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WHY THE HOSPITAL SUPPLY CHAIN NEEDS TO COME BACK TO THE UNITED STATES

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EXECUTIVE SUMMARY

James Cagliostro brings over a decade of critical care nursing experience to VIE Healthcare®. This gives him a unique insight and understanding into patient care which he brings to our clients. He has observed for himself and throughout his career that hard work makes a tangible difference in the lives of patients and applies that approach and insight to his work with healthcare organizations.

Attitudes towards the US healthcare supply chain are overdue a change.

Historically, the US healthcare supply chain has been regarded as a support function to the various departments of each organization, but it is not that straightforward. The healthcare supply chain is a complex puzzle. Like any puzzle, it can only be completed if all the vital pieces fit together seamlessly and collaborate efficiently.

The absolute vitality of a properly functioning supply chain to the success of every healthcare organization cannot be understated.

In this report we explain why.

LETTER FROM THE CEO

In 2019, it was predicted that supply chain costs would overtake labor expenses as the #1 cost in US healthcare in 2020. Already aware of this growing trend, health systems have long sought out new strategies to dramatically cut costs in this critical area.

That has often led to a reliance on international sources of supply in an attempt to alleviate the financial pressure on hospitals. While understandable, this strategy has resulted in a supply chain which is often complex, highly fragmented and vulnerable to unexpected disruption.

The 2020 COVID-19 pandemic, while not the root cause, has exposed the full extent of these vulnerabilities.”

While reducing cost and sustaining profitability must remain priorities, this should not be at the expense of patient safety and patient care. Profits should never come before patients - a belief which underpins the decision making processes of some of the most successful health systems in the world.

This report was prepared in the light of a growing concern that the US supply chain has overstepped its reliance on global resources. It is a dependence that further complicates an already fragile supply chain and puts the health of patients at increased risk.

In this report, we examine the current state of the US supply chain and examine its vulnerabilities, before considering the status of the nation's emergency preparedness. Finally, we offer strategies and solutions for your organization to consider in the context of a post-pandemic supply chain audit.

Since 1999, VIE Healthcare® has successfully partnered with hospitals to identify cost savings in the supply chain. It is not an easy task and solutions are often complex, but it is achievable.

Please reach out directly to me to discuss the ways in which we can support your organization in the transformation of your supply chain.

I look forward to hearing from you.

Sincerely,



Lisa T. Miller, MHA
Healthcare Margin Improvement Expert, CEO

INTRODUCTION

Inherent Challenges in the Healthcare Supply Chain

The patient lies at the center of every healthcare organization.

In order to deliver high quality, cost efficient care, healthcare providers rely on a supply chain which delivers essential supplies, equipment, and medication necessary to address the specific needs of every patient. Disruption to that supply chain can potentially have devastating effects on patient care.

The myriad pieces of the healthcare supply chain puzzle include manufacturers, distributors, carriers, GPOs, hospitals, and outpatient facilities. However, the industry's unique challenges make it especially difficult for these interdependent pieces to work together. Advances in healthcare technology and medicine continue to be made at a seemingly relentless pace and standards of care must be frequently adjusted to comply with the most recent research and findings.

Above all other industries, healthcare stands out as having the most at stake.

Inefficient supply chains and disruptions in service do not merely lead to loss of profit or employment - it can mean the loss of life.

As a result, healthcare is highly regulated to ensure safety, but this adds to the multiple challenges of maintaining and improving the supply chain.

When responding to supply chain issues, the issue of cost is inevitable. The supply chain is an essential and costly aspect of every healthcare organization's operations. Conversations focused on addressing the rising cost of healthcare, together with the growing global economy across all industries are perhaps the two most significant reasons why the US supply chain has become so dependent on international players.

In the following sections, we will explore in more detail the problem with the current supply chain in the US, the vulnerabilities in that system, the state of emergency preparedness in the US and pose the question 'where exactly do we go from here?'

SECTION ONE – THE PROBLEM WITH THE CURRENT US SUPPLY CHAIN

As exchange of information and goods across national borders become ‘business as usual’, the world is shrinking. The establishment of the European Union, the ongoing efforts of the World Trade Organization, the creation of trade agreements and trade partners, and the relative ease at which massive amounts of supplies can be transported across the globe are just a few of the reasons that, in 2020, we have a truly global economy.

