SUPPLY CHAIN MANAGEMENT IN THE HEALTHCARE SECTOR: A RESEARCH AGENDA

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Abstract

Competitive pressures and severe cuts in public healthcare spending force healthcare organizations to reconsider their business strategies and management practices. In this important industry, managers need not only lower costs but maintain at the same time a level of quality services. Supply chain management is currently regarded as having an important impact on reducing costs and improving performance in healthcare organizations. Supply chain management is greatly enabled by information technology and enterprise resource planning systems and specially developed supply chain management systems. In addition, a series of related factors, such as regulation, globalization, and health insurance legislation is of the utmost importance for the healthcare sector. This paper provides a literature review of the impact of supply chain management on the healthcare organizations and proposes a research agenda for supply chain management in the private and public regulated healthcare sectors.

Keywords: Supply Chain Management, SCM systems, Healthcare

1 INTRODUCTION

The term “Supply Chain Management” (SCM) was introduced in 1982, and according to the Council of Supply Chain Management Professionals, it is described as an integrating function with primary responsibility for linking major business functions and business processes, within and across companies, into a cohesive and high-performing business model. It includes the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities as well as manufacturing operations and it drives coordination of processes and activities with and across marketing, sales, product design, finance and information technology. SCM also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers.

The relative importance of SCM is on the rise, as current global trends are moving it to the forefront of business strategy and company executives realize its role in defining how a business can and should operate (Medows, 2011). Especially for the global healthcare sector, which is one the world’s largest and fastest growing industries, comprising various sectors such as pharmaceutical, medical equipment and supplies and healthcare services, the management of its supply chain is as complex and important as the industry’s size and velocity. Healthcare, among providers and payers in public and private settings, is a very costly industry sector. The Economist Intelligence Unit (EIU) estimates that global health care spending as a percentage of Gross Domestic Product (GDP) will average 10.5 percent in 2014 (unchanged from 2013), with regional percentages of 17.4 percent in North America, 10.7

percent in Western Europe, 8.0 percent in Latin America, 6.6 percent in Asia/Australasia, and 6.4 percent in the Middle East/Africa. Among developed nations, health is the second-largest category of government spending, after social protection(social assistance, health/unemployment insurance) (World Healthcare Outlook, 2013).

Currently, the healthcare sector worldwide is affected by major changes arising from legislative and regulatory obstacles as well as globalization and increasing operating costs. In many healthcare organizations, executives endeavor to lower costs of incoming supplies and keeping the quality standards at the same time. However, it has been argued that a large number of healthcare organizations ignore the total delivered costs (Kumar et al, 2008). Various other problems in the healthcare services, such as communication, patient safety, waiting times, and integration have been also identified by extant research (Meijboom,et al., 2011). Currently, in almost every country of the world, improving hospital supply chain performance has been seen by all healthcare organizations as an enabler for improving operational efficiency and reducing costs (Chen, 2013).

Efficient logistics are increasingly becoming more important, even critical, in the performance of the healthcare sector. In a broader context, Supply Chain Management (SCM) systems are gaining an increasing importance due to globalization and strong competitive pressures. They represent a paradigm shift in conducting business in the modern era, where collaboration rather than conflict seems more important and rewarding among the firms operating in a networking environment. Therefore, it seems that researching and analyzing SCM systems in the healthcare industry is a promising and fruitful area of research today having major practical consequences. Regulation and reform, cost management, global perspectives and technology investment are all important issues to be considered in the evaluation of the performance of the supply chains in the healthcare industry.

2 LITERATURE REVIEW ON HEALTHCARE ORGANIZATIONS AND SUPPLY CHAIN MANAGEMENT

In this section a literature review on the impact of supply chain management on the healthcare sector will be presented. The healthcare sector is a very complex and vast environment. As a consequence, in order for research to be effective, it needs to be multidisciplinary (Vries and Huijsman, 2011) and focused on the critical issues concerning the performance of the healthcare organizations and the provision of quality services.

