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Middle East Conflict Is Exposing the Fragility of America's Healthcare Supply Chain: Recommendations for Healthcare Organizations

Key Statistics at a Glance

90% of U.S prescriptions are generic drugs

~50% of generic drugs sourced from India

20% of global oil transits the Strait of Hormuz

$115+ per barrel - current oil price surge

$57B+ annual U.S hospital supply spend

8.2% average annual supply cost increase since 2020

60% of global aluminum produced by China

30% of global helium supply from Qatar

Situation Overview

With conflict ongoing in the Middle East and in the Strait of Hormuz, constraints on global shipping are threatening sectors critical to U.S. healthcare delivery, including the pharmaceutical, energy, chemical, plastic, and metal sectors.

As we saw during the COVID-19 pandemic, the U.S. healthcare supply chain is heavily dependent on foreign suppliers, and any disruption to global trade will severely impact costs, services, supplies, and equipment in the healthcare sector. In the years following the Covid pandemic, rebuilding domestic manufacturing, through reshoring or nearshoring, became an explicit priority, backed by executive orders, federal funding, and bipartisan support. Yet, efforts have either fallen short of goals or proven more challenging to execute than previously anticipated. New facilities are not coming online fast enough, the overall economics of domestic production are still hard to justify during stable times, and global healthcare supply chains are too interconnected to unwind quickly. As a result, the U.S. healthcare system remains almost as vulnerable today as it was in 2020.

In this report, we review how the energy, petrochemical, metals, and pharmaceutical sectors impact the healthcare supply chain in the context of the current global shipping crisis. We provide recommendations for healthcare organizations to reduce their vulnerability over time and for policymakers to reduce the chance of a conflict-induced healthcare crisis at home.

Impact on Commodities Needed for Healthcare

Almost every component involved in healthcare delivery—from drug manufacturing and medical devices to diagnostics and patient care—depends on a tightly interconnected set of globally sourced commodities, including oil and petrochemicals, plastics, helium, semiconductors, and aluminum. Disruptions in these commodities leads to higher procurement prices for supplies, increased transportation and energy expenses, and rising capital costs for equipment and infrastructure. For example, roughly 20% of global oil supply moves through key chokepoints, and price spikes above $115 per barrel drive up logistics and operating costs across the sector. These pressures are already reflected in system costs with U.S. hospital medical and surgical supply expenses increasing by an average of 8.2% annually since 2020, now exceeding $57 billion, and accounting for roughly 10–13% of total hospital spending. As commodity volatility persists, these increases are passed on to providers, leading to lower margins (and sometimes losses), delayed investment, and limits on patient care.

Rising Supply Costs

8.2%

avg. annual hospital supply cost increase since 2020

Spending Allocation

10-13%

of total hospital spending = medical/surgical supplies

Table

Healthcare Supply Chain Exposure by Commodity

Commodity	Key Risk	Healthcare Impact
Oil / Petrochemicals	20% of global supply through Strait of Hormuz; prices above $115/barrel	Pharma feedstocks, transport costs, rural generator fuel
Plastics	7 countries = 60%+ of global production; crude price volatility compounds	IV bags, syringes, tubing, surgical masks, dialysis equipment
Helium	Qatar (30% of global supply) paused production; US at full capacity	MRI scanners (1,500-2,000L per machine), respiratory heliox therapy
Semiconductors	Helium disruption affects East Asian chip makers, US CHIPs Act provides buffer	CT scanners, MRI, ultrasound, pacemakers, monitors
Aluminum	China = 60% of global output; Persian Gulf = 17% of ex-China exports	Surgical tools, implants, pharaceutical packaging
Pharmaceuticals	90% of US Rx = generics; ~50% from India; India = 40% crude from Hormuz	Chronic disease patients, pediatrics, rural hospitals most at risk

Oil and Petrochemicals

The energy sector has felt the sharpest, most immediate effects. Approximately 20% of the global oil supply transits the Strait of Hormuz, and since the conflict escalated, oil prices have surged past $115 per barrel. Another key shipping artery in the region that could be constrained in the near future is the Bab el-Mandeb Strait, a gateway to the Suez Canal, which handles 5% of the global oil supply and could be threatened by Houthis in Yemen.

