

Chapter 9

A Highly-Interactive and User-Friendly PHR Application for the Provision of Homecare Services

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ABSTRACT

Homecare is an important component of the continuum of care as it provides the potential to improve quality of life and quality of healthcare delivery while containing costs. Personal Health Record (PHR) systems constitute a technological infrastructure that can support greater flexibility for healthcare professionals and patients, thus allowing for more effective homecare services. In particular, PHRs are intended to reach patients outside of care settings, influence their behaviors and satisfy their demand for greater information and access. Moreover, PHRs can facilitate access to comprehensive real-time patient data for healthcare professionals thus enabling them to identify problems quickly (e.g. prior to scheduled appointments) and steer patients to appropriate facilities when needed. To this ends, PHR technology needs to evolve well beyond providing a consolidated patient record, in ways that make it more widely applicable and valuable to health systems. The development of applications and tools on top of PHR systems can allow the PHR to function as a platform for both patients and healthcare professionals to exchange information and interact with the health system (e.g., scheduling appointments electronically). This chapter presents a prototype PHR-based system that aims at supporting chronic disease management. In particular, it assists healthcare professionals in assessing an individual's condition and in forming the appropriate treatment plan for him/her while it provides individuals with a user-friendly application for step-to-step guidance to their treatment plans. The system has been developed on the grounds of a service-oriented architecture where healthcare process automation is realized by means of dynamic, patient-related workflows.

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INTRODUCTION

In recent years, the demand for homecare services has increased substantially due to rising healthcare costs and subsequent lower availability of beds in healthcare institutions which result in a movement towards earlier patient discharge (Lang, Edwards & Fleischer, 2007). Homecare is considered to be a key point for the provision of support to medically fragile children and elderly, individuals with chronic diseases, disabilities or terminal illnesses, enabling them to live independently at their homes (Lang, Edwards & Fleischer, 2007; Maglaveras, Prentza, Maglaveras, Lekka, Sakka and Leondaridis, 2006). Homecare services may be requested by the patient himself (or the patient's family), the general practitioner or some other specialist and usually require instant availability of patient information which, nowadays, is scattered around disparate and geographically dispersed systems hosted by the healthcare providers where the patient has received medical care in the past. A solution to overcoming physical obstacles to exchanging patient medical record information across healthcare institutions can be provided by utilizing Personal Health Records (PHRs) for storing and retrieving essential patient data (Lee, Delaney & Moorhead, 2007).

Recently, there has been a remarkable upsurge in activity surrounding the adoption of PHR systems (Tang, Ash, Bates, Overhage & Sands, 2006). Unlike traditional EHRs which are based on the 'fetch and show' model, PHRs' architectures are based on the fundamental assumptions that the complete records are held on a central repository and that each patient retains authority over access to any portion of his/her record (Lauer, 2009; Wiljer, Urowitz, Apatu, DeLenardo, Eysenbach, Harth, Pai & Leonard, 2008). PHR data can come from EHRs or directly from the patient – including non-clinical information (e.g. exercise habits, diet, etc). In broad terms, a PHR system can be defined as a set of tools that allow patients to access and coordinate their lifelong

health information and make appropriate parts of it available to those who need it. As such, PHR systems are intended to reach patients outside of care settings, influence their behaviors, and satisfy their demand for greater information and access (Alberta Health Services, 2009). Thus, they can have tremendous impact in enabling and encouraging patients to actively participate in their own healthcare (Bagchi, Moreno & af Ursin, 2007; Alberta Health Services, 2009).

The original goal of PHRs was simply to shift the control of health information from the hospital system or care site to patients, allowing information to be more portable across health systems. However, with the development of suitable applications and tools to PHR systems, PHR technology can evolve well beyond providing a consolidated patient record—in ways that make it more widely applicable and valuable to health systems. That is, it can allow the PHR to function as a platform for patients to exchange information and interact with the health system (e.g., scheduling appointments electronically). In addition, timely access to pertinent health data can be facilitated as well as communication between patients and the healthcare providers (Bagchi, Moreno & af Ursin, 2007). Hence, PHRs are gaining in popularity, especially, among people suffering from chronic diseases and those experiencing unexpected health events as these people are the most interested in recording their care and being actively involved in treatment plans formed for them by healthcare providers.

Currently, the most interesting and relevant potential PHR system applications to consider are categorized into five main groups: decision support, social networking, provider-patient interaction, disease/health management, and financial services (Alberta Health Services, 2009). However, currently, only a few applications falling in the aforementioned categories have already been implemented and are fully functional. For example, vendors are expanding PHR systems to host disease forums for patients and to remotely

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