

Revamping Supply Chain Management



Phoebe Putney Memorial Hospital

Location: Albany, Georgia

Beds: 450

Community Population: 363,000

This article examines how one hospital, Phoebe Putney Memorial Hospital, created an award-winning automated supply replenishment system to better manage inventory, track and reduce costs, recapture lost charges, improve efficiency, and enhance patient care.

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George Dillinger, Director, Materials Management

Materials management plays an important role in the financial and clinical success of any medical institution, yet it often does not receive the attention it deserves until one or more links in the supply chain is broken.

Telltale signs of a failing supply system that are frequently overlooked include:

- Duplication of stock in multiple storage areas
- Hoarding of supplies by staff
- Over-ordering by staff
- Dead inventory
- Presence of “unofficial” inventory throughout the institution
- Increasing volume of daily individual patient supply item requests from central supply
- Rising labor costs to manage the same level of line items
- Increasing involvement of non-materials management staff in inventory management
- Escalating lost charges on billable patient supplies

A common cause of supply chain failure is the use of antiquated, inefficient materials management systems—systems that can no longer keep up with the dynamic inventory flows needed in today’s fast-paced, high-tech medical environment. Fortunately, over the past several years, a variety of computerized, automated supply management systems have been introduced to help institutions better manage their inventory and recognize revenues otherwise lost to internal inefficiencies.

Recognizing Broken Links in the Supply Chain

Phoebe Putney Memorial Hospital (PPMH), located in Albany, Georgia, is a 450-bed, not-for-profit medical center that serves a population of about 363,000. As one of Georgia’s leading progressive and comprehensive medical centers, it is constantly looking for ways to wring out inefficiencies to improve its performance both clinically and financially.

One area where it became increasingly clear that PPMH was failing to meet its financial and clinical objectives was in materials management. Supply problems were particularly acute in the nursing units. “By 1999, it was obvious that our supply chain management system was broken,” said Michele Bethea, manager of PPMH’s purchasing and distribution.

Prior to automation, PPMH utilized supply management processes familiar to many medical institutions. It used a combination of par level areas and exchange carts to restock patient supplies on nursing units, while each nursing unit was responsible for ordering and managing all other supplies.

With this system, PPMH’s nursing unit supply areas ranged from crowded, but reasonably organized, to “disaster” areas with piles of boxes stacked haphazardly. On most units, with the exception of the patient supply carts, supplies were neither arranged nor easy to find.

“Since our nurses couldn’t reliably find the items they needed, hoarding became rampant and over-ordering commonplace,” noted Bethea. “Worse still, our supply system had our nurses stocking supplies and our unit secretaries doing inventory.”

Another problem with PPMH’s materials management was lost charges on billable patient supplies. “We knew from our nursing CQI (continuous quality improvement) team that our ‘yellow sticker’ charge system was a major culprit in lost patient charges,” Bethea said.

George Dillinger, who became PPMH’s new director of materials management in early 1999, agreed. “By 1999, it was pretty obvious that our supply process wasn’t working,” Dillinger said. “We had several supply replenishment systems all trying to do the same thing, and none of them were doing it well. We weren’t doing a very good job supporting our nursing units. Our nurses were having to spend too much time locating, ordering, and managing supplies, which took them away from patient care.”

Repairing the Supply Links through Automation

“What we needed to do was focus our efforts and get the majority of the hospital’s supplies under one system, which the material’s management department would manage,” noted Dillinger. “Doing so would not only help control supply costs, but also take nursing out of the supply business and allow them to get back to nursing. This became our top priority.”

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Jane Johnston, Vice President, Patient Care

Prior to Dillinger’s arrival at PPMH, the former materials management director proposed installing Omnicell’s OmniSupplier cabinets to handle patient supplies on the nursing units as a cost-savings measure.

“The cost-benefit analysis done by my predecessor made sense,” Dillinger said, so he continued to pursue the Omnicell system as part of the supply chain management solution.

Then, in April 1999, PPMH also hired a new vice president of patient care, Jane Johnston. She, too, quickly recognized the supply problems on the nursing units and initiated a CQI project to fix the par levels for floor stock.

