

Manifesting destiny in supply chain's Wild West

Laboratory vies for inventory management, value analysis

by Rick Dana Barlow

Among the more progressively minded hospitals, supply chain management extends its reach and influence to just about every clinical and operational area. The most recent examples include surgical services, diagnostic imaging, interventional radiology and, to some extent, oncology.

But the last frontier for supply chain management to penetrate remains a clinical operation conveniently overlooked.

Like the operating room and radiology areas, it's one that generates considerable revenue for a facility as well as uses scores of supplies and plenty of costly, high-tech equipment. In fact, in some organizations, such as the venerable Mayo Clinic, this department's supply expense budget surpasses that of surgery and pharmacy.

It's the laboratory.

For many hospitals, the lab represents the Wild West of supply chain management for these reasons: Product purchasing decisions may be too decentralized with too many people ordering supplies, expensing them at the time of purchase and coasting along a status quo of bulk buys and standing orders without frequent updates.

The bottom line: Lab professionals may have little to no idea what's in their inventory, let alone what they use when and why so they may not realize process inefficiencies and waste exists. As a result, the lab may need some schooling in supply chain management 101 with emphases on the fundamentals of purchasing, inventory control and consumption analysis. To date, however, supply chain management assisting the lab remains more of a longer-term strategy and not an active tactic for many facilities.

Profit over loss

So why has supply chain management seemingly ignored or simply overlooked the lab for so long?

"There can be any number of reasons, cases vary, but they can include the rapid and complex technological advances that are not easily understood or managed,"



Ken Rosemann

said Ken Rosemann, vice president, laboratory and diagnostic imaging, Amerinet Inc., St. Louis. "It is much easier to analyze costs of gloves or bedding for example, than comprehend innovative lab products and systems that carry more expense initially, but can provide real value in the long run.

"Also, the laboratory many times has limited control in terms of demand for their services," Rosemann continued. "Lab procedures are driven by patient volume and physician orders, so it is difficult many times to forecast inventory. For this reason, lab managers must ensure that adequate levels of supplies are always on-hand.

A third reason may be that in the past these areas were looked at as profit centers for some facilities, so as long as margins remained strong, strict management was not an issue," he added. "With supply costs continually growing, and the reality of shrinking reimbursements starting to hit healthcare facilities hard, paying more attention to inventory management in the lab has become more of an issue."

Cyndi Carter, director of marketing management, Cardinal Health Inc.'s Scientific Products team, acknowledged the lab's shift toward operating more as a cost center from merely a profit center so an increasing focus on expense reduction isn't surprising.

But Carter indicated that the "supply chain and product choice in the laboratory are unique and vary by department," which may contribute to the silos erected around the area.

"The product knowledge may also be more complex than other departments, and the knowledge base to cover all inventory management needs in the lab rarely lies with one individual," she said.

Carter highlighted several examples of the lab's supply chain complexity.



Photo courtesy Mayo Clinic

- The laboratory must deal with lot control, and Quality Control (QC)/re-validation is required when new lots are introduced to the testing process, which impacts lab productivity.
- Short dating of product and fluctuations in testing volumes impacts how the lab determines PAR levels and re-order points.
- Space constraint is always an issue for labs and impacts how much product can be stored at any given time.
- Product preference isn't always about a laboratorian or pathologist liking one product over another. "For example, you may think a slide is a slide is a slide," she added. "But if the slide does not fit properly in an instrument because it is a fraction different in size it impacts the testing process, productivity and results." While it may seem self-evident that inserting a full-time employee to manage the supply chain for the lab, a similar tactic used in the operating room, it's more of a luxury no longer available for most laboratories suffering from scarce resources, according to Carter.

Charles Starr, laboratory manager, Cardinal Health's Ambulatory Care Business, acknowledged that "fear, intimidation and lack of understanding are all valid reasons that supply chain management professionals seem to overlook lab," but added that there's more to it than those.

