Following best practices to manage inventory can help you save big

BY MICHAEL DARLING AND SANDY WISE

QUICK TAKE >>>>

Today, supply chain metrics should be more strategic rather than transactional in nature. They should provide a far greater understanding of the relationship between supply chain management, clinical outcomes and patient safety. In addition to taking a comprehensive look at inventory value, materials managers should assess strategies to reduce theft and consider third-party logistics managers where appropriate. This article provides direction for best practices in inventory management and suggests supply chain metrics that can be employed to improve performance.

ONE are the days when hospital executives viewed supply chain management as purely a back-office cost center. Not only is the supply chain a target for significant cost reduction, but improvements in supply chain performance also are a central strategy for overall hospital sustainability in a new era of outcomes-based reimbursement.

The shift toward outcomes-based reimbursement has focused the nation’s health system on comparative effectiveness, safety and quality reporting. Hospital supply chain costs are increasing at the same time double-digit health premium increases are spurring greater scrutiny by payers of medical supply costs. For hospitals, this is increasing demand for greater efficiency, pricing transparency and accountability throughout the entire hospital supply chain and driving a new level of discipline in supply chain management.

Hospitals are now under tremendous pressure to match resources with outcomes, but many have difficulty demonstrating the value of their supply chain as an organizational asset. Whereas traditional metrics have focused on the transactional aspects of supply chain management, inventory optimization and smarter sourcing strategies will refocus supply chain managers on supply chain outcomes rather than supply chain processes. New metrics are becoming much more strategic and granular, a trend that is changing the relationship not only among buyers and sellers but also among supply chain management, clinical outcomes, safety and overall hospital sustainability.

Supply chain’s role in value

Hospitals maintain an inventory of tens of thousands of supplies—from bandages and syringes to drugs, surgical instruments and medical devices. The average hospital carries 6,000 to 8,000 stock keeping units (SKUs) of in-house inventory at any one time, but it may “own” as many as 35,000 SKUs end to end. Supply chain costs consume as much as 40 percent of total operating budget, the second-largest expense for hospitals after labor. In our experience, even small improvements in supply chain performance can have an enormous impact on a hospital’s bottom line, helping to reduce supply chain costs by as much as 10 to 12 percent. Inventory optimization can account for 10 percent of the overall savings.

Surprisingly, few hospitals fully understand the value of their inventory or how to make the best use of it. The root of the problem is that many hospitals measure only three critical areas of inventory: pharmacy, materials management and perioperative services. PricewaterhouseCoopers has found that inventory values at the average hospital may look something like this: Perioperative services account for approximately 61 percent of supply chain costs. Pharmacy inventory represents...
approximately one-quarter of inventory value and materials management accounts for the remaining 14 percent. (See Fig. 1 Inventory Values.)

This limited view does not account for inventory held by vendors, wholesalers or in consignment. It doesn’t reflect the value of inbound supplies, the costs associated with shipping or the losses associated with shrinkage during transport.

Progressive hospitals with optimized inventories break down inventory assets at a much more granular level and monitor a dashboard that clearly demonstrates current values and variances and then benchmarks performance metrics against national and peer hospital averages. (See Fig. 2: Inventory Breakout.)

Traditional metrics have focused largely on the transactional aspects of supply chain management. New metrics are much more strategic and should provide a far greater understanding of the relationship between supply chain management, clinical outcomes and safety. Purchasing should understand not only what was bought but also how that resource is being used and its value to the organization, patients and payers. In this regard, inventory optimization and supply chain management become a key strategy for supporting evidence-based medicine, the ultimate goal of an enterprise medical management information system (MMIS).

**Strategies to reduce shrinkage**

Lack of control over inventory can make hospital supplies especially susceptible to inventory shrinkage due to theft, damage, loss and midnight requisitions. High-value drugs and devices are a target for sophisticated criminals, but even low-value items such as bandages, gloves and incontinence products walk out the door unaccounted for. The theft of equipment and supplies costs hospitals $4,000 per staffed bed each year—millions of dollars annually at a large hospital or health system, according to a 2004 estimate by Sun Microsystems (“RFID: Coming to a Hospital Near You,” Sun Microsystems Press, April 2004).

Many of the solutions for reducing shrinkage use new technology, such as radio-frequency identification (RFID), to better track inventory. By embedding high-value inventory items with RFID tags for real-time tracking, hospitals not only can help to prevent these items from getting stolen, but they also can locate supplies more easily during emergencies.

RFID also is being used to ensure the integrity of the supply chain by tracking supplies by expiration date and monitoring first-in, first-out (FIFO) controls in storage areas. This is particularly important with the advance of newer specialist therapies that require cold storage and other special handling. Many pharmaceutical and device makers now also use RFID sensor networks and smart dust—tiny digital sensors that detect light, humidity, vibration or other conditions—to track their products on their path from the factory gate to the patient. RFID provides seamless visibility in the entire supply chain—forward or reverse.

Other technologies are being used to better track supplies, almost all of them aimed at tracking use in near real-time and automating reorders. But, while technology provides new solutions to address inventory shrinkage, technology alone is not the solution. Strategies for reducing shrinkage and managing materials require changes in people, process and technology. It begins with strong governance at the top, communication, training and buy-in of all staff, including clinicians. Ultimately, it comes down to policies, processes and controls.
INVENTORY

BEST PRACTICES IN INVENTORY MANAGEMENT

Processes built around benchmarked business metrics are synonymous with inventory optimization.

