SUPPLYCOPIA INDUSTRY REPORT 2.0

WHAT EVERY HOSPITAL CEO NEEDS TO KNOW.

4 STEPS TO ADVANCE USING REAL-WORLD LESSONS

SUPPLYCOPIA

Contents

Executive Summary

Words used to describe the first few years of the 2020s have ranged from unprecedented to apocalyptic, to the more recently invented "omnishambles." While no one is anxious to repeat the lessons of this decade, the risk of doing so is strong if we don't examine this period and consider it as an opportunity to learn, plan and change. As Winston Churchill once said, "Never let a good crisis go to waste."

Although health systems and hospitals have long been struggling with rising costs, reimbursement cuts and slashed revenues, the pandemic took these financial hardships to new levels. A sudden and significant drop in elective procedure volumes slowed revenues, which have not yet returned to pre-pandemic levels.

A 2022 KaufmanHall report reveals that hospital margins have remain depressed relative to pre-pandemic levels. The more optimistic predictions for the final 2022 numbers indicate margins down 37% relative to pre-pandemic levels. An estimated 53% of hospitals are projected to have negative margins through 2022.[1]

The last several years also revealed a number of substantial vulnerabilities in hospital operations, most notably the supply chain. But supply shortages are just the tip of the iceberg when it comes to the broad range of underlying issues that have been plaguing the healthcare supply chain for quite some time. With supplies being the second largest area of spending (behind only labor) and a significant source of cost and waste, it's surprising that it hasn't become a top priority for most hospital CEOs sooner.

Now is the time to learn from the impact of supply chain vulnerabilities and build a resilient infrastructure that enables organizations to navigate current challenges and establish a platform for future operational and financial success.

This report consolidates opportunities in four key areas that support growth and improvement.

1. Increase autonomy and flexibility: Minimize reliance on 3rd party business partners, take back control of supply chain operations and incorporate elasticity to manage inventory demands.

2. Strengthen core operations: Critically examine current systems and processes and build resiliency into your operations, break down barriers for greater visibility and control, and incorporate factors of safety to address future disruptions.

3. Put your data to work: Establish a single source of standardized data and leverage it collaboratively to understand how supplies impact the physical health of your patients and the financial health of your organization.

4. Engage new levers for revenue generation: Identify gaps where lingering efficiencies result in unnecessary costs and revenue leakage; isolate the greatest opportunities for cost containment and revenue generation and leverage this knowledge to establish your path forward.

Healthcare supply chain leaders say the top challenges that undermine supply chain resiliency include the following issues:

- Lack of trust, transparency and bi-directional data sharing among trading partners
- The need for robust analytics and demand planning to guide production & procurement
- The balance of establishing emergency supply reserves versus unnecessary hoarding
- Physician preference versus supply standardization
- Opportunities for savings generation beyond product price[2]

---

[1] The Current State of Hospital Finances, Fall 2022 Update.
https://www.aha.org/system/files/media/file/2022/09/The-Current-State-of-Hospital-Finances-Fall-2022-Update-KaufmanHall.pdf

STEP 1: Increase autonomy and flexibility

As health systems and hospitals scrambled to acquire PPE for patients and staff members during the pandemic, it became evident that healthcare organizations are highly dependent upon a limited number of external business partners. Those that rely on a single group purchasing organization (GPO), or one or two distributors, for delivering PPE and other critical supplies found pipelines empty as companies were unable to meet soaring demand from members and customers.

Without being able to rely on their traditional business partners, healthcare organizations were forced to turn to non-traditional suppliers in an effort to secure PPE. Unfortunately, many suffered the consequences of this approach, from counterfeit or poor quality products, to unfulfilled orders, to price gouging.

[2] AHRMM CQO Summit Workshops : Building a Resilient Supply Chain, Supply Chain Strategies & Solutions, AHRMM, November/December, 2020, https://www.supplychainstrategiessolutions-digital.com/ahrs/Store.action

TAKE BACK CONTROL

Healthcare organizations have also suffered from the rigidity of inventory management models that rely heavily on third parties. While provider organizations have transitioned from "Just in Case" to "Just in Time (JIT) inventory" in recent years as a way to reduce cost and waste, the pandemic revealed significant drawbacks of this approach. Risks included stock-outs, lack of control over product availability, and trying to plan ahead with distributors and manufacturers to meet seasonal fluctuations and other changes in supply demand[3].

