

Nursing and the Healthcare Supply Chain: At the Intersection of Labor and Supply Expense

Simple and effective inventory management practices reduce clinical staff time spent on non-patient care related activities, reduce cost of inventory and improve accuracy

Executive Summary

What if we eliminated the notion that hospitals have supply chain problems? With most hospitals able to obtain the supplies they need – often within a matter of hours, not days – what if we instead framed the problems as being significant issues related to inventory? With carrying costs high, clinicians and supply chain staff highly-stressed as they work to do more with less, and the critical need to deliver high quality patient care at the lowest cost, removing the barriers to simple and effective inventory management can have immediate impact.

Nursing salaries are the largest part of the staffing expenses, and the need for nursing overtime continues to drive this expense even higher. With labor and supply chain together driving over 80 percent of the cost of running a hospital's business, this paper will examine the intersection of these two areas and examine ideas for simplifying the complex processes that exist today.

Overview of Current State

Current statistics for hospitals identify the number one expense continues to be labor, followed by the supply chain as the second largest and fastest growing area. In fact, based on studies conducted by the Strategic Marketplace Initiative (SMI), supply chain costs are on pace to overtake labor costs as early as 2022 for some hospitals. These two areas of expense make up over 80 percent of the cost of running the business of healthcare in the United States.

The highest driver of labor costs are nursing salaries, purely because nurses make up the largest percentage of a care delivery organizations staff. In 2012 (the latest year of complete reporting data), the U.S. Bureau of Labor Statistics (BLS) reported the median salary for a registered nurse was \$65,470. The best-paid 10 percent of RNs made more than \$94,720, while the bottom 10 percent earned less than

\$45,040. But salaries range widely across geographic regions; for example in California, average salaries for nurses are over \$110,000 per year. Driving additional costs for hospitals is nursing overtime. In a KPMG survey, a total of 78 percent of respondents stated overtime is between 1 and 10 hours per week. On average it is 4 hours per week, but 8 percent believe overtime is over 10 hours per week. Approximately 99 percent of respondents stated that the typical overtime pay rate is 1.5 times the base pay. However, several respondents stated that this may be higher, e.g., a large hospital in Michigan stated, "we offer double time [the base pay] for RNs that pick up unfilled shifts."¹

Turning to the second largest expense, Gartner research identifies supply chain expense as 40 to 45 percent of a hospital or healthcare system's operating expense. Additionally, Gartner also states that healthcare organizations have the potential to reduce those costs by 5 to 15 percent if they were able to better analyze, plan and control the purchase and use of goods and services. These savings could translate into a profit increase of 2 to 7 percent.²

As Charles Poirier, author of *Diagnosing Greatness: Ten Traits of the Best Supply Chains*, wrote in a recent white paper³, "Consider first, the amount of inventory that exists across the U.S. healthcare supply chain network. If total healthcare costs in the US are around \$3 trillion, the system probably requires inventories equaling at least \$300 billion. If a conservative 20% could be eliminated through better supply chain practices, \$60 billion could be saved in working capital. With carrying costs usually estimated at being at least 10%, such a reduction would yield a decrease in working capital of \$6 billion. That is a lot of new free cash flow."

It's certain that at the intersection of these two leading areas of expense – nursing salaries and supplies – costs need to be

reduced and efficiencies increased. There is an opportunity to close gaps that exist in the business processes shared by nurses and supply chain staff members. With the need to reduce healthcare costs accelerating as reimbursement levels continue to decline, it's becoming even more critical that we improve the efficiency of nursing time, reduce non-patient care-related activities, and more effectively manage the cost of supplies, with particular attention to the cost of unnecessary, inflated levels of inventory.

So – What Are The Real Problems?

Very real problems exist that continue to plague hospitals and health systems:

- 1) There is a lack of visibility across organizations that causes staff members to stock inventory “just in case” instead of “just in time.” Because it's been difficult for nurses to find supplies they need – quickly, whenever they need them – hospitals have often overstocked so they won't experience stock-outs. This means dealing with higher than needed costs, including costs related to storage of excess supplies, as well as the burden of supplies that get lost, become expired or wasted.
- 2) With the cost of nursing overtime a continual issue, nurses often indicate they spend too much time on non-patient related activities, such as managing business processes around supplies, including ordering, locating, tracking, entering information and reporting. Some reports have indicated nurses spend as much as 20-30 percent of their time on activities related to supplies. With reimbursements being driven by patient care, patient satisfaction and quality outcomes, spending clinical time managing supplies is an area where improvement could deliver significant benefits, as well as increase nursing satisfaction.