Healthcare has followed this trend, especially in the US, but there are underlying and significant challenges, namely:

- Healthcare supplies are notoriously expensive and reimbursement for services has fallen in recent years.
- Almost every healthcare organization relies on goods and materials from international sources in an attempt to contain costs. This reliance has, however, further muddled the already complex supply chains that support the American healthcare system.

The COVID-19 pandemic did not create a supply chain issue in the US, far from it.

It simply revealed an ongoing issue that has been expanding and evolving over time – that is, the US healthcare sector’s growing dependence on imported supplies.

In the following section we explain what we mean by this.

Medical Supplies

Consider the following statistics related to imports:

- In 2002, imports accounted for 16.7 % of all surgical appliances and supplies (eg, masks, gloves) used in the US (measured by value).
- In 2008 this number increased to 28.08 %.
- By 2016, imports accounted for 41.81 % of all surgical appliances and supplies.
- The percentage of imported surgical and medical instruments (eg, ventilators, bronchoscopes) rose from 22.04 % in 2002 to 35.91 % in 2016.

Based on data from the US Census Bureau and the US International Trade Commission, most medical devices (measured by volume in units) imported to the US come from China and Mexico. This has been the case since 1999. However, while imports from Mexico have remained stable and even decreased at times, imports from China have doubled.



Similarly, most protective garments imported to the US (measured by volume in kg) come from China and Mexico.

Since 1999, imports from Mexico have doubled in weight and imports from China have increased fivefold.

Most of these purchasing decisions are influenced by financial incentives. Once again, however, the US places itself at a disadvantage when such a large portion of our healthcare supplies is sourced from a single location, especially during times of crisis.

Medications

According to 2018 Commerce Department [data](#), the percentage of common drugs imported to the US from China is as follows:

- Ibuprofen 95%
- Hydrocortisone 91%
- Acetaminophen 70%
- Penicillin 40-45%
- Heparin 40%

Additionally, [80%](#) of active pharmaceutical ingredients (APIs) are produced overseas, the majority in China and India. This statistic is alarming for the simple fact that almost exclusive dependence on just one or two nations for medications means that any disruption in the supply chain in those areas is potentially devastating to your nation's entire supply.

Furthermore, dependence on medications and APIs from a single location increases the risk of drug shortages if supply is disrupted.

In 2017 an [explosion](#) occurred at a Chinese factory which produced APIs for the antibiotic piperacillin/tazobactam, a common medication used to treat severe infections. The resulting global shortage severely impacted patient care across the US.

This list below compares the US with 14 countries that imported the highest dollar value of drugs and medicines in 2018. The results speak for themselves:

1. United States: US\$72.8 billion (18.2% of imported prescription drugs/medicines)
2. Germany: \$29.1 billion (7.3%)
3. Belgium: \$20.5 billion (5.1%)
4. United Kingdom: \$19.9 billion (5%)
5. Switzerland: \$19.7 billion (4.9%)
6. Netherlands: \$18.9 billion (4.7%)
7. China: \$18.4 billion (4.6%)
8. Japan: \$16.7 billion (4.2%)
9. Italy: \$16.4 billion (4.1%)
10. France: \$15.6 billion (3.9%)
11. Spain: \$10.9 billion (2.7%)
12. Ireland: \$9.5 billion (2.4%)
13. Russian Federation: \$8.1 billion (2%)
14. Canada: \$7.8 billion (2%)
15. Australia: \$5.4 billion (1.3%)

While the US is not alone in its growing reliance on international suppliers, it is clearly in a class of its own in terms of the extent of that dependence. This nation has proven capable of producing supplies and medication of the highest quality, but it has made the 'strictly business' decision of sourcing equivalent products in cheaper markets abroad. While it is undeniable that this has led to significant cost savings, it does not come without what we believe are unnecessary risks.

Cost-Saving or Life-Saving

This focuses the conversation right at the heart of the dilemma facing US healthcare.

Most of us would agree that you cannot put a price on a human life.

That requires healthcare executives to respond candidly to the follow-up question of whether or not a price can be put on the ability to provide safe and quality care to every human life that walks through their hospital doors.

This question raises issues that are more challenging to address, which can be approached from a number of angles.

Hospitals need money to function and serve their primary purpose of delivering exceptional patient care. Even during stable economic times, a large number of hospitals, especially



in rural regions, operate with thin to negative margins. At the time of writing, this is not a stable economic period. The COVID-19 pandemic has actually pushed the national median hospital operating margin to -8%. Clearly, this is not sustainable in the long-term.

