated by location defined with the MOPH before being submitted on a monthly basis to their DHIS2 instance for data analysis.

About 1000 users are trained each year, and the application is updated annually with a new version integrating feedback from previous users. The goal of the program is to reach 5000 users by August 2023.

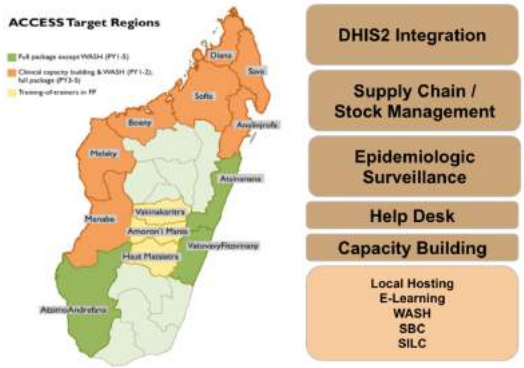
2 https://www.usaid.gov/sites/default/files/documents/MadagascarImpactBrief_04-22-21.pdf
3 https://www.who.int/news-room/fact-sheets/detail/malaria
4 Abstract: USAID Access Commcare Malaria

APP OVERVIEW

The application was originally built to support the continuum of care for women in the reproductive age seeking family planning services, pregnant women, and children from birth to 5 years old. The first versions of the application contained several modules including Maternal and child health, referrals and home visits, monthly reports and stock management. As the program expanded, the flexibility of CommCare allowed the extension of the application to include content areas such as surveillance, and respond quickly to emergency crises with the Plague and COVID-19 modules.

From a user point of view, the application has been adapted to provide job aids, reporting capabilities and decision making support for the different health services provided by the users at the community level including mainly CHVs and supervisor nurses at the health facility (CSB - Centre de Santé de Base).

Workflow overview: Design for low connectivity settings



Network Operators Telma and Orange internet coverage

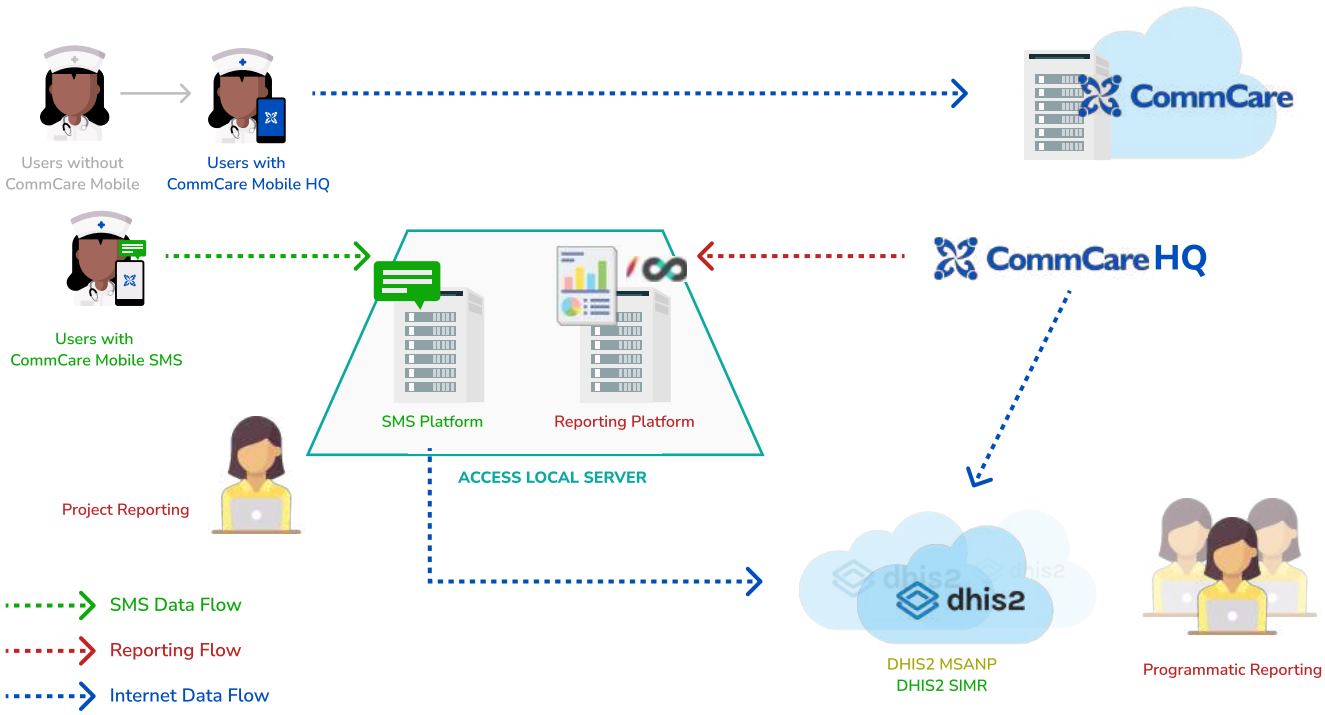
One of the main challenges in Madagascar for a successful deployment at scale of such an application is access to the internet for users at the community level especially in rural areas with low coverage. The current estimation is that only 35% of the 18,000 CHVs in the country have access to internet coverage.

