

WHAT HOSPITALS SHOULD LOOK FOR IN A NEW PPE SUPPLIER

It's hard to prepare for the next pandemic when you're in the middle of the first one. But hospitals and their PPE providers have no choice. With the uncertainties around COVID-19 and new variants emerging, healthcare providers and PPE suppliers do not have the luxury of waiting. So, what can we learn from last year that may better prepare for whatever is next? A few things stand out.

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LACK OF PPE CITED AS A MAJOR ISSUE FROM THE BEGINNING

As early as the beginning of March 2020, the World Health Organization began warning governments and hospitals of a critical global shortage in PPE.ⁱ The American healthcare system wasn't far behind. On March 27, 2020, the online news source, Vox, quoted a senior policy fellow at the Center for Global Development who said, "Every serious look at US pandemic readiness and global pandemic readiness has identified PPE shortages as a major issue."ⁱⁱ

Let's pause here, to clarify. Hospitals did nothing wrong; most had been following the CDC's guidelines on maintaining an eight-week stockpile of N95 respirators, gloves, gowns, etc. But in the face of a pandemic, demand surged to 17X the typical burn rate for N95 respirators, 8.6X for face shields, 5X for isolation gowns and 3.3X for surgical masks – and supply did not keep up.ⁱⁱⁱ So, what exactly did happen?

In many ways, the PPE supply issues were the result of a perfect storm that had been brewing over many years. In an effort to reduce costs, healthcare organizations have focused on standardization and sole-sourcing of PPE products such as gloves, gowns and face masks, handing more business to fewer suppliers in order to negotiate lower prices. The net result was a heavy reliance on overseas manufacturers. China's low production costs combined with high quality have made it the global leader in producing a vast range of manufactured goods, including protective face masks, gloves, and gowns. Meanwhile, the US is the world's largest importer of PPE.^{iv}

When COVID-19 hit, China was one of the first countries to shut down and some Chinese suppliers stopped delivering PPE to the U.S. and other countries.

The result for U.S. healthcare providers was a critical shortage of supplies. Regional and local flare ups made the problem even harder to manage, as there was no way of knowing what state or city would become the next hotspot. While there were instances of hospitals sharing respirators and ventilators, it was typically on an ad hoc basis.

On the manufacturing and distribution side of the equation, the entire supply chain has relied on a just-in-time model, where inventories are lean to reduce cost, and supplies are delivered on a daily basis. While this has enabled cost reductions year-over-year for the past decade, it's obvious this was not a model designed to handle pandemic demand surges.

PPE manufacturers and distributors were ill-prepared as well – again, the key reason being cost. In order to hold costs down, large healthcare systems tend to partner with two or three suppliers in each category to achieve volume pricing. Manufacturers, in turn use the same cost-driven approach when contracting providers of raw materials. As noted in an article posted on the online JAMA Health Forum: "The frightening reality is that the routine U.S. PPE supply chain was not designed with the primary objective of protecting health care professionals. Rather, it was designed to fulfill demand while focusing on efficiency and price."^v



THE COVID-19 PANDEMIC CAUSED MASSIVE DISRUPTION TO A MEDICAL EQUIPMENT SUPPLY CHAIN HEAVILY RELIANT ON FOREIGN MANUFACTURERS.

- i. Shortage of personal protective equipment endangering health workers worldwide; New England Journal of Medicine, article; March 3, 2020
- ii. Why America ran out of protective masks – and what can be done about it; Vox, article; March 27, 2020
- iii. Premier Inc. Survey: As COVID-19 Spreads to New Hotspots Hospitals Should Prepare for up to a 17x Surge in Supply Demand, Premier Inc.; <https://www.premierinc.com/newsroom/press-releases/premier-inc-survey-as-covid-19-spreads-to-new-hotspots-hospitals-should-prepare-for-up-to-a-17x-surge-in-supply-demand>; April 1, 2020
- iv. U.S. National Library of Medicine – National Institutes of Health: Contributing factors to personal protective equipment shortages during the COVID-19 pandemic; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7531934/#:~:text=We%20now%20turn%20to%20our,2%20>; October 2, 2020
- v. Personal Protective Equipment Shortages During COVID-19—Supply Chain—Related Causes and Mitigation Strategies; JAMA Health Forum, <https://jamanetwork.com/channels/health-forum/fullarticle/2766118>; May 12, 2020

DIVERSIFYING SUPPLIERS TO INCREASE RESILIENCY

It's now been over a year since the onset of the pandemic. One thing is clear: the global supply chain for medical PPE did not have the flexibility or resiliency to respond to a rapid escalation in demand because of a global pandemic. In other words, when markets are calm, trade is flowing and the geopolitical forces are stable, the global supply chain functions well. But all it takes is one serious disruption to create the kind of shortages we've seen during the last year.