Shawn Osborne, vice president of pharmacy and supply chain services at University Hospitals, Cleveland, noted there had been a "multi-decade journey of wringing out costs," especially as the market has consolidated. "The resilience on a global scale has kind of faded away. As we've gotten better price points, we've lost resilience."

To overcome issues that arose during the pandemic, and prepare for a more resilient future, health systems and hospitals must become more autonomous with their supply chain operations and increase the elasticity of their inventory management approaches.

It is time for healthcare organizations to broaden their resource networks by fostering new industry partnerships. Research has shown that sourcing from two suppliers instead of one can reduce a hospital's risk by up to 75 percent[4]. Because the U.S. healthcare industry's reliance on foreign PPE suppliers has been a major factor in supply shortages, many healthcare organizations are now turning to domestic manufacturers in an effort to diversify sources and increase the likelihood of being able to secure supplies when needed.

DESIGN FOR FLEXIBILITY

Healthcare organizations must also redesign their supply chains with greater flexibility to enhance resiliency. Other industries have adopted a model of "elastic logistics" to successfully manage changes in supply demand, and these lessons can also be applied to healthcare. Elastic logistics is defined as: "The ability to quickly shrink and expand logistical capabilities to align with a supply chain's demand." This model "works hand in-hand with supply chain forecasting, creating an agile infrastructure that can reduce costs and improve efficiency based on the current need of the supply chain[5]."

> *"Through elastic logistics, organizations can better achieve 'perfect order' deliveries.... Perfect order fulfillment is one of the most important metrics for any supply chain. With big data, increased automation, and advanced technology, it is becoming easier to achieve perfect order deliveries—which, in turn, are becoming the dominant way that the quality & consistency of a supply chain is evaluated."*
> *— AFFLINK*

Access to accurate, meaningful and timely data is central to an elastic logistics approach. In order to perform forecasting and demand planning, an organization must have a sense of current product usage, down to the item level, which requires the integration of supply chain data and clinical data. Then to improve data quality, capture and integration, health systems and hospitals are must increase automation of supply chain processes. This includes not only the procurement and management of items, but also tracking of supply consumption for greater visibility and accuracy.

> *"A simple analogy for elasticity is water. If the need we have is for ice, we freeze water and it becomes a solid. If we need steam, we heat it to boiling and create water vapor. If we need it to remain water yet take different shapes, we pour it into the shape we want and it molds as we define."*
>
> *"What if we look at our systems and processes in similar ways? Can we build them in ways such that they're able to change, reshape and respond to a wide variety of factors, evolving as evolution is required? We want elasticity, but it can't be too elastic. We want expansion, yet it must be sustainable. We want contraction, without causing extra cost or waste" - Ashok Muttin, CEO, SupplyCopia.*

---

[3] Planet Together: "Disadvantages of Just-In-Time (JIT) Manufacturing"

[4] (HBR) Learning Painful Lessons ... Again, [5] Afflink article

STEP 2: Strengthen core operations

Supply chain leaders are looking more holistically at their operations and asking "How can we identify risk and adjust systems to be better prepared?"

While it is impossible to anticipate every fluctuation in the system, identifying areas of risk, understanding and anticipating changes in variables, and planning for in-flight adjustments based on environmental changes can increase system responsiveness.

Organizations with advanced supply chain planning capabilities can set goals to identify new ways to improve forecasting accuracy, reduce on-hand inventory, create opportunities for customer service improvements, increase capability utilization, and optimize overall supply chain costs. The risk in achieving these goals is inherent in current systems and processes: Today, too much work occurs in silos. When employees or teams see a business through their singular lens, they may not see opportunities for improvement, be aligned with overall organizational goals, nor build a well-established supply chain vision that extends beyond their walls.

Take steps to improve cross-functional operations, including:

Align goals at an organizational level, beginning with corporate objectives and cascading throughout the entire system. Work goals from both top down and bottom up to align and propel organizational objectives.

Examine cross-functional processes holistically to identify gaps (which can often be seen in manual workarounds), then bring together appropriate teams to collectively determine methods of effectively addressing and closing gaps in ways that create shared benefits for all.

Connect disparate workflows wherever possible. If full system integrations cannot be established, create data integration points for aggregation and sharing across the organization. Without closing the gaps between systems, there can be data latency that results in multiple versions of truth and barriers to decision making.

