

Chapter 6.13

Applying Personal Health Informatics to Create Effective Patient-Centered E-Health

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ABSTRACT

E-health use is increasing worldwide, but no current e-health paradigm fulfills the complete range of users' needs for Web-enabled healthcare services. Moreover, a number of obstacles exist that could make it difficult for e-health to meet users' expectations, especially in the case where the users are patients. These dilemmas cloud the future of e-health, as promoters of e-commerce, personal

health records, and consumer health informatics paradigms vie to create e-health applications while being hampered by the implicit constraints of each perspective. This chapter presents an alternative approach for designing and developing e-health titled personal health informatics (PHI). PHI was developed to overcome the limitations of preceding paradigms while incorporating their best features. The chapter goes on to describe how PHI can be applied to create effective patient-centered e-health for delivery by healthcare organizations to their own patients.

DOI: 10.4018/978-1-60960-561-2.ch613

INTRODUCTION

E-health is broadly defined as “health services and information delivered or enhanced through the Internet” (Eysenbach, 2001). Overall use of e-health continues to expand worldwide. Harris Interactive reports the number of Americans who have searched for health information online has increased to 117 million, and 85% of these individuals searched within the month prior to being surveyed (Krane, 2005). Outside the U.S. and Europe, e-health use has grown more slowly (e.g., see Holliday & Tam, 2004). But even in these areas further expansion seems likely as the World Health Organization and similar groups ramp up efforts to increase availability of e-health in developing nations (Kwankam, 2004; WHO, 2005).

Although some aspects of successful e-health are well-established, such as the need to provide encyclopedic health content, other aspects are less obvious. For example:

- Which services should be deployed online and how should users interface with these services?
- If communication is offered, what is the best way to coordinate this to balance needs of the public with those of healthcare representatives, for example, physicians and clinic staff?
- How should personal health records (PHR) be incorporated into e-health, who “owns” the data in these records, and what (if any) data should PHR share with records of the healthcare provider, insurer, and payer, such as employer or government agency?

These are no idle questions to the health informatics and IT practitioners who must design and deploy e-health applications. Given the large number of healthcare providers who currently are investing in e-health as an important part of organizational strategy (Lazarus, 2001; Martin, Yen & Tan, 2002), learning how to create suc-

cessful e-health applications is a key topic for both research and practice.

In developing effective approaches for designers and developers of e-health, I propose that it will be helpful to view e-health, as broadly defined above, from a user-centered perspective that can incorporate best practices of preceding e-health paradigms without being limited by their implicit constraints. This chapter presents the foundational concepts underlying this approach and then describes how the approach can provide guidance in the specific context of e-health applications that healthcare providers develop to serve their own patients.

PARADIGMS OF E-HEALTH

E-health is a broad domain that describes numerous aspects of the convergence of healthcare and Internet technology (Oh, Rizo, Enkin & Jadad, 2005). A frequently-cited definition by Eysenbach highlights e-health’s interdisciplinary underpinnings.

E-health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve healthcare locally, regionally, and worldwide by using information and communication technology (Eysenbach, 2001).

Indeed, “state-of-mind” has been much more critical to e-health than is the case for most other major Internet applications, such as online banking. Historically, three major paradigms have played key roles in developing e-health to its current state. Although each paradigm has been important in promoting specific feature sets and in raising overall awareness of e-health, I will argue that all have essential constraints that make

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