To resolve this issue we designed the application to take into account three (3) main categories of users who can access the application:

- Users with CommCare Mobile and internet access (sending data through the internet)
- Users with CommCare Mobile without internet access, who are able to use the application on a daily basis and can submit their indicators on a monthly basis using the SMS platform (sending data through SMS)
- Users without CommCare Mobile, who are able to submit their data using a colleague's device

The app was designed so that all users have the same experience using the app except how they synchronize the data.

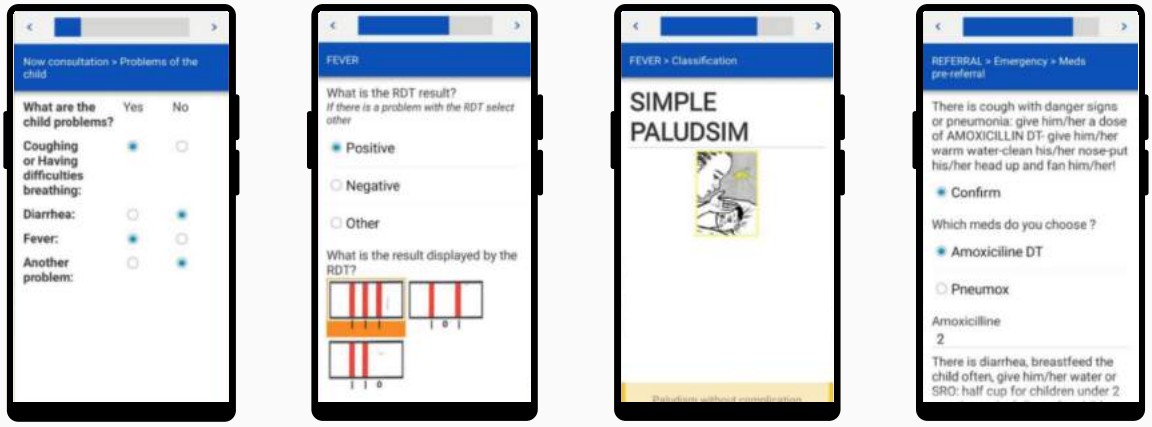
Upstream the data is later integrated to the MOPH DHIS2 instance for programmatic reporting both from CommCare servers and the SMS platform built for that purpose.



MODULE HIGHLIGHT

ICCM Child Care module: A job aid for CHVs

In the child care module, the CHV has the ability to enter the different problems noted during the child consultation. In the instance pictured below, it is noted that the child has a fever and coughing or difficulties breathing. It automatically prompts the CHV to perform a Rapid Diagnostic Test (RDT) and enter the results in the application. Based on the information collected during the consultation, job aids are displayed on the screen to advise the CHV.



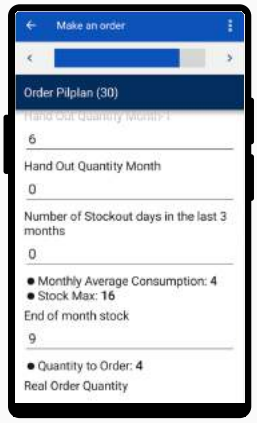
Stock Supply

Medication availability and stock management is another important aspect of the program. To allow CHVs to keep track of their stock and manage it properly, each medication is referenced in the application and stock is updated accordingly (if it is given for example to a beneficiary or received from the health center).

