

## Chapter 21

# M-Health Technology as a Transforming Force for Population Health

**Florence F. Folami**  
Millikin University, USA

### ABSTRACT

*Information and communication technologies in health practices are known as mobile health. Mobile health (m-Health) is the use of portable electronic devices for mobile voice or data communication over a cellular or other wireless network of base stations to provide health information. Evidence suggests that the use of m-health offers new opportunities for population health. However, resistance to m-health among health professionals is considered to be a main barrier. Evidence shows that m-Health technology would grant patients the long-term support needed during treatment without jeopardizing patient autonomy. The practice of m-health requires a rethinking of the existing frames of reference and adoption of new frames of reference in health practice. This chapter is a descriptive study in which a quantitative technique was used to collect data. The study shows the potential scale and impact of m-health in accelerating the rate of patient education. Healthcare providers can maximize the benefits of electronic tools by educating themselves to better understand the potential uses, challenges, and benefits.*

### INTRODUCTION

M-health is broadly defined by the World Health Organization as the use of information and communication technology for health (World Health Organization, 2011). Mobile health now often called m-Health is the use of portable electronic devices for mobile voice or data communication over a cellular or other wireless network of base stations to provide health information (Kahn,

Yang & Kahn, 2010). M-health is an emerging discipline focusing on the use of information and communication technology to deliver health services (Steinbrook, 2009). A number of different terms and terminologies have been used with this discipline. For example, the terms such as telehealth, telemedicine, and health informatics have been used interchangeably.

Research efforts have been focused on the impacts of m-health technology on population

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health (TPR Media, 2012; Terry, 2008). Steinbrook (2009) explained in his paper on health care and the American recovery and reinvestment act that there is significant increase in the numbers of Internet users as well as mobile. M-health initiatives have evolved to improve access to services and efficiency within the health of people with little or no access to quality health care. Cell phone is one of the components of m-Health technology and have been of the fastest growing industries (TPR Media, 2012).

According to TPR Media (2012), most people have portable phones, and/or cell phones in their respective homes. These devices are connecting people in convenient ways as their cost declines with the expand use. While the Internet services require ground infrastructure, connection junctures, and heavy equipment, mobile technology provide an additional benefit of wireless and hands-free technology that can be maximized in developing health care systems.

Population health is define as the health outcomes of a group of individuals, including the distribution of such outcomes within the group and the field of population health includes health outcomes, patterns of health determinants, and policies and interventions that link these two (Friedman, Parrish & Ross, 2013). There are a variety of ways in which m-Health can potentially be used to improve population health (World Health Organization, 2011). Health is a national and international priority. While the U.S. spends more per capita on healthcare than any other developed country (Kaiser Family Foundation, 2007), it has far from the best health outcomes (World Health Organization, 2011). Effective implementation of m-Health can strategically add a new level of solution to current challenges facing healthcare.

The recent proliferation of wireless and mobile technologies provides the opportunity to connect information in the real-world via these technologies to produce continuous streams of data on an individual's behavior. M-Health has the potential to be a transformative force for population health

by changing when, where, and how healthcare is provided (Coyle, 2012). Mobile phones, particularly smart phones and other mobile computing devices, are becoming increasing globally, which enhances the potential to assess and improve health programs. The purpose of this study is to explore the impact of m-health technology adoption on population health transformation. This study will answer the following two questions; 1) Can m-health accelerate the rate of patient education? and 2) Does m-health technology has the potential to transform the delivery of health messages?

## **REVIEW OF THE LITERATURE**

A systematic review of the literature was conducted using an appropriate search approach and inclusion criteria of population health and the use of social media delivering health messages. Some key areas of focus include (1) m-health and patient compliance and (2) m-health and dissemination of health information among population.

### **M-Health and Patient Compliance**

In a systematic review of text messaging as an intervention for disease prevention and management, the authors stated that there was evidence for short-term effects on behavior changes or clinical outcomes related to disease prevention and management, such as smoking cessation, self-monitoring of blood glucose levels, weight loss and decrease in hemoglobin A1C (Patrick, Griswold & Intille, 2008). They also suggested that the use of m-health interventions has the capacity to interact with the individual with much greater frequency, and in the context of the behavior, at a convenient time for the patient.

The use of m-health provides the potential to deliver health behavior interventions tailored to a person's baseline characteristics, such as disease, demographic, as well as frequently changing behaviors and environmental contexts. A review of

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