CHALLENGES OF THE HEALTHCARE SUPPLY CHAIN

FINNISH NATIONAL AGENCY FOR EDUCATION

Co-funded by the Erasmus+ Programme of the European Union

In the healthcare supply chain it is not enough to do things well, critical factors such as:

- Unpredictability of demand.
- Rapid technological changes.
- Short life cycles of products.
- Restrictions on working capital.
- Ensuring high quality standards in patient care.

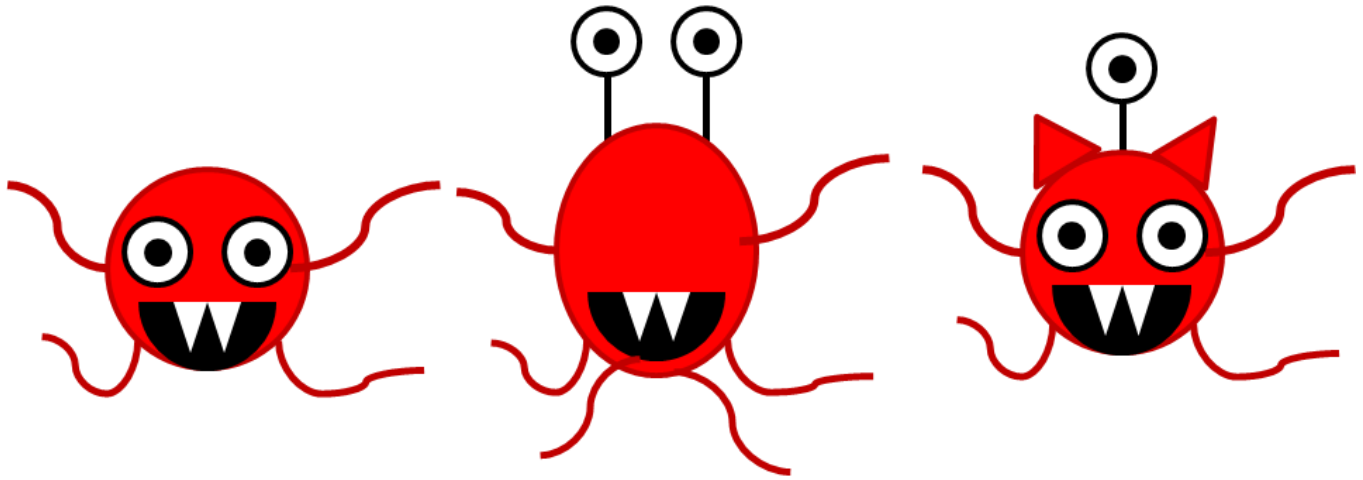
They demand the search for operational excellence.

In this sense, the efficient management of the Healthcare supply chain takes great relevance, through the design and application of strategies that allow flexible responses to the needs and control of the operation's risks. The main challenges of the Healthcare supply chain are:

The Reduction of Clinical Variation

Reducing clinical variation remains a hot topic in healthcare. Different physicians and healthcare professionals have different preferences for the products that they use. Most organizations allow this to be the final word in purchases. Unfortunately, physician preferences are rarely tied to more successful outcomes and can often lead to cost variation.

The fact is not that physicians do not care about the higher cost or that the product does not offer better patient outcomes. Rather it is that they are unaware of the true cost of their choices. A study found that surgeons only correctly estimate the cost of items just over one-fifth of the time. Helping physicians to understand the costs and the alternatives can help them find products that will offer comparable or better outcomes at a better price.



However, many physicians are concerned that reducing variation means limiting their ability to make crucial decisions for care. These physicians know from experience that certain variations are important to meet patient-specific needs. This is similar to the dilemma physicians are encountering at the intersection of population health and personalized medicine—what is good for most patients in a given population will not always hold true for each individual patient within that group.

Consequently, there may be a misperception that a campaign to reduce clinical variation will automatically discount clinical expertise and physician autonomy to treat patients as individuals.

The reality is that many hospitals, facilities, and physicians that embrace evidence-based medicine deliver better outcomes—and at a lower cost—than their counterparts. While there is no cookbook for medicine, there are, in fact, key interventions that for a given condition usually lead to better outcomes. The challenge is in identifying these key interventions, which may be buried within a proliferation of research studies, clinical trials, and other data.

