



The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

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STATUS:
Laureate

Organization:
Novartis International

Organization URL:
www.novartis.com

Project Name:
SMS for Life - Fighting Malaria in Africa

What social/humanitarian issue was the project designed to address? What specific metrics did you use to measure the project's success?

Every day, 2,200 people die from Malaria, mostly children under 5 years old in sub-Saharan Africa. Maintaining adequate supplies of effective anti-malarials at the health facility level can be exceptionally challenging, especially in remote rural communities in resource-poor countries. Mobile phones are now widely used. Malaria is curable. Medicines with a 96% cure rate are available. However, widespread stock-outs of anti-malarials are causing deaths on a daily basis. Having adequate supplies when and where needed is essential, as anti-malarial medication must be taken within 18-24 hours to be fully effective. At the start of the pilot SMS for Life, 26% of all health facilities had no ACTs of any dose type, but by the end of the pilot, this stock-out rate had been reduced to just 0.8%, almost full availability. In the Lindi Rural district, stock-outs were eliminated by week 8, with virtually no stock-outs reported thereafter. During the study, ACT stocks increased by 64% and quinine stock increased by 36% across the three districts. The SMS for Life pilot in Tanzania successfully achieved all of its objectives. First, visibility of anti-malarial stock levels at the health facility level supported more efficient stock management. Across all three districts of Tanzania included in the pilot study, the proportion of health facilities fully stocked with all five anti-malarial products increased from approximately one-quarter to three-quarters over the 21-week pilot. Second, the SMS for Life system brought accurate stock-level information to all relevant parties using simple and widely available SMS technology. Third, the

public-private partnership model worked highly effectively and proved to be a major contributor to the success.

Please describe the technologies used and how those technologies were deployed in an innovative way. Also, please include any technical or other challenges that were overcome for the successful implementation of the project.

The IT team came up with a solution where the SMS for Life system consists of an SMS management tool and a web-based reporting tool. The SMS application stores a single registered mobile telephone number for one healthcare worker at each health facility. Once a week, the system automatically sends an SMS to each of these telephone numbers asking for the current stock of the drug ACTs and quinine injectables at their health facility. Stock messages are sent back in reply using a free short code number at no cost to the healthcare worker (i.e., telephones do not need to be in credit to reply). A standard message format is used to capture stock quantities, with formatting errors handled through follow-up automated SMS messages to the facility. Using the web-based reporting tool, the data captured from the SMS stock count messages are collected and stored centrally on a secure website, for which access requires a unique user identification and password. The website provides: (a) current and historical data on stock levels of ACTs, quinine injectables and RDTs at the health facility and district level; (b) Google mapping of district health facilities with stock-level overlays and stock-out alerts; (c) SMS messaging statistics, e.g., errors, received messages; and (d) usage statistics. Statistical tools technology can also be used to provide early warning of malaria outbreaks. A challenge was designing a process and a scalable service-based solution (using basic mobile phones, SMS messaging, Internet and Google mapping) that works in a very hostile environment. The overall goal is to eliminate stock-outs and increase access to essential malaria medicines to hundreds of millions of population in rural areas, and ultimately reduce the number of daily deaths from this disease.

Please list the specific humanitarian benefits the project has yielded so far.

Saving lives is the key benefit by ensuring drug supply on site. The lack of visibility was a major cause of stock-outs of anti-malarials. This causes deaths on a daily basis, and is one of the major barriers to the effective management of the disease. Maintaining adequate supplies is essential, as anti-malarial medication should be taken within 18-24 hours, otherwise severe malaria may ensue. In the first pilot district (47 rural health facilities), the SMS for Life system reduced stock-outs from 57% to 0% in just 7 weeks. The pilot study demonstrated that, for the first time ever, there is a solution to the stock-out problem at the remote health facility level in rural or under-resourced areas, i.e., the point of need. This is the first fully scalable solution addressing the problem of stock-outs at the remote health facility level. When the pilot started, 26% of health facilities had no anti-malarials of any dose type; by the end of the pilot, this stock-out rate was reduced to 0.8%, almost full availability. During the 21-week pilot study in Tanzania, weekly stock reports, stock-out statistics, error rates, deliveries and system access were monitored daily online. Surveillance visits were undertaken for 116-129 health facilities (90%) at least once to validate the accuracy of stock count data provided by health facility workers. District management team members were interviewed towards the end of the pilot study to: assess stock movement during the study; obtain feedback on use and ease of access to the data system and on use of the registration/de-registration function for health facility mobile telephone numbers; seek views on training and training materials.

Please provide the best example of how the project has benefited a specific individual, enterprise or organization. Feel free to include personal quotes from individuals who have directly benefited from the work.

In April 2010, the results of the pilot were presented to the Minister for Health in Tanzania and his senior staff. After evaluation, they requested the immediate deployment to all facilities within their country. "I'm grateful for what you are doing for my country. I lose a child every five minutes, which is a waste, from a disease that is completely preventable. I cannot do it alone. I have to do it with people like you. This is a great project and an innovation that I support very much. It's exciting to me." Prof. David Mwakyusa, Former Minister for Health & Social Welfare, Tanzania.

Key results from the SMS for Life pilot study in Tanzania, include: At the start of the pilot, 26% of all health facilities had no ACTs of any dose type, but by the end of the pilot, this stock-out rate had been reduced to just 0.8%, almost full availability. In the Lindi Rural district, stock-outs were eliminated by week 8, with virtually no stock-outs reported thereafter. During the 21-week pilot study, the average response rate to SMS requests for stock-count data was 95%. During the study, ACT stocks increased by 64% and quinine stock increased by 36% across the three districts. The SMS for Life pilot in Tanzania successfully achieved all of its objectives. Across all three districts of Tanzania included in the pilot study, the proportion of health facilities fully stocked with all five anti-malarial products increased from approximately one-quarter to three-quarters over the 21-week pilot. Second, the SMS for Life system brought accurate stock-level information to all relevant parties using simple and widely available SMS technology that was easily accessed by appropriate users. Third, the public-private partnership model worked highly effectively.