“I was determined to put an end to the many phone calls and trips off the units being made by the nursing staff in order to meet the needs of our patients,” Johnston said.

Realizing they were attempting to achieve similar goals, Dillinger and Johnston merged their efforts into a single project called “Supply Replenishment to Nursing Units.” Eventually this project would evolve into an automated “point-of-care” supply replenishment system with the Omnicell automation system as the driver of the project.

Establishing Goals for Automation

The Supply Replenishment to Nursing Units project had four major goals:

- To take the nursing staff, unit secretaries, and clerks out of the supply business
- To realize a 10 percent saving in supply costs
- To create an orderly, organized, seamless supply replenishment system
- To enhance patient safety and staff satisfaction by having the right product in the right place at the right time in the most cost-effective manner

“Initially we weren’t sure that the Omnicell system would deliver the desired results,” said Bethea, “so we decided to undertake a three-month trial using PPMH’s three most supply-intensive environments: the general medical unit, the surgical intensive care unit (SICU), and the urology unit. Then, working closely with each unit’s nursing staff, we analyzed the supply replenishment process, realigned work processes, consolidated storage into a single inventory, and optimized par levels for each unit’s Omnicell cabinets.”

Nursing Responds to Automation

Once the Omnicell cabinets were installed and filled with the necessary supplies, the unit nurses got their first chance to experience automation.

“Initially there was some skepticism to automation by the nursing staff,” recalled Bethea. “They were concerned about accessing the cabinets in an emergency, running out of stock, and the time it would take to learn to use the system effectively.”

However, after completing training and experiencing the Omnicell system first-hand, the nurses were pleasantly surprised.

They found through the use of Omnicell’s Magnetic Card Reader that the system was readily accessible during an emergency. Furthermore, items that were needed were easy to find and were there when they needed them. The nurses also found the new system improved workflow, significantly reduced the time and paperwork associated with tracking product usage, and made it much easier to control outdated supplies.

Assessing the Impact of Automation

After a three-month period, PPMH evaluated its return on investment (ROI) using the Omnicell system.

To complete the ROI analysis, materials management identified all the supply items to be placed in the new par level areas and then monitored consumption for all the items on the test units for three months. The data was then converted to dollars per patient day. This figure was then used as the baseline for determining the reduction in supply utilization for the trial period. “For the three month period, we realized an 11 percent cost savings, exceeding our original goal of 10 percent,” noted Dillinger [Table 1].

**Table 1—Automation Trial Results
(General Medical Unit—8AB, SICU, Urology)**

Costs	
Supply Costs Pre-Trial	\$ 152,562 (3-month trial)
Patient Days Pre-Trial	6,193
Average Cost per Patient Day Pre-Trial	\$ 24.63
Supply Costs During Trial	\$ 148,417 (3-month trial)
Patient Days During Trial	6,696
Average Cost per Patient Day During Trial	\$ 22.17
Savings	
Savings Cost per Patient Day	\$ 2.47
Savings Overall (savings cost per patient day x patient days in trial)	\$ 16,536
Percent Savings Overall	11.14%

Table 2—ROI Projections for Installation of OmniSupplier Cabinets Throughout Hospital (23 Sites)

Item	Purchase with Value
Costs	
System Cost	\$ 909,375
Estimated Shipping	\$ 12,615
Costs of UPS's for Systems (estimated)	\$ 4,200
Interface Costs	\$ 32,000
Renovation / Installation Costs	\$ 24,338
Miscellaneous (Temp. Wiring, Configuration Changes, Training)	\$ 10,000
Total Costs for System (Installed)	\$ 992,528
Monthly Maintenance	\$ 2,630
Five-Year Life Cycle Cost Projection	\$ 1,150,328
Savings	
Annual Projected Supply Savings	\$ 266,161
Annual Projected 1.5 FTE Reduction	\$ 27,900
Annual Charge Sticker Savings	\$ 7,000
Gross Projected Savings Over Five Years	\$ 1,505,307
Net Projected Savings	\$ 354,979
Break-even Projection	3.82 Years

“Our savings analysis was based solely on a reduction in the quantity of supplies used per patient day. When you comprehensively manage all supply consumption, people are a lot less wasteful. Many people try to justify cabinet systems based on lost charge recovery. While charging accuracy does increase significantly, it is insignificant when compared to the reduction in supplies used and to significant improvement in supply availability the system provides,” Dillinger said.