In 1950, researchers estimated that the volume of medical knowledge would double every fifty years. By 1980, medical knowledge was doubling every seven years; by 2010, it was taking just 3.5 years. By 2020, the volume of medical knowledge is expected to double every seventy-three days. Sifting through all the literature to identify the most impactful interventions has become more difficult in an environment where demands on clinician time are at an all-time high.

Easing drug shortages, improving safety

Because of the unpredictability that comes part and parcel in the healthcare industry, drug shortages seem inescapable. Since 2005, drug shortages have nearly tripled in the United States and added more than half a billion dollars in costs for hospitals worldwide. This can create a mess in the healthcare supply chain. It forces providers to either purchase alternatives that are much more expensive or maintain a comprehensive backup inventory of products that are at risk of being in short supply, which then leads to the added cost of inventory management and product expiration.

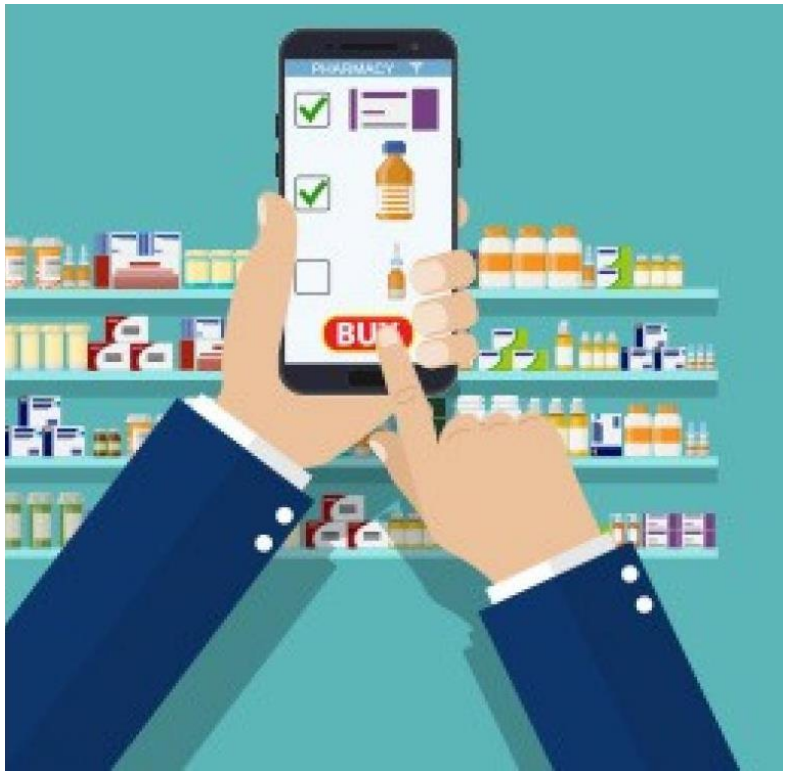
The best option for dealing with this is the use of technology that assists with early notification and response, especially in the case of certain surgical agents, cardiovascular agents, and IV fluids. This technology enables providers to more effectively manage and monitor the long-standing shortages of hundreds of drugs and to be prepared for unforeseen shortages in other drugs.

Drug shortages can occur without much warning to providers, though advocacy efforts are trying to improve early notification and response. Shortages of drugs (especially IV fluids, cardiovascular agents and surgical agents) can cause a variety of supply chain issues, such as having to keep back-up inventory of products in shortage or requiring the purchase of more expensive alternatives.

Though the number of new drug shortages dropped from 117 in 2012 to 38 in 2013, long-standing shortages still affect more than 300 drugs that supply chain managers will have to monitor and manage in the next year.

Addressing Hidden Costs in the Healthcare Supply Chain

Beyond product price, the healthcare supply chain has a number of hidden costs. For example, inventory holding, managing supplies, and product distribution all add to the total spend associated with the supply chain. Expired products accrue a loss.



A better understanding of these aspects of the supply chain can not only inspire methods of reducing cost; it can also illustrate ways to improve staff efficiency and the patient experience. Awareness of both product costs and “hidden” costs can assist with building a truly efficient supply chain. This will improve both the clinician and patient experience while increasing the organization’s bottom line.

One way to identify unnecessary costs is through Lean Supply Chain Management – a practice that enables the true performance potential of a healthcare organization to be realized. As Lean is applied to a healthcare organization's inventory processes, revelations uncovered through data analysis (quantitative and qualitative) can begin to eliminate waste from the cost of holding inventory.