<table>
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<th>Best Practice</th>
<th>Metric</th>
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| 1. Consolidate warehouses within primary markets where facilities are within a 15-mile radius. | • Carrying costs  
• Enterprise-level materials management overhead |
| 2. Bring inventories in high-cost areas under the control of materials management to centralize responsibility for high-value inventories and free clinical departments for patient care duties. | • Overall inventory values  
• Freight expense  
• Stock outages |
| 3. Fine-tune existing systems to facilitate just-in-time inventory management. | • Inventory carrying cost  
• Inventory fill rates  
• Supply chain cost per adjusted patient day (APD) |
| 4. Standardize similar or redundant inventory items whenever possible to benefit from economies of scale and reduce costs per purchase order. Involve physicians and clinical staff in the standardization of clinical and physician preference products. | • Inventory reduction rate  
• Contract compliance rate  
• Purchase order cost |
| 5. Convert to consignment or 3PL inventory managed by the vendor whenever possible to reduce inventory carrying costs and activities associated with inventory control. | • Supply delivery time  
• Supply processing time |
| 6. Order and receive inventory in low units of measure whenever possible for immediate delivery to departments in order to eliminate the need to store bulk quantities of supplies. | • General stores inventory  
• Turnover rate |
| 7. Implement a cycle-counting program in concert with a scheduled annual physical inventory to ensure that all inventory items are counted a minimum of four times a year. | • Inventory turnover rate  
• Backorder fill rate  
• Inventory adjustment ratio |
| 8. Interface point-of-use systems with the materials management information system (MMIS) in near-real time to monitor actual use to reduce and eliminate unused/underutilized inventory in order to reduce inventory carrying costs. | • Inventory reduction rate  
• Carrying cost |
| 9. Implement point-of-use technology, such as handheld devices, to calculate PAR level reorder amounts and transmit transactions automatically to the enterprise MMIS. | • Supply replenishment cycle time  
• Inventory carrying cost |
| 10. Restock all dated inventory items with the newest inventory placed in the back and the oldest inventory placed in the front to reduce losses due to inventory expiration, improve patient safety and reduce inventory replenishment costs. | • Reduction in number of expired products per month |

Source: PricewaterhouseCoopers
Optimizing resources

Historically, hospitals have approached materials management with a surplus mentality to ensure that product is always available. This mentality is an outdated consequence of poor visibility into inventory values and lack of real-time inventory management.

One of the first questions a hospital supply chain manager should ask is, “Are we optimizing the resources currently available through distributors and suppliers?” Product manufacturers, distributors and third-party logistics providers are all rethinking their fundamental business models and trading relationships.

Distributors are now looking to protect their own thin margins and grow their business, in some cases through private label and self-manufactured products that have higher margins than standard distribution. They also are exploring nontraditional opportunities, including a push to migrate from product-based contracting to activity-based or a fee-for-services model of contracting that offers a mixture of value-added services. They include spend analytics, retroactive contract compliance, data cleansing services as well as on-site sales support to assist in moving more product through the distribution channel.

Approximately 75 percent of dollars purchased by materials management come from physician preference items (PPI) and specialty vendors. Though these suppliers maintain a limited supply chain, they are working harder to maintain a stronger, more lasting relationship with the end user or decision-maker. Changes in the distributor business models as well as technology advancements and new patterns of treatment are leading to greater vendor and supply customization.

For example, distributors are more willing to shift from the traditional bulk model of shipping inventory in full-case quantities that require hospitals to maintain adequate storage capabilities to newer models aimed at reducing inventory levels and storage capacity. They are breaking cases into smaller units and fully supporting low unit-of-measure (LUM) or best unit-of-measure (BUM) delivery direct to patient areas. With just-in-time (JIT) distribution, hospitals maintain nearly a stockless inventory. Storage requirements are minimal and product is delivered directly to the floor on an as-needed basis.

Implementation of these models, however, requires a constant, real-time flow of information between the distributor and the point of use. Distributors in essence assume responsibility for holding inventory and replenishing individual locations. The hospital is still responsible for placing the purchase orders but they are transmitted by individual departments, and the material is delivered directly to the ward, bypassing the storage room. Under this model, inventory expenses can be more aligned with clinical demand.

The benefits of third-party logistics managers are time and cost savings.

Logistics and distribution

Some hospitals have found that the greatest improvements in supply chain management come not through pricing and distribution, but through logistics. Third-party logistics (3PL) managers can help hospitals reduce the time, money and headache associated with supply chain logistics of ordering, tracking, discarding and restocking inventory.

It should be noted that there are both benefits and risks associated with outsourcing logistics to third parties. The benefits of 3PL managers are time and cost savings. There is a promise of higher quality of product shipment and distribution and attractive pricing through economies of scale. Logistics outsourcing does not mean that the hospital abdicates control over its goods; logistics outsourcing should always be adjusted as necessary until the 3PL manager can deliver the efficiencies that ultimately drive down cost and add more value to the supply chain, and move from unit pricing to a more sustainable pricing model.

3PL is still a relatively young business model, though it has been a niche service offered by traditional distributors. Newer providers may not be firmly established in the health care marketplace and may not fully understand the market drivers of inventory utilization. This could lead to excess supply or, worse, late deliveries that in the health care environment can be a matter of life or death.

Health care is moving toward one key principle: clinical outcomes. In this new era, supply professionals must be much more strategic in demonstrating the supply’s role in the entire health care value chain. An awareness of best practices in the supply chain is an initial step toward future success. MMHC

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