INCORPORATE FACTORS OF SAFETY

As we strive to rebound and build more resilient health systems, we want to build in factors of safety. Yet understand we cannot overcorrect and design with such high factors of safety that systems become unsustainable. Building in factors of safety that are appropriate, allow for expansion and contraction, and enable future state planning, will help health system executive leaders' plan with greater confidence. Working with teams and systems, we must marry together empathy and flexibility.

STEP 3: Put your data to work

The driver behind many of the challenges faced by healthcare organizations is lack of visibility into meaningful data on which to base decisions. Getting business insights and making decisions from today's disparate data is fraught with barriers. In most health systems and hospitals, supply chain and other areas operate in silos, where systems aren't integrated (e.g., supply chain systems including ERP, MMIS are not integrated with clinical and financial systems, e.g., EHR, POU systems, charge master). Each of these functions and systems operate independently with their own data sources and "languages" (e.g., item descriptions, coding).

Bill Gates has often discussed data asymmetry, specifically, the lack of data sharing between countries and how costly that was in terms of creating solutions to facilitate global recovery from the pandemic. We can apply this same lesson to healthcare.

The historic lack of data standards in healthcare has allowed inefficiencies to flourish in processes. Supply chain, clinical and financial departments often speak their own language when it comes to products, which makes it virtually impossible to automate data sharing between systems. Without system integration and data standards, supply chain leaders cannot gain visibility into how supplies impact patient and financial outcomes. They also struggle to perform demand planning, supply standardization, contract optimization, inventory management and other actions critical to ensuring clinicians have the right products at the right places at the right times at the right prices.

Furthermore, the reliance on third party management of supply chain functions (e.g., sourcing, procurement, contracting and price management, and supply management and distribution) has created a disconnect between the healthcare organization and its data. Relying on a group purchasing organization (GPO) or distributor to provide a health system with its own data and analytics results in limited perspectives.

FOR DATA TO DELIVER INSIGHTS AND INTELLIGENCE, IT MUST BE AGGREGATED, DIGESTIBLE, COMPREHENSIBLE.

One of the primary goals of planning should be to connect an organization's planning functionality to "one version of the truth"—where all the disparate pieces of supply chain planning have access to the same accurate and up-to-date data. For true planning optimization, this needs to be in place not just at the enterprise level, but also in the broader supply network.

21% of supply chain professionals say that visibility is their biggest organizational challenge
— Statista

BUILD A STRONG FOUNDATION

Historically, healthcare leaders have proudly discussed the inherent uniqueness in the very nature of healthcare. From a patient care perspective, it is easy to see there are some truths in caring for people with distinctive conditions and variables. Stepping into the realm of technology, systems and processes, the argument for uniqueness loses some strength. Yet whether we're considering patient care or technology, bridging differences will create more efficient models for both business and patient care.

It will take time to build a stronger foundation —aligning and connecting systems, finding innovative new ways to normalize and share datasets, and building strategies in data normalization, cleansing and aggregation – this will allow organizations to engage with and understand the stories the data can tell.

There are three critical pillars on which to build your foundation for data driven decisions:

- **Invest in good system development processes to reveal the roadblocks, challenges and opportunities.** The old story of Henry Ford tells us that if asked, consumers would have told Mr. Ford they needed faster horses. The same is true of system development. Many of the legacy systems in hospitals were developed by modeling Excel® spreadsheets, instead of embracing the potential for 360 degree use of the data elements contained.

- **Design systems that are optimized for all users. Not just clinical. Not just supply chain. Not just finance.** Design the systems that cross boundaries and consider the needs, inputs and outputs of each area of the business; overcoming data asymmetry, moving healthcare businesses ahead by leaps and bounds, and building foundations for world-class efficiency and growth.

- **Embrace data as a strategic asset.** With a robust understanding of your business you can secure the answers to the questions: Which business lines are most profitable? Least profitable? Which surgeons bring the most money to my organization? Which cost me? Smart decisions will follow. Don't leave data languishing in resident systems or in the hands of your business partners. Your complete data set and resulting analysis will compel your business forward.

FinTech Industry Example

Consider a parallel industry model that leveraged broad-scale standardization while creating new paths to flexible solutions: Financial Technology. As traditional banks took small steps to create online experiences, FinTech innovators revolutionized digital banking, focusing on the end user's needs, while meeting industry requirements for security and compliance inherent. For digital transactions to take place across individuals not banking with the same institution or sharing detailed financial information, innovations in digital banking built new bridges that resulted in sharing data securely, across disparate systems.