For healthcare, volatility in the supply and price of oil has significant impacts, including:

- Pharmaceutical manufacturing depends heavily on petrochemical feedstocks (the refined derivatives of crude oil) as raw materials for drug synthesis, coating, and packaging.
- Transportation costs for medical supplies, pharmaceuticals, and emergency services have increased substantially. The biggest impact of oil prices can be seen on transportation requirements for healthcare staff and patients.
- Rural hospitals and clinics face added risk from their reliance on diesel-powered generators during power outages.

Operational Costs

$115/barrel

Oil price surge threshold that drives up logistics & operating costs across the healthcare sector

Transit Dependency

20%

of global oil supply transits Strait of Hormuz

Critical Routes

5%

of global oil supply through Bab el-Mandeb Strait

Plastics

The same crude oil price volatility described above creates a second, compounding effect on healthcare through plastics, which are produced from chemicals created during the refining of crude oil and natural gas. Plastics are essential within health care as they are used for packaging health care products and within medical devices and equipment themselves. Medical grade plastics are used across the sector in a variety of ways, such as blood and IV bags, syringes, tubing, lab equipment, surgical masks and gowns, dialysis equipment, petri dishes, vials, diagnostic instrument housings, and other medical applications.

There are currently few viable substitutes for petrochemical feedstocks in medical-grade plastic manufacturing, meaning supply disruptions upstream in crude oil refining translate directly into plastic production constraints. Seven countries account for more than 60% of the world's plastic production. This includes China, Saudi Arabia, and India, while Iran and Russia are the 10th and 11th largest producers of plastics. With shipping constraints reducing the movement of supplies between Asia and Europe and long-standing geopolitical tensions between global powers, there could be significant impacts on the global plastic production sector, which would have trickle down effects on the healthcare supply chain.

Helium

Helium prices rose sharply after Qatar, which supplies roughly 30% of the world's helium, paused production in response to the conflict and the Strait of Hormuz closure. The healthcare sector consumes approximately 20% of global helium annually, relying on it for MRI scanners and respiratory support in intensive care. Many MRI machines require between 1,500 and 2,000 liters of liquid helium to maintain the extremely low temperatures in which the superconducting magnets must be kept at. The combination of helium and oxygen (heliox) is used to create a lighter, less dense gas mixture which helps patients with respiratory conditions breathe easier. Additionally, helium is being utilized more frequently for medical procedures and research. Research suggests that it could help protect brain tissue during surgery and has more protective qualities on the heart and respiratory airways than CO2.

While the US is the world's largest exporter of helium, a third of the global supply comes from Qatar and the Middle East which has been stunted the past month. Because helium must be extracted from natural gas deposits, it cannot be quickly sourced from alternative suppliers, and other producers, including the US, are already operating at full capacity.

Input Constraints

There are currently few viable substitutes for petrochemical feedstocks in medical-grade plastic manufacturing, meaning supply disruptions upstream in crude oil refining translate directly into plastic production constraints.

Production Concentration

7 Countries

account for more than 60% of global plastic production — including China, Saudi Arabia, and India