- 3) There is a lack of accurate information due to disconnected, manual and labor-intensive processes across organizations. Hospitals need to simply and easily record all inventory-related transactions, capturing them accurately without creating additional work.
- 4) There is a knowledge gap related to the velocity of product use, which in turn translates to reordering, reordering costs (and often transaction fees) and again, overstocking of supplies. Creating a clear picture of the velocity at which specific supplies are used would allow an organization to reset their PAR levels and order and restock with the least amount of cost and waste.

Lessons That Apply to Healthcare

While there are notable examples of supply chain management processes enabling better end-to-end business processes, this paper will focus on simplifying the management of supplies and reducing inventory. Practical lessons can be applied to healthcare quickly, and not only can these help hospitals reduce costs, they can also help improve the time and efficiency of the clinical teams by reducing burdensome work. A few examples include:

- 1) Improve visibility to inventory to reduce the amount of safety stock on hand. Greater visibility to inventory will reduce inventory overall, as well as the time spent managing it. Most hospital supply chain leaders agree they have too much safety stock on hand, with low visibility to where items are stored. This can result in reordering supplies before they're actually needed, appearance of stock-outs (when the product needed may be somewhere in the hospital) and additional time spent by nurses as they search for supplies.

Agnesian Healthcare Using a Mobile-based PAR Approach

At Agnesian Healthcare, a nonprofit, local healthcare system based in Fond du Lac, Wisconsin, the team was looking for ways to get more data about their inventory so they could more proactively manage their supply chain. “We implemented the JumpStock™ system from Jump Technologies. In the first 30 days, JumpStock identified overstocks in our inventory,” said Perry Willmore, director of Supply Chain Management for Agnesian HealthCare. “It also suggested new PAR levels that would cut inventory without stocking out, potentially saving us thousands of dollars.”

Providing team members with iPads to easily record inventory use, JumpStock was up and running within a few days. Prior to using JumpStock, the Cath Lab team would put all the product packaging from a procedure into a bag, then at the end of a procedure, they would manually record the consumption of these items. With scanner-equipped iPads, Cath Lab staff quickly and easily scanned the barcodes on product packaging from each procedure, increasing compliance, driving accuracy of information, and completely eliminating the need to manually enter data, thereby reducing staff time.

Overall, the improved insight provided by JumpStock allowed for reductions in inventory levels and spend. At one ER location, a 35 percent reduction in units to PAR was realized, which translated into a 34 percent reduction in spending. And supply chain managers are able to view the information anywhere they want because of the way JumpStock utilizes the cloud to securely access and store data.

- 2) Eliminate obsolete stock.⁴ Consider how much obsolete stock is kept on hand. Is it because no one wants to own up to it, or because the company can't take the expense hit this quarter and write it off? Ridding storerooms of obsolete inventory is good business practice, and good operating policies will result in better long-term financial results. If obsolete stock isn't addressed, it grows. In hospitals, supply chain leaders can team with finance to deal with obsolete stock, get it off the books, and use the space for productive inventory.
- 3) Improve understanding of the velocity of supplies. For effective supply management and accurate reordering, we need an accurate understanding of the velocity of the actual supplies used. This step needs to be simple enough that can be continuously performed in each area of the hospital. Look for ways to match the work flow of a department with the right technology and business process. Reducing or eliminating the time team members spend counting items, and instead, automating the recording of the transaction and increasing visibility will help both nursing and supply chain staff members be more productive.
- 4) Align metrics with critical team members. In a hospital, this is alignment across supply chain and clinical departments. With aligned metrics, departments share commitment to improving inventory management and reducing stock on hand, and supply chain and nursing can jointly improve the business processes that drive:
 - a. Greater accuracy
 - b. Reduced inventory on hand
 - c. Reduced costs
 - d. More patient-time for clinical team members
 - e. More cost effective reordering processes

At a recent healthcare industry conference, general session speaker Teresa Dail, RN, BSN, Chief Supply Chain Officer, Vanderbilt University Medical Center, stated "It is possible to break down the barriers that exist within your organizations. I think it is safe to say that everyone in this room gets up every morning with the intent of doing the right thing and in healthcare today, that means making sure we have the right product for the right patient at the right time being used for the right procedure. That can only be achieved through a collaborative and transparent environment. You have to talk within your organizations. Just as importantly, the supply chain team, clinicians and suppliers have to talk about what's important for each of their entities and work together to achieve those goals. Operating as we have been is not sustainable. And most importantly, we have to be able to be true to our word. People may not always like what you have to say but if you have integrity when you are dealing with individuals they will at least respect when the message you have to deliver is an unpleasant one. That will lead to trust."⁵

Penn State Hershey Medical Center Emergency Department Drove Success Using a Two Bin Approach

At Penn State Hershey Medical Center, Supply Chain Director Matt Brennan noted significant improvement in nursing satisfaction. "When we conducted a survey of our nursing staff, we had just over 200 nurses in our emergency department (ED). There was a 90-percent dissatisfaction rate with the previous inventory management system. After we implemented and began using JumpStock and its 2Bin™ method for recording inventory transactions, we were able to completely turn the tables and jumped to a 92 percent satisfaction rate. The nurses love it."

