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## **Chapter XXI**

# **Managing Healthcare Organizations through the Knowledge Productivity Measurement**

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### **ABSTRACT**

*Understanding the contribution of knowledge to business performance is important for efficient resource allocations. It is very true for healthcare organizations. For the best utilization of scarce medical expertise in the successful medical service delivery process, knowledge management will play a more important role in the future. In this paper, a performance-oriented knowledge management methodology or KP<sup>3</sup> methodology was applied to the medical domain. Through actual data from the six OB/GYN specialty hospitals in Korea, the contribution of knowledge to performance was assessed. Specifically, the productivities of knowledge entities were calculated using DEA (Data Envelopment Analysis) approach to give some important managerial insights for knowledge management activities.*

### **INTRODUCTION**

For the economic growth of the country and the success of individual corporations, knowledge plays an increasingly important role (Cole, 1998). Knowledge is considered as an explicit third factor for the creation of value besides the traditional input factors;

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capital and labor. Additionally, knowledge can be an important source of sustainable competitive advantage because of its difficulty to create and imitate (Peteraf, 1993; Prahalad & Hamel, 1990; Teece, 1998; Winter, 1987). Naturally it has to be nurtured and well-managed (Lubit, 2001; Maria & Marti, 2001; Ndlela & du Toit, 2001).

It is equally true for the healthcare organizations. Typical healthcare organizations can be considered as “data-rich” because they generate massive amount of data, such as electronic medical records, clinical trial data, hospital records, administrative reports, benchmarking findings and so on (Abidi, 2001). To be useful, the data needs to be mined as a usable form of knowledge, classified, shared, and disseminated among the related stakeholders such as patients, medical professionals, and government agencies. However, the data is rarely mined and then used for strategic decision-support resources (Adidi, 2001). Therefore, there are lots of opportunities for the knowledge management approach to improve the productivity of healthcare organizations.

Recently, we proposed a performance-oriented knowledge management approach or KP<sup>3</sup> methodology (Ahn & Chang, 2004). The methodology assesses how much knowledge contributes to actual business performance. Using business performance data, which is the result of applying knowledge to business operations, the methodology enables us to assess the contribution of each knowledge entity to business performance. Knowledge contribution to the business performance was estimated using the Data Envelopment Analysis (DEA) approach in comparison with knowledge entities for better business performance.

To satisfy the need for the efficient management of healthcare organizations, it is necessary to understand the contribution of medical knowledge to the performance of the organizations. In this chapter, the KP<sup>3</sup> methodology is applied and validated in the medical domain to achieve the goal. To validate the methodology, data were collected from seven hospitals and the performance measures, such as revenue and annual number of patients cared for per each medical personnel were estimated.

The assessment of knowledge contribution to performance provides an important understanding of the productivities of healthcare organizations and knowledge entities. Specifically, the assessment would highlight very useful information for evaluating and compensating medical knowledge workers, and for allocating and developing human capital. Therefore, through this approach, medical professionals and managers in healthcare organizations could address the knowledge management issues such as knowledge productivity measurement, developing human capital, and employee evaluation and compensation, systematically.

The rest of the chapter is organized as follows: In the next section, the background of the methodology is explained. The components and relationships among them are then explained. This is followed by a section where linkage matrices are estimated using the data from the six OB/GYN specialty hospitals and knowledge productivity concept is discussed. The chapter then concludes with an agenda for further research.

## BACKGROUND

To survive in today’s competitive, regulated, and litigious medical market place, it is no longer enough for a doctor to have impeccable diagnostic abilities and bedside manner. Doctors need to have business savvy and organizational skills (Dordick, 2001).

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