



How value-based supply chain supports value-based care

Efficient healthcare supply chain management strategies should include the right resources to engage clinicians, optimize inventory systems, improve product recall audits and deliver a cost-effective pharmacy.

Healthcare organizations traditionally invest a bulk of their budgets in clinical systems and talent/human capital to continually improve patient care. These days, however, chief executives and clinicians are paying closer attention to what typically is a hospital's second-highest priority in terms of resource costs: supply chain.

Some of that newfound interest stems from realizing their supply chains could operate much more effectively. Others are gaining newfound visibility into current inventory inefficiencies after integrating enterprise resource planning (ERP) and other software with an electronic health record (EHR) system. Underlying almost all of these strategic moves, however, is an ongoing shift in both mindset and practice from fee-for-service to value-based care models.

Such transference has organizations adopting technologies to help intelligently maintain stock in stockrooms and pharmacies. Better inventory control means more cost savings and more efficient use of space. They also are leveraging the analytical skills of scientists,

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mathematicians, economists and engineers to minimize stockouts while gaining or maintaining clinicians' trust that they will have what they need, when and where they need it.

Volume- versus value-based reimbursements

"Within healthcare organizations, the idea around delivering quality care at the lowest cost is being pushed to the front of all agendas," said Cory Turner, strategic director for healthcare supply chain management at Infor. Infor healthcare solutions are used by 21 of the 25 largest integrated delivery networks (IDNs) and 72 percent of U.S. hospitals.

That focus on costs comes from an ongoing shift within healthcare in which payers, like the federal government, want providers to move away from fee-for-service to fee-for-value reimbursement structures. The former gave providers incentives to measure care by volume – of tests, procedures and so on – because doing more for a patient meant being paid more. But under fee-for-value structure, or value-based care, providers are encouraged to deliver the best care *at the lowest cost*.

Such a paradigm shift is designed to ensure patients and their insurers gain the most value from their care. Hospital leaders must now focus on how to contain costs – from higher reimbursements for hospitals with high patient satisfaction rates to minimizing risks of penalties for Medicare and Medicaid patients readmitted within 30 days of discharge.

How pervasive are those penalties? The Centers for Medicare and Medicaid Services announced in 2016 that it anticipated withholding more than \$500 million in payments as readmissions penalties to some 2,600 hospitals.

Current political conditions and pending repeal of the current Affordable Care Act could add new dimensions to an ever-changing healthcare landscape. However, experts are certain supply-chain departments will continue to play a pivotal role in any future cost-savings strategies.

"As the adoption of new technologies increase within the supply-chain world, so do efficiency levels," Turner said. "Being able to be proactive in their decision-making capabilities is key for hospitals."

What a waste

In 2012, the National Academy of Medicine estimated the U.S. healthcare system "squandered" \$765 billion annually, including products that went unused before they expired on shelves. That, Turner noted, is more than the entire U.S. Department of Defense budget.

"Waste within healthcare is still a huge problem, especially within the supply-chain departments," he said. "Being able to track every item at every location and know when it is going to expire is where the right technology has to be an integral part of the equation."

Part of that waste problem stems from stockpiling and "clinician hoarding" that results from a lack of trust in a hospital's current supply-chain management process. That's why it's critical for supply-chain managers to find an effective way to partner with physicians, nurses and other caregivers to limit wasteful practices.



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For many healthcare providers, this means automating processes and applying technology to maintain optimized stock levels based on the different needs of a hospital's floor, care units and patients. It also means going well beyond baseline, reactive reporting to better forecasting through predictive analytics.

Turner is a former director of supply chain within a large IDN in South Carolina. Greenville Health System leadership found a way to strategically implement appropriate technology and policies to build such support for the supply chain. "Bringing valuable data to senior leadership that shows the costs associated with this was also needed in order to help win over all parties," he said.

This also can help recalcitrant executives and physicians still struggling to adopt value-based care models and find areas within the supply chain to save costs. "The idea in general goes against the popular belief that you get what you pay for," Turner explained. "Being able to spread this new idea through a healthcare organization takes an army of champions on both sides of the clinical world. The physicians are the leaders, in my opinion. They are not only the face of the organization, but they are also the decision makers when it comes to quality and outcomes."