Nancy Savel, Clinical Head Nurse, ED, Penn State Hershey Medical Center, echoed Brennan's comments. "We have a lot of critical patients come through, so we need to have what we need at the bedside for use. Supplies weren't where we needed them, so we created a lot of workarounds." The ED team tried to create a system that blended dispensing cabinets with temporary supply carts, but with supply carts scattered around the department, the supply problem got worse. Nursing and supply chain worked together to change, and launched a program using the Jump 2Bin approach. "There are still some things to work out, but overall, we're doing a great job and everyone is happy with the system."

What Can We Do to Improve – Today

Healthcare is a complex industry. Delivering high-quality, cost effective patient care is the most important output of the healthcare system, yet ongoing business issues are driving costs. Disparate systems, lack of accepted data standards, lack of standardized business processes, among other issues, prevent healthcare from benefitting from greater automation and simplification of business processes.

Inventory management is an opportunity to reduce costs immediately. Charles Poirier says, "extraneous supplies, redundant materials, items no longer in demand and still kept in storage, and wastes can be eliminated. A concerted effort, beginning with non-critical categories, invariably leads to considerable reductions, without harming customer service. Whatever the actual potential for healthcare, inventory savings have to be compelling opportunity. Inventory saving cries out as an area of potential improvement." Poirier also notes that total inventory is generally higher than expected. A hospital

supply chain leader Poirier spoke with noted his organization reported “visible” inventory at \$800,000, when it was actually \$1,900,000. Upon completing a supply chain diagnostic for another organization, an extended healthcare network, Poirier determined the system had twice the inventory necessary to maintain good service levels, primarily because the involved parties did not trust the system and hoarded extra supplies. Implementing more effective processes will allow an organization to receive benefits immediately.

Here are 10 ideas to help get your organization started:

- 1) Select an area of the hospital willing to pilot a new inventory management program: identify a department that’s motivated either because the nursing staff is unhappy with the time they spend on inventory, or they’ve demonstrated willingness to partner with the supply chain team.
- 2) Determine the best inventory management solution to implement in this area: two easily implemented, proven solutions are a mobile-based PAR system or a two-bin system (based on Kanban systems adopted from manufacturing). For higher cost and/or patient-specific items, limited access systems may be appropriate and can be considered as a third option.
- 3) Make sure you can simply, consistently and in the most automated way possible record inventory transactions, leveraging the approach being used in a given area. In some areas, it may be necessary to record in conjunction with the patient record for billing purposes. In other areas where more disposable supplies are used, patient-level recording may not be needed and instead supplies can be recorded and tracked at a “bin” level.
- 4) Select cloud-based technology that can reduce ongoing costs in your organization, impact on internal IT resources, and be easily implemented in your organization. The right system can give you flexibility to grow quickly and cost effectively, as you eliminate added costs such as hardware including new servers, IT costs for system upgrades, and ongoing IT support costs.
- 5) Implement processes that improve workflow for the users, making their jobs easier. This will ensure compliance from team members. Establish a goal of recording transactions to drive accuracy of information, without adding the burden of additional work. Upon implementation, provide any required training to ensure technology is easily adopted.

- 6) Assign tasks appropriately. Ensure nursing can quickly and easily access the supplies they need, and supply chain gets the accurate reporting and measurements needed to accurately replenish.
- 7) For supply chain team leaders, begin to build a complete picture from the data now being captured about product usage. As soon as you understand the velocity of product usage within your organization, you can begin to adjust to more cost effectively order supplies.
- 8) Build shared goals across the supply chain and nursing teams. Adjust supply chain team members, whenever possible, to take on some of the inventory-related tasks that nursing may have been handling.
- 9) Clean the slate. Use and reduce replacement levels of excess inventory, work with finance to eliminate expired materials, and set your new levels to reflect exactly when you need.
- 10) Begin tracking results. You’ll want to understand baseline costs of clinical time, supply costs, reordering costs, lease costs on previously used equipment such as cabinets, and measure results and savings to build support for new systems.

Conclusion

In many ways, inventory is the measuring stick of an entire supply chain, reflecting the agility and accuracy of your supply chain processes. Reducing inventory is key to improving your supply chain, and importantly, reducing costs for your organization. Get started by breaking down the silos across your hospital with communication and shared goals. When progress is made internally, other business issues – such as, shared upstream and downstream processes – can also be addressed, allowing further improvements. Inventory management is a continual process with an effective supply chain: making improvements sooner rather than later will enable a business to start to recognize benefits and build upon them.

References

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2600 Eagan Woods Drive, Suite 350, Eagan, MN 55121 • 888-373-7226 • www.jumptech.com