

## Chapter 76

# Exploring Physicians' Resistance to Using Mobile Devices: A Hospital Case Study

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### ABSTRACT

*Mobile communication technology is emerging as an area of major importance in healthcare. By enabling ubiquitous real-time access to patient information and state-of-the-art medical knowledge, this technology has the potential to support the integration of health records, the practice of evidence-based medicine, and to improve productivity among provider organizations. However, its adoption and implementation have faced many challenges; an important one has been users' resistance. For instance, many physicians are still reluctant to embed these technologies in their medical practices. This chapter, hence, explores factors that influence this resistance to using mobile devices, thereby hindering the potential benefits that these technologies can bring to healthcare. Specifically, the authors present the results of an empirical study conducted at a local hospital where two mobile technologies were examined. The findings highlight several important factors that, if not addressed in healthcare settings, can result in user resistance to the implementation of this technology.*

### INTRODUCTION

The healthcare industry constantly faces a number of challenges, including high costs, a growing incidence of medical errors, inadequate staffing, and lack of coverage in rural areas. Healthcare professionals at the same time are under pressure to provide high quality services to more people but using constrained financial and human resources. One proposed solution to this crisis is the adoption of mobile devices or MDs (Varshney, 2003).

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MDs are important health information technology (IT) based solutions to support and streamline medical practice. Different from fixed computers or nursing workstations, the use of MDs aims to facilitate the access to patient and medical information at the bedside, thereby enhancing medical decisions and knowledge integration (Fontelo, Ackerman, Kim, & Locatis, 2003). These devices can help healthcare professionals cut down the time involved in searching for forms and knowledge at the bedside, and can reduce the risk of prescribing errors (Amarasingham, Plantinga, Diener-West, Gaskin, & Powe, 2009). By enabling ubiquitous real-time access to patient information and up-to-date medical knowledge, these technologies have the potential to support the integration of health records and the practice of evidence-based medicine<sup>1</sup> (Scott, Seidel, Bowen, & Gall, 2009). Mobile devices are thus perceived as a potential solution to not only improve quality of medical services but also reduce long-term costs.

As MDs become more pervasive in healthcare institutions, several challenges remain. One of them is persuading healthcare professionals, specially physicians, to use these devices. Physicians are aware of the importance of being able to access and input medical and patient information from anywhere, at any time in their medical practices (Davenport & Glaser, 2002). Health IT is also perceived as a solution to support and enhance team collaboration among physicians and across healthcare institutions. Despite these advantages, physicians are still often reluctant to embed these technologies in their medical practices. "Physicians enjoy high levels of autonomy; they are sufficiently powerful that the institutions they work for are reluctant to tinker with their work processes; and, perhaps most important, they do most of their work away from a computer screen" (Davenport & Glaser, 2002, p. 111).

A common pattern in the literature of physicians' resistance toward health IT lies in the perceived distraction and unintended consequences that these technologies bring to the medical practice. For instance, Freudenheim (2004) reported the case of the Sinai Medical Center at Los Angeles where physicians resisted the use of a newly implemented computerized physician order entry (CPOE) because they felt the system was disturbing their medical duties. Physicians forced its withdrawal after it was already online in two-thirds of the 870-bed hospital. Another study, conducted in a children's hospital, found that mortality among critically ill children increased after the installation of a popular commercial CPOE. This mortality rate was mainly attributed to changes in clinicians' workflow patterns after the installation (Han, Carcillo, & Venkataram, 2005). These findings suggest that due to the newness of, and unfamiliarity with, the technology, physicians spent excessive amounts of time at the computer screen when they would have previously been at their patients' bedsides. A similar pattern has been seen in the adoption of MDs in healthcare institutions. Although device portability has been perceived as an asset, some physicians have pointed out that excessive portability can be a deterrent to their use (e.g., too small key strokes, easy to lose) (Ammenwerth, Buchauer, Bludau, & Haux, 2000; Goldstein, Wilson, & VanDenkerkhof, 2007). Lack of users' acceptance and resistance have long been a barrier to successful IT adoption and implementation in healthcare.

Researchers and advocates call for more studies to help overcome the challenges faced when implementing these technologies, especially research that examines the functionality of healthcare technologies and factors leading to physicians' resistance to using them (Agarwal, Gao, DesRoches, & Jha, 2010; Varshney, 2003). Hence, the purpose of the research discussed in this chapter is to explore technological, psychological and environmental factors that inhibit or enable physicians' mobile device usage during their medical practice.

The rest of the chapter proceeds as follows. In the next section, we present key concepts and literature related to healthcare IT and the use of mobile devices in healthcare settings. Then we present a sociotechnical model that explores the inhibitors and enablers of mobile devices usage, and we discuss

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