Disrupted Supply

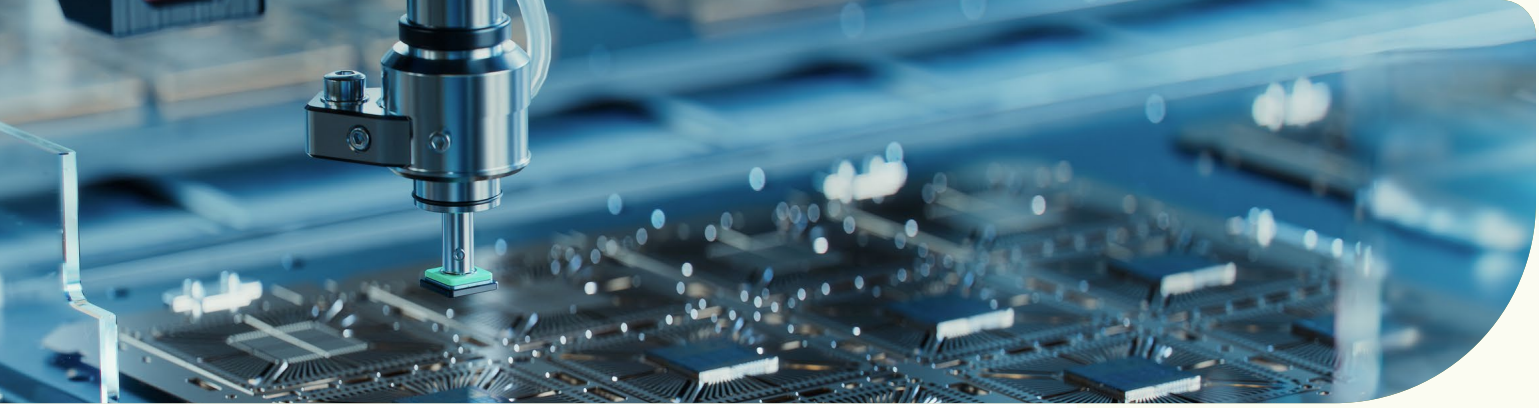
30%

of global helium supply from Qatar — now paused

Critical Demand

1,500 to 2,000 liters

of liquid helium required per MRI machine



Semiconductors

Disruptions to helium suppliers and distribution networks along the Persian Gulf, most notably Qatar, have created a risk to the semiconductor industry because it is an essential component in manufacturing. Semiconductors are widely used in the healthcare sector for imaging, such as CT scanners, MRI machines, and ultrasounds, and other devices, such as heart rate monitors, oxygen monitors, pacemakers, and cochlear implants.

Taiwan, South Korea, and China are home to major semiconductor producers such as the Taiwan Semiconductor Manufacturing Company, Samsung Electronics, and SK Hynix. Many other East Asian semiconductor producers source a significant amount of helium from Qatar and other Persian Gulf countries and have already turned to alternative suppliers and helium recycling methods to ensure production of these critical products continues. However, the disruption to that supply chain can become a legitimate risk to semiconductor manufacturers as the global helium supply continues to decrease the longer the conflict in the Middle East is drawn out.

The near-term impacts seem to be more acute to semiconductor supply chains in Asia than in the US. In 2022, the CHIPs and Science Act provided over $52 billion to fund and strengthen the domestic semiconductor manufacturing base. Furthermore, the US being the world's largest helium producer mitigates the heavy reliance on Qatar for those critical inputs in semiconductor production. However, if the global supply of helium continues to be constrained, there will be a global increase in demand and prices could spike as other semiconductor manufacturers will turn to the US supplier base.

Strategic Funding

$52 Billion

provided by the CHIPs and Science Act (2022) to strengthen domestic semiconductor manufacturing

Aluminum

Aluminum is also affected by the ongoing conflict in the Middle East, the shipping constraints due to the closure of the Strait of Hormuz, as well as the long-standing geopolitical tensions with China. The price of aluminum is already going up, and the longer the conflict in the Middle East persists, the greater the impacts will be seen on the aluminum and healthcare supply chain.

Aluminum is used widely across the healthcare supply chain, from pharmaceutical packaging, medical equipment, and distribution. It is an extremely versatile, lightweight, and sustainable metal that is ideal for manufacturing surgical tools, medical equipment, and implants. It is more corrosion resistant than other metals which allow it to undergo meticulous disinfection and sterilization processes and to reuse the material. As a biocompatible material, aluminum can be used in many medical devices and equipment that directly contact the human body.

China is the world's largest aluminum producer, accounting for roughly 60% of global production. Outside of that, the other major producers of aluminum are in India and countries along the Persian Gulf and Strait of Hormuz. Roughly 6 million tons of aluminum (18% of global exports ex-China) is produced in those countries, and the US is heavily reliant on aluminum imports as our own aluminum manufacturing base has diminished over the last few decades.

As of April 2, the Trump administration announced that it would impose a tariff on imported aluminum to reduce the dependency on foreign suppliers and bolster the domestic supply chain. It announced that Century Aluminum and Emirates Global Aluminum are standing up a new aluminum smelting facility to onshore a critical step in the production of aluminum. While onshoring production would bolster the domestic supply chain, experts argue that it cannot be the only solution. Implementing tariffs can drive suppliers away from the US market and can hurt the supply of imported aluminum, which would have trickle down effects on the healthcare supply chain in the near future.

Pharmaceutical Impacts

90% of all US prescriptions are generic drugs, and nearly half of those generic drugs come from India. India relies on the Strait of Hormuz for around 40% of its crude oil imports which feed into their pharmaceutical manufacturing industry.

A large percentage of the U.S. is vulnerable to a disruption in generic drugs, such as:

- Low income and uninsured populations, who rely heavily on generic drugs because of their low cost.
- Pediatric populations, who rely on formulations, like liquid antibiotics, which are usually generic and have limited alternative drug options.
- Elderly patients and those with chronic diseases, who are heavily dependent on generic drugs for continuous treatment of asthma, diabetes, hyperlipidemia, and cardiovascular disease.
- Patients at rural hospitals and community health centers, which operate on thin margins and rely heavily on just-in-time inventory which could lead to rationing of critical drugs and delayed or canceled treatments.

