

The Pharmacy Response to Patient Surge

Interview with Al L'Altirelli, PharmD, Administrative Director of Pharmacy, UPMC Presbyterian, Adjunct Professor, University of Pittsburgh School of Pharmacy; and Lynsee Knowlton, PharmD, Clinical Pharmacy Manager at Sunrise Hospital

Abstract: When disaster strikes, hospital pharmacists are critical to ensuring providers and patients have the medications they need to manage airways, treat pain, injuries, and illness. For this article, we interviewed staff from two hospitals that recently managed significant patient surge as a result of mass casualty incidents. They share their experiences, how the incidents affected staff, and how they are incorporating lessons learned into preparedness efforts.

John Hick (JH): Lynsee, please share with us your experience from a pharmacy perspective after the Route 91 (Las Vegas) shootings.

Lynsee Knowlton (LK): Obviously our biggest hurdle was patient surge. A huge number of patients came through our emergency room (ER), many with very serious injuries. The biggest functional hurdle we had to overcome was location. Where are the patients?

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Where are we bringing the drugs? From a pharmacy perspective, we were really using a limited number of drugs, mainly analgesia, pressors, and rapid sequence intubation drugs. We actually ran out of seizure prophylaxis. We learned that there are tons of items on a crash cart that can be useful. We relied heavily on our

technicians to run medications to patients.

We ran out of stocked crash carts in house and techs were basically emptying out our automated medication dispensing systems, filling buckets with various medications, and running to the ER.

We do have 24-hour ER pharmacist coverage. On this night, we called another pharmacist in to serve as a backup. We had two primary “stations:” our main pharmacy and an ER “satellite” which helped us get medications to patients as quickly and efficiently as possible. One of our techs was scrubbed and stationed in the operating room (OR), and another was outside the OR and served as a “runner” between the pharmacy and OR. We really were so fortunate to have a cohesive team that night who did an amazing job at communicating. We were also able to contact some of our sister facilities in town to get some of the medications we were running out of.

JH: Did you have any challenges with the automated medication dispensing system? I know stocking the crash carts is something we should plan for more—was there an effort to restock the carts in real time or were you focused on meeting more immediate needs?

LK: When we transferred patients out of the ER and into beds, we had a lot of movement to various units house wide. To help with that, we put the system on critical override throughout the entire hospital. Nurses could pull whatever they needed to in their units to manage the surge.

In the ER and OR, we focused on immediate needs and had a lot of accounting to do after the fact. We sent all of the available, pre-made crash carts and pre-stocked, pre-checked medication trays down. Restocking came later, once we had a moment to catch our breath.

JH: Did the OR experience any shortages on general anesthetics or drugs like propofol?

LK: Luckily we are a large, level 2 trauma center and have a decent inventory. We did have to borrow to keep up with intubations, but we had enough succinylcholine in stock. We did send some techs to other units to pull from their supplies, and we had to borrow etomidate from a sister facility at the end of the incident. In this case, our size really helped—we have approximately 130 automated medication dispensing systems for our 700 bed facility.

JH: Were there any supply-related issues related to local anesthetics?

LK: Not that I heard of. We have a competent and proactive buyer who prepares us for surges and stays ahead of the shortages. We didn’t see shortages in those substances until after the incident.

JH: How did you manage controlled substances in such a large incident?

LK: That was one of the more problematic issues because you

are taking care of patients, and a lot of them are in pain. We tracked what went where, and we did have a bit of amnesty from the state board on accounting for the amount based on the severity of the situation. We worked very closely with regulatory bodies to explain the situation and account for whatever product we could through paper records, electronic health records, and documentation from the system. It might be helpful to have pre-stocked disaster kits, even though they are challenging to handle. This would certainly help with chain of custody information and inventory tracking of controlled substances.

JH: AI, what was your experience with managing controlled substances after the Tree of Life synagogue shooting?

AL: As part of our response plan, we focus on the mantra “Right drug, right place, right time.” This led us to a different model where we deployed a mobile satellite pharmacy to serve the response needs. With regards to controlled substances, the response plan triggers a narcotic technician or pharmacist to pull controlled substances from our electronic vault into our mobile response trays for the carts. This is tracked manually—for now, we feel like this works best for us in a hectic, time-sensitive environment.

JH: Is this an automatic response when an MCI has been declared?

