Improve Supply Chain Management efficiency in Hospitals While Reducing Risk

Pejman Shabani, Master of industrial Management, Senior Consultant of Quality Systems and Head of Education Department in Farayand Tahghigh Co.

In most hospitals, supply chain disaster recovery planning has seriously lagged behind.

SCM is the process of planning, implementing and controlling the operations of the supply chain with the purpose of satisfying the end user requirements efficiently. In a highly unpredictable condition in an industry which is very demanding and where every minute counts in patient care, finding ways to increase supply chain efficiency and mitigate risk are crucial. Supply Chain Performance Management application helps you track performance, diagnose bottlenecks, assess risks, and uncover new opportunities. In addition to gaining complete visibility into supply chain performance, you can use the application , which complies with leading industry standards such as the Supply Chain Operations Reference model, to define operational dependencies. You'll benefit from reduced costs, increased working capital, and greater customer loyalty.

Key Features

- **Single data repository –** Gain insight based on data in one complete repository
- **Root cause analysis –** Understand disruptions and make corrections based on impact **analysis**
- **Alerts –** Identify deviations based on trends, plan-versus-actual comparisons, and benchmarks
- **Support for key business scenarios –** Automate demand and supply planning, manufacturing network planning and execution, and logistics and fulfillment management
- **Preconfigured key performance indicators –** Gain total supply chain visibility

Various Approaches to Bring out Efficiency in SCM

- Share statistics related to the SCM bottleneck findings with your co-workers and managers.
- Report your findings and your ideas about how supply chain efficiencies can reap rewards for the entire organization.
- Look at a balanced bulk purchase rather than consignment-based purchase for costly items. If the effort of the human resources and stationary and time spent on each consignment based transaction is studied, results show that it may be costlier in contradiction to the earlier thought of cost savings. This would render a faster delivery, cost savings and availability of products for consumption.
- Look at group purchase to cut costs. If more than one hospital site / branch exists, look at a group purchase from a single vendor for that product. This would have the similar effect as above.
- Zero sub-stores though sounds unrealistic, helps tremendously in preventing pilferage, theft and unaccounted items, which may have to be scrapped in inventory accounts later. This is easily possible especially for wards and non critical patient care areas.

All the items can be billed through the system directly to the patient, and the items can be procured directly from the central store.

- Lesser the sub stores, the better the control of pilferage, theft and loss. CCTV in central stores, strong software solution and regular audits help keeping a check on this aspect. A hospital policy on frisking all employee bags also helps curb this menace. There are small size ampoules/vials/Glucostix which are costly items and amount to theft.
- Acquire logistics expertise from consumer product, manufacturing and other sectors outside the healthcare industry as a benchmark.
- Right labelling of inventory will save considerable time during rush hour inventory requests.
- Appropriate storage and access to the inventory, organized arrangement, 'First In First Out' (FIFO) method will help in quicker retrieval of the required items.
- Appropriate identification of Sound Alike and Look Alike (SALA) inventory should be appropriately segregated and labelled to avoid wrong retrieval, delays thereof and any medication mishaps.
- Waiting time (delays/dispatch/inventory procurement time during patient discharge, return of medicines) can be considerably reduced if the bottlenecks are identified through regular time motion studies.
- A lot of time is spent while receiving and adding new inventory into the system. Pre-readied inventories for expected receivables in the system can considerably reduce the time taken in this activity. This is of importance as a lot of items though available physically may not be available for actual use till the addition of item in system is complete.
- Appropriate calculation of re-order levels and lead times will help the stores stock just 'enough' material to not overload their stores and also not have a stock out. Appropriate re-order levels can help the stores trigger the purchase requests to the vendor (and also within the hospital from various users to the central stores) to procure the items just in time to avoid an over stock / stock out.
- Medicines have a shelf life and many drugs are expensive. The SCM in the hospital should have an efficient mechanism of provisioning, storing and issue of such 'shelf-life' drugs in a manner that they are stored and carried in a temperature and humidity-controlled atmosphere and issued on a 'First In First Out' basis (FIFO). An early warning report should automatically be generated to alert the doctors/nurses/stores on the anticipated expiry of the shelf life. There should be contractual arrangement with the vendors for return of expired/near expiry drugs.