Hospitals must establish and maintain healthy balance sheets in order to continue serving their communities effectively. Poor finances often lead to hospital closures, leaving communities with no local source of patient care.

The supply chain has increasingly become a focal point for many hospitals looking to reduce costs. Following the practice of other sectors, healthcare organizations simply test the market and negotiate a supply contract with the lowest bidder. In most cases, the lowest bidder is located outside the US.

Purchasing supplies, equipment, medications, and raw materials from international markets may have resulted in significant savings, which we understand are vital to financially pressured health systems, but it has created a flawed supply chain that is overly dependent on foreign countries.

Perhaps most significantly, it has led to a healthcare supply chain that is not agile enough to successfully navigate a crisis like the COVID-19 pandemic.

Policy

While it is recommended that all hospitals should establish their own policies to guide best practice in the supply chain, the American Medical Association (AMA) has taken the unusual step of calling on the federal government to intervene as a result of this dependence on foreign markets.

It considers the very real risk of critical drug shortages to be a national security concern and has requested that the federal government offer incentives to boost domestic production of certain drugs. Such a move would require drug manufacturers to increase transparency by sharing information relating to the location of drug production sites, detail the specific reasons for drug shortages, and advise the expected duration of drug shortages. It is highly likely that drug manufacturers would resist these requirements, but the AMA believes it would be in the best interest of patients.

Perhaps the [clearest indicator](#) that this is a legitimate issue is the presence of [bipartisan agreement](#) over this growing reliance on foreign nations. If unity exists, action should be taken to limit foreign dependence, in which case, a change in policy could be the first step toward a healthier US supply chain.

SECTION TWO – VULNERABILITIES IN THE SUPPLY CHAIN

According to [Larry Glasscock](#), a Strategic National Stockpile committee member and senior vice president of Global Accounts, MNX Global Logistics, in relation to the supply chain, “*There’s a greater likelihood of shortages than most people realize.*”

During an emergency, a mismatch of supply and demand creates a crisis for hospitals. This can be caused by what has been described as the “[Four P’s](#)”, which are:

- Powerful weather
- Pandemic
- Port closures
- Political instability

In these types of situations, demand for appropriate equipment and medication increases while the supply of particular raw materials decreases. The speed at which a hospital adapts to procure the necessary medical supplies determines its ability to successfully navigate a supply chain crisis.

It is not only the Four P’s that expose the vulnerabilities in the US healthcare supply chain however. More specific disruptions include:

- Natural disasters (eg, eruption of a volcano in Iceland, an earthquake or tsunami in Japan, floods in Thailand).
- Dependence on countries in politically unstable regions (eg, a significant portion of surgical hand instruments are manufactured in Pakistan).
- Trade tensions (most notably, tensions between the US and China, the impact of Brexit and the European Union).



- Failure to adapt to constantly changing global trade policies.
- Failure to cultivate strong relationships with people at every stage in the supply chain (geographical distance makes this more difficult. In the event of a crisis, it is extremely helpful to have eyes and ears 'on the ground').
- Failure to consistently evaluate the effectiveness and quality of the existing supply chain (ie, perform a risk assessment and respond accordingly,)
- Failure to spread the risk (ie, a lack of second sourcing and local sourcing in the event of supply chain disruption).
- Lack of vendor mapping (ie, a lack of visibility into the structure of their supply chain to identify which items may be at risk during a crisis).
- Supply network mapping (also known as vendor mapping) can be resource intensive and challenging as it requires access to significant labor, time, and expense. This process cannot and should not be avoided, however. Hospitals will discover the benefits and value of the map far outweigh the cost and time required to develop it. This is especially important in terms of providing quality care in times of crisis.
- Substandard practices affecting quality and safety

Dependence on foreign nations has without doubt resulted in significant savings for hospitals, but there is an argument that the US healthcare system has paid a more costly price for this shift.

Evidence suggests that some countries involved with the US supply chain maintain substandard practices in the production and shipping of supplies. This allows them to charge much lower prices for their products.

According to the [US-China Economic and Security Review Commission](#):

"In the past decade, US consumers have been exposed to adulterated drug products made by Chinese manufacturers who employ dangerous manufacturing practices to save on cost. Last year, the FDA announced that a probable carcinogen once used in the production of rocket fuel was found in valsartan and two other blood pressure medicines used in 30 countries by millions of people, including in the United States. The companies selling the contaminated medicine sourced APIs from one of China's leading generic drug companies, Zhejiang Huahai Pharmaceutical Co., where employees ignored signs that the company's manufacturing practice resulted in contaminated product".