"One other major reason, specifically in the physician office lab (POL) market, is the wide range of size and scope of the labs in the market," Starr noted. "In many

instances, smaller POLs are strapped for resources and unable to dedicate lab professionals solely to lab testing or supply chain management responsibilities. So the environment doesn't lend itself to the supply chain management proposition. Instead, these entities tend to become incredibly relationship-driven, forming relationships with sales reps that last many years and expressing little interest in change."

Yet when some larger POLs have concentrated on supply chain management, a "fear factor" emerged, according to Starr. "While lab managers in these offices may demonstrate an understanding of the value of supply chain management, they prefer to discuss their purchase decisions with dedicated lab reps, or sales professionals whom they believe understand the intricacies of discussions about lab-specific products and services," he added. "If a sales rep is at all uncomfortable in this type of situation, they may pass up the opportunity out of intimidation."

At Rochester, MN-based Mayo Clinic, Carla Brunsvold, a supply chain performance consultant who has helped the organization's mammoth reference lab operation successfully tackle its supply chain challenges, indicated a mutual lack of understanding and limited supply chain integration with the laboratory practice, by and large, has kept the two areas apart for so long.

"I don't believe that in the past enough of an effort was made to understand the perspective of the other department," Brunsvold told *Healthcare Purchasing News*. "The laboratories' needs are different from other clinical areas, so a one-size-fits-all approach would not be successful. You need to take the time to really understand why bulk buys and standing orders are the status quo and develop realistic data-driven solutions that address the laboratory's unique needs."

Brunsvold attributed the need for bulk buys and standing orders that are so common in the lab to the lab's desire to minimize the frequency and associated supply and labor costs of lot changes and lot-to-lot verification.

"This kind of integration takes time and requires a certain level of laboratory acumen," she noted. "While Supply Chain 101 may be needed by the laboratory, Supply Chain needs Laboratory 101 just as much."



Photo courtesy Mayo Clinic

Tom Stewart, finance manager, Supply Chain Performance Consulting, Mayo Clinic, advocated the importance of having a dedicated supply chain staff member supporting the laboratory. "At Mayo, our supply chain consultants are integrated into the practice area and reside with the customer," he said.

Sliding scale

Depending on the facility and the types of services it

offers, laboratory supply expenses can comprise up to a quarter of a facility's overall supply budget.

Generally, laboratory products represent 5 percent to 10 percent of a hospital's supply budget, according to Rosemann. The items that account for most of a lab's shopping list are blood products and reference lab services, which are tests that the lab does not perform in-house, he added.

"If a facility doesn't have a reference lab, supply costs for those products could be between 5 and 10 percent, but if they did have a reference lab they could be up to 25 percent," Stewart said.

"Our business is very different from other hospitals because of our reference lab service that supports non-Mayo Clinic facilities," Brunsvold indicated. "At some point as the low-hanging fruit in other areas has been addressed, 10 percent of the spend is still an opportunity that shouldn't be ignored. Laboratory practice leaders are no different than any other clinical area in that their margins are scrutinized, and they are looking for ways to cut expenses without affecting the quality of the service they provide."

But a small percentage of supply expense can detract from the lab's significant function, according to Carter.

"The lab still remains a relatively small part of the hospital's overall supply spend," she said. "However, it impacts more than 70 percent of treatment decisions made. From a patient care and physician satisfaction standpoint, it is critical to ensure that the laboratory has the product available when needed."

Further, supply chain management tends to be an easier concept in larger POLs where supply expense makes up a considerable portion of the overall budget for the facility, Starr added.

Manifesting destiny

Of all the hospitals and healthcare facilities in operation, Mayo Clinic represents one of the forerunners that successfully has fused laboratory and supply chain operations for process efficiency and overall cost savings to the tune of more than \$1 million in cost avoidance within the last two years. [See sidebar, www.hponline.com/inside/2010-07/1007-Lab-Supply.html]

"Savings isn't just cost avoidance," Stewart cautioned, "but there's also labor savings in not having to revalidate lot numbers, for example. When you do EOQ you improve inventory turns and reduce obsolescence, too."

