

## Chapter 3.3

# Personal Health Records Systems Go Mobile: Defining Evaluation Components

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### ABSTRACT

This chapter provides an overview of mobile personal health record (MPHR) systems. A Mobile personal health record is an eclectic application through which patients can access, manage, and share their health information from a mobile device in a private, confidential, and secure environment. Personal health records have evolved over the past three decades from a small card or booklet with immunizations recorded into fully functional mobile accessible portals, and it is the PHR evolution outside of the secure healthcare environment that is causing some concerns regarding privacy. Specifically, the chapter reviews the extant literature on critical evaluative components to be considered when assessing MPHR systems.

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### INTRODUCTION

Information technology (IT) is dramatically transforming the delivery of healthcare services. This can be seen through the increased activity in Mobile Health (M-Health) and promotion of the Electronic Health Record (EHR) systems in the healthcare industry and the recent attention and increased activity in the adoption of Personal Health Record (PHR) systems. By distinction, PHR systems have not established a similar height of interest as the EHR (Tang, 2006), but this is changing as more government bodies such as the U.S. Secretary of Health and Human Services, the National Coordinator for Health Information Technology, and the Administrator of the Centres for Medicare and Medicaid Services (CMS) have all identified PHRs as a top priority. In addition to the government or-

ganizations involvement, standards organization such as Health Level Seven (HL7) have began the standard definition process to formalize a system model for PHRs.

PHR aims to allow individual health consumers the ability to monitor and manage their personal health information from multiple sources in a single repository. Research shows that maintaining a PHR encourages personal participation in healthcare and cultivates an increased emphasis on communication between the individual and the healthcare provider (Kupchunas, 2007). The use of a PHR provides the opportunity for healthcare providers to monitor and educate patients on health matters and lifestyle changes, and it also acts as a tool for enhancing health literacy. The PHR will eventually improve the decision making capabilities as the patients become more proficient at recording and monitoring vital health information (Lee, Delaney, & Moorhead, 2007). The goal of utilizing personal health records would be to enhance and optimize the healthcare practices while allowing patients to manage their own health care decision-making. For the caregivers, PHR technology can improve efficiency, cost-effectiveness, timeliness, safety, and efficacy of the care processes, whereas for the individual consumers, it can help improve their quality of life. Large organizations and government bodies have recently gained an interest in the PHR phenomenon; for example, Intel, Wal-Mart and BP have formed a consortium, called Dossia, to supply PHRs for their employees; Medicare and Medicaid Services are trialing PHR with Medicare claims; and Google and Microsoft have also entered this market with new products such as Microsoft Health Vault and Google Health. In addition, Verizon Communications in combination with WebMD now offers a password-protected site for PHR (Reese, 2007).

The PHR migration to the mobile platform offers immense benefits such as portability and convenience in the accessing and transmitting of personal health records from a single loca-

tion, the empowerment of the health consumers to control, verify, and manage their own health information, and the potential enhancement of patient-caregiver relations. Unfortunately these benefits can be overshadowed by the concerns regarding security, privacy, mobile technology choice, and validity of information. This chapter will highlight the important evaluation components that need to be considered when the PHR is modified to support mobility.

The discussion is structured as follows. Following the introduction, the next section describes the history and background of PHRs. Against this backdrop, an overview of the literature and progress being made on PHR research will be highlighted. This will be followed by a discussion on the four categories of PHR systems, namely “individually maintained”, “tethered” to a health plan or employer, “comprehensive” or “Health 2.0”. Once the advantages and disadvantages of the various types of PHR systems have been presented, the discussion will converge on a framework for Mobile PHR systems evaluation, which is then followed by the review of three commercial Mobile PHR systems using components from the framework. The chapter will then conclude with a summary of thoughts on future growth and development in this area.

## **BACKGROUND AND HISTORY OF PHR**

The Personal Health Record (PHR) is not a completely new phenomenon; accordingly, one of the earliest references to a PHR can be found in an article by Okawa (1973) entitled, “A personal health record for young female students.” Several references to personal health records surfaced prominently as “paper records” up until the mid 1990’s, when the computerized version of the PHR appeared. With the diffusion and general use of computers, individuals became interested in maintaining an electric copy of their personal

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