While the established standards and procedures of other nations may commit to meet US requirements, it is becoming increasingly difficult to ensure that the standards are adhered to and enforced. Some countries are more transparent than others which can make the management of relationships with an expanding list of suppliers more arduous as hospitals attempt to confirm that their health and safety standards are being met.

Additional challenges in the global supply chain which are specific to the healthcare industry also directly impact patient safety.

If safe national standards are not established and enforced in the following (and other) areas, the quality of patient care is at risk of being jeopardized:

- Temperature control for refrigerated medications.
- Wide range of expiration dates.
- Security concerns for controlled substances.
- Drug and device recall management.
- Prevalence and use of consignments.
- Insurance issues limit flexibility of pharmacies to provide alternative/generic substitute medications.
- FDA regulations may limit flexibility due to safety concerns.

Raw Materials

Fragility within the US healthcare supply chain is an issue irrespective of the additional pressure of an emergency. For example, while the US may rely on multiple manufacturers from various countries to produce and distribute its sterile gloves, 90% of the latex used to produce them is sourced in Malaysia. This is just one instance of an overly concentrated supply chain. Other examples can be found in terms of the active pharmaceutical ingredients (APIs) found in many US medications. This trend towards consolidation in raw material suppliers increases both the risk and severity of disruptions to the supply chain.

The Impact of Surges on the Supply Chain Structure

In an attempt to reduce inventory, healthcare organizations have become leaner and less agile. As a consequence, they are less adaptable to change.

The need to store and manage a large reserve increases pressure on finances. Decreasing that reserve offers an easy solution, but only if the distributors are reliable and can guarantee that your supply chain will not be disrupted in the event of a crisis.

Large retail pharmacies, such as Walgreens, have eliminated the need to own and manage large warehouses, which has increased dependence on large distributors. Financially, this is a logical step. Our question is, what strategies or solutions are in place to meet an unexpected increase in demand or respond to a disruption in supplies, for example, life saving medication? Hospitals can face serious medication shortages in this scenario, even in the absence of pandemics.

We have observed a rise in the popularity of “just-in-time” inventory practices as they result in cost savings for hospitals. The inherent danger with this practice, however, means that supplies are often replaced on a daily basis. The risk is that any interruption to the fiscally responsible supply chain means hospitals could find themselves running out of a number of supplies which are essential for basic patient care.

In such times of crisis, supply chains shift from a “steady state” phase to a “surge” phase in order to respond to a sudden high demand for specific supplies.

This phase transition relies heavily on strong links in the supply chain, which can often be lacking.

The ability to predict surge demand is a challenge which should not be underestimated. Factors include:

- “Phantom demand”, when anticipated need is more than actual need and orders to the distributors are cancelled.
- Items needed in conjunction with one another may arrive at different times (eg, syringes, needles, injectable medications).
- Demand for particular supplies can fall suddenly mid-crisis depending on the discoveries of alternatives and treatment mode.
- Depending on the length of the crisis, lead times for raw materials may result in supplies arriving too late.
- So much is unknown in a pandemic such as COVID-19 as they are typically the result of novel illnesses with no proven treatment.

With so many factors affecting the supply chain during surge demand, every healthcare organization must recognize the value of having an efficient supply chain with robust product, information, and financial flow.

Emergencies Medical Supply Chain

Large scale interruptions do not simply last the length of the crisis, but often require extensive time for full recovery. Consider that it could take a manufacturer or distributor years to recover from a devastating earthquake that lasts for 30 seconds.

During and immediately following a crisis, expediting the movement of international supplies in large quantities can prove extremely costly if not impossible. Delivery of emergency supplies can also be delayed due to obstacles with customs, regulations, and restrictions.

Supply Chain Failure

Unstable global supply chains that lack flexibility and secondary sources do not navigate disaster well. Failing to adapt to disruptions in the supply chain can have a catastrophic impact on:

- Patient health and wellbeing.
- An organization's reputation.
- Relationships with existing patients.
- A hospital's ability to attract new patients.
- Financial stability.

Raw material suppliers, manufacturers, distributors, retail pharmacies, health systems and healthcare providers all play a crucial role in the supply chain. However, when that supply chain fails, it is those on the frontline of patient care who face the consequences of that failure. Just one disruption in supply can have long-term consequences on both patient health and the trust they place in their healthcare providers.