When making an order, the information below are shared:

- Monthly Average Consumption (Average consumption based on the last 3 months)
- Stock max
- The recommended quantity to order based on the information collected in the application.

A unique identifier is created for each order. The order is sent by SMS to the health center. A supervision application is also available at the health center, where the supervisor can copy the SMS into the stock form and the order is automatically filled with the order from the CHV.



FEATURE HIGHLIGHT

SMS Gateway

In order to support users without access to an internet connection, we configured an SMS Gateway on-premise at ACCESS. The goal is to ensure that the data collected by CHVs in remote areas is available for analysis by the ACCESS team and the MOPH. CHVs are using the application to perform the registration, follow up and consultation of their beneficiaries. In the Monthly Activity Report module, multiple SMS are formatted and sent to the SMS Gateway. Each indicator is at a specific position in the SMS and each SMS is identified by a prefix to allow the SMS Gateway to decipher the messages.

Once the data is received in the SMS Gateway, the messages are deciphered and based on the position of each indicator, the data is mapped with the data elements of the DHIS2 server.

DHIS2 Integration

Sending the monthly indicators to the Ministry of Health's Information System Studies and Planning Department's (DEPSI) DHIS2 server was a strong requirement from the MOPH for the sustainability of the application once the project is over. The indicators are submitted on a monthly basis to the DEPSI DHIS2 server. Part of them are automatically calculated in the application from the child, woman and surveillance modules of the application. A total of 779 indicators are submitted to the DHIS2 server which allows the MOPH to analyze the data collected at the l level .

As of April 2022, data are aggregated and submitted for 774 locations.

IMPLEMENTATION

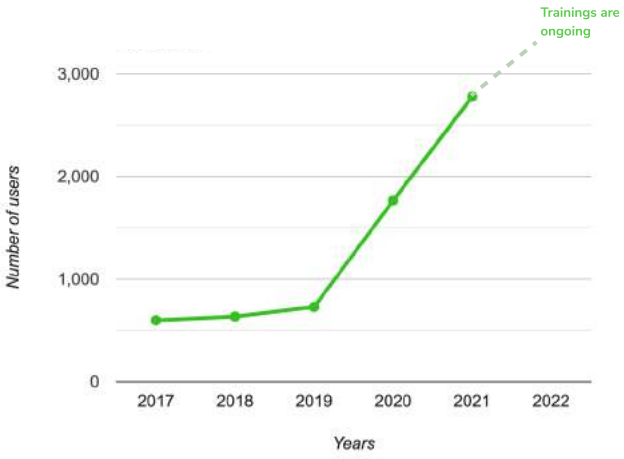
The CommCare application has scaled up since it was initially launched in 2016. It began with less than 400 users and 300 indicators integrated to DHIS2 which amounted to 16000 forms submitted monthly.

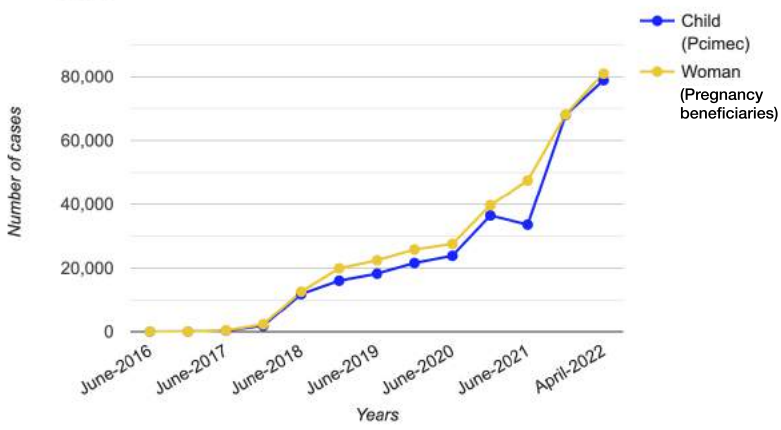
During the 2nd phase of the project which started in 2018, the application went through a few changes notably with the integration of the new Monthly Activity Report that was introduced by the MOPH in 2019 which resulted in 779 indicators. Over the past 3 years, the application has been launched to over 3,500 users and more than 700 locations.

