

Long Term Evolution For mHealth Increases Efficiency For Health Workers

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Abstract- mHealth is rapidly changing world of mobile technologies for healthcare. Initially the mobile phones and handheld devices use to deliver health information. mHealth covers the wide range of mobile solutions which can help enable governments and health organizations to deliver higher-quality, more efficient healthcare. The mHealth is currently major academic research and industry disciplines worldwide to achieve innovative solutions in the areas of healthcare delivery and technology sectors. In this paper we will introduce the concept of 4G health that represents the long-term evolution of m-health. This technology reduced cost, also poses significant security and privacy challenges. In this paper mHealth architecture that provides strong security and privacy guarantees while remaining easy to use.

Index Terms— Long term evolution (LTE), Body area network (BAN), m-health, medical science, social media, Tele medicine.

1 INTRODUCTION

IT is projected that by the year 2014 public and private healthcare providers could save between \$1.96 billion and \$5.83 billion in healthcare costs worldwide by utilizing mHealth technologies for health monitoring [1]. To advance the use of mHealth technologies as a means of improving the health and well-being of older adults while reducing the cost of their care, the center for Technology and Aging has initiated the mHealth Diffusion Grants Program. The mHealth technologies are used by patients and clinicians to improve self-management of care and enhance communication and information transfer between and among patients and clinicians [1].

2 KEY MOBILE TECHNOLOGY

Many types of mobile technologies can be utilized for mHealth interventions, ranging from cell phones to smartphones (hardware and software), laptops to tablets, and mobile-enabled diagnostic and monitoring devices to devices with mobile alert systems. Devices vary widely in capabilities, price and strength of evidence that they may improve patient outcomes, work flow efficiencies, and access to health information [1]. With LTE the majority of global mHealth interventions have been developed for use cell phone devices having voice-centric facility with data-enabled capabilities such as short message service (SMS) or text messages. Popular health-related functions of SMS include health behaviour reminders, prompts to schedule or confirm an appointment, notifications of a laboratory result or health status report, requests for data and information resources to improve self-efficiency. The most successful mHealth initiatives to date have been built on one of the less technically complex and widely used applications, SMS, which has been the prime communication medium for delivery of health behaviour change interventions [3]. Among chronic disease applications of SMS-based interventions, SMS-based interventions have [2] demonstrated positive short-term behavioural outcomes [4] but little evidence of the ability to sustain behaviour change over the long term and at scale. The simplicity of SMS has

been a large part for its success in the field of health applications. A mHealth architecture that provides strong security and privacy guarantees while remaining easy to use, and outline the research and engineering challenges is Amulet [5].

3 ADDITIVE WHITE GAUSSIAN NOISE¹

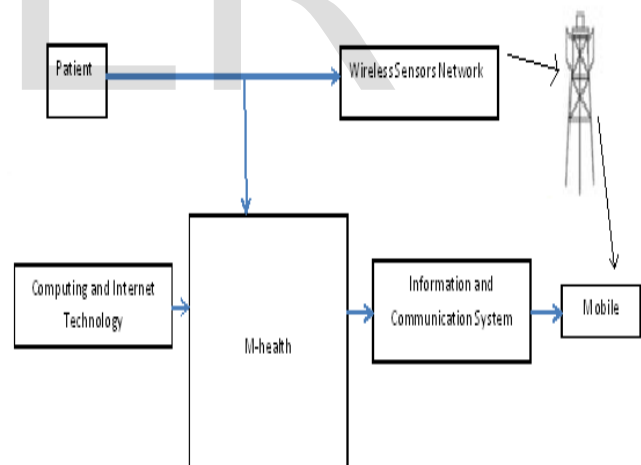


Figure 3.a Basic Architecture of mHealth
Telecommunications growth in developing countries over the past five years has been tremendous. In 1998, India and China had less than 1 million and 25 million mobile subscribers, respectively. Mobile technologies are primed to affect in both developing and developed countries is health care. Mobile technologies do two things well: compress time and distance. Thus, they connect, enable, and empower participants in the health care ecosystem to reduce costs and errors while increasing productivity, access, and efficiency. mHealth and Mobile Telemedicine conference participants concluded that mobility and mHealth will affect health care delivery in the

following critical areas:

- Globalization of health service delivery.
- Remote care and monitoring.
- Alerting.
- Early Disease detection.
- Data collection and record maintenance.
- Wellness and information awareness.
- Guidance in Emergency response.
- Modeling and predicting disasters.

4 Applications of mHealth

In recent years, there have been numerous discussions on the proper model of m-health ecosystem. However, there is fairly good opportunity for a global 4G health ecosystem to be proposed and validated and applied for major healthcare services and problems [6]. This can be implemented provided that all the global stakeholders agree on such a process with economically valid and clinically acceptable models.

The number of mHealth interventions has been rapidly expanding in both variety and sophistication. These mHealth technologies can assist patients and caregivers with obtaining proper medication information, patient education, medication organization, dispensing, dose reminders and notification when doses are missed [8].

mHealth technologies can potentially provide one or more functions to an individual patient under a "medication administration continuum," including:

- Fill : provides patient with information and/or instructions about the drug.
- Remind : reminds patients to take medications - audibly, visually, or both.
- Dispense (e.g., in the home) : automatically dispenses medications, usually at certain times/intervals.
- Adjust : adjusts medication regimen automatically if needed.
- Report : logs date and time when medication is taken or not taken and notifies

- Ingest: detects whether or not a patient has ingested his/her medications.
- Metabolize: detects whether or not a patient has metabolized his/her medication.

This is considered as the major element of 4G health systems and the key to their success and future evolution [7].

Several listed of m-health services are as follows:

- Disease surveillance and control.
- Human resources coordination, management, and supervision.
- Emergency response systems.
- Health services monitoring and reporting.
- Health-related m-learning for the general public.
- Health extension services, health promotion, and community mobilization.
- Peer-to-peer communication among healthcare workers.

5 CONCLUSION

The field of mhealth is at an inflection point. Health needs in developing world including chronic diseases. mHealth is well positioned to address these challenges using current available technology. In this paper we are discussing new features. mHealth information technology refers to portable device with the capability to create, store, retrieve & transmit data in real time to improve patient safety and the equality of care.

6 REFERENCES

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