In the next section we will examine the status of emergency preparedness in the US and the healthcare industry's ability to respond to potentially catastrophic disruptions of the supply chain.

SECTION THREE - STATUS OF EMERGENCY PREPAREDNESS IN THE US



"It is in the national security interest of the United States to strengthen global health security and manage the risk of infectious disease outbreaks" (6)

US Government Global Security Strategy

Part I - The US Strategic National Stockpile

The US Strategic National Stockpile (which has a multi-billion dollar inventory) was established in 1999 to provide life saving medications and medical supplies in times of disaster, and during hospital capacity surges.

In 2018, details of a workshop were published by the National Academies of Science, Engineering and Medicine entitled *"Impact of the Global Medical Supply Chain on the SNS (Strategic National Stockpile) Operations and Communications"* (1). In these proceedings, the expert panel participants included leaders from the medical manufacturing, distribution and logistics industries, government services, academia, technology, state and local public health, emergency medical services and other medical experts.

Previous workshops since 2015 had solidified the need to maintain a Standing Committee:

"to help inform decision making by DSNS (Division of National Stockpile) by providing a venue for the exchange of ideas among federal, state, and local governmental agencies, the private sector, and the academic community, as well as other relevant stakeholders involved in emergency preparedness and emergency response services."

The goal of the 2018 workshop was to:

"present a broad overview of vulnerabilities across the global medical supply chain—ranging from the provision of raw materials to the distribution of life-saving medicines to patients—and to highlight opportunities to address these risks."

SIDEBAR: THE FOLLOWING STATEMENT IS CONTAINED ON THE REPORT: "*THE STATEMENTS AND OPINIONS CONTAINED IN PROCEEDINGS ARE THOSE OF THE PARTICIPANTS AND ARE NOT ENDORSED BY OTHER PARTICIPANTS, THE PLANNING COMMITTEE, OR THE NATIONAL ACADEMIES.*"

The key discussion points included:

- *Global Medical Supply Chain: Complexity makes it vulnerable to disruption*
 - Raw Materials/Medicine Shortages: The impact of third-party foreign manufacturing of medical supplies and the global marketplace for raw materials and active pharmaceutical ingredients from which medical equipment and drugs are derived. Lead times, logistics and rising raw materials costs during surges become a challenge. Geographic areas specified in the discussions included Malaysia, India, Pakistan, China, and Mexico.
 - Supply Chain Structure: Lean inventory management strategies; efforts to reduce inventory costs, “just-in-time” hospital inventory practices, decrease in elective procedures during surge, competition from distribution giants, ie, Amazon.
- How to address the vulnerabilities and fill in the gaps
 - Strategic Communication: Need for collaboration, communication, and information sharing between private and government sectors
 - Need for private industry (manufacturing, distribution, logistics) to advise government agencies. Provide an analysis of real-time supply chain data as to what is currently available in the market.
 - Need to improve data sharing between local, state, and federal agencies.
 - Need to improve technology for data sharing between hospitals.
 - Need for global health diplomacy and security, coupled with a need to improve complex relationships / lines of communication with international partners (private and government sectors).
 - Need for preparation for a demand surge; development of “disaster playbooks” and scenarios with contingency plans.
 - Work to address manufacturing challenges, revisit international medical/pharmaceutical dependence, and factors that affect the availability of raw materials.
- Consequences of the Medical Supply Chain Failure:

“Profits may come and go, but “in real time it’s about the patient . . . and that you can’t put a dollar amount to” (1)
National Academy workshop participant: Brad Noé
(Global Manager/Technical Resources; Becton, Dickinson and Company)

Part II - Government Agencies Involvement in the Global Supply Chain

“Promoting global health security to detect and mitigate outbreaks early remains a core tenet of our National Security Strategy. United States Government investments in global health security can help prevent the spread of human and animal infectious diseases and protect populations at home and abroad, including those serving in our Armed Forces. Furthermore, investments that focus on prevention and preparedness are far more cost-effective than responding to infectious disease epidemics. “ (6)

US Government Global Health Security Strategy

Federal, State, and Local government: Communication, data sharing and unified plans must be designed:

- *Federal:* Multiple agencies involvement
 1. HHS- US Department of Health and Human Services, CDC- Center for Disease Control, CMS- Centers for Medicare and Medicaid, FDA- US Food and Drug Administration.
 2. DHS (Dept. of Homeland Security)-FEMA (Federal Emergency Management Agency).
 3. ASPR- Assistant Secretary for Preparedness and Response; PHE (Public Health Emergency); SNS (Strategic National Stockpile) (1)
 4. HHS ASPR, the Technical Resources, Assistance Center, and Information Exchange (TRACIE) (2).
 5. ASPR/PHE- Public Health and Medical Emergency (3).
 6. ASPR/BARDA- Biomedical and Advanced Research and Development Authority.
 7. MOCCCs- Medical Operations Coordination Cells-resource allocation MOCCCs can be activated at the Sub-State Regional, State, and Federal levels to facilitate patient movement and “resource allocation” during a surge event. There are three types of MOCCCs included in the concept: sub-state, Regional Medical Operations Coordination Centers (RMOCCs), State Medical Operations Coordination Centers (SMOCCs), and Federal Medical Operations Coordination Centers (FMOCCs)(4).
 8. DHS (Dept. of Homeland Security)Essential Critical Infrastructure Workforce; CISA (5.)
 9. GHSS- US Global Health Security Strategy (6).
 10. Defense Production Act- What is it? (7).
 11. CDC- January 2019-Public Health Emergency Preparedness Response Capabilities: National Standards for State, Local, Tribal and Territorial Public Health

- *State:* Multiple Agencies Involvement
Public Health Officials/Agencies, emergency management agencies, emergency medical services (EMS), environmental health agencies, epidemiology programs , government agencies, jurisdictional office(s) of homeland security, law enforcement agencies, tribes and native leadership.
- *Local:* Multiple Agencies Involvement
Public Health officials/agencies, local government agencies, local emergency management agencies, local law enforcement and EMS.

“Everybody knows that pestilences have a way of recurring in the world; yet somehow we find it hard to believe in ones that crash down on our heads from a blue sky. There have been as many plagues as wars in history; yet always plagues and wars take people equally by surprise.”

Albert Camus, The Plague

Part III- Multiple Stakeholders involvement to design a solution

- Private Industry: Manufacturers, distributors, and transporters of medical supplies, equipment, devices and pharmaceuticals. Other peripheral industries- IT/data analytics, consultants, legal and financial partners.
- Healthcare Coalitions: Healthcare organizations, Hospitals and Health care facilities, laboratories, medical professional organizations, Mental/behavioral health services, pharmacies.
- Academic advisors /thought-leaders.
- Payers.
- Community and volunteer organizations.

As we contemplate the vulnerabilities identified during the COVID-19 pandemic with regard to the medical supply chain; government, industry and healthcare entities must work together to:

- Assess the current Global Supply Chain Climate: evaluate and understand what worked, what did not.
- Assess the availability, capacity and possibility of a strategic approach to bring back the healthcare supply chain to US companies.
 - Understanding the ramifications of such a move:
 - Nationally and internationally
 - Politically
 - Economically
 - Realistically

“Working towards a solution: Through constructive dialogue the supply chain and governmental agencies can learn from past pandemics and implement programs to ensure that availability of certain types of medical products that would meet immediate pandemic response needs. Creating a continuous and certain elevated level of demand for these types of products requires experience in warehousing, maintaining and refreshing product in a timely manner as well as logistical capabilities to redirect product if necessary” (9)

Health Industry Distributors Association (HIDA) – Lessons Learned Factsheet: Pandemics and Medical Supplies

SECTION THREE - WHERE DO WE GO FROM HERE?

As the US healthcare supply chain puzzle expands and grows more complex, the world is indeed getting smaller.

As we have already mentioned, the COVID-19 pandemic did not create problems with the supply chain in the US. It simply revealed to us the precarious nature of the US healthcare's growing dependence on imported supplies.

Initially, the decision to import medical supplies from cheaper international markets appeared to be the most prudent and sensible financial business decision for hospitals. However, as health systems became leaner and dependence on foreign suppliers increased, it became clear that the US supply chain is not able to respond effectively, not even to minimal disruption.

As regions around the country begin to emerge from the height of the surge of the COVID-19 pandemic, how do hospitals move forward from here?

To begin, every hospital should conduct a post-pandemic supply chain audit. This includes but is not limited to:

1. Creation of a Vendor Map (database) to identify potential supply shortages. A vendor map is a list of all current vendors, alternate vendors, and potential vulnerabilities listed for each vendor. This may include where their product is manufactured, the country where the raw materials are sourced, and their ability to obtain alternate product in the case of a disruption
2. Extensive contract reviews.
3. Equipment mapping
4. Purchased services mapping.
5. Warehouse/stockpiles/emergency backup audit.
6. Process audit (efficiency/effectiveness/agility/flexibility assessment).

