

Brief Overview

Malnutrition is a disease that threatens the lives of children worldwide. It is especially serious in Zanzibar, where nearly 12 percent of children have acute malnutrition. While acute malnutrition is an entirely treatable condition, 2009 data available from sites in Zanzibar showed that between 20 to 30 percent of children who were admitted with severe acute malnutrition (SAM) died, despite receiving treatment. If children with SAM are treated according to the WHO/UNICEF standard treatment recommendations, case fatality rates can be reduced to as low as five percent.

In 2010, the Zanzibar Ministry of Health and Social Welfare (MOHSW) developed guidelines for outpatient therapeutic care (OTC) and rolled it out to all health facilities. However, implementation has been challenging as the guidelines are relatively complex and depend on access to information about a child's past weight, past treatment, and guideline targets. This information is only available when a variety of records are referenced for each visit. Typically, the records are either missing or difficult to interpret.



In response to this, D-tree International developed a mobile decision support tool for nurses providing OTC for children with SAM in Zanzibar. The pilot program is currently being implemented in 12 health centers in two districts and will scale up to cover 50 sites covering all districts in Zanzibar. The program implementation period is from July 2010 to December 2013.

■ Geographic Coverage:

Zanzibar, Tanzania

■ Implementation Partners:

D-tree International, with funding from the Government of Norway through the mHealth Alliance's Innovation Working Group's Catalytic mHealth Grants Program under the UN Secretary-General's *Every Woman Every Child*, is leading a team of partners which include:

Ministry of Health Zanzibar Nutrition Unit | Etisalat | Zantel

■ Funder:

UNICEF's Innovation Working Group and Norad through the mHealth Alliance

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About eNutrition

In order to make access to records and protocols easier for nurses, D-tree developed a mobile phone-based tool that provides relevant information in a format that is easily followed and monitored. The tool replicates the MOH's guidelines for provision of care to children with SAM. The software runs on the Android operating system and combines on-device electronic medical records with detailed instructions for patient visits and a platform for recording information. The application protects data via a login procedure requiring a username and password.

The tool partitions the national guidelines into several electronic protocols which all have access to and contribute to the patient's record. It allows for the screening and registration of each child with malnutrition. For each visit of the enrolled child, the nurse is prompted to conduct and log the following actions:

- Screening for status (weighing, etc.);
- Appetite test, as prescribed by the guidelines;
- Physical examination (e.g. to check for complications);
- Treatment (e.g., provision of correct amounts of ready-to-use therapeutic foods);
- Counseling of the caregiver; and
- Setting next appointment.

Entered data is then sent to a server using general packet radio service (GPRS), a packet oriented mobile data service, for backup, storage, and reporting. From the server, the MOH, District Health Management Team (DHMT), and supervisors can view the required government reports in a graphical format.

Evaluation and Results

With regard to the feasibility of this solution, the program has demonstrated the following:

- Nurses have little problem in learning to use the software and the device;
- Network coverage and speeds permit nurses to synchronize their patient records with a central server located in Dar es Salaam, and nurses easily learn how to do this; and
- Nurses are able to take responsibility for recharging the phone batteries.

Early evaluation also reveals that caretakers accept the use of phones in the provision of care, and nurses are enthusiastic about the intervention, reporting that the application:

- Makes their job easier;
- Makes it easier to follow national guidelines;
- Simplifies the interactions with clients; and
- Is easy to use.

The use of electronic protocols and records can lead to better adherence by nurses to national guidelines. This is especially true for those aspects of the protocols demanding arithmetic calculations, such as the amount of food supplement to provide. For the comparison of adherence between paper and electronic protocols, client data from between December 2010 and March 2011 were selected and checked for errors in calculation of the amount of ready-to-use therapeutic foods provided (based on body weight), calculation of target weight (based on enrollment weight), and to see if clients were being discharged in accordance with the national guidelines (showing 15 percent weight gain and no complications). In each case, the error rates dropped from as high as 45 percent to zero percent within the first three months of using the phone-based tool. Additionally, there were significant increases in cure rates (over 33 percent improvement) comparing before and after the phone-based program was implemented.

Lessons Learned

- When replicating this program, one should anticipate frequent staff turnover in program planning, train all potential users, and be prepared to train new users due to frequent transfers among nurses.
- An effective facility based intervention such as OTC treatment of SAM will benefit from a concerted community component for the screening and follow-up of defaulters.

Conclusion

This project has demonstrated that nurses can use decision support tools at the point of care to more effectively treat children with SAM. Additionally, supervisors can more effectively monitor and report on the status of program implementation using a mobile-enabled system.

Information was excerpted from:

<http://www.d-tree.org/wp-content/uploads/2010/08/D-tree-Excerpt-Innovation-Report-Sept-2011.pdf>

<http://www.d-tree.org/our-approach/press/>

<http://www.gsma.com/mobilefordevelopment/treating-malnutrition-in-zanzibar-empowering-health-workers-with-an-mhealth-solution/>