On April 2, 2026, the Trump administration announced that it would impose 100% tariffs on imported, brand-name drugs. It was issued in response to the US dependency on foreign suppliers and signified a push towards onshoring pharmaceutical manufacturing. Within the announcement, the President stated that companies that agree to onshore production in the US will see tariffs drop to 20% and companies that agree to both onshore production and lower drug prices will not be affected by any tariffs. The tariffs will go into effect on July 31, for larger pharmaceutical companies, and September 29, for smaller pharmaceutical companies, this year. According to the announcement, there will be no tariffs on generic drugs, but the President and the Secretary of Commerce can revisit the topic of tariffs on generic drugs in April 2027 to determine whether they should act on the generic pharmaceutical supply base.

While onshoring pharmaceutical manufacturing would reduce vulnerability of the US healthcare supply chain, some experts believe tariffs could also negatively impact the healthcare supply chain. Certain tariffs, especially how they are applied, could disproportionately impact smaller to mid-sized pharmaceutical companies that do not have the capital to stand up operations in the US. In turn, this could mean fewer imports from a broader source of pharmaceutical companies and a smaller pool of larger pharmaceutical companies would be able to control the market and pricing. Furthermore, this will have short to near-term impacts on the price of drugs in the US, because importers will have to pay nearly double and patients could see price increases for critical medicines.

Global Dependence

90% of US Prescriptions

are generic drugs — nearly half sourced from India, which relies on the Strait of Hormuz for ~40% of its crude oil imports

Import Cost Surge

100%

tariff on imported brand-name drugs (announced Apr 2026)

Access Gap

Large segments of the U.S. population—including low-income and uninsured individuals, children, older adults with chronic conditions, and patients served by rural hospitals and community health centers—are highly vulnerable to disruptions in generic drug supplies due to their heavy reliance on low-cost medications, limited treatment alternatives, and fragile healthcare delivery systems.

Recommendations for Healthcare Organizations to Mitigate Global Supply Constraints

The following draws from the previously mentioned supply chain assessments, designed to help healthcare stakeholders better understand vulnerabilities and improve resilience. The key findings from these reports can be used to identify opportunities to strengthen a healthcare facilities' supply chain for current or future events:

Recommendation 1.

Rethink inventory management

Supply chain management teams within healthcare facilities should rethink inventory management by moving away from just-in-time ordering strategies and focusing on greater days-on-hand inventory. This shift could provide a meaningful buffer stock against potential distribution disruptions. Supply chain leaders and clinical staff should work together to develop and maintain a critical supply list. Regularly managing and updating a critical supply list can help ensure the most essential items are tracked and adequately stocked ahead of, and during, a supply chain disruption.

Supply chain management teams should look to strengthen relationships with manufacturers, group purchasing organizations (GPOs), third-party logistics partners, healthcare coalitions, other regional healthcare facilities, and state health departments. Supply chain teams should consider secondary and tertiary vendors for critical products. They should work to diversify their suppliers geographically, if possible, to reduce dependencies on foreign sources. If there are supply chain disruptions in a specific region of the world, this could increase their chances of ensuring access to critical products. Collaborating with their GPOs and manufacturers is essential as they can provide more visibility into upstream disruptions and work together to mitigate any supply shortages. Supply chain teams should also regularly coordinate with logistics and distribution partners to forecast any bottlenecks within the supply chain. Bolstering those relationships can help prioritize any shipments of critical supplies that might be necessary for continuity of care at a healthcare facility.

Recommendation 2.

Build and maintain relationships with external partners

Hospitals and other healthcare facilities should build and maintain relationships with state and local governments and nearby healthcare facilities, because help may be available locally during times of need. These relationships can help with the movement of critical supplies from one facility to another in the event that there is a shortage in one area. However, in a widespread emergency, the same crisis creating a shortage in one region often creates or threatens to create shortages elsewhere. We saw this during the COVID-19 pandemic when New York Governor Andrew Cuomo ordered ventilators to be moved from upstate hospitals to facilities in New York City. This highlights a persistent tension in emergency resource sharing: strategies that work in localized events do not always hold up when a crisis hits multiple regions at once.

