

Commentary: Solving the Health-Care Equipment Supply Shortage

Just-in-time principles have hampered hospitals responding to the coronavirus pandemic, and it will take government action to fix the problem over the long term



A worker walks through Oklahoma's Strategic National Stockpile warehouse in Oklahoma City, Tuesday, April 7, 2020. In the warehouse are roughly four million pairs of gloves, 120 thousand gowns, 173 thousand face shields and goggles, 900 thousand surgical and medical masks, 110 thousand respirators and a variety of other personal protections equipment.

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By Yossi Sheffi

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As we struggle to come to terms with the scale of the Covid-19 pandemic, one of the most frustrating sights is witnessing front-line health-care workers begging for more masks, protective gowns, testing kits, ventilators and intensive-care beds.

The woeful performance of these health-care supply chains raises the question of how such glaring shortages happened. And just as important: How do we ensure that this doesn't happen again?

The crisis has focused attention on just-in-time inventory principles. The discipline and mantra that "inventory is waste" was built out of the Toyota Production System that has become iconic in supply chain and business-efficiency circles, and it has been adopted by industries around the world.

The JIT philosophy calls for lean inventories and tight connections between companies and their suppliers. The philosophy reduces manufacturing and supply chain costs. It also reduces response times along the supply chain, enabling manufacturers to respond faster to changes in the marketplace.

The movement began with automotive manufacturing, where systems bringing together countless components into a single assembly site were ripe for efficiency efforts. All sorts of industries have applied its principles, including health care. When hospital JIT supply chains run as advertised, the savings in those costly and high-stakes systems can be substantial.

However, supply chains built on precise and timely deliveries are vulnerable to unexpected and large-scale disruptions. The fallout can become acute when supplies aren't available when demand spikes. This is one of the main reasons the coronavirus pandemic has crippled health-care supply chains.

The outbreak that began in a single region of China has spiraled into a global crisis as demand for medical equipment has outstripped supplies because of the rapid spread of infections world-wide.

Colossal failures of leadership in Europe and the U.S. have had countries, states and hospitals competing with each other for personal protective equipment and ventilators. That has raised prices charged by vendors, and introduced unpredictability into procurement processes.

As with many other cases of parts and material shortages, unscrupulous players started offering substandard and fake parts. At the end of March 2020, the Netherlands recalled 600,000 defective N95 masks they bought from a Chinese supplier. Spain had to return more than half a million substandard Chinese testing kits. Such products are making the situation more volatile.

Clearly, JIT systems haven't been up to the challenge, and there have been suggestions that medical supply chains should build more slack into their operations, including "just-in-case" inventory to ensure they are prepared for such outbreaks. Yet the benefits of just-in-time operations are just too significant to forgo. Organizations that rely on large inventories won't be able to compete with facilities that remain lean, and that is true for hospitals.

The solution instead should be a mandated emergency inventory.

One possibility is to treat health-care equipment inventory like the Federal Reserve treats banks. Financial institutions have to keep certain reserves and undergo a "stress test" on their financial strength. Although hospitals and health clinics could be required, through licensing and regulations, to keep higher inventory, this would be neither enough nor efficient.

Instead, the U.S. must keep a very large, centrally-managed inventory of health-care supplies in several locations around the country to supplement the inventory maintained at each hospital. The parallel here is the strategic oil reserves.

During the years in which the U.S. was a net importer of oil, the country developed its Strategic Petroleum Reserve. The SPR isn't used to modulate day-to-day oil price fluctuations but can be activated on the approval of the president when there are severe shortages.

In a similar way, the U.S. should stock up on PPE, ventilators and other critical equipment for use during emergencies. Yes, a stockpile of medical supplies has existed in the U.S., but it clearly hasn't been nearly enough for a pandemic such as this. A much more substantial and well-maintained emergency inventory is needed.

The country should also subsidize the manufacturing capacity needed to support reserves of critical medical supplies, in much the way as the Pentagon supports U.S. manufacturers of weaponry. The Covid-19 pandemic teaches us that the government should do the same thing with critical medical supplies.

To keep the inventory fresh, it has to be moved to hospitals that can order from the emergency inventory while a new batch of equipment is built and shipped on a continuing basis with every order.

Ensuring equipment isn't enough, however. Trained personnel are needed, and that may require a medical "National Guard." The idea is to create a group of trained personnel who would serve for a few weeks each year in hospitals to keep their skills up-to-date and train on new equipment in order to supplement hospitals' regular personnel in case of a large-scale crisis.

These solutions may appear extreme, but global crises such as the Covid-19 pandemic should serve as a warning sign that traditional practices simply aren't enough.

We prepare for shortages of oil and weapons in times of crisis. It is now painfully obvious that medical supplies are just as critical.

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