# Healthcare Logistics 2021

The challenges plaguing the medical products supply chain—lack of geographic diversity, limited numbers of suppliers for essential medicines, inability to predict demand surges, and limited purchasing power of small and midsize health systems—existed before the COVID-19 pandemic but have been exacerbated by the crisis. Furthermore, the fragility of the supply chain has only increased based on the stress the crisis has placed on its suppliers.

In the healthcare logistics, customer requirements, maintaining the integrity of the product, and following government regulations. The maintenance of healthcare logistics such as storing, distribution time, and temperature-sensitive goods require extraordinary attention.

Governments are now spending on the development of logistic infrastructure, which is also contributing to the growth of the healthcare logistics market. The introduction of drones in healthcare logistics is expected to create various growth opportunities in the market. Drones can facilitate the delivery of vaccines and medicines more efficiently. In future, small indoor drones may carry medications from the pharmacy to the patient's bedside, which will help ensure a smoother and less error-prone administration of drugs. These factors are expected to fuel the growth of the market.

Additionally due to the increase in the cost of fuel, pharmaceutical and medical device companies prefer seaborne shipments over railways and airways. Although more recently the seaborne shipment are backed up at ports of entry in the United States, especially in the Port of Long Beach and Port of Los Angeles.

The rippling costs of supply chain disruptions Economics are driving much of the dysfunction. The declining profitability of generic drugs and low-margin supplies such as surgical gowns and tubing has created what the FDA calls a “race to the bottom,” pushing manufacturing overseas.71 Thirteen percent of drugs in the US come from China, with 83% imported as drugs ready for the market; China provides 39% of US medical devices and supplies 80% of the active pharmaceutical ingredients (APIs) used by companies in India—the largest supplier globally of generic drugs.72 Lower labor costs in India, plus fewer environmental regulations and a network for raw materials, reduce costs for US and European companies by 30% to 40%.73 A fragmented and dispersed medical supply chain can result in shortages if just one supplier or manufacturer takes a facility offline, natural disasters strike or trade tensions rise

The impacts from this spill over onto hospitals and insurers. The American Hospital Association found that 80% of hospitals reported a moderate to large impact of drug shortages on spending between fiscal years 2015 and 2017. Limited suppliers of some generic drugs have also led to increased prices that are passed on to consumers and insurers.75 This year,  Blue Cross Blue Shield plans formed a collaboration with Civica

Rx, a not-for-profit organization established by a group of providers, to manufacture their own generic drugs.

In 2021, distributors and health systems are considering establishing contracts with secondary suppliers, joining new group purchasing organizations, relocating facilities and approaching storage and distribution on a more regional scale. According to HRI's executive survey, 94% of life sciences executives and 86% of provider executives said that improving their supply chain overall was a priority in 2021. Specifically, improving supply chain transparency was their top priority.

These types of collaborations, to secure the supply chain through diverse geographies and sourcing materials. will likely mean near term incremental investments into supply chain capabilities resulting in marginally higher direct costs.

The industry can take a cue from tech or automakers Relocating manufacturing facilities back to the US has garnered attention in Washington. One option could be dual sourcing, in which a company relies on facilities or suppliers in more than one region. It is also a strategy that has been employed by other industries as a means to add redundancy without disrupting established networks. A tech supplier based in China built a secondary facility in the US, potentially giving it a competitive advantage as geopolitical tensions ebb and flow between the two countries. Automakers have added resiliency by standardizing parts across products. They also have beefed up risk management by asking primary suppliers to have contingency plans for disruptions to the supply of raw materials. The foreign carmaker BMW built a factory in the US to be closer to a new and growing customer base for certain models. A cross-industry analysis by PwC found that in situations where companies don't want to leave China, a China "plus one" strategy, in which they add manufacturing or supply redundancy in another locale, could help companies establish networks in a new country while maintaining some of the financial advantages, such as reduced labor costs, that come with foreign facilities.Depending upon the locale, it could also provide opportunities for lower tax jurisdictions, as China isn't considered as having tax advantages compared with areas such as Ireland. The dual-sourcing strategy may produce savings of 5% to 20% over sourcing or producing only in China.

"Our industry has many tools for tracking and monitoring freight, from the standard onboard computers reporting the location, direction of travel and hours of service status of the truck and driver to more complex temperature monitoring systems that have risen to prominence during this crisis," Orban says. "It is no longer a load of apples or ice cream that has to be carefully temperature-controlled; now an incredibly important shipment of vaccine could be endangered if the cooling systems in the trailer fail or the temperature rises without appropriate intervention.