Healthcare organizations should also seek to be active in healthcare coalitions, which are groups of hospitals, response organizations, emergency medical services, and public health agencies that work together in a defined geographic region. A healthcare coalition can assist with the continuity of healthcare services during emergencies and also coordinates information and available resources for its members during surge scenarios. Healthcare facilities would be able to easily coordinate information exchanges and conduct regional emergency response exercises through the help of their healthcare coalition. The effectiveness of these coalitions depends on who is leading them and whether participation is voluntary or backed by some authority. Some argue that healthcare coalitions should be anchored in state government, because it gives the coalition a more stable, clearly defined role.

Recommendation 3.

Develop a database or resource list of local coalitions

While there is no single database for all healthcare coalitions across the US, healthcare facilities should first contact the state or local public health department in their area, which will have an emergency preparedness program that includes healthcare preparedness activities. Second, Healthcare Ready has developed a resource that lists out different healthcare coalitions and their contact information across a handful of states. that can be found here.

Recommendation 4.

Ensuring equitable access to healthcare

Major healthcare organizations should consider implementing thresholds and triggers into their business continuity plans to account for supply chain disruptions. A structured framework helps organizations plan better for disruptions. While there are operational steps laid out in a healthcare organization's emergency operations plan during a natural disaster or public health emergency, the same cannot be said about something like supply chain disruptions to oil. Specific threshold and triggers will vary depending on the supply; the important thing is that these are determined during planning, as opposed to a reaction to a disruption.

With the price of oil continuing to be volatile, it is recommended that healthcare professionals advocate, promote, and utilize telehealth capabilities to ensure that patients can continue to access healthcare services. This is particularly important for patients in rural communities where travel distances to healthcare facilities are greater and more costly. Using telehealth has been a way to maintain continuity of care, but in practice it hasn't always worked as intended. Prior to the pandemic, telehealth was restricted by many states which impacted billing, prescribing, and reimbursement. That changed quickly during the pandemic when emergency waivers expanded to who could provide care and made it easier for patients to receive care from home. Again, specific thresholds and triggers can vary, but an example would be monitoring patient cancellations or no-shows, especially those traveling longer distances for in-person care.

Healthcare organizations should also advocate with state and local governments to improve transportation assistance services for patients who might need extra help getting to and from appointments to ensure there is equitable access to health care.

Recommendation 5.

Closed-loop recycling of critical supplies

The fragility of plastics and helium supply, two critical components within healthcare, have been highlighted by the conflict in the Middle East.

With large portions of the global helium supply originating from just a few global suppliers, it is recommended that healthcare facilities with MRI capabilities implement helium recycling systems which could capture and reuse up to 95% of the helium used in MRI operations. This could help reduce the burden on helium producers in the US and across the globe as they continue to meet the demands while the supply is constrained.