John Carrico, healthcare supply chain product director at Infor, agrees that clinician engagement should be a high priority – especially to free up more of their time for direct patient care. "Clinicians went to school to be clinicians, not logisticians," he said. "Solutions that help them spend more time in their core competencies are key to helping a health system achieve its mission of patient-centered care."

"However," he continued, "far too often in specialty areas like cardiac cath labs or interventional radiology labs, clinicians help order, stock, monitor and manage high-dollar items – like physician preference items – while the supply-chain management team handles lower cost commodity products."

Here is where the latest in inventory intelligence technology can provide assurance that supplies are delivered in the right quantities to the right location, allowing for high levels of patient care while eliminating excess inventory that hurts hospitals' bottom lines. One such tool is Infor Inventory Intelligence for Healthcare from the company's Dynamic Science Labs, which uses a science-based approach to optimize stock levels across the supply chain.

A science-approach to a common business issue

Infor Dynamic Science Labs is headquartered in Cambridge's Kendall Square, home to the Massachusetts Institute of Technology and nearby Harvard University. Within the Labs, data scientists, mathematicians, economists and engineers build predictive algorithms for Infor customers in a wide variety of industries. Through customer engagement, they identified the need to apply to healthcare, particularly its supply management, the same science concepts used successfully for retail and financial customers.

The methodology is simple, even if the backend technology is based on advanced data science. A dedicated team develops a strong understanding of a business problem and then uses science to solve it, first by creating a proof of concept that demonstrates value and then building algorithms around initial results with beta users. That is how Inventory Intelligence for Healthcare (IIH) was created.

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Science Labs

One such healthcare partner is Sanford Health, based in the Dakotas. With more than \$1 billion in non-labor spend annually, organization leaders wanted to optimize stock levels – and they have. Using IIH software designed by Infor’s Senior Director, Dynamic Science Labs, the healthcare system saw a 17 percent net reduction in inventory at Sanford’s main warehouse during the first six months of use, which translated to \$129,000 in savings.

“The solution’s had a significant impact on reducing their overall inventory levels while not causing more stockouts to occur,” said Dynamic Science Labs Senior Director Leigh Martin, who focuses on business-side applications.

The impact of a poorly managed supply chain goes well beyond financial costs. “If you’re a patient and the supply is not there, it could potentially be a life-threatening problem,” Martin explained. “From the provider angle, nurses and doctors care very much if they don’t have what they need to treat their patients. It’s of hyper-critical importance to make sure high service levels are being met.”

Dawn Rose, a PhD in mathematics who directs the scientist group at DSL, said their findings often confirm or provide evidence for the root cause of stockouts, particularly while sifting through historical data and mapping it to current usage trends. “The work we’re doing now is really the beginning of where we can go with inventory optimization,” she said. “We’re looking at the supplies hospitals are keeping in their storerooms or PAR locations.”

“We’ve had a lot of conversations with hospital officials who want to connect their supply data with healthcare data and start looking at the costs going into procedures,” Rose continued. “We’re also working with them on outcomes based on better data so they can make decisions about SKU (stock keeping unit) rationalizations – basically which supplies we should be using for which procedures.”

Supply chain becoming high priority

James Wilson, co-founder and technical leader of HyBridge Solutions, travels the country helping healthcare providers with IT implementations, including healthcare organizations on the ERP side. “You’d be surprised how many customers manually track patient charges or inventory in their OR, or just have a lot of broken manual processes that need evaluation and revamping,” he said.

He, too, sees the impact burgeoning value-based care models are having on these health systems. “With reimbursements shrinking, clients are starting to pay a lot more attention to inventory costs,” Wilson explained. “You can’t manage what you can’t measure, is what we always say. So, inventory intelligence helps implement better processes to control costs and better integrate clinical systems.”

He noted that resource costs generally are the Number 1 priority for hospitals, followed by supply chains. “We’ve seen a lot of investment in clinical systems as well as talent and human capital in years past. I think finally the supply-chain side is being recognized as a huge savings opportunity.”

Taking an analytical approach allows healthcare organizations to leverage inventory intelligence tools to boost purchasing power, too. But, Wilson admitted, applying



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such business intelligence to the supply chain may take some time to gain traction. “There’s definitely a need for real-time analytics, but in terms of the maturity curve, the organizations I see are really early into defining the KPIs and how they will use them,” he said.