Today, FinTech is the largest investor in technology dollars. The lesson for healthcare: disparate systems can be bridged, legacy barriers can be displaced, all while meeting safety and security requirements and, in this case, both patient and business needs.

Much of what we've done has occurred in the name of flexibility, yet as we look ahead, there's an enormous opportunity to build a 360 degree view of organizations by understanding the information inherent in currently disparate data. By considering this lesson in healthcare, and analyzing gaps in our systems and processes, we can start to build data into a strategic asset for organizations.

STEP 4: Engage New Levers for Revenue Generation

While most organizations understand their areas of expense and revenue opportunities, they often find key elements are relatively inflexible, outside the health system's control. For example revenue variables, including the patient mix within a specific geographic area, are not likely to change significantly. Additionally, most hospitals and health systems exist on paper-thin margins, historically surviving through payments from private health insurance providers that could offset shortages on reimbursement through government funded programs, like Medicaid and Medicare. As reimbursements have declined, it's become vitally important that hospitals proactively identify areas where adjusting variables can improve revenue and profit margins.

In recent years, stress on health systems resulted in the re-examination of cost structures, beginning at the bottom of the supply chain (cost of supplies and products purchased and consumed) and continuing up through the financial implications of people and processes that support the delivery of care. Identification of gaps where lingering inefficiencies remain can help rebuild a model to increase revenue. Consider the levers of:

Supply costs: While much has been done through the years to reduce individual supply costs, an under-utilized strategy is to understand spend by product categories and consumption. Tracking these two variables allows an organization to ensure they've negotiated with the right vendors for the right prices and are purchasing at levels optimized for their organization.

Demand management: As "elective" procedures have ebbed and surged in demand, many organizations found delays in resuming care due to patient concerns and the availability of supplies. To improve demand management, build an understanding of which procedures an organization is most prepared for (in terms of facility, staff, supplies, patient demand), then the profitability associated with each at not only the procedure level, but also at the physician level. Direct comparisons will reveal ways to prioritize procedures, while simultaneously reducing costs and increasing profitability.

Direct and indirect expense management: Expense management has long been a focus for provider organizations. Most hospitals and health systems identified and implemented cost containment measures years ago, begging the question, what's left to cut? Today, consider expense management in ways more aligned with visibility — what do disparate and sometimes redundant systems cost, what does the lack of data sharing cost, how would connecting systems and processes reduce costs over time?

Collaboration with Finance: Partner with your health system CFO to identify the short- and long-term repercussions of the pandemic and the impact it's had on your financial health. Most organizations recognize a growing need to find more revenue: this may come through improving reimbursements, reducing denials, or even managing tiers and rebates.

The task before hospital CEOs today is to determine priorities and make plans to address the areas of greatest impact, the most significant levers that help — or harm — your business. Partner with your CFO to create a full-scale view of variables, and identify where your greatest opportunities for revenue exist, as well as your greatest areas of risk and rising costs.

With an understanding of key challenges, you can consider mitigation or growth plans. For example, is it the right time to acquire? Will the business grow organically if the focus shifts to specific specialties? Is it time to restructure and if so, how? Or do you need to plan for an eventual acquisition?

Case Study:
Turn ambiguity into a score you can measure

Understanding the impact of individual surgeons and supply selection on cost, patient care quality and overall financial outcomes has been an elusive goal for many years. Yet it is critical to understanding physician-driven outcomes, as well as addressing the complex and costly issue of physician preference items that has been plaguing the industry for decades. In order to drive product standardization for greater cost savings, a healthcare organization must convince clinical stakeholders that change will maintain or improve the current quality of care delivery.

A growing number of integrated delivery networks (IDNs) have taken steps to establish clinically integrated supply chains in an effort to improve cost, quality and outcomes.

This case study provides an example from a regional hospital system in the Southeastern U.S. that enabled their surgical team to create a common framework for standardization:

The elements associated with every surgical procedure were presented to a team of surgeons, who were asked to develop a methodology to standardize a score for each element. They had a total of 100 points to allocate. Data elements included factors such as patient demographics, procedural data including length of stay, any complications (including hospital acquired infections), and any post-procedure data, such as readmittance data and mortality. The physicians were not given specific instructions on how to score the elements, just the elements and the understanding that the elements must add up to a consistent score of 100, resulting in an agreed upon scoring methodology.