AL: Yes, the goal is to get the carts and an additional pharmacist down to the ER before patients arrive (we already have one ER pharmacist as part of our normal service model). We have smaller boxes that are “kit-i-fied” (made into ready-to-go response kits) for other areas within the hospital where patients also receive surge care (e.g., surgical holding areas) to enable staff to respond quickly there, too. We immediately begin a restock process to ensure that the ER, trauma and surgical areas are well stocked. We have two full OR satellite pharmacies, one in each of our towers, to support the perioperative space that have a pharmacist and technician as part of normal pharmacy service that allows for responsiveness during events like this.

Along with the mobile pharmacy, we have an infectious disease prophylaxis cart we can deploy during a biological response. We also have a cart designed for use in a radiation exposure event. We

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also formed a pharmacy emergency response team (“P.E.R.T.”) that allows us to notify initial pharmacy responder staff at the time of the event and supports staff recall to ensure a more robust response.

JH: During MCIs, we know that pharmacy techs and pharmacists are exposed to a level of trauma they are not used to. Did your staff experience any negative behavioral health effects as a result of these MCIs?

LK: Yes. Our technicians are not normally bedside, and they aren’t used to seeing trauma, let alone on such a large scale. A lot of staff also knew people who had been at the festival, so they were concerned. We did a lot to support our staff; one of my main focuses was on those who were physically exposed to the incident—those who were running meds to the ER and OR. It was very traumatic for many of them. Our chief medical officer (CMO) was able to secure a mobile counseling van from the Veterans’ Affairs (VA), which sat outside the hospital for about two weeks. Anyone from the hospital could go in and speak with a counselor. We also had professionals reiterate the existence and importance of our employee assistance program.

One thing I didn’t realize at first was that many of the pharmacists

We urged team members to encourage their colleagues to speak to the professionals in the VA van. Sometimes I went with them myself to ensure I could support my team (and I benefited from speaking to mental health professionals, too). We can’t take care of the patients if we don’t take care of ourselves.

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who weren’t here that night ended up following these patients clinically for days and weeks after the incident—they were affected more than I thought they would be. Also, there was some guilt and frustration experienced by some of the staff who weren’t there or weren’t called in (myself included). I had only recently become a manager, so I didn’t even get the call. We had to ensure we were keeping an eye on our teams, sharing resources, and the like.

AL: I agree. I think it is so important to ensure that resources are present for staff. Though our incident was on a smaller scale, people were affected more than I thought they would be. Pittsburgh has many tightknit communities and a lot of pharmacists actually had family members who were actual or potential victims; it was

very important to keep that in our minds during the response. While it's important to make sure that staff understand what resources are available, it is critical to take that extra step to connect staff who may be in need to those specific resources that might be most helpful to them.

JH: Can you both share how you have incorporated any other lessons learned into planning for the next incident?

LK: We have worked with our regional supplier to ensure our terminology specific to on-site supplies and medication was the same. After the shooting, we had staff requesting certain devices and drugs by name and the people in the warehouses were more focused on the item number. As one of three sister hospitals in the market, we also had to be sure we are able to communicate more clearly (via a chain of command and to suppliers) regarding mobilizing centrally-located supplies. We also emphasized the importance of participating in additional drills to improve preparedness.

After the shooting, we had a lot of patients who had come in as “John Doe’s” so we are working on creating a more appropriate naming system for MCIs involving a large number of patients.

AL: We had an after action review via our hospital incident command (HIC) and within pharmacy and

found that our pharmacy response was quite good. In fact I am really proud of the role that our team played—we received a lot of positive feedback that helped support the value of our role. Our P.E.R.T. has drilled this response many times so it really was smooth and that helped reinforce the need to practice readiness with similar drills in the future. It also helps that our HIC and disaster and emergency response coordinator highly value pharmacy and inclusion.

JH: I worry when hospitals rely on regional pharmaceutical providers to get backfill of analgesics, RSI, and the like. Any thoughts on strategies and centralized supply?

LK: I think it’s a great idea to have centralized supply. As I said, most of our response happened in 2-3 hours. If you need to go through a long chain of communications to secure a delivery, it might be too late to rely on regional supply. That said, if it’s a known or pending disaster, the scenario is very different and you can bring in what you need ahead of time. I wouldn’t want to rely on a centralized supply 100% in a no-notice incident or when it’s impossible to deliver supply (e.g., in an extreme cold scenario when temperatures make it impossible to secure or transport supplies).

