Chapter 1.21
Telemedicine Barriers

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INTRODUCTION

Telemedicine implies that there is an exchange of information, without personal contact, between two physicians or between a physician and a patient. Thanks to telecommunications technologies telemedicine enables the provision of healthcare services or the exchange of healthcare information across geographic, temporal, social, and cultural barriers (Chau & Hu, 2004).

Through telemedicine, healthcare centers can offer diverse specialty services to other centers, to other physicians, or directly to the patient, such as for example telecardiology, teledermatology, teleendoscopy, telemedicine, telemonitoring, telenursing, telepathology, teleradiology, or telesurgery (Tachakra, 2003).

Telemedicine should not be confused with e-health (or teleHealth). Telemedicine only refers to the provision of medical services (Chau & Hu, 2004). E-health, on the other hand, refers both to medical services and to any other type of service, as long as it has something to do with health and employs information technology (Eysenbach, 2001; Rodger & Pendharkar, 2000). In this respect, e-health would also include healthcare educational activities, research in the health sciences, the handling of electronic files in the healthcare system, and any other use of information technologies in the healthcare system.

Telemedicine requires a new type of worker: the healthcare teleworker. But unlike in other types of telework, the human factor is much more important for the success of projects in telemedicine. Nevertheless, physicians remain wary of adopting

telemedicine. This work examines the sources of the resistance to incorporate telemedicine. It adopts a focus centering on the difficulties that human factors have in accepting the practice of telemedicine.

It would be useful, for their design, to analyze telemedicine project acceptance among the human factor involved. This would allow managers to make management decisions concerning the design of the project, its implementation, and the subsequent resolution of problems with the personnel involved.

The rest of this article is organized as follows. The second section discusses the relationship between telemedicine and human resource management. The third section tries to identify the obstacles in the way of an adequate acceptance and development of telemedicine. Section four suggests some future research opportunities within the domain of the telemedicine topic.

BACKGROUND

The various barriers to the implementation and development of telemedicine projects include patient acceptance (Eikelboom & Atlas, 2005; Hofmann-Wellenhof, Salmhofer, Binder, Okcu, et al., 2006; Turner, Thomas, & Gailiun, 2001; Wyman, 1994), government regulation (McGee, 2004; Schindler, 2005), the cost of the technology (Guy, 1997; McGee, 2004; Schindler, 2005), the absence of insurance coverage (Guy, 1997), technological barriers (Paul, Pearlson, & McDaniel, 1999), and social and cultural obstacles (Bangert & Doktor, 2002; Jarudi, 2000; Spil, Schuring, & Michel-Verkerke, 2004) among others. Nevertheless, there is consensus that the most important source of resistance comes from the failure to accept such systems by the healthcare workers, precisely the ones who will have to use them (Chau & Hu, 2002; Hu & Chau, 1999; Hu, Chau, Sheng, & Tam, 1999; Qavi, Corley, & Kay, 2001).

Nevertheless, few studies analyze the impact of telemedicine projects on the management of the human resources participating in such projects. Some studies that do so analyze the psychological determinants of the physicians in telemedicine adoption (Croteau & Vieru, 2002; Hu et al., 1999). Of particular note is the hierarchical telemedicine acceptance model proposed by Hu and Chau (1999), which includes human and technological dimensions and organizational levels. At the organizational level they analyze the relation between the decision to adopt telemedicine and the compatibility of the technology to be used with the physicians' previous work routines.

The consideration of a close relationship between technological and human resources is not a new concept. The sociotechnical approach (Emery & Trist, 1965; Miller & Rice, 1967; Rice, 1958; Trist & Bamforth, 1951) was a clear expression of the notion that companies should unite both their human and technological dimensions. The human relations (McGregor, 1960; Roethlisberger & Dickson, 1939) and contingency schools (Lawrence & Lorsch, 1967) also noted this relationship.

This lack of attention given to the human factor in the adoption and implementation of telemedicine projects is surprising, since the healthcare staff's reluctance to accept the new technology or collaborate in it is one of the main causes of the failure of such projects, these professionals being the proposed end-users of the system (Gagnon, Lamothe, Fortin, Cloutier, et al., 2005). This concept is well known in the literature on the adoption of information technologies in organizations (Bruque-Cámara, Vargas-Sánchez, & Hernández-Ortiz, 2004; Khatri, 2006; Melville, Kraemer, & Gurbaxani, 2004; Powell & Dent-Micallef, 1997), but the question has received too little attention in the specific case of telemedicine projects.

The rejection of telemedicine by the healthcare workers involved is often a result of the resistance to change generated by inertias in the existing organizational routines (Pardo & Martinez, 2003;

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