

SUPPLY CHAIN DISRUPTIONS IN HEALTHCARE

Unpacking the fragility of medical supply chains.

INTRODUCTION

The healthcare sector has long been vulnerable to supply chain disruptions, with significant consequences for patient care and system stability. Shortages of critical medical supplies and delays in the delivery of important equipment highlight the fragility of these supply chains. The intricate network of suppliers, manufacturers, and distributors make companies in healthcare highly susceptible to external shocks ranging from manmade difficulties like geopolitical instability and demand increases to natural phenomena like limited natural resources and natural disasters. Recent weather catastrophes in the southeastern United States underscored this vulnerability, as Hurricane Helene severely disrupted operations at Baxter International, the largest supplier of intravenous fluids in the United States, delaying the restoration of product deliveries from their North Carolina facility.¹ As various disruptions become more frequent and widespread, it's essential to explore the underlying causes, ranging impacts, and strategies that can help mitigate their effects on the healthcare system.

HOW SUPPLY CHAIN DISRUPTIONS CAN OCCUR

Supply chain disruptions occur when unexpected events interrupt the flow of goods and services within a supply network causing delays, shortages, or inefficiencies.² In healthcare, such disruptions can impact the delivery of critical medical supplies, equipment, or medications. The causes of such disruptions are diverse, including natural disasters, geopolitical conflicts, and drug shortages.

A critical artery for global trade, the Suez Canal experienced a dramatic decline in activity in October 2024 due to the regional instability and frequent attacks on vessels in the Red Sea. By mid-October, daily transits through the canal had dropped to an average of just 33 per day, a 57% decrease from its peak and 55% lower than the same period the previous year. To avoid the risk of attacks, vessels are now being rerouted around Africa, a detour that incurs an additional cost of about \$400,000.³ When critical supply lines falter, the effects ripple through the system. These disruptions directly affect the healthcare industry by delaying the delivery of components vital to the manufacturing and operation of life-saving products.

THE IMPACT OF A SUPPLY CHAIN DISRUPTION

Disruptions in healthcare have widespread and profound effects straining manufacturers, providers, patients, and the entire system. In 2023, nearly 80% of healthcare providers reported delays in receiving essential medical supplies, with disruptions costing the industry over \$25 billion in unexpected and unnecessary expenses.^{4 5} Beyond the economic

¹ <https://www.baxter.com/baxter-newsroom/hurricane-helene-updates>

² <https://www.undrr.org/understanding-disaster-risk/terminology/hips/tl0010>

³ https://unctad.org/news/suez-and-panama-canal-disruptions-threaten-global-trade-and-development#:~:text=in%20vulnerable%20economies._,Canal%20traffic%20plummets,lowest%20recorded%20four%2Dweek%20average

⁴ <https://muutaa.com/navigating-supply-chain-disruptions-in-healthcare-ongoing-challenges-and-solutions/#:~:text=The%20Healthcare%20Supply%20Chain%20Association,essential%20medical%20supplies%20in%202023>

⁵ <https://pmc.ncbi.nlm.nih.gov/articles/PMC9986569/>

strain, the consequences for patients can be even more critical. As highlighted earlier, Baxter International faced challenges maintaining production of vital IV fluids, which are essential for patient care during surgeries.⁶ This shortage forced some hospitals to postpone procedures, compromising patient outcomes and exposing the vulnerabilities of a fluctuating system.⁷ The IV fluid shortage exemplifies the fragility of medical supply chains thereby stressing the importance of mitigating disruptions in this critical industry.

POTENTIAL WAYS TO PREVENT OR MITIGATE DISRUPTION

Having explored the various types of supply chain disruptions, how can organizations effectively prevent or mitigate their damage? While no system can eliminate disruptions, a holistic approach that integrates inventory management, strategic planning, and strong supplier relationships can greatly reduce vulnerabilities.⁸

Inventory management plays a key role in mitigating supply chain challenges. Maintaining safety stock, extra inventory kept as a buffer, ensures operations can continue during unforeseen disruptions, though it comes with trade-offs such as increased storage costs and tied up resources.⁹ ¹⁰ Alternatively, inventory forecasting techniques, such as statistical or demand-driven forecasting, enable organizations to better predict future needs and adjust inventory levels accordingly.¹¹ Just-In-Time (JIT) inventory management offers another approach by minimizing storage costs through ordering supplies only as needed. However, JIT also exposes supply chains to greater risks from sudden disruptions if not carefully managed and supported by reliable supplier coordination.¹² This vulnerability to sudden disruptions highlights the complexity of inventory strategies and the importance of tailored, diversified solutions rather than a one-size-fits-all approach.

Equally critical are strong supplier relationships. Beyond contractual agreements, fostering partnerships with suppliers enhances flexibility, allowing for better efficiency when responding to unexpected events.¹³ By combining thoughtful inventory management with proactive supplier collaboration, organizations can strengthen their supply chains and better navigate disruptions. A balanced and flexible approach that integrates multiple strategies is essential for addressing the complexities of today's supply chain dynamics.

CONCLUSION

Supply chain disruptions in healthcare pose significant challenges, affecting both operational efficiency and patient

⁶ https://www.wsj.com/articles/medical-manufacturer-healthcare-providers-grappling-to-replenish-iv-supplies-65b6f773?mod=Searchresults_pos4&page=1

⁷ <https://www.npr.org/sections/shots-health-news/2024/10/30/nx-s1-5171249/iv-fluids-shortage-canceled-surgeries#:~:text=The%20surgeries%20most%20likely%20to,varies%20from%20hospital%20to%20hospital>

⁸ https://www.hida.org/distribution/news/healthcare-distribution-supply-chain-magazine/2023/Supply_Chain_A_Look_Ahead.aspx

⁹ <https://www.ascm.org/ascm-insights/safety-stock-a-contingency-plan-to-keep-supply-chains-flying-high/>

¹⁰ <https://www.sdexec.com/sourcing-procurement/financial-management-software/article/22657339/netsuite-inc-balancing-safety-stock-to-maximize-cash->

<flow#:~:text=Safety%20stock%20is%20extra%20inventory,ties%20up%20capital%20and%20resources.>

¹¹ [https://www.deskera.com/blog/minimizing-supply-chain-disruptions-with-better-inventory-management/#:~:text=with%20your%20suppliers.-](https://www.deskera.com/blog/minimizing-supply-chain-disruptions-with-better-inventory-management/#:~:text=with%20your%20suppliers.)

<Keep%20Safety%20Stock%20on%20Hand,running%20smoothly%20during%20a%20disruption>

¹² <https://www.lean.org/lexicon-terms/just-in-time-production/>

¹³ <https://www.apu.apus.edu/area-of-study/business-and-management/resources/managing-relationships-with-suppliers-and-vendors-you-use/>

outcomes. While disruptions are inevitable, proactive strategies such as inventory management and strong supplier relationships can help mitigate the effects. As the healthcare sector continues to face an unpredictable global landscape, strengthening supply chain resilience remains critical to ensuring the stability of healthcare systems. [Contact a Trexin Advisor](#) to learn more about how we can help you evaluate and secure your supply chain.



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