# Chapter 1
# Health in the Digital World:
## Transformational Trends

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## ABSTRACT

*While information technologies, the Internet, and mobile technologies are introducing innovative approaches to knowledge exchange, communication, and new knowledge generation, the health system is comparatively slow in taking up these approaches towards healthcare service delivery. This chapter discusses the opportunities that information technology (IT) can offer to health care system innovation and improvement, highlights some key IT trends that will guide research and development, and highlights some current examples. Some action steps are suggested to accelerate the adoption of IT into routine health practices.*

## INTRODUCTION

Modern information technologies (IT) such as computers, portable devices, and smart phones have evolved rapidly over the last decade, fueled by rapid research and development in electronic technologies, their increasing affordability and portability, the ubiquitous connectivity through high speed and wireless connections, and the evolution of the market place to accommodate these technologies due to consumer demand and expectations. As a result, IT touches our everyday lives in many different ways, from work-related usage, such as instant stock quotations or instant messaging, to relaxation activities, such as Web entertainment and online friendships. This 24/7 electronic presence bears an unmistakable and culturally transformational force on how individuals access and disseminate information, communicate with others, learn and exchange knowledge, and provide services (Tapscott & Williams, 2006, pp. 10-15).

Imagine the following activities that are done every day, seamlessly supported by IT:

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- Obtaining the latest news from Web news services such as CNN.com (http://www.cnn.com)
- Going to Youtube (http://www.Youtube.com) to watch the latest clips of shows that one missed on TV
- Using the Web to book travel such as Expedia (http://www.expedia.com), banking, and other daily routines.

None of this would have been possible without the Internet. In fact, one could easily argue that with the various information and services now available on line and easily accessible at our fingertips through the computer keyboard, our everyday lives have been completely transformed by the Internet.

What about our health system? Compared to other sectors, our health system is far from taking full advantage of the latest IT trends to carry out health services, education, and research. There are many sites on the Web providing health information to seekers, and there are even organizations offering on-line health services. However, very few integrate IT as part of the comprehensive and personalized health experience that health consumers are trying to find on line, such as offering on line scheduling and personalized health record access while offering them health advice. An exception to this general phenomenon is the United States Department of Veterans Affairs electronic approach to health care delivery - MyHealtheVet (http://www.myhealth.va.gov) – where personalized and trusted health information, a personal health journal, prescription refills, telemedicine, and links to benefits and resources can be found (Naditz, 2008; Nazi & Woods, 2008). Otherwise, very few organizations or health sites can claim this comprehensive approach to providing IT-enabled health connectivity and transactional services to their health clients.

Worse yet, there are Web sites created by health organizations, commercial entities, and individuals offering health services that are unreliable, inaccurate, and may be downright harmful to consumers. For example, when evaluating accuracy and quality of health information of 25 health sites, a panel of 34 physician experts found the coverage of key information to be poor and inconsistent (Berland et al., 2001). In another study, qualified specialists in spinal surgery scored 50 scoliosis Web sites based on a maximum quality score of 32 and found that information about scoliosis on the Internet was of limited quality, with a descending order of quality of sites created by academic institutions (12.6), by physicians (11.3), commercial entities (11), unidentified sources (7.6), and non-physician health professionals (7.0) (Mathur et al., 2005). Similarly, the accuracy score (out of a maximum of 12) reflected poor information, with a descending order created by academic sites (6.6), physicians (6.3), unidentified (6.0), non-physician professionals (5.5), and commercial sites (5.0).

In summary, our current health system in general is inconsistently and significantly underutilizing the Web and IT for health transactions, and falling far short of the transformational role that the electronic milieu can play in revolutionizing health service delivery. For example, consider, if at present, whether the majority of our citizens:

- Can book and coordinate appointments for health services, similar to booking airline flights?
- Can check their own lab test results and health records anytime, anywhere they want, similar to Internet banking?
- Can inquire about personal health issues by reaching health professionals as we do with our online brokers or travel agents?

Although one might argue that, since health services are decidedly personal and need a high degree of security, carrying out highly personal health services over the Internet would not be wise. However, with many different industries adopting the Internet as one of their core business