7. Communication audit
8. Utilities audit.
9. Medical gases/waste removal audit.

In addition:

- Priority must be given to gathering accurate data and identifying not only where supply chain disruptions occurred but also any “near misses”.
- Vendors must be willing to make necessary changes to avoid future supply shortages.
- Contracts should be reviewed to establish force majeure clauses and addendums which require the disclosure of secondary suppliers, including location and distribution channels, etc.
- All information obtained during the audit should be used to create a Disaster Playbook. Utilizing the organization’s “Emergency Preparedness Plan” as a framework, develop a “Step-by-Step Supply Chain Procedure Guide” for disasters by the following categories:
 - Weather: loss of power, staff, shortages, evacuation;
 - Infection: internal crisis/outbreak, pandemic, shortages
 - Cyberattack: manual processes, alternate telecommunication, etc.
- Finally, at VIE Healthcare®, we recommend developing a post-pandemic, data-driven “Spend Analysis”. Each hospital must review their current spend and realign priorities to develop a 2020 Cost Savings Strategy. Specific areas of focus should include purchased services, IT/telecom, physician preference items (PPIs), and provider agreements.

Any successful cost savings program will address areas of inefficiency and waste.

CONCLUSION

The US healthcare industry continues to face increasing financial pressure as operating margins narrow and reimbursement decreases. The prevalence of international suppliers in the supply chain is just one example of the attempt by organizations to reduce costs.

To succeed, any responsible hospital must consider every possibility in terms of improving efficiency and delivering margin improvement. But these priorities should never be achieved at the expense of delivering high quality patient care.

Hospitals must create and consistently test the strength and flexibility of their own supply chain while working with local, state, and federal agencies, including the Strategic National Stockpile to establish a reliable support system. Throughout this process, every healthcare organization must acknowledge the need to shift their reliance to a more consistent and effective supply chain.

The supply chain can no longer be viewed as a support role in the everyday operations of the hospital. Its place as a central component must be considered an essential strategy for the future. A strong supply chain will support all essential functions of the hospital to ensure quality care continues even in the event of another crisis.

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WHAT OUR CLIENTS SAY ABOUT VIE HEALTHCARE®

“ The experts at VIE Healthcare® provided not only covered every clinical area of the perioperative environment, but also all the critical areas that support their processes. VIE Healthcare's collaborative approach allowed a real time education opportunity throughout the assessment process. From clinical, financial, supply chain and process experts, you managed to cover all the bases.

David M. Johnson, VP Operations Improvement, Inspira Health Network

“ I have worked with VIE Healthcare® on more than one project and found Lisa and her team to be subject matter experts in the perioperative environment. They have an affinity for details and picks up things that many have missed in prior reviews. They have access to a variety of experts within the hospital environment.

Amy Smith, Vice President, Perioperative Services at Robert Wood Johnson University Hospital

“ We engaged VIE Healthcare® to assist us in evaluating and reducing our purchased services spend, a growing segment of our operating expenses. Their patented methodology to compare actual spend to contract spend, using line-item invoice detail, helped us recover hundreds of thousands of dollars related to inaccurate billing. Further, they've been responsible for well over a million dollars in savings by partnering with us to evaluate our rates against market rates for services, ultimately leading to re-negotiated terms with our vendors and I anticipate more to come as we continue our work with VIE Healthcare®. This all happened within the first 6 months of the engagement. I couldn't be more pleased with their approach and results.

Christine Pearson | Chief Financial Officer, AnMed Health

“ We have been overly impressed with VIE Healthcare's approach to our purchased service agreements. We begin with a retroactive audit of our existing agreements and reconciliation of any discrepancies and overpayments through VIE Healthcare's Invoice ROI™ Technology. From there VIE Healthcare's Invoice ROI™ Technology continues to review invoices regularly to help avoid any future discrepancies. VIE Healthcare® has been able to identify hundreds of thousands of dollars in discrepancies. Because they analyze invoices at the line item level, VIE Healthcare® have the ability to quickly take utilization and usage trends to produce RFPs allowing us to re-negotiate new agreements resulting in further cost reductions. This includes consolidating contracts and service providers across multiple hospitals in different regions.

