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FROM THE EDITOR

Why Should Clinicians Care About Global Medical Supply Chain Security?

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Framing the Conversation

A common adjective used to describe the global medical supply chain is “complex,”¹ due to its length and interdependence not only among supply chain segments, but among nation states. Myriad international experts exchange ideas about vulnerabilities of medical supply chains and how to make them more resilient. But why should clinicians care about a topic seemingly so far removed from patient care? And why is this an ethical issue?

One reason is that all clinicians should be aware of weaknesses in medical product supply chains because breaks in those chains generate **drug shortages**; increase prevalence of **substandard**, falsified, or counterfeit medicines; and compromise availability of devices and personal protective equipment. When medical supply chains break, clinicians’ ethical decisions are made more fraught by threats to their abilities to meet care standards as they manage patients’ care and try to respond to patients’ needs. This issue of the *AMA Journal of Ethics* explores this and kindred problems and questions.

Global Medical Supply Chain Complexity

Understanding risks to and resiliency of drug supply chains is inherently interdisciplinary and requires diverse perspectives, multiple stakeholders’ input, and global coordination. A sufficiently integrated approach to medical supply chains’ management requires understanding how those chains are enmeshed in a global context. For example, the SARS-CoV-2 pandemic highlighted medical supply chains’ interconnectedness and complexity, which was heightened by nation states’ interdependence and, often, fraught geopolitical relationships.^{2,3} The interconnectedness of global medical supply chains became remarkably apparent during the pandemic when many frontline health care professionals did not have personal protective equipment, such as surgical masks and gowns, because of shortages driven by pandemic-related supply disruptions and increases in demand. Supply shortages and increased global demand also caused surges in these items’ prices when, if ever, they became available.³

This complexity leads to—as clinicians who worked during the pandemic know well—drug shortages that, although increasingly more noticeable due to media attention, have been pervasive problems for many years.^{4,5,6} For example, older sterile injectable

medicines have been in short supply frequently over the past several years despite their need and use as first-line, essential medicines to provide support care for and treat many conditions, including pediatric oncology.⁵ Clinicians and their patients should be able to trust that they will have access to basic, quality medicines, but this is no longer reliably the case, even in wealthy areas of the world.

Additional questions include these: *Why do supply chain disruptions happen? Who should be responsible for their smooth operation when so many patients and clinicians rely on them? How should known present risks be mitigated? How should supply chain participants be positioned to better anticipate and respond to **unknown future risks**?* Good responses to these questions must address supply chains' vulnerabilities. Given the complexities just named, assigning responsibility to any single entity would likely be as shortsighted and oversimplified as a failure to draw on the plurality of perspectives needed to generate possible solutions.

Need to Build Resilience

Many groups are evaluating how to bolster medicines supply chains in their respective countries, regions, or industries.^{1,7,8,9,10,11,12,13} Dozens of reports and publications have been released in recent years that focus on supply chains for medical products, including drugs, biologics, personal protective equipment, devices, and other equipment.^{1,7,8,9,10,11} (See also **Supplementary Appendix**.) Some reports were written in the early days of the SARS-CoV-2 pandemic and focused on ramifications of significant, rare events, including supply disruptions, especially those stemming from importation policies and practices.^{14,15,16} Other publications, many written during later stages of and recovery from the pandemic, reported on unexpected spikes in demand for medicines and medical products and commented on preparedness, essential medicines, and renewed consideration of emergency stockpiling.^{10,16,17,18,19,20,21,22} More recent reports have evaluated long-standing vulnerabilities in medical supply chains that were worsened by events of the past several years.^{7,23,24} These reports—authored by government agencies, academicians, think tanks, consulting companies, and other supply chain stakeholders—identify supply chain vulnerabilities and offer recommendations to improve domestic and global medical product supply chain resilience. Importantly, improvements suggested in these reports tend to reflect their sponsors' or authors' vantage points, which focus narrowly on what *they* can do to advance supply chain resilience. These many initiatives emphasize the need for progress, while underscoring the pressing need for better coordination and more effective forging of solutions that fit together and meaningfully address key gaps in medical supply chains.

When Supply Chains Vulnerabilities Compromise Clinical Practice

This theme issue considers clinical and ethical demands faced by clinicians trying to care well for patients, manage drug shortages in a hospital, ration limited supplies of key medicines and equipment, and manage consequences of quality control failures or compromised stockpile access. Contributors to this issue attempt to reframe essential medicines conversations and ask, *Why don't essential medicines lists take supply chain security risks into account?* Health care policy and supply chain experts discuss **implications of importing medicines**, how currently siloed data can be more effectively and efficiently shared to promote understanding of risks to medical supply chains' integrity, and obstacles to supply chains' security, even in the final miles of getting medicines to patients.

Clinicians can reasonably be expected to be experts in caring for patients, not in managing global medical supply chain security. However, since clinicians and their patients feel the effects of compromised supply chains, this issue is intended to be a resource for clinicians looking to better understand how supply chains inform their capacity to care well for patients. Hopefully, this issue will support clinicians' appreciation of a bigger picture behind challenges they will continue to face until health care system infrastructures bolster the security, resilience, and reliability of global medical supply chains.

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