As the manager of a performance and consulting team that is part of a shared-service organization model that supports Mayo Clinic and its related facilities, Stewart oversees 12 consultants that support performance improvement initiatives in high-dollar areas, such as surgical services, radiology, gastrointestinal and cardiovascular specialties and the lab, the latter area of which Brunsvold manages relationships.

To assist the lab's supply chain activities, Brunsvold advocates education and understanding in three primary areas - inventory management, sequestering and standardization with point-of-use technology support from PAR Excellence Systems.

"Inventory management is not a core competency in the laboratory environment, so education on inventory management fundamentals coupled with lean inventory organization principles are needed to lay the basis for a sound system," Brunsvold noted. "A well thought-out manual system can provide rigor and discipline to the inventory control process, but a point-of-use system takes it to the next level, providing data that can be used to track and identify savings opportunities thru optimization of inventory levels."



Carla Brunsvold and Tom Stewart from the Mayo Clinic.

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Sequestering involves partnering with laboratory vendors to hold forecasted volumes of single lots until the lab pulls needed stock, according to Brunsvold. This helps to eliminate bulk buys and standing orders and requires a commitment to the vendor.

"Point-of-use systems and sequestering allows them to have almost a JIT system tracked to their vendors with lot management," she said, adding that their strategy was a bit radical. "Nobody was willing to do it the way we wanted at first. But [those vendors] get committed orders and better forecasting and a better idea of what we need."

Mayo has implemented point-of-use technology throughout the inpatient practice areas, such as the nursing floors and have been expanding to the lab.

"The point-of-use technology is utilized more here in Rochester than in the other Mayo facilities for the lab practice but we're in the process of trying to replicate what we're doing here in Arizona and Florida,"

Strategies for managing lab's supply chain

Amerinet Inc.'s lab and diagnostic imaging expert, Ken Rosemann, offered this five-point strategic short list to help the lab control expenses and manage its supply chain.

- Start by making sure you have a comprehensive and correct inventory and usage history. Good data is the basic building block of bringing efficiency to the process, and these two pieces of information are key.
- Invest, where possible, in an automated system to count and track inventory. There are Web-based systems and software you can purchase and implement to accomplish this. Most take advantage of some type of bar coding to track inventory. These offer the benefit of being able to rapidly analyze inventory and present information in real-time.
- Don't just leave inventory management to the clinicians. Make sure to involve a materials manager in the process. Collaborate, offer support and rely on each other's expertise to lend value to the process.
- Make sure that any system you use keeps track of shipment numbers and expiration dates. Making sure you are alerted to these dates in advance can reduce waste and bring further efficiency to your process.
- If your lab costs include many high-cost, high-tech physician preference items, form a value analysis team consisting of materials managers and clinicians to craft a process focused on standardization and utilization that can reduce costs while maintaining or enhancing patient outcomes.

she told *HPN*. "I oversee that project and have people on site doing the heavy lifting. We have three labs up now in Florida and anticipate completing implementation in July."

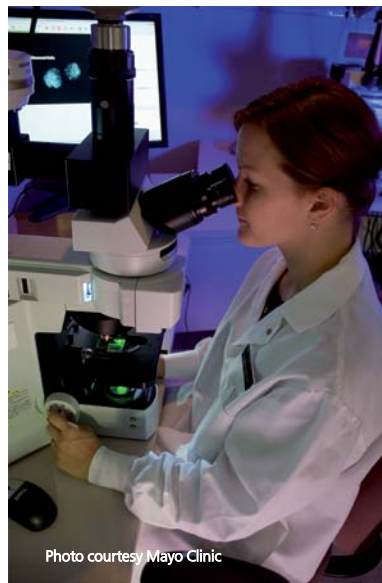
Stewart noted that the point-of-use technology effectively established a baseline of data from which both departments could gain deeper views into buying habits and consumption patterns.

