USING MOBILE TELEPHONY APPLICATION TO IMPROVE DATA CAPTURING AND REPORTING FOR LYMPHATIC FILARIASIS TREATMENT PROGRAMME IN GHANA

A CONCEPT PAPER

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INTRODUCTION

The lymphatic filariasis (LF) elimination programme has been in existence in Ghana since 2000 and has established interventions nationwide. There is the need to understand the social and behavioural factors affecting community treatment compliance, especially urban populations, improve on data quality and measure the absence of transmission and when the stop the mass drug administration. Over the years, it has become obvious that data collected and reported by the community health officers have a lot of gaps. There are issues regarding data collection, collation and reporting at the district to the national level. Many developing countries, recognising the poor data quality issues in their healthcare delivery systems have in collaboration with funding partners, researched and embarked on mHealth initiatives to help combat this problem.

At the end of 2007, the International Telecommunication Union (ITU) reported that more than one out of four Africans and one out of three Asians had a mobile phone (ITU, 2007). In Ghana, mobile phone usage has escalated over the past five years with telecommunication coverage over almost the entire country. The National Communications Authority (NCA) in its 2008 annual report indicated a 52.4% telephone penetration of which mobile phone usage accounted for 99% of total telephone usage. The proliferation of a wide range of mobile phones over the country has led to its use in a myriad of ways. These factors have encouraged discussions and initiatives in mHealth in Ghana. MHealth relies on wireless (cell phones, PDA’s etc.) devices and applications for healthcare delivery. Key MHealth applications in developing countries are centred on;

- Education and awareness
- Remote data collection
- Remote monitoring
- Communication and training for healthcare workers
- Disease and epidemic outbreak tracking
- Diagnostic and treatment support (Vital Wave Consulting, 2009)

In Ghana, a number of mHealth projects are being undertaken in various parts of the country for various aspects of healthcare delivery. The following are some on-going projects;

1. Motech (mobile technology for maternal and child survival with mobile phones)
2. SMS for Life (monitoring malaria commodities in health institutions with mobile phones)
3. EWS (early warning system, monitoring commodities of malaria, family planning, and HIV with mobile phones)
4. Sene Project (using both PDAs and mobile phone to report public health activities)
5. Millennium development MHealth project (using mobile phones to support rural health)

All these projects are geared toward the attainment of the millennium development goals on health which are listed below.

MDG 4: Reduce child mortality: Reduce by two-thirds, between 1990 and 2015, the under-five mortality.

MDG 5: Improve maternal health: Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio.

MDG 6: Combat HIV/AIDS, malaria, and other diseases: Have halted by 2015 and begun to reverse the spread of HIV/AIDS; have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.

(Ghana Health Service, 2011)

PROBLEM STATEMENT

Community based volunteers collect treatment data during mass drug administration programmes. Community members are registered in notebooks or tally sheets before drug distribution and this data is collated by hand and merged with sub-district and district health information into the District Health Information Management System (DHIMS). The community volunteers do not receive feedback from the data they collect for their work. Again, the DHIMS does not allow for community-level data to be entered for programmatic decision-making process. The quality of data received from the districts is not optimum and has therefore necessitated the development of new ways of reporting treatment coverage data.

LITERATURE REVIEW

The Sene District Project in Ghana involves the use of personal digital assistants (PDAs) for collecting public health service data at the lowest level of service delivery (Ofosu, A., Nyonator, F., 2011). It began in 2004 as collaboration between Berekum Health Directorate and Access to Health, an NGO from the United States. Data collected is stored as medical records and this is used to follow up clients to ensure continuity of care. The project also aims to produce accurate service data and reduce the time spent by service providers to compile inaccurate monthly data (Ofosu, A., Nyonator, F., 2011). Personal and demographic data is collected on each child on a PDA. This information is used to follow up the child for immunisation. For each community visit that the community health officer makes for an outreach clinic, she queries the database and has the names of the children who are due to
be vaccinated and the type of vaccines they will be taking. This helps in the preparation in getting adequate vaccines for an outreach and also ensuring that she identifies and vaccinate every child in the community who is due to be vaccinated. This same data is synchronized with a computer at the District Health Directorate and an interface is used to generate the monthly immunization facility report as required by the Expanded Programme of Immunisation (EPI). The generation of this electronic monthly immunization reports has been estimated to save the community health nurse about five working days every month of report preparation, which can be used for service delivery (Ofosu, A., Nyonator, F., 2011). The application was developed on a Java platform.

In Brazil, a mHealth initiative called MobiSUS was piloted in 2007 and implemented in October 2008 by the Amazonas Health Department. This was a collaboration between Nokia and Amazonas State Health Ministry. The Nokia Data Gathering System allows for efficient and accurate data collection directly on mobile phones for containing dengue fever on the Amazonas State. Customised questionnaires were developed and distributed to mobile phones of health agents in the field. When the field agents finished their surveys, they sent the data via wireless connections to the existing management systems for immediate analysis. The team’s preliminary evaluation showed a more accurate reportage and reduction in data collection time in the field.

OBJECTIVES

The main objective of this research project is to develop a mobile telephony platform for improving reporting treatment coverage from the community through to the national level.

The specific objectives of this project are:

- To evaluate knowledge of community health officers / volunteers’ on ICT enabled data collection.
- To evaluate the existing reporting system and assess readiness for ICT enabled reporting
- To develop an open source mobile application for collection of treatment data in two districts
- To develop a database that accepts mobile phone transmitted data
- To integrate the proposed new treatment database with the existing District Health Information Management System
- To evaluate the quality of data collected by the community volunteers via the proposed mobile phone application.
METHODOLOGY

The researcher will employ qualitative and quantitative methods of research for this project. In-depth interviews and document analysis will be conducted to evaluate the existing LF treatment reporting system and readiness for ICT enabled data collection. The existing workflow will also be explored leading to process and data modelling for the proposed mobile application. Existing open source applications will be assessed to determine their suitability for adaptation for this project. A suitable database management system will be deployed to accept SMS data from the community health officers.

CONCLUSION

It is hoped that this mHealth initiative will lead to widespread use of the proposed technology to improve the data collected which will lead to better supervision and management of the LF treatment programme and other neglected tropical diseases.
REFERENCES

   http://www.ghanahalthservice.org/includes/upload/publications/Mobile%20health.pdf


