

## Chapter 84

# Towards Patient–Driven Agile Supply Chains in Healthcare

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### ABSTRACT

*Healthcare organizations in many countries are compelled to pursue drastic supply cost reductions, while continuing to improve patient health outcomes, as they must meet ever increasing economic and performance pressures brought on by changes in national health policies. As demonstrated in many other industries, these improvements require more integrated Supply Chain Management (SCM) practices, processes, and systems. The author develops a strategic framework for Customer-Oriented or Patient-Driven SCM, integrating the evolving economics of the healthcare industry and the emerging dynamics of global supply chains. The chapter focuses on modern SCM approaches such as agile and lean supply chains, in order to efficiently realign hospitals and their Material Management Systems (MMS) on patient health outcomes.*

### INTRODUCTION

The healthcare industry is inherently global as most high-end medical products, drugs, and equipment are manufactured by multinational suppliers. Healthcare product development, manufacturing, distribution, and group purchasing organizations (GPOs) are increasingly integrated through Inter-Organizational Systems (IOS) in order to optimize made-to-stock replenishment processes.

This global context is creating unprecedented opportunities for hospitals in many countries, as they are compelled to pursue drastic supply cost reductions.

Yet healthcare organizations, whether private or public, must accomplish this transformation while improving patient health outcomes. They are submitted to increasing economic and performance pressures brought by changes in national health policies, entailing major strategic redirections.

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As demonstrated in many other industries, these improvements require that healthcare organizations adopt integrated Supply Chain Management (SCM) practices, processes, and systems, especially concerning internal operations and their interface with external partners. A Customer-Oriented or Patient-Driven value perspective can serve as an anchor to reengineering hospital supply chains toward a lean and agile model, and help ensure regulatory compliance.

We develop a strategic framework for Patient-Driven SCM, integrating the evolving economics of the healthcare industry, the emerging dynamics of global supply chains, and the broad SCM approaches required to realign on patients key hospital Material Management Systems (MMS).

We first discuss the emerging efforts to refocus healthcare supply chains onto a customer-oriented or patient-driven perspective. We then address key challenges in implementing these principles for hospital materials management. We conclude with an outline of future research opportunities and challenges in hospital SCM, and some strategic implications for healthcare senior management.

## **REFOCUSING HEALTHCARE SUPPLY CHAINS**

### **Evolution of Customer-Oriented Principles**

#### **Integrating Supply and Demand Chains**

Customer-orientation in Supply Chain Management (SCM) refers to a company's responsiveness to end-user requirements. The concept has been closely linked to Demand Chain Management (DCM) practices, seeking to optimize supply practices around customer value drivers. It is defined as: *"a supply chain that emphasizes market mediation to a greater degree than its role of ensuring efficient physical supply of the product"* (de Treville, Shapiro, & Hameri, 2004, p.617).

A key issue in DCM is to integrate customer value drivers with responsive SCM decisions (Walters, 2008). It provides a framework to ensure supply decisions are linked directly to market-oriented Key Performance Indicators (KPIs), and specifies potential responses and initiatives to optimize the demand chain. This approach is therefore centered on final outcomes from the customer viewpoint as opposed to business performance traditionally defined from an internal or corporate perspective.

In order to systematically integrate KPI and decision criteria, and jointly manage marketing and operations, customer-oriented SCM requires a tighter integration of customer and supply processes (Jüttner, Christopher, & Baker, 2007). DCM implies that SCM processes are fully integrated along with Customer Relationship Management (CRM) functions. This helps facilitate back-end and front-end value chain integrity, enabling the organization to cross boundaries seamlessly. This is typically accomplished through the implementation of an Enterprise Resource Planning (ERP), which must be configured to ensure that KPI, decisions, and processes are built around customer-driven value criteria.

#### **Towards Agile Supply Chains**

A more advanced form of customer-oriented supply chain is an evolution from DCM toward Agile SCM. Ensuring responsiveness requires integrated decisions and processes, dependent in turn onto collaborative information and planning between supply partners. Key drivers of business agility emphasize the coherence between customer-oriented information sharing enabled by IOS, leading to information-driven optimization (Agarwal, Shankar, & Tiwari, 2007). A key technology to enable agile SCM integration is Radio-Frequency Identification (RFID), with significant reductions in key traditional KPIs, such as inventory inaccuracy, bullwhip effects, and replenishment cycle time (Sarac, Absi, &

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