The healthcare sector in its broader context does not only include clinics and hospitals but wholesale distributors, pharmaceuticals manufacturers, medical supplies' enterprises, pharmacies, government regulatory agencies, private health insurance companies, technology providers and information technology vendors. Logistics, purchasing and supply chain management considerations apply and are important for the whole industry, which is interconnected and mutually dependent. For example, Ritchie et al (2010) focus on the concept of reverse logistics and especially the recycling of pharmaceutical stock for later re-use, discussing supply chain management practices in the National Health Service. They argue that by developing effective reverse logistics processes in the NHS, there have been significant financial and operational advantages. The evaluation and improvement of the recycling and disposal of pharmaceutical products in the Manchester Royal Infirmary (MRI) is the objective of another study (Kumar et al., 2008). According to this study, in many healthcare systems, executives focus not on lowering the total delivered cost, but on efforts to lower the acquisition price of supplies, which is only a part of the total cost. To achieve cost reductions, hospitals need to review their processes and the associated costs eliminating non value-added activities.

Meijboom, et al. (2011) identified four major problem categories in the healthcare organizations: communication, patient safety, waiting times, and integration. The findings are based on literature concerning country comparisons of patient experiences. The authors argue that the most important problems and the weakest links occur between providers; therefore supply chain management can be used effectively to minimize problems. A number of issues, such the availability of medical records of individual patients and information on provider performance, need to be considered and improved.

Poor data quality was also found to be the case in healthcare environments in other studies (e.g. Bhakoo and Chan, 2011). Information technology in combination with cross-functional and cross-organisational integration in a supply chain perspective can be very effective on patient care (Meijboom, et al., 2011).

However, the implementation of effective SCM practices is not always straightforward. Lack of top management support and performance measurement systems, conflicting incentives in an organization, limited education on the performance and the function of a supply chain, inconsistent relationships with group purchasing organizations have been identified, among others, as serious barriers in implementing effective supply chain management systems (McKone-Sweet et al., 2006).

Cost reduction is always a goal which cannot be easily achieved due to the nature of the healthcare industry. Despite governmental pressures to cut costs, this is not easily achieved due to the behavior of purchasing managers in selecting suppliers, and preferring quality products or services over low prices (Lambert, et al., 2006). It is interesting to see in future studies if this finding holds true for both the private and the public healthcare sectors. It has been suggested that there are significant differences between the public and the private sector at least as procurement practices are concerned (Lian and Laing, 2005). Public sector organisations almost exclusively rely on transactional-based approaches. The restrictions imposed by public policy on procurement practices results in sub-optimal outcomes (Lian and Laing, 2005). The global nature of suppliers is also a key issue when considering to implement a healthcare supply chain (Bhakoo and Chan, 2011). Collaboration and trust between partners are required for a successful SCM system implementation.

Another key issue for effective supply chain management is the inventory management (Chen, 2013). Hospitals need to maintain an efficient inventory of drugs and medical supplies in order to meet emergency demand, but this policy, although necessary, may raise costs. A hospital-supplier integration through information technology is expected to lower inventory costs allowing at the same time the hospital to be able to meet patients' requirements. Technology issues, in addition to management and business issues is also regarded important by other researchers in the context of supply chains (Lillrank, et al., 2011). The decomposition of business processes into service events, which can be managed as part of a supply chain, is finally another important factor to consider when implementing supply chain management.

Last but not least, shortcomings of the healthcare supply chain have severe impact on human health. Drug shortages due to supply chain problems as an example are constantly increasing, leading to additional costs for hospitals worldwide and creating opportunities for counterfeiters threatening patient safety. Even in US, which is not facing developing world challenges, drug shortages have nearly tripled in the last decade (McKinsey & Company, 2013).