Lean supply chain management can cut waste by:

- First, implementing price improvements and standardizing the ordering and distribution process.
- Next, by reducing the number of suppliers and processes.
- Finally, by aligning physicians and purchasing staffs to care models.

As a result, providers see care quality increase along with employee and patient safety and satisfaction – all while slashing supply chain costs in the process.

Enhancements to Supply Chain IT to Improve Cost and Usage Transparency

Another common inefficiency in healthcare supply chains is related to unsophisticated IT systems and implementation. This reduces the transparency in terms of costs and utilization. This lack of sophistication IT generate in healthcare staff:

Data shortage: Data is helping to improve efficiency and effectiveness in every sector. It allows organizations to see what they have been missing, to gain a bird's-eye view of their operations, and to optimize their processes. And this is exactly what it can do for healthcare supply chains.

A lack of actionable data is something that is endemic among providers. Executives in hospitals recognize that their decisions are not sufficiently informed because they do not have access to advanced modelling systems and real-time reports.

One of the reasons for this lack of data is that supply chain data is very siloed due to the inherent vertical internal structures of providers. However, this is a problem that must be addressed, as over two-thirds of healthcare IT professionals believe that the supply chain is where the most actionable data lies especially the data that goes beyond purchasing activity and into consumption activity.

Lack of Integration: Healthcare practices, facilities, and hospitals are becoming more consolidated. Health systems are growing, merging, and acquiring. As this happens, supply chains within these siloed yet merged organizations remain separate. Healthcare providers need to address this because inconsistency between these supply chains will negatively impact the bottom line.

These supply chains need to be integrated. Purchasing channels need to be centralized. Facilities need to share contracts so that they can gain access to higher tier pricing. Without these adjustments, the supply chain will not be cost-effective and the processes that it contains will remain inefficient.

The health IT solutions facilitate data-sharing, which can help healthcare organizations reduce costs by decreasing process variations. The technologies can also help to better track supplies from purchase to expiration to eliminate wasteful spending.

When we have visibility of product from finished goods to the use on the patient and we actually capture demand and consumption versus capturing purchasing activity, we capture consumption activity. We significantly reduce waste and variation in the supply chain. Inventory levels come down for everybody. Product expiration can be virtually eliminated.

Collaboration Among Healthcare Supply Chain Partners

The healthcare sector is facing major challenges nowadays. Healthcare providers and institutions are under an increasing pressure to deal with a number of inefficiencies, in order to achieve an optimum balance between improvements in quality healthcare services and cost effectiveness.

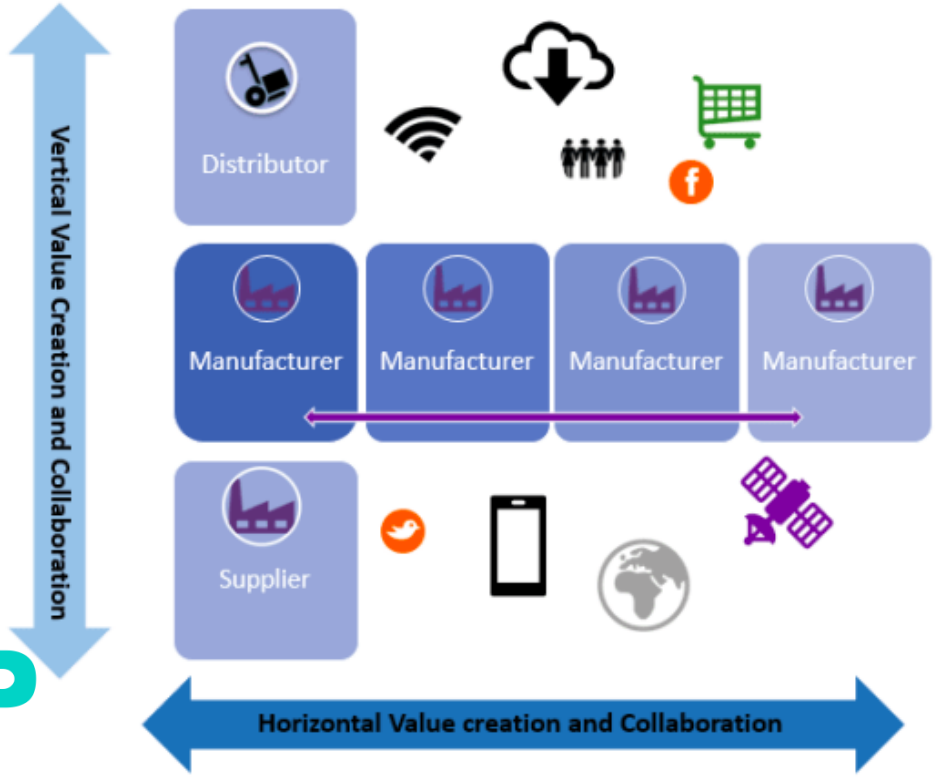
Supply chain costs can account for over one-quarter of a hospital's operating budget, while the healthcare industry could significantly improve its ability to deliver quality healthcare products and services to consumers and save as much as $11 billion (CSC Consulting, 1996).

