Customer Report:
A Case Study on Using a Two Bin Approach to Inventory Management in the Emergency Department

Customer: The "PA Medical Center*" Emergency Department

The "PA Medical Center*," is a 450+ bed medical center located in Pennsylvania. The adult emergency department (ED) includes seven locations for patients with 55 permanent beds and 12 additional holding locations. It's the only Level One trauma center in a 75-mile radius.

Like other provider organizations, the PA Medical Center has a wide variety of supply chain needs. These range from very time-critical situations in the emergency department to more standard care-delivery needs for clinical teams at the hospital.

The Challenge: Problems with an Inefficient, Expensive Inventory Management System

The PA Medical Center's inventory management system relied on cabinets: a point-of-use dispensing system to manage the bulk of the organization's stocking needs. While these systems can be effective at managing high-value items such as implantable devices, pharmaceuticals or other highly-regulated supplies, the cabinets require staff members to spend valuable time verifying their identity and patient information. Then, clinicians have to select the item from a touch screen, open the telephone booth-sized cabinet and log items taken from a particular row on a shelf. In studying this process, the "per-pull" time commitment quickly added up, especially in critical situations.

While these machines automated the inventory ordering process, they also automatically reordered small quantities of individual products, driving up costs by incurring transaction fees with each order to PA Medical Center's distributor.

In emergency situations, the cabinet system simply didn't meet the clinical team's requirements. The supply chain director at the medical center, a 30+ year hospital supply chain management veteran, said the selection and removal process took an average of three to four minutes per pull if all steps were followed.

In a busy emergency department, every moment counts. "For a physician in an ED, three minutes can seem like 25 minutes," the

supply chain director said. “One of the greatest needs we identified for our clinical team was to reduce the number of minutes it would take to get the patient-care products they were using.”

The director described the situation: “Emergency room staff often has to grab items and rush to a patient in critical condition, without logging that a common item such as a roll of gauze or a sterile bandage had been removed. Even in non-emergency situations, the process was still rife with error as the possibility of under- or over-logging removals remained.” He noted that when it was time to restock shelves, employees had to rotate the stock and manually count and verify the totals. Along with the regular time taken to complete a supply chain transaction, these discrepancies added up over the course of weeks and months and significantly reduced the efficiency of supply chain efforts, leading to stock-outs and overstocks.

With a cabinet system, a good compliance rate is approximately 90 percent, meaning there's a 10-percent error factor with proper utilization. When it came to actual, in-field use at PA Medical Center, staff compliance at times had dipped as low as 40 percent and a survey of staff satisfaction reflected low scores associated with use of the current system.

The cost of the cabinets was also a factor in seeking a more cost-effective inventory management system. The tracking system used for the cabinets required a pay-per-pull setup, a problem for low-value, high-use items stored within. The yearly lease alone was driving more than $250,000 per year for units in the emergency department.

In today’s cost-constrained environment, hospitals are continuously looking for ways reduce operational costs. With supply chain as the second largest cost in most hospitals and health systems, the areas of supply chain and inventory management are appropriate targets for improvements in process, productivity and cost management. As the team at PA Medical Center sought improvements, the supply chain director noted, “Simplification is incredibly important as hospitals adapt to these changes and deal with reduced personnel levels and raised expectations for greater efficiency.”

Moving to a More Efficient System for Nurses and Physicians

Looking for a solution that would eliminate some of the higher costs and lower staff satisfaction with the point-of-use dispensing cabinet system, the PA Medical Center’s emergency department decided to switch the busiest area of the emergency department, called the “white area,” to a new method of inventory management using JumpStock 2Bin™ from Jump Technologies.

“We knew if we could pilot the JumpStock 2Bin program in our busiest area and get it up and running efficiently, it could work anywhere in our organization,” the supply chain director noted.