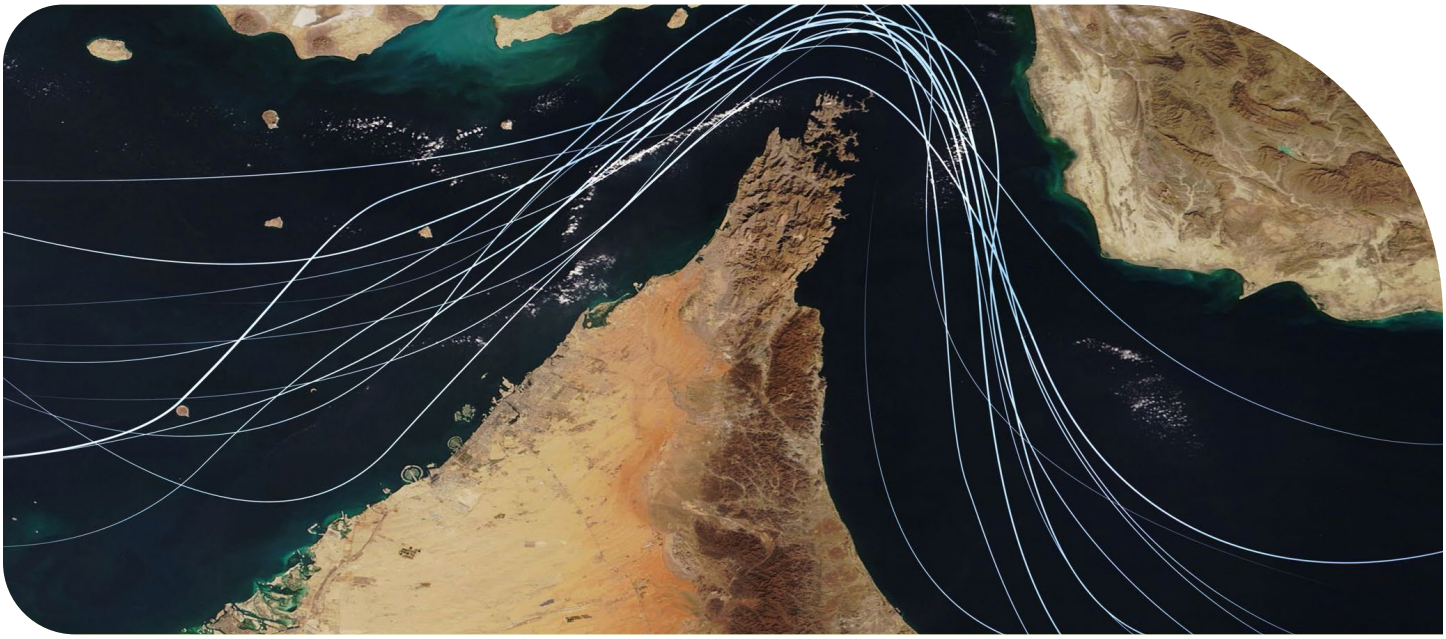
There is also an opportunity for healthcare facilities to work with their suppliers to implement recycling practices for non-contaminated medical plastics so that they can conserve resources and be repurposed into new medical supplies. The Healthcare Plastics Recycling Council, a private coalition of major healthcare stakeholders, has developed guidance for recycling these medical plastics to reduce waste and reuse plastics which could reduce the dependency on global plastic manufacturers. Hospitals should work with their suppliers to understand the difference between non-contaminated plastics and other medical waste so they can implement changes to their own facility's waste management and recycling processes.

Some major global healthcare suppliers are already implementing programs to build more sustainable solutions for their customers. One example of that is recycling disposable curtains, sanitizing them, melting them down, and repurposing them into new curtains. Another example is taking single-use devices and reprocessing them to make the supply chain more resilient and less vulnerable to global supply chain constraints.

System-wide Impact

Up to 95%

of helium used in MRI operations can be captured and reused through recycling systems



Recommendation 6.

Advocate for state and federal policy changes

Healthcare organizations should help to advocate for policy and systemic reform. While individual facilities can take meaningful steps to improve their resilience, the structural vulnerabilities highlighted by the Middle East conflict require collaborative efforts between industry and public health stakeholders.

Industry partners and the federal government should engage in discussions around domestic manufacturing investments in pharmaceuticals, medical devices, and critical raw materials. This would help diversify the global supplier base and provide a safety net for the domestic healthcare supply chain in future disruptions overseas. However, emergency use of authorities could result in more volatility and disruption to the healthcare supply chair than overall benefit.

Conclusion

The supply chain problems that American healthcare is currently experiencing are not unique to the conflict in the Middle East. As seen during COVID-19, these are systemic issues that cross multiple, inter-dependent sectors of the global economy. Healthcare organizations must use this latest crisis to build on the lessons from COVID-19 and establish a more resilient supply chain before the next global crisis arrives.

About the Authors

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Learn More

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Learn More

Julie Abrams, Fellow, serves as Executive Director of Healthcare Ready, a national nonprofit dedicated to strengthening the resilience of the U.S. healthcare supply chain. With nearly two decades of experience in healthcare supply chain, she brings deep expertise in navigating complex disruptions and building coordinated, cross-sector solutions that protect patient access to care. Under her leadership, Healthcare Ready continues to expand its national impact, leveraging partnerships across government, nonprofit, and private sector stakeholders to address vulnerabilities in the supply chain.

Learn More

About The Community Impact Policy Institute

The Community Impact Policy Institute is the thinktank and research arm of Fedcap, conducting leading research to provide solutions in breaking down barriers to economic well-being. The Institute, and its partners, have conducted groundbreaking analysis and solutions to many pressing needs including building wage and wealth for disadvantaged communities, effects of minimum wage increases, early childhood education, employment opportunities for individuals with disabilities, socially responsible investing, immigration and its impact on the economy, and more.

The Community Impact Policy Institute also provides technical assistance and training, products and hands on support to government agencies and community-based providers working to change their delivery of services and enhance the community integration of people with individuals with barriers to employment.

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