POTENTIAL OF MOBILE PHONES TO IMPROVE HEALTH IN THE DEVELOPING WORLD

Introduction

As the first decade of the 21st century draws to a close, leaders in many developing countries can point with pride to tremendous strides in their efforts to improve the lives of their citizens. In many parts of the world, citizens in emerging economies have begun to taste the fruits of higher incomes and greater access to tools that promise to increase their quality of life and that of their children. Yet formidable obstacles remain. Health challenges present arguably the most significant barrier to sustainable global development. Disease and the lack of adequate preventative care take a significant toll on both developing populations, measurable in disability-adjusted life years (DALYs), and economies. Despite the broad economic advances of this decade, the 2008 UN report on progress toward meeting the Millennium Development Goals (MDGs) indicates continuing dire conditions in crucial public health areas.

For example:1

- A child born in a developing country is over 33 times more likely to die within the first five years of life than a child born in an industrialized country, even though the leading causes of deaths (pneumonia, diarrhea, malaria, and measles) are preventable through basic services and vaccinations.
- Every minute, at least one woman dies from complications related to pregnancy or childbirth. And for every woman who dies in childbirth, approximately 20 more suffer injury, infection, or disease—nearly 10 million each year.
- An estimated 2.5 million people were newly infected with HIV in 2007.

- Communicable, and entirely avoidable, diseases such as tuberculosis (TB) and malaria continue to claim lives due to preventable factors such as lack of access to proper drugs and medical treatment. By current estimates, meeting the target MDG of halving the TB prevalence rate by 2015 is unlikely

Mobile communication offers an effective means of bringing healthcare services to developing-country citizens. With low-cost handsets and the penetration of mobile phone networks globally, tens of millions of citizens that never had regular access to a fixed-line telephone or computer now use mobile devices as daily tools for communication and data transfer. A full 64% of all mobile phone users can now be found in the developing world.

Furthermore, estimates show that by 2012, half of all individuals in remote areas of the world will have mobile phones. This growing ubiquity of mobile phones is a central element in the promise of mobile technologies for health which Ghana should take full advantage of.

Mobile Health

mHealth (also written as **m-health** or **mobile health**) is a term used for the practice of medical and public health, supported by mobile devices. The term is most commonly used in reference to using mobile communication devices, such as mobile phones and PDAs, for health services and information. The mHealth field has emerged as a sub-segment of eHealth, the use of information and communication technology (ICT), such as computers, mobile phones, communications satellite, patient monitors, etc., for health services and information

The field has emerged in recent years as largely an application for developing countries, stemming from the rapid rise of mobile phone penetration in low-income nations. The field, then,

largely emerges as a means of providing greater access to larger segments of a population in developing countries, as well as improving the capacity of health systems in such countries to provide quality healthcare.

Prospects

The table below illustrates that developing world citizens have plentiful access to mobile phones, even while other technologies and health infrastructure are scarce. This explosion of mobile phone usage has the potential to improve health service delivery on a massive scale. For example, mobile technology can support increasingly inclusive health systems by enabling health workers to provide real-time health information and diagnoses in rural and marginalized areas where health services are often scarce or absent altogether. Mobile phones reach further into developing countries than other technology and health infrastructures, and Ghana is no exception!

TECHNOLOGY AND HEALTH-RELATED STATISTICS FOR DEVELOPING COUNTRIES (MILLIONS).	
Hospital Beds	11
Computers	305
Mobile Phones	2,293
Population	5,300

Scaling up mHealth Projects

The majority of mHealth projects are implemented with seed funding from philanthropic organizations such as foundations and multilateral institutions, or as part of a corporate social responsibility initiative by a for-profit and non-profit businesses. However, all too often, once the initial funding has been exhausted the projects find it difficult to achieve scalability and

sustainability, resulting in unintended termination. Ensuring long-term sustainability is a major challenge for mHealth projects. Expert researchers in the public health and eHealth arena are currently examining the sources of sustainability for mHealth projects. In particular, Dr. Adesina Iluyemi, a PhD Candidate at the University of Portsmouth, United Kingdom focusing on sustainable mHealth in developing countries, has noted that mHealth projects are far more likely to be sustainable in cases where buy-in from governmental or public bodies is secured. In this way, the project is institutionalized into existing government health programs and can receive budget attention. It is very important that a mHealth project have the support of the national or government. The majority of mHealth projects are currently funded by international agencies or corporate social responsibility (CSR) initiatives of companies. The problem is when the funding runs dry there is no more continuity. In the long term the custodian of the project will be the government. This could be national, local, or regional. During the lifetime of the pilot project it is very important to ensure that the government buys in and that the government sees the benefit so that the project can survive beyond the donor-funded period. For every mHealth project, therefore, it is critical to ensure that the program is aligned with the strategic goals of the national health system.

In this regard the Ghana Health Service (GHS) intends to coordinate and mainstream all mHealth projects in Ghana to derive the maximum benefit for the people, ensure sustainability and ownership after the pilots by the current implementing organizations.

One such way for starters is by the setting up of 1 or 2 common mobile phone line (referred to in this document as Toll Free Short Code TFSC) across all mobile networks in the country. This

TFSC will then be offered to any organization that intends to do any project in mHealth as part of the GHS support and contribution to the said project to be used as a shared line or privately.

This will greatly facilitate the process because it is quite difficult securing a common TFSC across all networks in the country is for now not easy and straightforward.

The second process that the GHS needs to pursue is the setting up of a national data repository centre in conformity with the enterprise architecture in conjunction with the Ministry of Communication where all necessary electronic equipment will be set up for the hosting of all these mHealth data that will be generated and for that matter all health service data.

There are at least 5 mHealth projects that are either running or is are being developed to run in the country:

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 rate.

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.