The department switched to a two bin approach, a system that has been well-established in other industries with highly efficient processes. This system is simple but effective. There are only two states for a bin in

this system: full and empty. Using bins placed on standard shelving, the system operates on a binary principle - the first bin, containing two days' worth of product and tagged with a unique barcode, is filled and then used until it is depleted. Each product is stocked based on use projections. A second, duplicate bin is placed behind it, filled to the same level, and considered to be reserve. When a bin is emptied, it's placed on the top shelf, which is reserved solely for empty bins. Quickly, a nurse can simply pull an item from a bin and bring it to its needed location without logging in or pushing buttons to track. In the white area at the PA Medical Center's emergency department, in situations where every second is critical, this "grab-and-go" system was found to be far more realistic for the needs of the clinical team in the ED, as well as effective for supply chain efficiency.

"When we conducted a survey of our nursing staff, we had just over 200 nurses in our emergency department," the supply chain director said. "There was a 90 percent dissatisfaction rate with the previous inventory management system. With JumpStock 2Bin, we were able to completely turn the tables and jumped to a 92 percent satisfaction rate. The nurses love it."

Simplicity for Supply Chain Leaders

The empty bins stored on the top shelf are scanned by a supply chain team member using an iPad along with a pocket-size bar code scanner running JumpStock, which automatically records inventory for the bin. The same two-day stocking level is used for each bin, cutting down the time staff has to spend tracking inventory. A database created with JumpStock indicates the correct stocking level for each bin by using a unique bar code. This process improves workflow and dramatically reduces stock-out issues without increasing time commitments on the part of supply chain professionals. All that's required in most organizations is a once-a-day sweep of areas where supplies are stored, drastically reducing staff time and boosting efficiency. "Once a day, one of my supply techs goes up and scans all of the empty bins on the top shelf," said the supply chain director. "The process is very accurate and simple for both supply chain and clinicians."

This simple process provides greater efficiency than the point-of-use dispensing cabinets could provide, while driving down the costs of leasing the cabinets and reordering fees. The switch to the JumpStock 2Bin system allowed the medical center to more accurately match inventory levels with actual use, reducing the amount of cash tied up in stock on-hand and cutting the per-transaction fees charged by the vendor.

Saving Money and Time

"There are two ways we saved with this project," said the supply chain director. "One was getting rid of the lease on the point-of-use dispensing machines. The second was that it gave me the control to look at my line charges and say, 'I can afford to double my PAR, because this item isn't too big and it isn't too expensive.' This approach can cut charges from my distributors in half."

The medical center supply chain director noted approximately 90 percent of inventory control errors are made with manual counting, so the automated nature of JumpStock helps remove those mistakes and the associated costs. Another benefit experienced at the medical center was no longer having to involve the IT department. The simple implementation took just a few days and allowed employees to quickly learn the system on devices with which they were already familiar.

The Results

With low initial and continuing costs of JumpStock, the medical center was able to save hundreds of thousands of dollars while improving efficiency and reducing the time clinical staff and supply chain employees spent dealing with inventory. While the automated cabinets were generating a stock-out level of approximately 5 percent, the use of JumpStock has dropped that number to 3 percent – and the supply chain director believes it can be improved even further. Also critical to the success of this project was satisfaction of the ED nurses, which rose from 10 percent with the previous system to 92 percent after implementing JumpStock with the 2Bin approach.

The conversion of the ED's white area was such a success that several members of senior management were "begging for their departments to be next." The initial 78 emergency nurse stations converted to JumpStock are being joined by others soon.

The Benefits

Overall, the PA Medical Center has realized four major areas of benefit:

1) A continuing reduction in inventory and technology costs
2) Better matching of stock levels to actual consumption with a major reduction of stock-outs
3) A significant increase in nursing satisfaction
4) An overall simplification of supply chain management efforts

JumpStock provides a real, workable and competitively priced solution for hospitals to manage their high-velocity, medical-surgical supply inventory more cost-effectively. In today's hospital environment, support services are asked to do more with less and provide increased justification for cost, staffing levels and supply chain management practices. Having a cloud- and mobile-based solution in place can reduce spending levels while simultaneously improving visibility and operational efficiency. JumpStock can help supply chain departments and managers weather the changes in healthcare and more effectively prepare their hospitals for management of cost, quality and outcomes.

**The PA Medical Center is an actual medical center in Pennsylvania. The staff at the medical center have asked the name of their organization not be used due to their policies regarding vendor endorsements.*

For more information about JumpStock, please visit: www.jumptech.com

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