COVID-19 disaster response: A pharmacist volunteer’s experience at the epicenter

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In late 2019, a cluster of patients with respiratory illness due to a novel coronavirus (SARS-CoV-2) was first reported in Wuhan, China. The subsequent spread of the virus occurred at a historic rate across the globe, with more than 6.2 million documented infections and more than 375,000 confirmed deaths as of June 1, 2020. The unique disease caused by this pathogen, known as coronavirus disease 2019 (COVID-19), has challenged medical professionals and brought healthcare systems to their knees.

By mid-April 2020, the United States had surpassed all other countries in the number of deaths due to COVID-19 despite widespread mitigation efforts. New York City (NYC) quickly became the new epicenter of the pandemic. In NYC confirmed cases, hospitalizations, and deaths rose exponentially relative to increases in other areas of the country. Hospitals throughout NYC reported apocalyptic scenes in emergency departments (EDs), and a tsunami of patients with severe hypoxic respiratory failure exhausted local healthcare systems. A need for additional qualified healthcare professionals became obvious as critically ill patients continued to balloon the censuses of local hospitals, especially in intensive care units (ICUs). Critical shortages of medical supplies, personal protective equipment (PPE), and pharmacologic therapies caused additional strain on frontline workers. The initial patient surge in NYC was bad, and projections were showing that it would worsen as the peak approached. In response, the governor of New York, Andrew Cuomo, released a public plea for healthcare volunteers to assist in managing the unprecedented healthcare crisis.

As an ED clinical pharmacist in practice at Ronald Reagan UCLA Medical Center in Los Angeles, CA, I was closely monitoring the spread of COVID-19 cases and how it might impact our community. My institution had established comprehensive plans for managing the anticipated surge in COVID-19 cases—we were ready. As weeks passed, our ED remained unusually quiet as most Californians were sheltering in place. Thanks to swift, aggressive action by local and state officials to implement early physical distancing guidelines, our COVID-19 surge never came and we witnessed the success of “flattening the curve.” We were seeing sporadic cases in our ED, but nowhere near the volume we had expected. As a critical care-trained pharmacist, I have always been stimulated by complex cases and seemingly chaotic environments. I am passionate about using my knowledge base and skill set to improve outcomes in patients, particularly the critically ill. This passion, coupled with my personal and professional ties to NYC, made it very difficult to sit on the sidelines watching the crisis continue to worsen and the death toll continue to rise. Governor Cuomo’s plea resonated with me on many levels, and I decided to add myself to the volunteer pool along with nearly 100,000 other healthcare professionals who stoically answered the call.

The response by New York State to the intensifying COVID-19 crisis was coordinated and strategic. One of the pillars of its plan was to create an online portal to link medical volunteers with healthcare facilities, prioritizing hospitals in greatest need. This was accomplished through NYC’s Medical Reserve Corps (MRC). The Web-based MRC portal platform not only allowed hospitals to browse credentials of registered volunteers based on their internal needs, but also gave volunteers the ability to be proactive and search for temporary positions that matched their skills and expertise. Shortly after registering as an out-of-state volunteer, I used the portal to find institutions in need of a pharmacy specialist with training and experience in critical care. I reached out to the director of pharmacy at University Hospital of Brooklyn–SUNY Downstate Health Sciences University, one of 3 designated COVID-only hospitals in New York. Within a few hours we connected over the phone to discuss the details of the hospital’s needs and get to know each other. A few days later, I was on the ground at the epicenter of the pandemic to begin my 2-week deployment in one of the hospital’s many COVID-ICUs.

Acclimating as a pharmacist to a new hospital system is complex and takes time. For this reason, the onboarding process for incoming pharmacy residents and new hires for clinical pharmacist positions typically lasts weeks to months. As a disaster volunteer, the goal is to maximize one’s contributions in a compressed timespan. To accomplish this, my orientation was expedited to accelerate competency in both clinical and operational pharmacy...
services. The first day was critical. The success of this 1-day onboarding required dedicated coordination among various champions within the department to bring me up to speed quickly in 3 key areas: administration, information technology (IT), and institutional clinical practice.

Administrative tasks were tackled first—badge access, compliance training, human resources paperwork, electronic medical record (EMR) access, meeting my new colleagues, and learning the location of pertinent areas (eg, main pharmacy, clinical offices, ICU). Arguably the most important and useful block of the day was spent learning the institution’s IT software, namely the EMR and clinical decision support system. The last 10 years of my clinical practice had been spent using a different EMR, so this was akin to learning a foreign language in a single day. Two of the clinical pharmacists dedicated their time to providing me with a thorough 1-hour crash course on use of each of the programs, including navigating patient profiles, obtaining objective information for clinical assessments (eg, laboratory values, culture data, medication administration record, imaging), reading ICU flow sheets (eg, fluid and medication infusion rates, hemodynamics, tube feeds, intake and output balance), and order entry and verification quirks unique to the system. I would begin COVID-ICU rounds the next morning, so there was substantial pressure to be independent in all aspects of these fundamental practice tools. I dedicated the remainder of day 1 to test-driving the system by simulating rounding workflows until I felt I was competent. The final puzzle piece in my onboarding was gaining a working knowledge of various aspects pertinent to clinical practice at the institution. I invested ample time learning a new hospital formulary, antimicrobial stewardship restrictions, therapeutic drug monitoring procedures, and a litany of hospital and pharmacy-specific protocols (both general and COVID-19 specific) that would impact my recommendations and practice in the ICU.