Each year, the application is updated with either feedback from the CHVs or to integrate new workflow or functionalities shared by ACCESS and the MOPH. CommCare now sends reminders so that CHVs can receive alerts to complete routine visits and follow up.
In order to ensure sustainability at the end of the project, several actions have been taken in the past year. Capacity building on topics such as application building, reporting and data management, DHIS2 integration, local server on-premise hosting and user management is ongoing with dedicated resources from the MOPH and external consultants identified by ACCESS.

Due to the excellent traction of the CommCare digital solution in Madagascar, the collaboration across stakeholders continues. The CommCare application is already being used as the staple application by two other partners: Pivot and ONN PARN. Pivot collaborated with Dimagi in 2020 to adapt the ACCESS application by adding Malnutrition, community based tuberculosis care and more detailed IMCI modules and workflows. ONN PARN's goal is also to harmonize and align with the ACCESS application by improving their data collection in order to increase the utilization of an evidence-based package of nutrition interventions and improve key nutrition behaviors known to reduce stunting in targeted regions of Madagascar.

A unified approach and collaboration between the different partners is more than crucial in order to have one single application for all partners that will be ultimately managed by the MOPH.





IMPACT

Community Surveillance to Prevent Epidemics

One of the application's modules is for community surveillance, which makes it possible to track and report on 16 disease-related symptoms and 3 animal health-related suspicious events that cause particular health risks to the population and have epidemic potential. Alerts are then sent to higher levels of the health system via the internet or SMS. Thus, the application helps to quickly detect and report suspicious cases, triggering swift public health response measures and preventing localized cases from turning into a national epidemic.[5]

Through the data shared by CHVs using this application, the MOPH was able to detect suspicious cases of Rift Valley Fever (RVF) in the Atsimo Andrefana region in March 2021. RVF is a zoonotic disease that can easily be transmitted between animals and humans, and constitutes an essential area of intervention for the One Health approach.[6]

Better Testing and Treatment of Malaria

From October 2020 to September 2021, ACCESS conducted a study in order to check the performance of the CHVs using CommCare in the care treatment of uncomplicated malaria in children under 5. Two key indicators were being tracked:

- % of children under 5 with fever and tested for Malaria
- % of children under 5 with Malaria and receiving treatment

The results showed that CHVs using CommCare would test 96% of the children under 5 with Malaria while the rest of the CHVs would test 78% of the same sample of population.

When it came to giving treatment to the children under 5 with Malaria, 85% of them would receive the treatment by CHVs using CommCare compared to 79% for the rest of the CHVs.[7]

It was noted that the CHVs using CommCare showed better adherence to the protocol when it came to treatment of uncomplicated malaria in children under 5. The two indicators have been constantly improving.

[5] Abstract: Commcare mobile application helps prevent outbreak of Rift Valley Fever in Madagascar
[6] Abstract: Commcare mobile application helps prevent outbreak of Rift Valley Fever in Madagascar
[7] Abstract: USAID Access Commcare Malaria