A key takeaway for healthcare organizations is the need to diversify their suppliers. According to researchers at the Supply Chain Cooperative, part of North Carolina State University Poole School of Management: "Our research has found that the most-proactive organizations are thinking about critical supplies not just for themselves but for their suppliers and distributors, as it takes just a single supplier shutdown to disrupt an entire supply chain."^{vi}

Contracting with multiple suppliers for the same equipment type or class and ensuring at least a portion of them are located domestically can go a long way toward mitigating supply chain risks. Instead of contracting with a single supplier for specific equipment, a hospital may need to partner with several. This strategy serves as insurance in case one or two suppliers are unable to fill the needed demand or ship to the customer ship to the customer.

KEY CONSIDERATIONS IN SELECTING A PPE SUPPLIER

FROM WHICH COUNTRY OR REGION WILL THE PPE BE SHIPPED?

As noted earlier, COVID has demonstrated the need to recalibrate the balance of the PPE supply chain to shore up local capacity. Since the beginning of the pandemic, U.S. manufacturers have significantly increased production. In April 2020, Honeywell added a new N95 respirator production line at its existing Smithfield, RI plant. (The project, which usually takes nine months to complete, was up and running five weeks.) A month later, the company completed a similar project at its Arizona facility.

Currently, Honeywell has the capacity to produce up to 70 million N95 respirators annually in North America and approximately 1 billion units worldwide. In addition to the country of manufacture, the capacity and ability to ramp up output during a demand surge is also a key consideration.

"There's always been pressure or incentives for companies to maximize efficiency and reduce costs, finding the lowest-cost supplier and the most efficient producer or distributor in the world and to go after that. On the other hand, if you end up with a single source, you're vulnerable to risk. And that's what is playing out now."

—Morris Cohen, Professor,
Wharton School of Business



vi. Diversifying the Supply Base to Prepare for Disruption in COVID: Now is the Time!; North Carolina State University, Supply Chain Cooperative; October 18, 2020

SUPPLIER TRANSPARENCY

During the height of the pandemic, a lack of data regarding PPE—such as domestic and international manufacturing capacity and inventory levels—left the government (federal, state and local), hospitals, physicians and other PPE purchasers in the dark. This contributed to the confusion and fear that gripped the country. Transparency into the supply chain is critical.

It is not enough to know where your suppliers are located. Healthcare purchasing managers must have greater visibility throughout the supply chain journey in order to understand and anticipate bottlenecks. That means gaining a better understanding of who is supplying the suppliers (i.e., raw material providers, converting operations, manufacturing, etc.) and how they may be affected during a crisis.

Supplier transparency also creates an incentive for manufacturers to build domestic capacity, says Tinglong Dai, Associate Professor of Operations Management & Business Analytics, Johns Hopkins University. “Ample domestic production capacity for crucial medical supplies such as N95 masks would ensure critical raw materials, human capital and technical know-how are in place to ramp up production in times of global health emergencies.”^{vii}

When vetting a potential PPE supplier, the healthcare facility should look for information such as:

- What is the manufacturer’s total production capability?
- Does the manufacturer maintain idled capacity that can be ramped up quickly?
- Does the manufacturer run multiple manufacturing lines to handle overflow?

Other useful information includes examples demonstrating how well and how fast the manufacturer’s material suppliers are able to respond to surges in demand. Also important is the manufacturer’s experience with medical PPE that is prone to rapid escalations in demand due to a health crisis.

NETWORK REDUNDANCY

For the same reason that ambulatory and acute care facilities need to diversify suppliers, their distributor partners need to do the same. This means ensuring that the distributor contracts with multiple providers of the PPE products for which they’re being considered. Pay special attention to the very bottom of the supply chain, the suppliers of raw materials, as disruptions at that level can have the greatest impact.

PRODUCT QUALITY

Needless to say, product quality is absolutely critical in selecting your suppliers. To help ensure medical devices, including PPE, are safe and effective, the FDA has established [Quality Systems Regulations and Good Manufacturing Practices](#).