Many authors have pointed out that saving opportunities are not currently exploited by organizations due to supply chain inefficiencies, such as in effective inventory control and materials management, inadequate purchasing orders, and distortion of information flows involved in the transport and delivery of supplies to the healthcare providers. A key problem creating these inefficiencies is the lack of collaboration among healthcare entities.

Collaboration at various levels in the chain has been recognized as a way to construct ever more efficient and responsive supply chains, in order to deliver exceptional value to customers.

In supply chain management, supply chain collaboration is defined as two or more autonomous firms working jointly to plan and execute supply chain operations. It can deliver substantial benefits and advantages to its partners. It has been known as a cooperative strategy when one or more companies or business units work together to create mutual benefits. There are two main types of supply chain collaboration, vertical collaboration and horizontal collaboration.

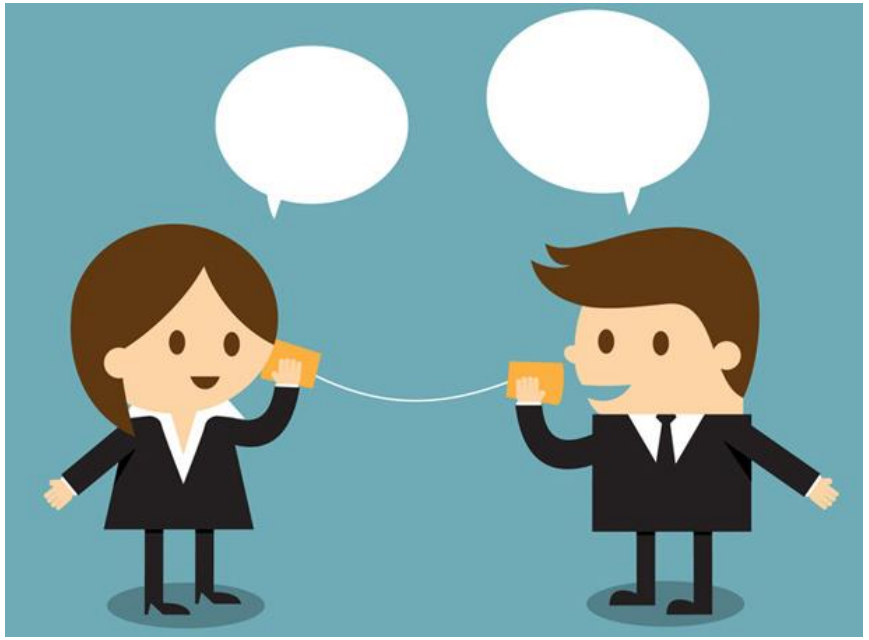
Vertical collaboration is the collaboration when two or more organizations from different levels or stages in supply chain share their responsibilities, resources, and performance information to serve relatively similar end customers.



Horizontal collaboration is an inter-organizational relationship between two or more companies at the same level or stage in the supply chain in order to allow greater ease of work and cooperation towards achieving a common objective.

They are different forms and approaches of supply chain collaboration like:

- **Collaborative communication:** Is the contact and message transmission process among supply chain partners in terms of frequency, direction, mode, and influence strategy. Open, frequent, balanced, two-way, multilevel communications indicate close inter-firm relationships



- **Collaborative execution:** Is the process of executing supply chain transactions in a collaborative manner. Suppliers will work with Buyers to ensure the right quantity is delivered in the right time as per the contract. As the purchase order goes through a life cycle of order to delivery, at each stage there need to be a tight collaboration between the trading partners for the correct and efficient execution. Supply chain Control Tower (SCT) is a typical application of Collaborative execution tool.