Disaster Recovery Plan

In most hospitals, supply chain disaster recovery planning has seriously lagged behind. This is a pressing problem in healthcare because lives can be at stake. Most current planning focuses on emergency response to a short-duration event, such as terror attacks or during a strike, where the inventory procurement from vendors could be difficult. But imagine if the problem would last more than a week or month, at least a week plan of disaster response to inventory management is essential.

As the healthcare supply chains have critical bottlenecks, the most effective action is to develop systematic contingency plans, including factors like procurement alternatives, multiple vendors, and critical life saving stocks like the crash carts located in appropriate

patient care areas always stocked to a minimum level with appropriate life saving inventory and checked on a daily basis.

Objectives of Efficient SCM
• Timely and accurate delivery of requested inventory. • Reduced waiting time after inventory requests within the hospital and from the vendor. • Lower inventories and reduced stock-outs. • Reduced off-catalog and off-contractual purchases • Reduced write-offs / scraps.

Inventory Visibility

Hospitals cannot afford inventory failure. The right products must be in the right place at the right time in the right quantity and brand. For this reason, many hospitals have too much inventory on the shelves 'just in case' instead of just in 'time'. But how much is too much? What is the cost of keeping such multiple sub-stores? And why is it that some areas have too much of certain items and some have too little?

Inventory management is often an issue of 'visibility', i.e, being able to 'see' what's on the shelves and where. Tracking tools, whether sophisticated or basic, can help you get a handle on appropriate inventory levels. Refer 'Use of Technology' section.

Hospital Vendor Relationship

Most hospitals work with distributors to manage supplier relationships and deliver goods. Working with distributors in this way has given hospital organizations a feeling of security and relief. Security, because the hospital knows it has a reliable source of products, and relief because in many cases the hospital doesn't have to manage its own inventory and restocking. This relationship can tremendously bring in efficiency in the SCM process.

Product Standardization

Though difficult, but if the consultants can be convinced and standardization can be brought in, especially in pharmacy products for brands and OT consumption items like sutures and implants, a lot of delay in inventory provisioning can be avoided. A large amount of time is spent to adhere to the consultant's insistence on a particular brand of product.

Facts Sheet

- About 25 per cent of hospital costs are supply-related (Harvard case study). Approximately 35 to 40 per cent of hospital supply-related costs are devoted to handling, moving and processing material and supplies as compared to other industries where it is less than 10 per cent. Purchasers spend approximately 40 per cent of their time, and accounts payable departments spend more than 60 per cent of their time, on manual processing of transactions.
- A single paper-based purchase order may cost anywhere to process.
- Current use of electronic inventory management within hospitals only covers 30 to 40 percent of transactions available for automated processing of inventory.
- Hospitals are actually overpaying suppliers for contracted medical and surgical products by almost 10 per cent of the available contract price if the cost of human resources and other processes gone into procurement, delays from vendors, etc are taken into account.
- About 15 per cent savings in supply chain costs would equate to almost five per cent improvement in a hospital's operating margin.

Use of Technology

Typically, the nurses are responsible not only for patient care but also equipment and supplies, manual stock handling activities and all inventory related requests to the central stores. This imposes a heavy burden on the nursing staff, and as the core clinical care is of higher priority. The delays in inventory management are unavoidable in respect to the responsibilities entrusted on the nursing staff. Appropriate use of technology can help reduce the burden on the clinical staff and reduce errors and delays.

As basic as data filtering programs can provide detailed knowledge of purchasing patterns and contract issues, putting hospitals and group purchasing organizations in a stronger position for future negotiations with suppliers and distributors.

Tracking how products move through the hospital is crucial to maintaining accurate usage data and inventory controls. There are several state-of-the-art scanning solutions like the Radio Frequency Identification (RFID) solutions that are being used in the hospital setting nowadays.

Regardless of the specific solution, the point is to get tighter controls including real-time location tracking of the inventory dispatched, which quickly translates into more efficient supply chain management. Studies have shown that almost 40 to 50 per cent of inventory stocking can be reduced with no impact on patient care, supply convenience or quality if technology like RFID is intelligently deployed in supply chain management.

If funds are of concern, use of hospital management software and tweaking it to bring in automation at its basic best shall solve a lot of SCM-related problems. Automated emails to authorised vendors informing about the impeding stock out for a certain item based on the ROL can pro-actively prepare the vendor to keep such inventories ready even before the purchase order is dispatched to him by the hospital.