"Lab supplies historically are expensed at the time of purchase and not tracked at the inventory level so this distorts the actual product costs, as well as the costs of bulk buys," he said. "[The point-of-use technology] was one of the first steps to track inventory so people can understand how much they have on hand, what they're using and what they're ordering, as well as start managing the lab like surgery and other areas that have inventory management programs."

Brunsvold also stressed standardization as an effective strategy to reduce the number of suppliers and stock-keeping units (SKUs) in the department, and that required clinical buy-in just like it would in the OR.

"Laboratory has strict oversight from a variety of regulatory agencies, making it very time- and resource-intensive to convert to a standardized product, if an alternative has already been validated in the laboratory," she noted. "It is necessary to get upstream in the decision process and help labs select products/vendors that fit into the standardization strategy prior to implementation. Once the test or supply is in the production environment, the opportunity costs associated with conversion can eliminate any potential savings associated with standardization."

Further, she acknowledged that the lab can worry that supply chain managers would pursue the cheapest products to save money. "Clinical utility is always a concern, and like any area labs are understandably concerned that a lower-cost alternative may not meet their needs clinically," she said. "A sound value analysis process can address those concerns, but where the lab is different is that there are large opportunity costs associated with



conversion once a clinical lab process is in place. So having a way for the labs to understand preferred vendors and strategic partners prior to implementing a test will have larger financial impacts potentially than looking to convert existing products to a standard."

Driven by data

Like OR professionals, lab professionals are data-driven with actionable steps for improvement.

"You have to show them numbers, what those numbers mean and what they can do to change them,"

Brunsvold asserted.

Consequently, Brunsvold helped create a tool used in the Rochester facility where lab professionals can gain access to financial information and supply chain data in their area.

"We analyze their purchasing data and check it with their budgets," she said. "They have to document why expenses may be out of line, what they're doing about it and how they'll prevent it in the future. In the past, we would have to run and find out why. But they are expected to know why and what to do about it now. This process has helped identify large-dollar accounting errors and the tool has been very helpful in initiating practice changes."

Some of the key performance indicators that Brunsvold tracks and shares includes: Supply expense, supply expense as a percent of revenue, inventory turns, inventory value overall, utilization of point-of-use systems, inventory without usage – as in dead or non-moving stock.

Plotting a course

Carter advocated a four-pronged approach for supply chain improvement in the lab, similar to Mayo's philosophy.

- *Understand the optimal purchase of lots and quantities for your reagents.* This will vary from 3 months to 1 year in laboratories based on their preferences, she indicated. Reviewing this to determine the optimal amount to carry vs. the time for new lots.
- *Freight management.* Labs generally spend 2 percent-to-3 percent of their supply expense on inbound product freight, she noted. There are various freight management programs available to help reduce this expense.

- *Evaluate purchasing kits (standard or custom-developed) vs. ordering individual supplies.* This enables the lab to spend less time procuring, maintaining inventory, packing and distributing specimen collection components. Kits can also help to drive standardization of both products and process for specimen collection.
- *Standardize where possible.* Identify the common products within the various departments and standardize to the optimal choice.

But because labs operate under “elaborate processes and procedures” it may be difficult for them to realize immediate savings, according to Starr.

“Many times, labs are unable to establish new methods before they conduct several correlation and validation studies and undertake procedural changes,” Starr said. “So what may seem like simple cost-saving switches – such as replacing one suction canister with another – may actually be a more involved decision requiring the involvement of accreditation organizations.”

Product preference remains prevalent among labs, too, and that may slow the timing of any cost savings, unless labs are replacing preferred product with private label rapid testing kits where savings may be achieved more quickly, Starr added.