Following the development of the methodology, the supply chain team ran each physician and the results of his/her procedures through an advanced machine learning (ML) model, which resulted in an individual score by surgeons. Scores were shared with the group, and in fact, the physicians continue to use this data across their team, developing leader boards that show their scores and results.

What's important about this exercise?

From a clinical perspective, the participating physicians created a standardized scoring model that they embraced.

From a supply chain perspective, the IDN has been able to link the supplies used in individual cases to patient and financial outcomes. This gives them the evidence they need to gain buy-in from surgeons on product standardization initiatives.

Predictions and Recommendations

The past several years have forever reshaped healthcare organizations. Let's bring forward these lessons, to more effectively plan for success.

PREDICTIONS

1. **Provider M&A activity will rise.** Whether driven by predatory or opportunistic players, expect to see more activity in this area. Yet we estimate more than 50% of these mergers or acquisitions will fail to yield the long term anticipated value.

2. **Increase in Private Equity (PE) interest in healthcare organizations.** While the pandemic years exposed providers' shortcomings, it also brought to attention to the opportunities for "optimization or transformation" – exactly the kind of waste PE companies thrive on fixing. Watch for more investments in the provider space.

3. **Increase in domestic manufacturing.** In the near-to-midterm, domestic manufacturing will continue to increase, spreading from PPE to other categories. While this may help address reliability and safety, providers should be ready to pay more to access this option.

4. **Telehealth is remain a part of the new care delivery model.** What took root during the pandemic is becoming an entrenched solution. Organizations that integrate virtual care seamlessly into their care delivery models are likely to fare better than their competitors. Provider organizations become like "omni-channel retailers," delivering care when, where and how it's needed.

5. **Group Purchasing Organization (GPO) consolidation and large scale shifts will increase.** National GPOs will consolidate and acquire small, regional GPOs. Large health systems are building new technology infrastructures to create their own GPO-like models, to support both their organization and others.

6. **More surgeries will move to outpatient settings.** We're already seeing this in knee and hip replacements, and expect redirection to lower cost settings to continue.

7. **The talent shortage will escalate.** More than 52% of the current supply chain leaders are expected to reach retirement age in the next 2-3 years. With the lack of investment in scalable and integrated systems, most of the industry's knowledgebase will walk out the door, along with crucial supplier relationships.

RECOMMENDATIONS

1. **Consider Revenue & Cost as two inseparable faces of a single coin.** To build a holistic view and proactively manage operations, Revenue & Cost must be integrated into a single entity. Bring together historically separate stakeholders, and provide the same information so collectively, they can act from the single core set of data. This is how we'll overcome data asymmetry.

2. **Treat the whole: Cost, Quality and Outcomes (CQO).** Just as physicians believe in treating the human body as a whole, CQO should be treated as such. As long as Cost, Quality and Outcomes are not simultaneously optimized, they will continue to have lopsided results.

3. **Move beyond ERP and EHR/EMR systems as the "holy grail."** These systems have deployed at enormous cost, yet result in varying degrees of success and bandaids at every turn. Both are designed to optimize process flow versus providing insights and recommendations for actions. Resist the temptation to adopt yet another, similar ERP; instead create a cloud-based "decision support system" that consolidates various sources of data to provide specific recommendations.

4. **Model new behavior.** Physician behavior is more likely to be influenced by evidence-based analysis and recommendations. This requires investments in data foundations, machine learning and AI that may or may not have immediate ROI, but supports long-term business health.

5. **Create aligned incentives for the organization.** Currently, various stakeholder groups, i.e. management, clinicians, revenue management, supply chain and operations, have unique sets of KPIs and incentives. Often these are conflicting in nature and in turn, each will optimize for itself, looking at the others with a bit of suspicion. While it may seem difficult to begin, provider organizations must create a common framework for success.

SUPPLYCOPIA

SupplyCopia was created to address the critical lack of supply chain intelligence faced by healthcare organizations. This is especially problematic because it can adversely affect quality, costs, and patient outcomes, and the development of more effective relationships among providers and suppliers. SupplyCopia applies the latest data science and software technology to bring maximum transparency to both major constituent groups of the supply chain - to the benefit of both and expense of neither.