

Guest Editors' Column

Research in e-Health: Guest Editors' Introduction to the Special Issue

From economic as well as social perspectives, the role of healthcare continues to expand in modern life. Close to \$2 trillion is now spent on healthcare annually in the United States, representing over 16% percent of the total economy of the country. And perhaps more than any other sector of the economy, healthcare affects users in personal ways, involving matters of life and death, sickness and health. While technological advances have been central to the growth of the healthcare industry, only recently has attention turned to the utilization of information technology (IT) to expand healthcare capabilities, in addition to automating manual procedures and transactions. These efforts have included enterprise initiatives to better manage myriad records and systems as well as broader, externally focused efforts to facilitate health communication.

Simultaneous to these health IT developments, a major social context is changing: Individuals are taking an increasing role in learning about, communicating and managing their health affairs. A recent survey by the Pew Internet and American Life Project (2006) found that 80% of Internet users (113 million) looked for health information and, among those who did, the majority reported that it affected their course of action in dealing with health issues.

Indeed, the healthcare industry appears to be at a tipping point. The movement is from a provider orientation to a dynamic interaction among consumers and providers, and it centers on use of healthcare e-services, better known as *e-health*. This interaction is multi-layered and complex, involving consumers, patients, families, caregivers, physicians, hospitals, health plan administrators, and more. The research community can assist initially by applying existing theories and concepts to better understand how e-health related communication, interactions and adoptions can be realized to promote positive changes to health systems and patients' lives.

The papers in this issue represent such a contribution. While reporting on a wide range of e-health implementations—including systems used by physicians as well as patients—the papers share a core concern over the communication of health information and the role of information technology in enhancing this communication in an efficient, effective, and trustworthy manner. The first four papers take the perspective of the patient / health information consumer.

Linda Gallant, Cynthia Irizarry, and Gary L. Kreps present an exploratory analysis of hospital Web sites. They conduct user-centered design testing of a prototype application followed by interviews to identify the content and interactivity that users desire from hospital Web sites. Their analysis of interview data finds that trust in a hospital Web site is principally encouraged by aspects that promote physician credibility and institutional reputation. In addition, they find that users desire personalization of online information and services, well-targeted health information, support for selecting a physician, and seamless linkage of information, i.e., being able to easily find related information. These findings highlight the importance of considering the perceptions of patients and health information consumers in developing effective e-health, especially in regards to trust, satisfaction, and usability.

Richard Klein studies the effects of patients' trust beliefs on subsequent use of a new online patient-physician communication system. His research augments the well-known technology acceptance model (TAM) (Davis, 1989) with measures of trust in the healthcare provider and the system vendor and a measure of the patient's need for healthcare. Both trust

factors proved to be important determinants of patients' intention to the system, implying that patients' use of these systems can be increased by factors that promote trust, such as information about the vendor's reputation.

Michael Bliemel and Khaled Hassanein also assess trust, but from the viewpoint of the health information consumer. They propose an integrated model of satisfaction with health information retrieval in which trust and satisfaction with information quality and system quality lead to overall satisfaction. Findings indicate that satisfaction with system quality has the largest effect on overall satisfaction, and satisfaction with information quality and trust have medium and small effects. These findings contrast sharply with the perspective of medical professionals, who focus primarily on information quality, and suggest that consumers may not be able to identify effective health information without professional guidance.

Nancy Lankton and Vance Wilson apply an alternative model of patient satisfaction with e-health based upon the relationship between patients' expectations and performance perceptions. These authors focus on the effects of six antecedent factors on satisfaction with e-health, as suggested by social cognitive theory (SCT) (Bandura, 1986). They find several patient characteristics are important predictors of expectations, including enjoyment of e-health, level of participation in healthcare, self-efficacy, and prior Internet experience. The overall model is highly predictive of satisfaction. The overall findings imply that patients' satisfaction with e-health can be predicted from surveys conducted prior to actual use of the application, and this information subsequently can be applied to guide application development.

A final paper by Roland Grad, Pierre Pluye, Marie-Eve Beauchamp, James Hanley, Bernard Marlow, Michael Shulha, Janique Johnson-Lafleur, Ann Macaulay, and Kimiz Dalkir addresses e-health services that are directed toward health professionals. The authors present a structured methodology based upon an acquisition-cognition-application model (Saracevic and Kantor, 1997) for assessing clinical impact of electronic knowledge resources that are available online. Results of a study conducted by the authors among family doctors are used to ground a five-construct scale relating to assessment of an information search. Identified constructs include (1) Positive change, (2) Reinforcement, (3) Neutral learning, (4) Dissatisfaction, and (5) Mistrust. In addition, the authors provide a detailed explanation of the resulting instrument, research applications, and considerations for implementing the methodology.

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