A step further by sharing the consumption patterns with the vendors can generate a better understanding to the vendors of the hospitals demand and thus can bring in better vendor delivery timeliness. Above methods can similarly bring in efficiency and better co-ordination between hospitals patient care areas and central stores.

Newer methods include pneumatic vacuum based point-to-point deployment infrastructure where small items like pharmaceutical items and other stores items like sutures etc can be deployed at the flick of a button without human intervention for distribution and delivery. This technology, though expensive, brings in tremendous efficiency in supply chain management. Use of technology can help the stores and purchase department to forecast demand based on analysed usage patterns.

Typical Inventory

- Pharmaceuticals like antibiotics.
- Surgical supplies.
- General supplies including stationary, printing cartridges, housekeeping cleaning material.
- Imaging supplies like film developing material dyes.
- Implants including cardiovascular, ophthalmologic and orthopedic implants.
- Laboratory supplies like dry chemistry inserts, wet chemistry chemicals.
- Engineering supplies including oxygen.

Outsourcing

More hospitals are outsourcing certain functions in SCM like transportation and distribution. Though the concept sounds intimidating, housekeeping boys or staffs from the outsourced agency are now being actively used in the supply chain process. The nursing staff directs the outsourced staff to collect the designated inventory from the pharmacy or stores and for return of such unused inventory at the time of discharge of patients. This leaves more quality time for clinical care by nurses. Such solutions save considerable time in the entire process of SCM and the overall patient care process, including avoiding delay in providing the medicines to patients on time.

Summary

Review current best practices in the sector and even other sectors.

- Identify areas of priorities to target efforts.
- Use technology appropriately.
- Develop implementation action plans.

Conclusion

In an industry which is very demanding and where every minute counts in patient care, it is crucial to identify the opportunities that exist for supply chain improvements. As the patient care is directly affected by the timeliness and accuracy of delivery of required medical inventory, especially if it is pharmaceuticals or surgical items, the efficiency in SCM becomes critical.

When almost 25 to 45 per cent of a hospital's total operating expenses can go to supplies, drugs and consumables, it is critical to implement effective supply chain management solutions.

Sources:

1- Global supply chain management: The selection of globally competent managers Original Research Article, Journal of International Management, Volume 7, Issue 2, Summer 2001, Pages 105-128, Michael G Harvey, R.Glenn Richey
2- Supply chain risk management in French companies Original Research Article, Decision Support Systems, In Press, Corrected Proof, Available online 22 November, 2011, Olivier Lavastre, Angappa Gunasekaran, Alain Spalanzani.
3- The new supply chain's frontier: Information management Original Research Article, International Journal of Information Management, Volume 29, Issue 5, October 2009, Pages 372-379, Jorge Verissimo Pereira,
4- Is ISO 14001 a gateway to more advanced voluntary action? The case of green supply chain management Original Research Article, Journal of Environmental Economics and Management, Volume 61, Issue 2, March 2011, Pages 170-182, Toshi H. Arimura, Nicole Darnall, Hajime Katayama,
5- An empirical analysis of supply chain risk management in the German automotive industry Original Research Article, International Journal of Production Economics, Volume 131, Issue 1, May 2011, Pages 242-249, Jörn-Henrik Thun, Daniel Hoenig,
6- From a literature review to a conceptual framework for sustainable supply chain management Original Research Article, Journal of Cleaner Production, Volume 16, Issue 15, October 2008, Pages 1699-1710, Stefan Seuring, Martin Müller,
7- Web-enabled supply chain management: Key antecedents and performance impacts Original Research Article, International Journal of Information Management, Volume 31, Issue 6, December 2011, Pages 533-545 C. Ranganathan, Thompson S.H. Teo, Jasbir Dhaliwal,

8- An analysis of the drivers affecting the implementation of green supply chain management Original Research Article, Resources, Conservation and Recycling, Volume 55, Issue 6, April 2011, Pages 659-667Ali Diabat, Kannan Govindan,
9- Identifying risk issues and research advancements in supply chain risk management Original Research Article, International Journal of Production Economics, Volume 133, Issue 1, September 2011, Pages 25-34,Ou Tang, S. Nurmaya Musa,