GOVERNANCE AND SUSTAINABILITY

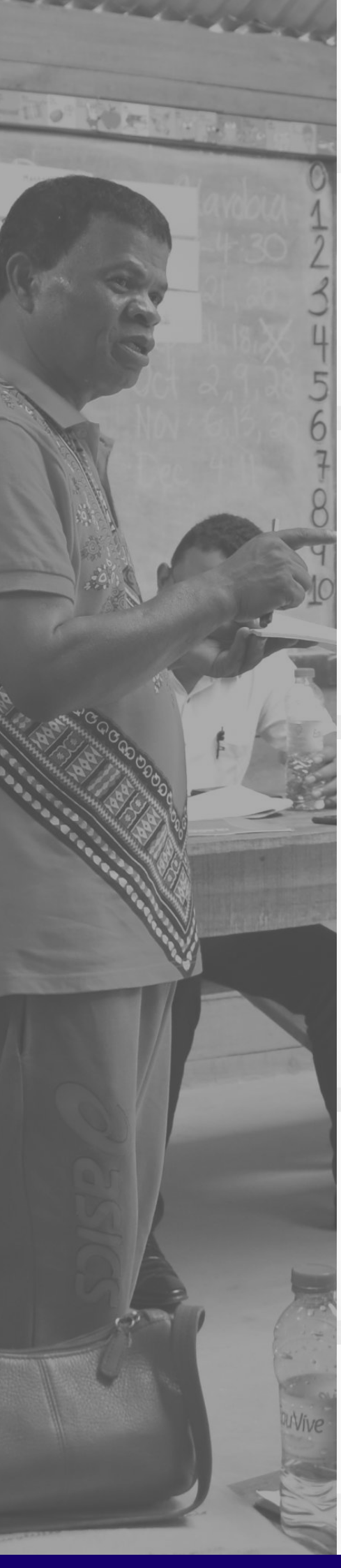
One key activity identified at the inception of the program was the transition of the digital solution to the MOPH. In order to allow a smooth transfer of the system at the end of the 5 year project (August 2023), different actions are currently being taken. Success resides mainly in an active involvement and collaboration with the MOPH and the different partners in Madagascar and the key activities below have been identified :

- Build a strong team with the MOPH and ensure knowledge building with different sessions of capacity building. Those have been started since 2021 and are presently ongoing with the MOPH and partners. Topics range from application building (in order for them to maintain and make changes in the system in the future) to specific technical sessions on the migration of Commcare to their local server.

- Collaborate with the MOPH to fundraise and find financial resources to sustain key activities. In 2018 that collaboration helped secure funding from the World Bank to finance the system during the period between the two USAID programs. In 2022, we hope to be able to secure more resources to guarantee a successful transition to the MOPH with the new Dimagi/ Global Fund partnership.

- Build a strategic plan around a unified system. The main objective is to guarantee that a core application is shared by the partners (ACCESS, Pivot and ONN). Changes and maintenance of the CommCare application will be centralized at the MOPH level and will lay the foundation for a consolidated DHIS2 integration and reporting for all partners.

The following anecdote summarizes why sustaining this work is so important. During the 9 month hiatus between the end of the Mikolo program (predecessor of ACCESS) and the beginning of ACCESS, one CHV whose phone was not working anymore and who wasn't able to get support from the MOPH, decided to take on her own means to buy a new phone and travel to the capital Antananarivo to get CommCare reinstalled. When asked why she took her time, resources and energy to do it, she answered that on top of how useful the application was, it was giving her credibility in the community and ability to support more people. While Dimagi is proud of the continued collaboration with the MOPH of Madagascar and MSH since 2016, we are even prouder of the positive impact we're creating for communities across Madagascar.



WHAT THEY HAVE TO SAY

“There are countless benefits to using CommCare, but what stood out to me the most was that it makes it easier for CHW to complete their activities and speeds up reporting data and improves completeness, promptness as well as accuracy.”

Anicet Lemarazafy
SOFWARE ENGINEER IT SYSTEM DEPARTMENT - MOH

“Although we still use paper registers today, the work has become lighter since using CommCare. During home visits during sensitization, I just go with my smartphone.

Having a nice smartphone is a real pleasure for me, especially since I can communicate with family and colleagues, with additional call credits.”

Radimbiarimanana Migène
CHW, ATSINANANA, VATOMANDRY, ILAKA EST

"COMMCARE platform for CHWs and Supervisors is a first in our Region... Indeed, it will improve our performance in community health in terms of quality of service offered by CHWs and reporting (timeliness and completeness). In addition, the performance of the supervisors will be improved by the fact that the supervisor will have the opportunity to monitor the activities of the CHWs in a timely manner. I am optimistic about the implementation on site by the CHWs and CSBs of COMMCARE because it is clear that they are very interested and impressed during the initial training."

Dr Rakotoarivony Falihery
HEAD OF MEDICAL AND HEALTH SERVICE, SAVA REGION

“CommCare assists the Ministry in the early detection and monitoring of outbreaks at the community level. Reports of cases of disease and epidemics at the community level reach us quickly.”

Voahangimalala Hanitra
MOH

"CommCare! Grassroots community saves lives through high tech!"

Dr Serge Raharison
CHIEF OF PARTY, USAID ACCESS PROGRAM

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