“The switch to private label products is slightly easier in waived POLs, where regulatory oversight is not as cumbersome,”

he continued. “However, in non-waived, larger POLs, product standardization or substitution can be much more complicated. Parallel testing, correlation studies, procedural changes and new staff competency checklists are all a part of procedural changes. In some cases, labs may even believe that thousands of dollars in supply savings do not outweigh the costs involved in the procedural switch.”

Bridging the divide

Because supply chain maintains close partnerships with the lab leadership, the process works, Brunsvold noted. This includes the physician leader and the administrator that oversees day-to-day operations that report to a department administrator and department physician chair, as per Mayo’s physician-led model. Brunsvold meets monthly with the physician leader and administrator.

Brunsvold acknowledged that the lab has been very supportive of the partnership, however, building trust in the beginning was essential. “There was a reluctance to trust the system at first, but over time that has gone away,” she said. “In fact, one of the comments we received was that the [point-of-use system] has become a security blanket to the point that they couldn’t imagine functioning without it.”

Stewart agreed. “You can have the best supply chain people but if you don’t

have buy-in from the end users it’s essentially worthless,” he said. “Carla regularly keeps these leaders informed, sending them dashboards that highlight performance.

“Carla spent a fair amount of time convincing them why it’s important,” he continued. “It’s where you walk it like you talk it and not just talk the talk. You’ve got to execute and instill the culture in people. This ultimately goes toward improving the bottom line to better provide care to patients. Supply chain isn’t just a back-office function, but something that has a direct impact on patient care. When you explain that inventory has to be managed properly and what it costs to maintain and then show what can be done with the money saved you’ve proved your point.”

Brunsvold attributed the lab’s supply chain success in part to it being a key cultural and leadership initiative. “It’s discussed at the top and among the managers,” she said. “It’s become part of our culture. If that hadn’t happened it would have been just another flavor of the month. They keep it in front of people, constantly prioritizing it higher to maintain focus and pay attention to it.” **HPN**

Editors note: For a retro-perspective, read HPN’s 1993 coverage “Materials managers migrate into lab, with some resistance” at www.hpnonline.com/inside/2010-07/1993LabSupply.pdf

Victorious ventures in laboratory supply

Healthcare Purchasing News tapped several experts to highlight success stories they’ve experienced in helping the laboratory manage its supply chain. Here’s what they shared.

The 11-clinic network Affiliated Community Centers (ACMC) faced the threat of declining reimbursements, along with steadily increasing patient volume and expanded test menus without adding more labor. ACMC also was nearing the end of its lease period on its chemistry and immunoassay instrumentation.

As a result, ACMC invited three vendors to promote their laboratory equipment as part of a technology re-evaluation exercise, narrowing its selections to two who then returned to the organization to perform on-site workload/time studies.

Roche, ACMC’s existing chemistry and immunoassay product supplier, conducted simulations and estimated that the ACMC lab had a growth rate potential of 5 to 10 percent per year due

to its sending to other reference labs 50 to 75 specimens per day – potential revenue that could be kept in-house with a new system. In addition, ACMC’s 17-step process to operate the chemistry and immunoassay instrumentation resulted in an average turn-around time of 45 to 60 minutes for test results. Roche predicted that 90 percent of samples could be turned around in 20 minutes with a new 10-step process system.

Based on these results, Roche recommended its LEAP configuration, which combines scalable front-end automation solutions with the Cobas 6000 analyzer series to provide a turnkey solution for the mid-volume laboratory.

ACMC accepted Roche’s recommendations, reallocating labor resources to accommodate new

molecular testing that generated approximately \$80,000 in new revenue and increased efficiency to achieve 20 percent annual laboratory cost savings in part because it only needed one technician and not two to operate the new instrumentation. The new system also improved the safety of the work environment for lab technicians thanks to the automation line’s decapper module, which has significantly reduced repetitive motion concerns, and eliminates the potential bio-hazard splash risk from manual decapping of tubes.

– **Ken Rosemann, vice president, laboratory and diagnostic imaging, Amerinet Inc.**