Chapter 8.7
Towards Knowledge Intensive Inter–Organizational Systems in Healthcare

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ABSTRACT

The aim of this chapter is to share recent findings and understanding on how information systems can be better adopted to support new ways of work and improve productivity in public funded healthcare. The limits of transferring explicit and tacit knowledge are discussed and moreover, the chapter elaborates barriers to the widespread use of knowledge management tools among clinicians. The impacts of an inter-organizational system used for remote consultation between secondary and primary care providers are examined. Furthermore, the authors suggest that issues related to clinical knowledge management such as the varying information and knowledge processing needs of clinicians from various medical expertise domains should be examined carefully when developing new clinical information systems.

INTRODUCTION

It is reasonable to expect information technology to bring benefits to healthcare organizations just as it does to any other business. But recent studies demonstrate that the introduction of information technology does not in itself improve employee effectiveness in healthcare (Littlejohns, Wyatt, & Garvican, 2003). Moreover, it has proved particularly difficult to evaluate information systems in healthcare. This may involve the "evaluation

paradox": we refuse to use a new technology until an evaluation study of its use has proved it useful. Particularly true in the healthcare sector, this cautious approach can be seen as a virtue, considering that hospitals fortunately were never taken in by all the information technology hype; but on the other hand the healthcare sector is regrettably slow in adopting even the best new practices. Although successful adoption of inter-organizational systems in healthcare still lacks a substantial body of research we argue that a key issue to be addressed may well be the natural logic of information and knowledge processing in various medical areas.

The term "telemedicine" covers the application of information technology to medical care chains. Conventional operations can always be pushed up a notch with state-of-the-art technology. In many cases it would also be more efficient to reorganize the operations altogether. For example, an e-mail application is at its most useful when its users are considered as active users of information rather than passive recipients. An organization can learn new ways of profiting from this new communications channel, which lies at the medium level according to the information richness theory introduced by Daft and Lengel (1986). A good example may be found in the healthcare sector, where new technology has managed to loosen the shackles of conventional thinking.

The electronic consultation model in medical care emerged in the early 1990s, beginning with an experiment at the internal medicine department of a hospital in southern Finland, where referrals were returned with care instructions in cases where lab results coupled with the information on the referral were sufficient for an accurate diagnosis. If the specialist receiving the referral considered that the case had not been examined sufficiently, the referral would be returned with instructions as to further tests or examinations. The new model evolved naturally from this practice. The information entered on a referral is often sufficiently comprehensive to enable remote consultation, and under the new model about half the patients referred to the hospital could be treated at their local health center on the basis of instructions provided by specialists through an information network.

There are many phenomena at play in shaping the practices of the healthcare sector. Identifying and allowing for these phenomena may be the key to successful telemedicine projects, indeed even more important than the technology itself. In the case of the new model described above, the innovation was supported by studies in the field: over half of all referrals in Finland and, for example, in Britain contain enough information for making an accurate diagnosis. So why are these patients being sent to hospital if there is already enough information for a diagnosis to be made at the health center? Convention, insecurity, financial incentives and similar factors have been cited as possible reasons.

This chapter aims to share recent findings and understanding on how information systems can be better adopted to support new ways of work and improve productivity in public funded healthcare. The effects of an integrated electronic referral system used for remote consultation between secondary and primary care providers is examined in a case study of two healthcare units in southern Finland. The study demonstrates how costly investments in videoconferencing in orthopedics yielded lesser benefits than the cheaper investment in e-mail-type application in internal medicine. Evidently internal medicine relies on fixed-format information, whereas orthopedics is more dependent on direct sensory inputs and tacit knowledge (Sternberg & Hovarth, 1999). Consequently, the natural logic of information and knowledge processing needs to be examined carefully before investing in information technology.

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