3 RESEARCH AGENDA

Based on the literature review it has become evident that the various supply chain models, theories and practices have not been adequately researched in the healthcare environment. One major reason being the late recognition of the value of supply chain management for the healthcare sector and the according late adoption of modern supply chain practices as compared to other sectors such as the consumer goods industry, where supply chain management has been prevalent for decades. As healthcare is a vastly growing business segment worldwide and a key aspect to quality of life, and since it has been proven that strong supply chain management is essential to effective delivery of healthcare in the public as well as the private sector, this paper highlights the limited research related to this area and proposes a research agenda encompassing the following areas. As there has been indications that significant differences exist between the public and private sectors in healthcare regarding specific supply chain management aspects, the research areas could distinguish their findings between those two sectors in order to verify this assumption.

1) Examination of the Critical Success Factors (CSFs) for the implementation and execution of Supply Chain Management in Healthcare

There have been numerous academic publications on the CSFs regarding the SCM field in general. A recent comprehensive study conducted on those publications by Syazwan and Abu Bakar (2014) identified four major CSFs: collaborative partnership, information technology, top management support and human resources. The relevance, reliability and importance of these CSFs in regards to optimum supply management in the healthcare sector needs to be researched, barriers need to be identified and best practices need to be recommended .

2) Identification of appropriate Supply Chain Performance metrics and standards in Healthcare

   Various studies and reports have pointed out the significant benefits of SCM in the healthcare sector, such as the potential cost savings, the better healthcare access and the improved patient safety (McKinsey & Company, 2013). Efforts to develop performance measurement methods, such as using the balanced scorecard approach, have been made from healthcare institutions and agencies in order to be able to identify whether these benefits are achieved and to what extent (Ontario Ministry of Finance, 2006). However, no widely adopted ways of measuring the efficiency and effectiveness of healthcare SCM in a transparent way have evolved. Thus, there is a need to research and define metrics and standards for assessing and improving healthcare SCM performance as well as for benchmarking and comparison purposes across healthcare institutions.

3) Identification and categorization of risk factors of SCM in Healthcare and development of appropriate response strategies

   Methodologies for identifying, categorizing and managing risks related to the supply chain need to be tailored to the healthcare sector. Health Supply Chain Managers need to be given the necessary tools in order for them to be able to manage the risks associated with SCM. Especially since disruptions in the health supply chain don't only reflect in higher healthcare costs, but can have serious impacts on people's lives. Adequate research needs to address risks to patient safety that can be impacted by SCM systems and policies in place, such as risks of medication errors and counterfeit drugs (McKinsey & Company, 2012). Furthermore it needs to categorize and prioritize those risks and examine the most effective prevention and response strategies.

4) Identification of roles most appropriate for the public and private sectors as part of the SCM in healthcare

   Health care supply chains, especially in developed countries, rely heavily on the private sector for functions such as supply, distribution and provision of key auxiliary services even if the healthcare system itself is largely controlled by the public sector. There are various roles to play related to SCM in healthcare, such as product registration and quality oversight, market regulation, procurement, health services networks, financing, physical distribution and others (MIT-Zaragoza International Logistics Program, 2008). Research effort is needed in order to investigate which of those areas are most appropriate for the public or for the private sector to play a role.

4 CONCLUSIONS

The healthcare industry is one of the most important industries in modern societies. In recent years we have seen challenges arising from legislative and regulatory obstacles as well as spread of globalization, cuts in state funding, severe competitive pressures and increasing operating costs. These factors are forcing healthcare organizations worldwide to streamline their processes and lower their costs without compromising the level of quality demanded by the users of the healthcare services. The key for their success seems largely to lie in the optimal management of their supply chains. Implementing SCM systems in order to assist in the realization of these tasks is not always easy, as there are many barriers, especially organizational and people-related. The existence of limited academic research related to these significant areas of healthcare SCM supports the necessity of future research, especially regarding CSFs, performance metrics and standards, risk factors and response strategies as well as private vs. public sector involvement.

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