SEVEN SIGNS AN N95 RESPIRATOR COULD BE COUNTERFEIT

On March 1, 2021, the AMA reported that more than 10 million counterfeit N95 respirators had been confiscated since the pandemic’s onset. Many were in use at some of the country’s largest healthcare systems. The news prompted National Institute for Occupational Safety and Health (NIOSH) to issue a notice about the fake N95s and how physicians and others in health care can spot them.

According to NIOSH, here are seven signs of counterfeit respirators that physicians and staffers at medical groups and health systems should look for:

- 1. NO MARKINGS AT ALL ON THE FILTERING FACEPIECE RESPIRATOR.**
- 2. NO APPROVAL NUMBER ON FILTERING FACEPIECE RESPIRATOR OR HEADBAND.**
- 3. NO NIOSH MARKINGS.**
- 4. NIOSH SPELLED INCORRECTLY.**
- 5. PRESENCE OF DECORATIVE FABRIC OR OTHER DECORATIVE ADD-ONS.**
- 6. CLAIMS OF APPROVAL FOR CHILDREN—NIOSH DOES NOT APPROVE RESPIRATORY PROTECTION FOR CHILDREN.**
- 7. FILTERING FACEPIECE RESPIRATOR HAS EAR LOOPS INSTEAD OF HEADBANDS.**

-Source: 7 signs those new N95s at your physician practice might be fake; American Medical Association; March 1, 2021

vii. Where does your PPE come from? A lack of transparency is hurting Americans; Fast Company, article; July 15, 2020

COST

There's no debating the importance that cost plays in any purchasing decision. While purchasers from smaller independent acute care facilities look to save wherever possible, the pressure on larger systems to reduce cost is typically greater.

As noted earlier, the quest for lower PPE prices is what drove so many healthcare facilities to consolidate and standardize the purchase of PPE product groups among one or two key suppliers. While it is true that diversifying suppliers will no doubt force healthcare providers to surrender some of that leverage, that strategy carries an increased (and costly) risk, as the last year has proven.

STRESS TESTING

Lastly, acute care and ambulatory healthcare facilities may want to consider asking potential suppliers about their ability to handle a significant crisis. The idea of a "supplier stress test" was articulated in a June 30, 2020 article in the *Journal of General Internal Medicine*:

"Besides transparency, Congress should require all major PPE manufacturers (for example, those with US market shares > 10%) to undergo stress testing. The 2008 recession prompted regular stress testing of banks and yielded benefits: The banks are now more resilient and less likely to have inadequate capital during future economic crises."^{viii}

Such a stress test could ensure that PPE manufacturers can ramp up domestic production capacity quickly. "Those who fail," envisions the article, "would be required to rebalance their supply chains to maintain ample domestic capacity and reduce foreign dependency, especially dependence on nations with high risks to U.S. national security."^{ix}

While a federally-mandated stress test would need to be passed by Congress and monitored by the government, as opposed to individual purchasers of PPE, the idea could be used by healthcare facilities to help assess the resiliency of a potential distributor. By asking a few probing questions purchasing managers may be able to get a sense as to what types of crises would represent a serious threat to that part of their PPE supply.



viii. PPE Supply Chain Needs Data Transparency and Stress Testing; *Journal of Internal Medicine*; June 30, 2020

ix. Coronavirus and Supply Chain Disruption: What Firms Can Learn; *Wharton Business Daily*, article; March 17, 2020

CONCLUSION

Based on what we've seen this year—empty store shelves and stock rooms, shortages of ventilators and gloves—there's no question that all businesses, healthcare included, need to revisit their supply chain strategies. Unfortunately, there are no easy answers, as a March 17, 2020 article in the Wharton Business Journal points out:

Businesses (such as PPE suppliers) who are dependent on global sourcing face hard choices in crisis management amid the supply chain disruptions. But in planning to mitigate the risks of similar disruptions in future, they confront other questions that have no easy answers: Should they broaden their supplier choices, or do more local or near-shore sourcing? How much inventory of raw materials, sub-assemblies and finished products should they stock to tide over the crisis?

Ultimately, for healthcare providers who are selecting PPE suppliers, the goal is to balance the operational needs during a crisis with the financial constraints. Diversifying suppliers is only part of the solution.



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