Chapter XX
Improving Internet–Based Health Knowledge Through Attention to Literacy

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ABSTRACT

This chapter presents a discussion and findings of health literacy and its relevance to health informatics. We argue that the Internet represents an increasingly important vehicle for knowledge translation to consumers of health information. However, much of the Internet-based information available to consumers is difficult to understand by those who need it the most. A critical factor to improve the comprehensibility, and therefore the quality, of health information is literacy. We summarize studies of various aspects of health literacy, such as readability and comprehensibility of risk information. We also point out ways in which the study of health literacy, including prose and numeric literacy, should inform researchers, health practitioners, and Web designers of specific ways in which consumer health information can be improved.

INTRODUCTION

The Internet has been increasingly replacing other mass media as the major source of health information for patients and the general public. The extensive malleability of information technology makes it an ideal vehicle for knowledge translation, dissemination, and exchange. However, part of the success or failure to develop knowledge translation strategies that are effective rests on creating understandable messages that serve as cues to action. Moreover, effective use of health

information requires somewhat sophisticated cognitive skills, such as being able to search and find the necessary information, solving comprehension impasses, and discerning between reliable and unreliable health sources.

Health literacy, the "degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (Ratzan & Parker, 2000), is a critical component in delivering and accessing health information effectively. Most published studies on health literacy have been concerned with issues of developing and testing assessment and readability instruments as well as with investigating factors associated with low literacy, such as aging and socio-economic factors, whereas some important aspects of health literacy, such as the ability to comprehend and to use numerical health information is much less understood.

Although there has been a great deal of research on various aspects of health literacy (and literacy in relation to health), its relationship to new emerging information technologies, such as the Internet, is just beginning to be explored (McCray, 2005). There are many research issues relevant to health literacy and information technologies that need to be examined in order to develop a systematic framework to evaluate associations between literacy and information technology utilization.

In this chapter, we present a discussion and empirical results from studies regarding the relevance of health literacy to knowledge translation strategies through the Internet. We first review the definition and characterization of knowledge translation and health literacy, including prose, and numeric literacy. We consider some of the major definitions of health literacy and its components, showing the concept's relevance to the design of health information systems. We then continue with representative empirical studies, which were designed to characterize the relation between readability assessment and comprehension of

health information on the World Wide Web, and to assess health numeracy skills of older adults when interpreting health information on cancer. We discuss the critical importance of literacy for the deployment of effective knowledge translation strategies in the context of information technologies. Finally, the last section is focused on health literacy as it relates to knowledge translation through health information technologies.

WHAT IS KNOWLEDGE TRANSLATION?

The concept of "knowledge translation" has gained popularity among health researchers as a way to promote the understanding and use of scientific evidence about health and disease to practitioners and consumers alike (Bowen & Martens, 2005; Choi, 2005; Davis, 2005; Davis et al., 2003; Pablos-Mendez, Chunharas, Lansang et al., 2005). Focusing on healthcare providers, the concept of knowledge translation has been defined by the Canadian Institutes of Health Research as "the effective and timely incorporation of evidence-based information into the practices of health professionals in such a way as to effect optimal healthcare outcomes and maximize the potential of the health system" (Canadian Institutes of Health Research). Similarly, attempts have been made to extend knowledge translation strategies to include the general public and community participation, incorporating people's cultural backgrounds and societal values (Bowen & Martens, 2005; McShane, Smylie, Hastings, & Martin, 2006; Saini & Rowling, 1997).

For practitioners, forms of knowledge translation involve the summarization and simplification of medical evidence in accessible and understandable formats (Choi, 2005). This may include critical appraisals of the medical literature, such as those presented in the American College of Physicians' ACP Journal Club, or timely systematic reviews of the research literature (Tugwell,

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