Being thrust into a foreign hospital system and only loosely grasping the intricacies of the EMR can make even seasoned clinical pharmacists feel as though they have one hand tied behind their back. Despite the new environment and systems-based challenges, I was eager and determined to hit the ground running. Day 1 in the COVID-ICU was unlike any first day I have had in my more than 10-year career. A previously closed hospital unit had been reopened and repurposed as a COVID-ICU when the volume of critically ill patients surged. It was originally a ward-style unit that lacked dedicated rooms or proper barriers for airborne isolation. Individual makeshift isolation rooms were fabricated using metal poles and an opaque, heavy-duty plastic tarp. Industrial duct tape was used to seal the temporary plastic walls to the ceiling. A zippered “door” was installed to allow entry into each room, and a small clear window in the cloudy plastic provided a vantage for viewing the patient and monitors from outside. The rooms were labeled with large sequential letters drawn onto the plastic using a bright red marker. Infusion pumps were positioned in the hallway outside of every room to manage various infusions—usually a combination of sedatives, vasopressors, paralytics, and insulin. The use of extension tubing allowed the pumps to be positioned in the hallway outside of each patient’s room—an adaptive strategy designed to reduce frequency of entry into the rooms of infected patients, thus limiting unnecessary exposure and helping to conserve precious PPE. I was able to inspect each patient’s drips prior to rounds without concern of exposing myself.

My rounding team included a pulmonary/critical care attending physician, a medical fellow, and 2 medical residents. Like the ICU itself, we were a makeshift team. The attending physician on service was a volunteer from Dayton, OH, who had arrived 2 days prior (that made 2 of us who were unfamiliar with the system). Due to infection control concerns, our primary rounds were conducted in the ICU conference room. Rounds themselves were typical for the ICU setting—patient presentations, review of imaging, and a systems-based, head-to-toe approach to develop an assessment and plan. The patients were uniquely critically ill. Every patient in the unit had tested positive for SARS-CoV-2, and their presentations and laboratory abnormalities—and the malevolence of the disease—were oddly similar. The youngest patient was 35 years old, while the oldest was 85. The patient population served by the state-funded hospital primarily consists of underserved patients with high prevalence rates of obesity, diabetes, and hypertension—conditions that have been shown to predispose patients to higher-severity illness due to COVID-19.

My 2 weeks rounding in the COVID-ICU were marked by the highest of highs and the lowest of lows. The theme was 1 step forward, 2 steps back. Nearly every day there was either a code or a death in the unit; some days there were several. Cardiac arrests resulting from mucous plugs were all too common. Our team felt almost helpless in a daily grind to improve the plight of our patients. During my 2 weeks of rounding, only a single patient was successfully transferred to a step-down unit; the others either remained ventilated in the ICU or succumbed to the disease. COVID-19 is unique in that there is no magic bullet, no rigorously studied medical strategy, intervention, or pharmacologic treatment proven to be effective at reversing the course of patients with severe disease. In addition to supportive care, the backbone of our management revolved around therapies supported only by low-quality, sometimes investigational evidence, which were employed alone or in combination on a case-by-case basis: hydroxychloroquine, corticosteroids, antibiotics for superimposed bacterial infections, therapeutic anticoagulation, interleukin-6 receptor antagonists, and convalescent plasma. A constant stream of new information was released into the literature seemingly on a daily basis. In response, we
constantly analyzed and adapted our practice based on emerging data that might offer some hope of improved outcomes. Despite our team members being strangers just weeks before, having come together in the midst of a pandemic, we tackled this gray area of medicine, leaning on one another’s expertise and unique perspectives, to deliver world-class quality care to our critically ill patients.

From both a personal and professional perspective, my time volunteering as a clinical pharmacist in a COVID-ICU at the epicenter of the COVID-19 pandemic was both rewarding and emotionally taxing. In my usual work in the ED of a large academic hospital and level I trauma center, I am desensitized to chaos, frequently cope with mortality, and am used to oscillating between extreme highs and extreme lows. My experience at a COVID-only hospital was similar yet eerily different. COVID-19 is a relentless disease that occurred at unprecedented rates in Brooklyn, disproportionately decimating the local community and overwhelming hospitals. The emotional toll on frontline healthcare workers is difficult to measure. Engrained into your memory is the image of patients struggling to breathe. The endless sound of ventilator alarms and repeated overhead code pages signaling a cardiac arrest or need for urgent intubation—another patient actively fighting for life. The unprecedented rate of mortality that I witnessed is especially difficult to process. Knowing that these patients often died alone, likely not having seen their loved ones in days or weeks due to restrictive visitor policies, made it even more difficult to cope with. All of this occurred against the backdrop of what felt like a science fiction movie.

Through this difficult and extraordinary time, the healthcare community has rallied together, with medical professionals offering their support to colleagues in hot spots around the world. The response to the peak of the crisis in NYC was unparalleled. Physicians, nurses, respiratory therapists, pharmacists, and many other healthcare workers from across the country volunteered to bring their talents to the frontlines. As pharmacists, we carry a unique skill set and expertise that is unmeasurably valuable in disaster response. This is especially true when pharmacotherapy is integral to the backbone of management of affected patients, such as those with severe COVID-19. Having the ability to contribute to assisting a reeling medical center and work with a temporary ICU team to treat patients with this novel disease was the opportunity of a lifetime.

Disclosures
The author has declared no potential conflicts of interest.