Yet, it is happening, Wilson maintained. He noted a couple of South Carolina hospitals using inventory intelligence software to make their supply chains more efficient and generate more robust reports for supply managers. In one instance, a hospital took the time, money and effort to merge clinical data with their ERP data to determine costs per case, so leaders knew their starting point in a cost-reduction plan.

“Analytics are a product of good implementation,” he said. “If a healthcare organization implements the right business practices and the right integration with the right software, they can get more actionable information in real time.”

Optimizing the pharmacy supply chain

One area to benefit considerably from data analytics and inventory intelligence is the pharmacy supply chain. Specially designed software can analyze historical usage and ordering data for products maintained in an ERP, and recommend inventory levels that balance costs with medical objectives.

“I think this is especially useful in pharmacy,” Infor’s John Carrico said. “This means you can say, ‘No matter what, make sure you hold at least five days’ worth on hand, and don’t go above 20 days’ worth on hand.’ It can also be specified in number of units.”

An efficient pharmacy supply chain can also help bring down the cost of pharmaceuticals by deploying intelligent bulk-buying purchases – which is particularly difficult with pharmaceuticals given their shorter shelf lives. The same technology can integrate with the National Recall Alert Center using an app that maps drug recalls to purchase orders, even which locations in a multi-facility health system the recalled products are located. Patient safety also improves when a medical facility can easily respond to the FDA or Joint Commission when queries are posed regarding recalls.

Helping tomorrow’s supply chains transition

Such changes, though, may come more gradually for some. “I think we are still caught in the crosshairs of transitioning from fee-for-service to value-based care,” Carrico said. “Too many organizations are still making profits in the fee-for-service model, and the drive to move to value-based care is slow in being fully adopted.”

These organizations’ supply chains also are trying to better understand their evolving roles in a value-based care model. “True outcome-based models don’t look at one moment of time in care and the associated supply cost in that moment; they look at full episodes and the delivery of care across a continuum,” he said.

HyBridge Solutions’ Wilson recommends three ways for healthcare IT leaders to gain a strong handle on their supply chains in preparation for moving to a more value-based care model.



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First, focus on processes. Replace manual processes with software that automates them whenever possible. Also, swap paper-based request systems with electronic ones. “You’d be surprised how many clinicians still fill out paperwork when they need something,” he said. Electronic requests not only help with automation and compliance, but they generate data sets that can be analyzed later for forecasting and improved purchasing decisions.

Second, consider standardization across the organization from a procurement standpoint. This can be achieved by establishing relationships with primary vendors to gain preferred pricing on items. Expect resistance from clinicians with preferences for a specific vendor and/or item.

Third, focus on vendor integration with your clinical systems. This raises the ante on business intelligence capabilities and can provide more accurate data for inventory intelligence programs.

Infor Dynamic Science Labs’ Rose also recommends taking time to truly understand the data being generated so everyone has confidence in it and the recommendations based upon it. Martin, her fellow DSL colleague, advises building strong relationships between the supply chain team and clinicians.

Infor’s Turner concurs. As he travels the country meeting with supply-chain leaders, a common theme emerges: clinical involvement is critical. “The knowledge from clinicians, partnered with the item data from supply-chain professionals, results in the adoption of lower-cost items that are still clinically effective for the best outcomes,” he said.

Carrico said he’s noticing more supply-chain leaders wanting to participate in a networked supply chain. “As more health systems merge, or large ones continue to acquire smaller hospitals, a growing trend we see is our desire to move towards self-distribution that includes drastically changing the way healthcare supply chains source products,” he pointed out. “More and more, large health systems are looking at new ways to directly source products or leverage a supplier network, similar to what manufacturers have done for years.”

“No matter how you slice it, the supply-chain departments within a healthcare organization, and their ability to adapt to changes, will play a pivotal role in every aspect,” Turner concluded. “As the adoption of new technologies increase within the supply-chain world, so do efficiency levels. Being able to be proactive in their decision-making capabilities will be key for all hospitals.”

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Healthcare
Supply Chain
Product Director
Infor



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