- **Coordinating contract:** Is defined as a coordination mechanism that provides incentives to all of its members so that the decentralized supply chain behaves nearly or exactly the same as the integrated one, by specifying contract parameters such as quantity, price, quality and deadlines, contracts are designed to improve supplier-buyer relationship.

- **Information sharing:** Is the extent to which a firm shares a variety of relevant, accurate, complete, and confidential ideas, plans, and procedures with its supply chain partners in a timely manner.

- **Joint decision making:** Refers to the process where supply chain partners orchestrate decisions in supply chain planning and operations that optimize supply chain benefits.

- **Joint knowledge creation:** Is the extent to which supply chain partners develop a better understanding of and response to the market and competitive environment by working together.

- **Resource sharing:** Is the process of leveraging capabilities and assets and investing in capabilities and assets with supply chain partners

Adopting a Common Global Data Standard

Medication errors in the developed world occur in roughly 10 to 20 percent of all inpatient hospital admissions. About 1 in 10,000 patients admitted dies from adverse drug events, which, we estimate, add $20 billion to $90 billion in costs to the health-care system globally. Better supply-chain processes are central to increasing patient safety. We estimate that adopting a common global data standard and upgrading supply-chain processes could slash counterfeiting in half, returning $15 billion to $30 billion in revenue (by 2016) to legitimate companies for reinvestment in further improvements to patient care.

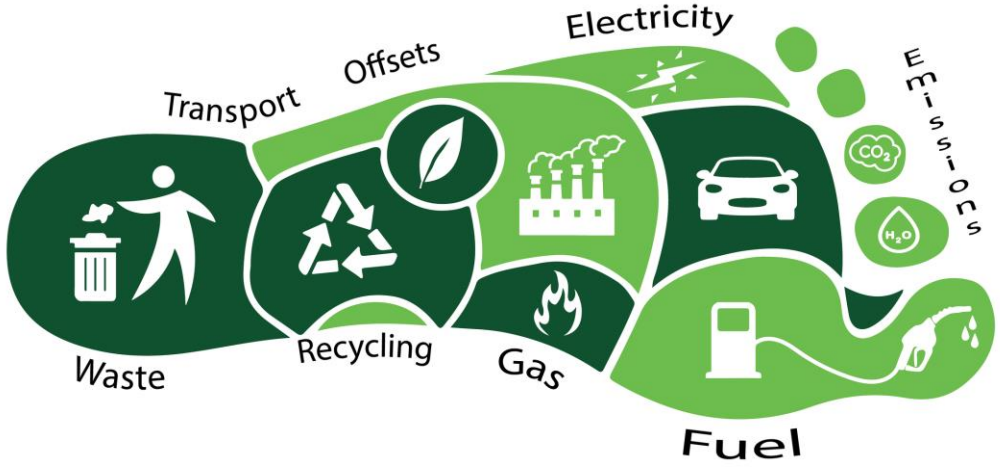
Manufacturers of fast-moving consumer goods use point-of-sale information from retail customers to build production plans. The grocery industry, for example, has created billions of dollars in value by adopting standard barcodes. To build a cost-effective supply chain, the health-care sector could align around a single set of global standards that support data interchange, processes, and capabilities. Doing so may increase efficiency and patient safety by making it harder for counterfeiters to operate, by reducing medication errors, and by improving recall processes.

Towards a Sustainable Healthcare Supply Chain

In recent years, sustainability has been added to the list of factors that supply chain managers consider when making purchasing decisions. According to Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition, sustainability means choosing "products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose." This has led to the shift towards environmentally preferable purchasing (EPP).

EPP specifically asks how much energy, water, and materials are involved to make a product. In turn, it also looks at the pollution, waste, and emissions generated in the production process. All costs associated with a product's life are factored into purchasing decisions, including material extraction, manufacturing, transportation and distribution to the purchaser; the product’s use and durability, and its end-of-life considerations.

Every day, health care supply chain professionals balance a variety of factors when making product purchasing decisions. Providing quality patient care is paramount, but cost, value, and employee health and safety are also considered. In terms of its overall spending, the health care industry is resource intensive - 17.9 percent of the U.S. GDP in 2010 and rising - and it represents a significant carbon footprint.



Since supply chain managers affect almost every purchasing decision in the health care industry, they are in a unique position to reduce the impact the industry's spending decisions have on human health and the environment.