Country case study
The Gambia: Using mobile technology for Seasonal Malaria Chemoprevention (SMC) campaigns

Since 2015, Catholic Relief Services (CRS) in collaboration with The Gambia's National Malaria Control Program (NMCP) has carried out annual Seasonal Malaria Chemoprevention (SMC) campaigns using mobile technology to improve timeliness and accuracy of data. Data collectors are equipped with Android devices equipped with CommCare software that can integrate data with DHIS2. The Gambia adapted its experience from the 2014 mass LLIN distribution campaign, which used a similar technology.

Each year before the start of the rainy season, The Gambia trains 300 distributors and 58 supervisors to reach approximately 67,175 children each month, reaching on average 82 per cent of the target population in the 2019 campaign. The Gambia uses approximately 150 teams through a door-to-door distribution method working for five days per month/cycle. Each team consists one Village Health Worker (VHW) or distributor who administers the SMC drugs and one data collector who records data using an Android device equipped with CommCare software.

In The Gambia, the data collection through the Android devices is a three-step process:

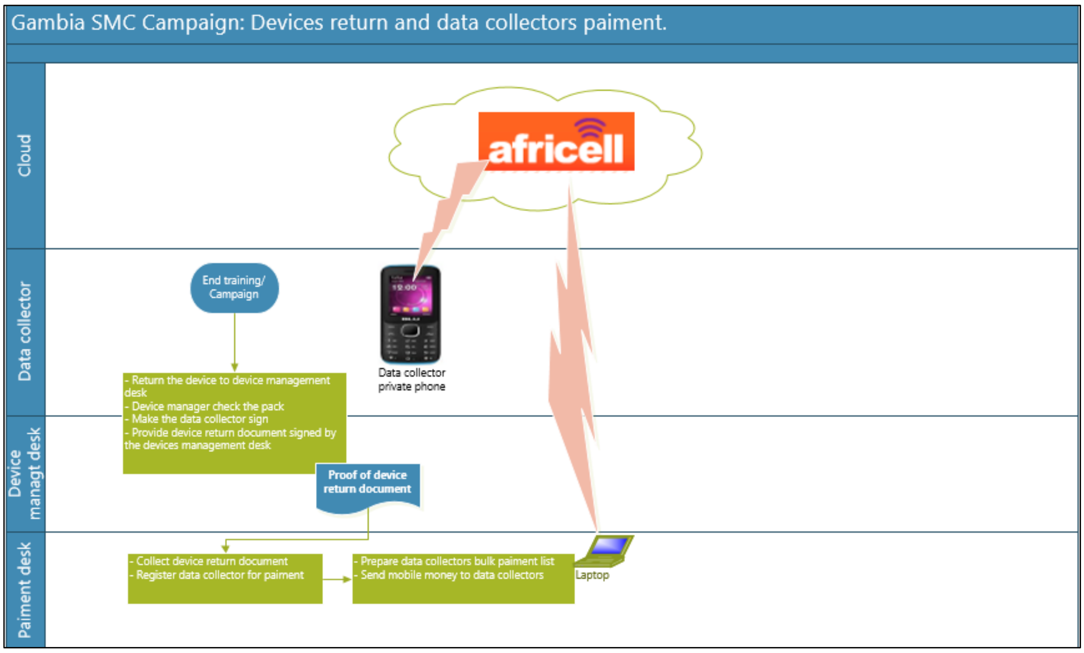
1. *Beneficiary registration during the first day of SMC drug (SP+AQ) administration*: basic data is recorded on the Android device, such as the number of children 3–59 months old in the household

2. *Issue of barcoded beneficiary cards*: the registration results in the immediate issue of a child card to the caregiver of an eligible 3-59-month-old child, with unique identification barcodes. The device then automatically separates eligible children into two age groups (3-11 months and 12-59 months) to determine the appropriate dosage. The distributor then administers the SP+AQ under directly observed therapy and according to the correct dosage. The unique barcode ensures that same child who received the first cycle is monitored to receive the remaining three cycles.

3. *SMC drugs distributed and monitored in real time*: On subsequent monthly cycles, the distributor scans the child card's barcodes. In the electronic registry, each child has an individual line and unique code; rather than re-entering each child's information every month, the data collector can immediately pull up the child record and simply record the new cycle. This also enables Project Managers and Ministry of Health staff to assess whether the same child has taken all four monthly SMC doses.

Central teams (NMCP and CRS) in Banjul and regional teams in Central River and Upper River regions analyze the data from the SMC distribution using a platform called PowerBi reports and Geographic Information System software. Relevant data from the PowerBi is then manually transferred to the DHIS2 system once it has undergone a regional and national validation process.

In addition to being able to track the distribution of SMC in real-time, the system is able to track performance of data collectors which is used as reference for their payment. Below is an example of how the payment works through a business process model that was developed as part of CRS and NMCP's user's manual for SMC data collection using mobile devices:



Despite some challenges such as poor mobile connections (to upload data to the Cloud) and electricity problems (for charging devices) in rural communities, the SMC campaigns benefit tremendously from the use of mobile devices. Real-time or near-real-time data with visualization tools are available during the distribution, allowing for timely decision-making, providing periodic feedback to field teams, and improved allocation of limited resources. Using GIS tools to synthesize in infographics often helps describe a situation better than the usual series of tables and charts. The data generated are of high quality and accuracy, and using a digital platform allows for greater data security and archiving, which is especially important for ensuring data transparency and conducting data audits.

Finally, using mobile devices allows for faster data compilation, analysis and reporting than the paper-based approach used during similar campaigns in the past, where reporting delays and poor storage of paper forms were common issues. It is to be noted that human error will remain a factor whether paper-based or if electronic/mobile systems are used. In The Gambia, the NMCP (within minimal support from CRS) continues to use this technology for both SMC and Long Lasting Insecticidal Net campaigns, and to collect data for the Malaria Indicator Surveys.