Luis R. Martinez | VP Supply Chain, Cornerstone Healthcare Group

ABOUT VIE HEALTHCARE® CONSULTING



**JAMES CAGLIOSTRO,
MED, BSN, RN**
VIE HEALTHCARE® CONSULTING

Just as a sports team would not walk onto a field without a meticulous playbook and without a coach to lead them, nor should an organization enter into an outsourced service provider arrangement without an expert coach.

VIE Healthcare® is an experienced strategic outsourcing advisor to hundreds of hospitals. We have assisted hospitals and organizations with outsourcing decisions and benchmarking strategies since 1999. We are committed to your priorities.

James Cagliostro, MEd, BSN, RN
VIE Healthcare® Consulting

James joined VIE Healthcare® Consulting in 2018 and brings to the role over a decade of critical care nursing experience at highly regarded medical facilities across three states. During that time, he observed both the 'good and bad' of hospital operations in a number of regions, giving him a unique insight and understanding which he brings to our clients.

That insight means he prioritizes patient care. He has observed for himself and throughout his career that hard work makes a tangible difference in the lives of patients. While at Stanford, he was extensively involved in training staff on patient care with Ventricular Assist Devices and Total Artificial Hearts, which reinforced the importance of education and preparation in order to excel.

It is this, coupled with his experience at the bedside in reputable facilities, that has prepared him to be flexible and work on a 'patient first' basis. Underpinning that drive for meeting patient needs is an understanding of the critical requirements for clear and direct communication within and between healthcare organizations.

James has a BSc in Nursing from Messiah College and a Master's in Health Education from Penn State.

He also has 7 years of critical care experience at Hershey Medical Center (PA) and Stanford Hospital & Clinics (CA) and 3 years of PACU/perioperative/surgery center experience in NJ.

He also serves as chair of unit education council at Hershey.

Lisa T. Miller, MHA

Founder and CEO, VIE Healthcare® Consulting

Lisa Miller launched VIE Healthcare® Consulting in 1999 to provide leading-edge financial and operational consulting for hospitals, healthcare institutions, and all providers of patient care.

She has become a recognized leader in healthcare operational performance improvement, and with her team has generated in excess of \$674 million in financial improvements for VIE's healthcare clients.

Lisa is a trusted advisor to hospital leaders on operational strategies within margin improvement, process improvements, technology/telehealth, the patient experience, and growth opportunities. Her innovative projects include VIE Healthcare's EXCITE! Program, a performance improvement workshop that captures employee ideas and translates them into profit improvement initiatives, and Patient Journey Mapping™, an effective qualitative approach for visualizing patient experience to achieve clinical, operating, and financial improvements.

Lisa has developed patented technology for healthcare financial improvement within purchased services; in addition to a technology that increases patient satisfaction through front line insights.

Lisa received a BS degree in Business Administration from Eastern University in Pennsylvania and a Masters in Healthcare Administration from Seton Hall University in New Jersey. She is a member of the National Honor Society for Healthcare Administration – Upsilon Phi Delta.

Her book *The Entrepreneurial Hospital* is being published by Taylor & Francis.



LISA T. MILLER, MHA

FOUNDER AND CEO, VIE HEALTHCARE® CONSULTING

HOW TO WORK WITH US

VIE Healthcare® delivers dramatic margin improvement strategies and value driven solutions for breakthrough results.

Margin Improvement Strategies

Engage our in-house team of analysts to identify opportunities for non-labor savings, develop customized cost-saving reports and deliver the best pricing available anywhere on the market today.



HOW TO WORK WITH US VIE HEALTHCARE'S SIMPLE 3 STEP PROCESS

STEP 1 ➤ STEP 2 ➤ STEP 3

Schedule a Call

On your initial consultation call, we will want to learn about your goals and how VIE Healthcare® can support you and your team.

We Analyze Your Data

The team at VIE Healthcare® will create a customized solution specifically focused on your hospital's needs and the outcomes you want to achieve.

You Achieve Rapid Results

VIE Healthcare® will dedicate expertise and resources that support you and your team to become a high performing hospital.

Call or email today Lisa Miller to discuss how VIE Healthcare® can work with you and your team to rapidly reduce costs in your OR: 1-888-484-3332 Ext 501 | lmiller@viehealthcare.com

VIE Healthcare® - The Formula Of Our Success:

Purchased Services Expertise | Proven Process | Invoice ROI™ Technology | Results Achieved

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