AL: I agree with Lynsee. In October, during the response

to the shooting, road closures presented challenges for staff that we called in. If we were relying on drugs coming in, suppliers and couriers would also have had challenges coming in. In the past, we focused on acquiring products with the longest expiration date that we could find as a strategy to reduce waste and the associated cost. But then we would see that there were additional steps for preparation, such as reconstituting, or it was a medication that we typically didn’t use, so they would all expire and require replacement (and additional budgeting). Now, we have replaced that supply with the pharmaceuticals that we commonly use and cycle them out. This required minimum investment, as supplies flow through our regular inventory and are used regularly to support our everyday patient population. We avoid waste, and in a crisis, everyone is familiar with how to prepare, dose and administer.

JH: Most of these drug categories have multiple options, whether it’s narcotic analgesics or sedation. In addition to surge planning, you’re also helping ensure supply in the event of a shortage. Most of these items are not that expensive, either. Have you had success convincing your administration that this is an investment that will pay off?

The [Emergency Prescription Assistance Program](#) (EPAP) is funded by the Stafford Act and designed to help disaster survivors access prescription medicines. EPAP can also be activated by the Public Health Service Act under the authority of the National Disaster Medical System. The program uses normal business operations (e.g., electronic prescription claims processing, utilization of the normal pharmaceutical supply chain for distribution and dispensing) to pay for prescription medications for eligible persons. ASPR maintains [an EPAP web page](#) with sections that describe the program, provide information for patients, highlight information for providers, and list where and when EPAP has been activated. Information is provided in several languages. ASPR TRACIE published an [overview](#) and several fact sheets summarizing EPAP use after recent hurricanes and flooding events:

- ▶ [Emergency Prescription Assistance Program \(EPAP\): Hurricane Gustav Data Fact Sheet](#)
- ▶ [Emergency Prescription Assistance Program \(EPAP\): Hurricane Ike Data Fact Sheet](#)
- ▶ [Emergency Prescription Assistance Program \(EPAP\): Hurricanes Irma and Maria, Puerto Rico Data Fact Sheet](#)
- ▶ [Emergency Prescription Assistance Program \(EPAP\): Hurricanes Irma and Maria, USVI Data Factsheet](#)
- ▶ [Emergency Prescription Assistance Program \(EPAP\): Louisiana Floods Data Fact Sheet](#)
- ▶ [Emergency Prescription Assistance Program \(EPAP\): Superstorm Sandy Data Fact Sheet](#)

AL: Our hospital as a whole was pretty receptive when we set this up five years ago, and has remained supportive since. They understand and trust that this is how we need to prepare for an MCI, and trust that we do everything possible to be fiscally responsible. Rotating stock becomes part of the process because the supplies are part of our regular inventory. In the rare event that we need to replace expired drugs, it barely makes a dent in our larger drug budget. The one thing that helped us get to that level is using an electronic tagging and inventory system that gives us advance warning of what is expiring. This allows us to have more oversight than before. We also have a great shortage mitigation program where we work closely with our supplier to ensure that we are ahead of any impact from a shortage with alternative medication supplies.

LK: We already have great relationships with our administrators. Our CMO actually supervised our pharmacy department at one time, and we have always taken a fiscally

responsible approach to emergency planning. They know we are the experts and they support and trust us.

JH: When there is a callback, how are pharmacists assigned in your hospital incident command systems (ICS)? Do you have job action sheets?

AL: As one of the section chiefs in our hospital's ICS, I'm a big fan of job action sheets, and we have sheets that roll down to the pharmacy that specify who does what depending on level of response. We also have

associated color-coded vests to help identify roles. Depending on our level of response, we establish a specific chain of command through pharmacy. Duties include managing staff recall, managing the mobile pharmacy, replenishing surge areas, focusing on core operations, divvying up assignments, and the like.

LK: We don't have a formalized job action sheet. We do have a call back sheet. The majority of our staff is fairly cross-trained. It's usually up to the charge pharmacist to make the call

decision. We have included in our call-back plan how long it takes staff to return; those who can get there fastest are called back first. We also try to match pharmacists' skill with incidents; if it were a school bus accident, for example, they'd first call the pediatric pharmaceutical team. In this particular incident, we had staff stay over, and called people in early to provide relief. I do wish the process was more regimented—that is a future endeavor. ■