USE IT to Create Patient-Relation Management for Multiple Sclerosis Patients

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ABSTRACT

Patients with multiple sclerosis (MS) visit various healthcare providers during the course of their disease. It was suggested that information and communication technology might help to orchestrate their care provision. We have applied the USE IT tool to get insight in the relevant problems, solutions, and constraints of MS care both in the organizational and the information-technological area. There is hardly a chain of healthcare, but rather, a network in which informal communication plays an important role. This informal network worked reasonably effective, but it was inefficient and slow. The MS patient count is small for most care providers. Patients thought that a lack of experience caused their major problems: insufficient and inadequate care. To improve care, we proposed a solution that combines an MS protocol, the introduction of a central coordinator of care and a patient-relation management (PRM) system. This is a simple Web-based application based on an agreement by the caregivers that supports routing, tracking, and tracing for an MS patient and supplies the caregivers with professional guidelines. It is likely that we would have suggested a far more complicated ICT solution if we had only analyzed the MS care process as such without specific consideration of the dimensions in the USE IT tool.

Keywords: customer-relationship management; electronic patient record; healthcare chain; healthcare information system; work-flow management

INTRODUCTION

Research in human-computer interaction (HCI) has been spectacularly successful, and has fundamentally changed computing (Myers, 1998). The adoption of information technology has changed less dramatically and is a major problem in healthcare today (Berg, 2001). The HCI community has tended to portray the average user as someone who knows how to deal with IT and who willingly participates in this interaction (Marsden & Hollnagel, 1996). The average user does not exist in healthcare, they range from laggards to innovators (Rogers, 1995), and most times
HCI is designed to address the innovators (Spil, Schuring, & Michel-Verkerke, 2004). This means that highly complex systems are designed that have to be used by people that have limited capacity to deal with computers. Interaction design, a newly coined discipline (Coiera, 2003), believes that information-systems design should include the people who will use them. We developed an interview model, called USE IT, that includes the end user in the IS design process by determining his or her user characteristics before the actual system design process starts.

In this article, the USE IT model (Spil et al., 2004) is applied to define what use of information and communication technology would support healthcare professionals in providing care to patients suffering from multiple sclerosis (MS). Two aspects of the relation between technology and humans will be discussed in this research: first, technology partly replacing human interaction, and second, factors that influence the success of human interaction with technology in respect to actual use.

The next section describes what problems in the MS healthcare chain motivated us to conduct the research. Then, it is discussed why the USE IT model is the appropriate methodology for this research. The complete research design is given next. After that, the results of the case study are presented. The discussion of the findings will then lead to the presentation of patient-relation management (PRM) as a solution for the problem. In the last section, overall conclusions will be drawn.

BACKGROUND AND MOTIVATION

A rehabilitation hospital asked us to study the healthcare chain of MS in a Dutch region that serves about 500 MS patients and includes three large hospitals (with a total of about 1,800 beds) in order to know what ICT solution could improve MS care. In this research, a healthcare chain is defined as follows: The healthcare chain is constituted of all care providers involved in the care for a particular group of patients (Michel-Verkerke, Schuring, Spil, & Hummel, 2003). In the ideal situation, a healthcare chain is designed and implemented and is not a randomly originated collection of care providers. To make a healthcare chain a chain, the care providers should be linked by binding engagements concerning the care to provide to the particular patient group. These engagements comprise agreement on (1) what care should be provided by whom in what way for how long in what place, (2) how and when patients are transferred from one care provider to another, and (3) how patient information is communicated. Since healthcare is organized in a functional way (i.e., wards and practices are grouped by the profession or specialty of the care provider) and not in a process-oriented or product-oriented way, it is hard to organize and implement healthcare chains cross-organizationally (i.e., across the healthcare institutions). For the same reason, and because the level of ICT resources in healthcare is low, none of the participants used an electronic patient record (EPR). Many healthcare professionals consider implementing a cross-organizational EPR to support the care processes in a healthcare chain to be utopian at this moment. Still, a strong desire to improve MS care and the awareness of the potential benefits of the use of ICT in healthcare were the motivation to start this research.

The challenge of this research project was to find a solution that on the one hand is locally, practically applicable, and that on the other hand can serve as a base for a
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