

Supply Chains and COVID-19

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Issue

- **COVID exposed shortfalls in our supply chains**
- **People are calling for changes to restore manufacturing for critical items, decouple supply chains and become more self sufficient**
 1. **Is that possible?**
 2. **What are the implications?**
 3. **Who pays the increased cost?**

The Problem

- This is not a new issue ... Congressional testimony ... CRS ... GAO ... Experts
- Just in time delivery system, incl. for our medical delivery & public health system
 1. Optimize costs through prediction and minimizing inventory holdings
 2. Lack resiliency in times of crisis
 3. Requires “near perfect” decisionmaking
- Complacency
 1. 95% of companies will be impacted by COVID
 - only 56% had a plan to address supply disruption from China
 - Only 27% have full visibility into their supply chain
 2. Active Pharmaceutical Ingredients for CBRN MCM – biological ...
 - US = 11% ... China = 21% ... Other Foreign = 68%
- Underfunding ... SNS ... SLTT public health ... R&D (e.g., diagnostics)
- Trade wars and excessive competition do not work in a global economy or in times of crisis
 1. Cannot have one system for daily use and another for times of crisis
 2. Some components made (“grown”) overseas Q. Saponaria found in Peru, Chile, and Bolivia ... used as immunosuppressant and adjuvant for vaccines

Way Forward

- We need to treat public health preparedness including supply chains as a national security issue
- I recently testified before the Senate Committee on Homeland Security and Governmental Affairs (June 24, 2020) on the Strategic National Stockpile and COVID-19. One of my recommendations was to:

“Develop a strategic national supply chain approach. The SNS needs to be thought of as part of a broader national supply chain that combines stockpiling, direct contracting with manufacturers, warm production lines for some key commodities, procuring of large quantities at the national level to take advantage of economies of scale, and shortening supply chains.”

Methodology

1. Improve current supply chain visibility
2. Determine appropriate balance between efficiency and resilience
3. Develop principles, strategies, policies and regulations for supply chains
4. Establish and validate the algorithms that will guide the supply chains
5. Model new risks and costs (network flow models or times series forecasting)
6. Improve situational awareness through use of advanced capabilities
 - Technology: Internet of Things, artificial intelligence, robotics, and 5G,
 - Unforeseen challenges: COVID-19, trade war, act of war or terrorism, regulatory change, labor dispute, sudden spikes in supply or demand, natural disaster, or supplier bankruptcy