Expanding Possibilities

Using the 11 percent savings figure achieved in the three trial units, materials management personnel projected the savings to be recognized if supply automation was expanded throughout the hospital [Table 2]. Over five years, net projected savings were \$355,000 with a break-even projection of 3.8 years. With these encouraging results, PPMH decided to proceed and expand the system throughout the hospital in 2000.

Today, OmniSupplier cabinets can be found in 25 sites throughout the hospital. “We’re thrilled with the results we achieved with hospital-wide automation,” said Dillinger. “We’re now realizing a savings of \$2.75 per patient day, which represents a total savings of 12.76 percent—even better than what we achieved during the trial period. These savings allowed us to reduce our supply budget by \$340,000 for fiscal year 2001.”

“We now know that the right item will be in the right place

at the right time. The only thing our nursing staff has to do is reach out and pick it up. It has restored our trust in the hospital’s supply chain management system and boosted staff morale. The new system has also improved our efficiency, positively impacting both patient safety and satisfaction.”

Barbara White, RN, Nurse Manager, SICU

Added Benefits of Hospital-wide Automation

Hospital-wide automation has provided other benefits as well. Manual inventories, labeling of supply items for charging purposes, and duplicate stock areas—and their associated costs—have all been completely eliminated. Automation has also allowed materials management to eliminate 1.5 FTEs, despite the fact that the number of line items managed on par areas has doubled. Additionally, PPMH can now accurately track lost charges, something it was unable to do before automation. Noted Dillinger, “Lost charges were previously estimated at 15 to 20 percent. Now, with our new automated supply replenishment system, we know exactly what our lost charges are (currently under 4 percent).”

Automation’s Impact on Patient Care

Automation has had a positive impact on patient care as well. “We now know that the right item will be in the right place at the right time. The only thing our nursing staff has to do is reach out and pick it up,” said Barbara White, RN, nurse manager of PPMH’s SICU. “It has restored our trust in the hospital’s supply chain management system and boosted staff morale. The new system has also improved our efficiency, positively impacting both patient safety and satisfaction.”

Ensuring Ongoing Success

To ensure ongoing success of its automation program, PPMH’s materials management continuously monitors lost charges, supply consumption per patient day, and par replenishment cycle times. All of this data, which is readily available from the hospital’s OmniCenter server, is used to continue to refine par areas (remove unused/low-usage items and add high-usage items), monitor supply usage throughout the facility, and adjust general stores inventory items and levels. Meanwhile, the nursing CQI team continues to monitor efficacy and compliance and to provide early warnings of difficulties at the point of use.

An Award-winning Automation Program's Keys to Success

Overall, it can be said that supply chain automation at PPMH has been a tremendous success. Recently, the Voluntary Hospitals of America (VHA) Group Purchasing Alliance recognized this success when it awarded PPMH the 2001 VHA Leadership Award in supply chain management for this project.

For those managers and administrators contemplating automation within their own institutions, George Dillinger and Michele Bethea offered some useful advice.

"Know thy customer," Dillinger said. "I was amazed by how much we didn't know about how nurses used supplies, and, therefore, we couldn't really understand their needs."

"When we started this project, we thought we had everything analyzed perfectly right off the bat, but we weren't even close," Dillinger added. "It took us nearly four months of intensive work with the unit nurses before we really knew what products they were using. So close collaboration is key."

Bethea agreed and added, "Be sure to involve everyone who has a stake in the process. While materials management and nursing were the drivers of PPMH's automation project, it couldn't have been successful without the efforts of numerous other departments, including information systems, plant operations, construction, education and training, and administration."

"Finally," added Bethea, "be proactive, not reactive. We're constantly 'tweaking' to ensure positive results in the long-term and always exploring new ways in which our point-of-care replenishment system can bring



Reviewing dispensing steps of the OmniSupplier at Phoebe Putney Memorial Hospital are (left) Barbara White, RN, Nurse Manager, SICU and (right) Debra Williamson, RN, Director of Adult ICUs.



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