



Strategies to Manage Drug Shortages Amid COVID-19: Q&A With Elliott Mandell

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What Does It Mean?

Health systems have to deal with drug shortages on a near-constant basis. Specific to COVID-19, the pandemic has created shortages in specific drug categories such as inhalers, painkillers, and drugs associated with intensive care treatment. Keeping a close eye on wholesale or supplier inventory levels to see what drugs might be at risk of a shortage can help hospitals prepare shortage management strategies in advance. Collaborating with a multidisciplinary team of clinicians to anticipate utilization volumes and looking at par levels while ordering drug products can improve sourcing methodologies. Having clinical specialists develop therapeutic alternative strategies, using technological solutions to monitor inventory and track drug supplies, and partnering directly with drug manufacturers and 503B compounders can help hospitals mitigate drug shortages in the future.

To understand strategies that hospitals can adopt to manage drug shortages due to COVID-19, HBI recently spoke with Elliott Mandel, senior vice president, chief pharmacy officer at University Health System, which includes a 700-bed hospital in San Antonio, Texas and several dozen ambulatory clinics.



What key drug shortage management strategies were adopted for high-demand drugs?

Mandell: To manage shortages, we used an algorithm to pull back drugs that are normally stocked in small volumes remotely throughout the facility into our central pharmacy to redistribute based on specific patient need. We forecasted potential waves of infected COVID-19 patients in advance and developed direct relationships with drug manufacturers and 503B compounders to source high-demand drugs/alternative options, rather than relying solely on our drug wholesaler. We identified alternative dosage forms for high-demand drugs and developed therapeutic alternative strategies in advance.

During COVID-19, we monitored high-demand drugs using technology solutions and an innovative approach to monitoring drug wholesaler inventory levels to adjust health system inventories preemptively. When a shortage is anticipated we identify alternative sources, and our clinical pharmacy specialists devise a strategy in advance with whatever alternative drugs are available. The clinical team then offers recommendations to the medical staff and caregivers for these therapeutic options that are available to ensure

patients get the appropriate pharmacological treatment. On the pharmacy retail side, University Health System limited patient prescription volume from 90-day prescriptions to 30 days, so that more patients can have access to high-demand drugs.

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How has University Health System changed its approach toward sourcing and ordering drugs to support COVID-19 patients?

Mandell: We source high-demand drugs from our wholesaler. We identified alternate sources to supplement wholesaler allocations such as direct manufacturers and 503B compounders to accumulate inventory of the drug in shortage. Hospitals can develop relationships with 503B compounders to access high-demand drugs from a different source. At University Health System, we looked at alternative sources of drug manufacturing. During COVID-19, we purchased and installed our own robotic technology to manufacture high-demand drugs by sourcing raw materials instead of finished product, as several 503B compounding companies have been closed due to quality concerns.

We use an inventory management program—Pharmogistics from Pyxis—and automated dispensing cabinets to monitor inventory and track high-demand drugs. When a product is pulled out of a decentralized automated dispensing cabinet and the volume reaches a par level, it alerts our technicians to replenish the product. Once a product is taken out of a replenished carousel, it alerts pharmacy teams to reorder the product. Based on our utilization, we change the par level that would trigger the reorder point from the automated dispensing cabinets and reorder the quantity that we need when the carousel volume gets to that trigger point. We implement Lean processes for ordering drug supplies and prefer just-in-time inventory, but to manage shortages due to COVID-19, we moved away from typical par levels to build up inventory by anticipating utilization volume and ordering drug supplies to meet patient need.

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What arrangements are in place if drug manufacturers or suppliers are not able to deliver drug products timely due to COVID-19?

Mandell: When we request our supply allocation from the drug wholesaler, it normally gets delivered the next day. During COVID-19, our wholesaler's allocation did not always support our overall need. We partnered with drug manufacturers directly and requested shipment and tracking information to anticipate our delivery. The time it takes for our drug products to hit the loading dock dictates when and how we might have to implement therapeutic alternative substitutions. We implemented a short-term or long-term strategy for using alternative therapeutics based on our demand and when our drug supplies are anticipated to arrive. We also looked at different drug formats for high-demand drugs to switch to in case the main product is unavailable, but we didn't have to switch, as we were successful in obtaining drug supplies from multiple manufacturers for our forecasted volume. During the first wave of COVID-19, there were drug products like Propofol and other types of anesthetic drugs in short supply for which we identified therapeutic alternatives and utilized strategies without a hitch.

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If a therapeutic alternative must be used, how is that decided and communicated?

Mandell: Our pharmacy and therapeutics committee—a subcommittee of the medical executive staff assigned to ensure appropriate drug regimens and therapeutic drugs are used for our patients—meets on a regular basis to identify and manage shortages. Based on utilization volume and drug availability, our clinical staff decides if a therapeutic alternative should be used. The committee then works at an expedited level to get approvals for a new protocol within an hour. At University Health System, we use technological solutions to communicate new protocols for therapeutic alternatives.

We have digital monitors at our pharmacy locations including retail pharmacy, inpatient pharmacy, outpatient pharmacy, and 17 other decentralized pharmacies throughout the facility to broadcast changing protocols. Our clinicians then work in a multidisciplinary round setting to inform residents and attending physicians of the changes in the protocols as they occur. The EHR staff/informatics team works directly in our pharmacies. Once a new protocol is approved, our informatics pharmacists make changes. Through digital monitors, the entire pharmacy staff is alerted and our medical staff implements the new protocol.

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What advice would you offer organizations to accommodate and manage drug shortages in the future?

Mandell: I would recommend hospitals to apply a high degree of scrutiny toward looking at par levels and utilization volumes. If your drug suppliers or wholesalers are unable to maintain their product quantities on hand, take that as a signal for a potential drug shortage. Plan in advance and monitor your supplier's or wholesaler's inventory levels to adjust your ordering strategy preemptively including reorder point and quantities. Lastly, investing in technological tools is important to identify and mitigate shortages in a timely manner, especially during a pandemic like COVID-19.

Have a question about this topic or another altogether? HBI's research team is on the case. Send a message to askHBI@teamdrg.com with your questions!

About the Analyst

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Vakhulaa is a research analyst at HBI specializing in healthcare supply chain. With an education in biotechnology, she has done research on varied topics like inventory management, pricing strategies, value analysis, medical logistics, and healthcare technology innovation. Vakhulaa is keen on helping supply chain and C-suite leaders adopt best practices for improving supply chain operations.