Full Length Articles

Utilisation of mobile health by medical doctors in a Zimbabwean health care facility

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ABSTRACT

Background: Mobile Health is the utilisation of mobile devices like cellphones and tablets for the delivery of health care. It is an up and coming intervention promising to benefit health services. Recent mobile health studies have tended to focus on mHealth for data collection and surveillance rather than on actual patient care. This paper highlights the potential and the challenges of mHealth use in the delivery of health care services.

Objectives: This paper focused on determining the use of mHealth and identifying and describing the opportunities and the challenges faced by the medical doctors in using mHealth at a specific health care facility in Zimbabwe.

Methods: A quantitative, descriptive, cross-sectional and analytical design was used to determine the rate of utilisation of selected mHealth "patient identification and treatment activities" by medical doctors. A structured questionnaire was used for data collection form 104 respondents. The number of the returned complete and usable questionnaires was 42. No sampling technique was done because the whole population was of interest to the researcher, accessible and available during data collection.

Results: Fifty percent (50%) of the respondents indicated, lack of knowledge and un-awareness in using mHealth to support chronically ill patients. The majority of the respondents (83.3%) believed that mHealth presented opportunities to improve health care delivery. The majority of the respondents (95%) indicated the potential for its future use.

Conclusion: Given the challenges that were encountered mHealth program to be officially launched for mHealth use and the users to be developed on its utilisation.

1. Introduction

1.1. Background

According to Clausan, Elrod, Fox, Hajar, and Dzenowagis (2013), mobile health (mHealth) is defined as the use of mobile devices and global network to deliver health services and information. Mobile devices most commonly used include cellphones (feature phones and smart phones) and tablets (Clausan et al. 2013).

The emergence of mobile phones as a ubiquitous device for communication has brought forth innovations for many

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sectors of society including medical doctors in the health sector. A comprehensive report on the global wireless industry lists 101 specific health—related activities that can be conducted by using mobile phones. Despite this list being nine years old, some of the items on the list remain speculative in their implementation. Some of these are: medical data on sim card, access of patient records through mobile devices and medication compliance monitoring. This article looked at "patient identification and treatment activities" of the 101 suggested uses of the mobile phone in health, and investigated to find out which ones had been adopted by medical doctors at one major hospital in Zimbabwe and what the adoption rates were. Furthermore, despite the availability of evidence of an increased mobile communication penetration rate in Zimbabwe, there is no evidence of the progress mHealth utilisation (Wireless Healthcare, 2005). Zimbabwe's health care facilities have been slowly embracing mHealth.

According to the literature review conducted by the World Health Organization (WHO) and the Millennium Villages Project it is suggested that most documented information about mHealth is for projects conducted in developed nations rather than developing and underdeveloped nations (Mechael & Sloninsky, 2008). The WHO, in summarising global mHealth activities, mentioned that results based evaluation of mHealth implementations was not being conducted (WHO Global Observatory for eHealth series, 2011b).

Zimbabwe being an underdeveloped country is one of the countries which lacked documentation on the mHealth projects which have been conducted. The use of mobile phones by medical doctors in Zimbabwe for health care is relatively unknown. In conducting a literature review, the researchers could not locate information on the uptake of mHealth in Zimbabwe by medical doctors.

Most mHealth projects the researchers came across during a literature review were for data/information management. According to an Indian electronic news site Sullivan (2011), a doctor from India's Apollo Telemedicine Networking Foundation said: "… there is a need for mobile health care to be driven by the needs of patients and doctors, and not by whatever the technologists are currently working on". According to Dhanraj (2011), mHealth projects are now operating in a number of developing countries and some are demonstrating an impact on public health. The mHealth field promises to offer opportunities for health providers across multiple sectors that include governments, businesses and non-governmental organisations (NGOs).

While mHealth is promising benefits, studies have also shown that there are currently challenges in implementation on the ground. Some of the noted challenges include: acceptance of mHealth by end users and health care providers particularly in developing countries (Ganapathy & Ravindra, 2008), acceptance of the technology by the elderly (Whittaker, 2011: 3), lack of availability of customised solutions for the developing countries (Ganapathy & Ravindra, 2008), and security in using mHealth applications where data being handled is of a confidential nature (Mechael et al., 2010). In Zimbabwe the WHO noted the following as barriers to mHealth implementation: lack of policy framework,

underdeveloped infrastructure and the perceived costs of implementation being too high (WHO Global Observatory for eHealth series, 2011a).

This article considered the list of 101 suggested specific health-related activities that can be conducted by using mobile phones as a frame of reference but only identified 18 "patient identification and treatment" mHealth uses from the list. The article focused at those 18 "patient identification and treatment activities" use of mobile phones in health care. Furthermore it investigated which ones had been adopted by medical doctors. These included the identification and description of the opportunities and challenges they have encountered, particularly in the specific health care facility setting in Zimbabwe. Refer to Table 1 for patient identification and treatment activities. The reason for focusing on the 18 uses is because most studies conducted in Africa focused on disease surveillance and health data collection neglecting the actual patient care (Mechael & Sloninsky, 2008).

The reason for this article was to address the identified information gap of neglecting actual patient care in mHealth use. The findings were based on the use, opportunities and challenges of mHealth. The findings provided knowledge on the importance of adoption of "patient identification and treatment activities" of mHealth and provide future mHealth users in Zimbabwe with information.

Table 1 — Patient identification and treatment mHealth activities through mobile device.

Number	Use
1	Setting up of any health related work appointment reminders
2	Support for the chronically ill rendered through a mobile device
3	Internet medical/clinical paper through mobile device
4	Patient consent
5	Locating staff using electronic devices
6	Remote consultation
7	Diagnosis support
8	Medical data on SIM card
9	Accessing electronic patients' records through a mobile device
10	Allergy alert services for asthma sufferers
11	Monitoring for asthma sufferers
12	Blood glucose monitoring: This works with a smart phone and can send the results to a website
13	Medication compliance
14	Heart rate monitoring
15	Patient identification
16	Accessing laboratory results
17	Accessing patients' X-ray images
18	Skin cancer monitoring