"At the start of the COVID-19 vaccine distribution, escorts were required for many of the vaccine loads," he continues. "This, while common for some types of high-value loads, was something that always adds additional stress for the driver and the carrier. The amount of responsibility we put on our drivers has only increased -- not only do they have to be away from home during a global pandemic, but now they might not be able to stop at their preferred truck stop due to security concerns or could have to change

their sleep or eating patterns to make sure that we get the vaccine we so desperately need. The carriers themselves have to be equipped to brief the drivers, as well as make sure that security protocols are being followed, and this adds another layer to the complexities of moving freight through the country.

“If a fleet doesn't have an existing security program or high-value load process, it is possible they won't even be able to haul these loads, even if they have the proper equipment,” Orban adds.

But, it is not just transportation technology that is important in the supply chain.

Beardslee seconded that technology in transportation is vital. She emphasizes that cold chain trailers, box trucks, containers, air cargo and on-site freezers are important in not just transporting vaccines, but also in moving all temperature-controlled pharmaceuticals safely. Additionally, temperature monitoring technology and tracking software embedded into transportation management systems (TMS) are important for the growing need for visibility that has proved important in vaccine distribution.

Specifically, for the vaccine, there are platforms that integrate CDC vaccine registration requirements.

“Many pharma companies are taking advantage of digital technologies, including cloud, robotic process automation and Internet of Things,” says Stephen Meyer, senior research director, Gartner Supply Chain Practice. “This can be leveraged for ‘smart’ products that result in better prescription adherence and more accurate dosing, as well as for new supply chain capabilities, like real-time shipment tracking that ensures products are delivered on-time and at the correct conditions. Analytical technologies that help derive insight from large and diverse data sets are also popular, like AI and cognitive computing.”

Farooq supports the argument for the need of automation, as it helps eliminates repetitive tasks, shifts focus to actual business outcomes and allows individuals to lean into aspects of the job that require human ingenuity.

“We can expect this trend toward the digital economy to continue and further accelerate,” he says. “Procurement has a clear role in supporting that transformation and the incorporation of intelligent technologies such as AI, machine learning and IoT into our daily lives.”

Gisli Herjolfsson, co-founder and CEO of Controlant, emphasizes the importance of other technology such as enterprise resource planning (ERP) systems, quality management systems, asset management, business analytics (BI) dashboards and blockchain platforms.

“Each stakeholder most likely uses something different to track and monitor their piece of the cold chain,” he says. “Companies are achieving greater supply chain and value

chain orchestration by using a comprehensive control tower that unites these disparate systems and organizations. Having a fully connected and integrated control tower provides all parties, across business, manufacturing, operations, and supply chain functions, with a single source of truth."

In addition to comprehensive control towers, cloud software can help.

"Cloud software platforms can serve as the backbone of the information supply chain so that all supply chain participants are on the same page and to provide a clear record of product custody as it moves through the global supply chain," Bisceglie says.

"In mapping, monitoring and modeling supply chain risk, AI-based technology can serve as an early-warning system. AI- and machine learning-based platforms can quickly and effectively map the global supply chain to the nth tier (not just Tier 1 suppliers) and then deliver continuous monitoring against dozens of supplier risk factors. Previously, this monitoring was done annually and manually -- processes that were highly inefficient and left massive blind spots that heavily impacted brands during the pandemic, before it, and still do."

Another key trend we are seeing is in the sourcing from nature.

"Nearly half of pharmaceuticals are sourced from nature, mostly plants," says Smolke. "While the technology required to transform these natural materials into medicines varies considerably, plant-based drugs are generally manufactured through a multi-step process that begins on specialized farms, where the medicinal crops are farmed and harvested. Once these plants arrive at processing facilities, they undergo extensive physical and chemical treatment to extract and isolate their medically relevant components. Once isolated, these components are combined with other raw materials or further modified through chemical reactions to become active pharmaceutical ingredients (APIs), the base of all drugs.

"New technologies are offering a better way to produce highly complex medicinal molecules on demand. With today's current understanding of DNA and modern computational tools, scientists can bioengineer the ingredients for medicines using plants as inspiration, not raw supplies," adds Smolke

"To do this, scientists identify the genetic code that produces beneficial molecules in plants. They replicate those molecules by inserting synthetic DNA into brewer's yeast, then grow the engineered yeast in large fermenters. In just two weeks, this process can yield highly valuable molecules at commercial scale," she says.

These new changes will require more cross sector collaboration within the community colleges to assist businesses to be more productive, allow for the colleges to be a move one stop shop to help not only vertically but horizontally within a companies organization.

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Here is a list of current openings in this field as reference

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https://www.simplyhired.com/search?q=healthcare+supply+chain+logistics&l=ca&job=vJ5XFeXDwodeKXVpB9e6Sh4B-hS4AhtG9YB7QC6cHVxq5TlrWhYGzA