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Building resiliency into medical supply chains

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The crippling severity the coronavirus outbreak has had on peoples' daily lives and on the world's economy is a direct result of a fragmented and thinly stretched global medical supply chain. If the nations of the world all had access to accurate and swift testing, ventilators and hospital beds, generic drugs to help ease symptoms, and a variety of other materials, such as syringes, facemasks, and gloves, the effect of the virus would be significantly less than it is right now—not just for humans, but for the world economy as well. The uncertainty that comes with a lack of testing requires nations to institute lockdowns, because nobody knows where the virus is, who has it or where concentrations of the virus might be. Lockdowns have the major multinational firms of the world clamoring for billions of dollars to keep them afloat.

The current grim debate in the United States—considering whether to use mitigation or suppression to combat the disease and how to achieve some sort of balance between human life and national economic well-being—would be a moot point if the medical supply chains were robust and flexible.

What led to this?

All of this was foreseen

Medical professionals, manufacturers of medical devices and pharmaceutical companies have been raising the alarm over the lack of supply chain resiliency in the medical field for years.

One of the loudest and most consistent voices calling for change belongs to Dr. Michael T. Osterholm, regents professor, McKnight Presidential Endowed Chair in Public Health and director of Center for Infectious Disease Research and Policy at the University of Minnesota. His book, *Deadliest Enemy: Our War against Killer Germs*, published in March 2017, foresaw the situation the world currently finds itself in. Perhaps more damning, especially for the current administration, is a 2017 opinion piece in *The New York Times*[1] calling for President Trump to not cut funding to the National Institutes of Health in order to fund more military expenditures.

"We already spend far more on our military than any other country in the world," wrote Osterholm and colleague and co-author of the book, Mark Olshaker. "To help pay for the increases, President Trump wants to cut back many federal programs, including those that prepare us to wage war against microbes, the greatest and most lethal enemy we are ever likely to face. This is where 'defense spending' needs to increase, significantly."

Osterholm has become one of the more prominent faces on national television, but he is not alone.

A 2018 study, "Impact of the Global Medical Supply Chain on SNS Operations and Communications: Proceedings of a Workshop,"[2] addressed many of the issues Osterholm raises and pointed out the structure of the medical supply chain and how inflexible and nonresilient global medical supply chains truly are. The study cites Allison Neale, director of public policy for Henry Schein, a global distributor of health care products and services to office-based physicians, dentists and veterinarians and the private-sector lead of the global Pandemic Supply Chain Network in its discussion of supply chain weak links:

> ...many raw materials are imported from very limited geographic areas; for example, she said, 90 percent of the latex for sterile gloves is produced in Malaysia (MRB, 2016), and a significant portion of surgical hand instruments are manufactured in Pakistan. Local or national disruptions in raw material production or export from such key locations—resulting from any of the destabilizing factors known as the 'four Ps': powerful weather, pandemic, port closures, and political instability—would have serious repercussions worldwide, she observed.

This inflexibility is compounded by cost-saving procedures that value leaner supply chains with just-in-time capabilities over warehouses and stockpiles. In the discussion that followed, experts described the Strategic National Stockpile as more of an inventory management system than an actual stockpile.

As recent as October 2019, Janet Woodcock, director of the Center for Drug Evaluation and Research, testified before the U.S. Food and Drug Administration (FDA) that medical supply chains were dispersed, inflexible and vulnerable to shocks and surges. In her testimony, Safeguarding Pharmaceutical Supply Chains in a Global Economy,[3] Woodcock advised the FDA to locate and research all of the facilities that produce the following sets of drugs:

- "All drugs on the U.S. market, including brand and generic drugs under approved applications, over-the-counter (OTC) drugs, and compounded medications.
- "Drugs on the World Health Organization (WHO) Essential Medicines List that are marketed in the United States.
- "Drugs on the medical countermeasures (MCM) lists. **These include drugs we would use to counter biological, chemical, nuclear, or radiation threats and influenza.**" [emphasis added]

There are many more examples of U.S.-based and international organizations ringing alarm bells that went unheeded. Medical supply chains remain dispersed across the globe, concentrated in nodes of production and lacking in stockpiles and inventory. Medical professionals across the planet do not have the equipment they need to combat the coronavirus, and people are dying.

So, what now?