TRACIE
HEALTHCARE EMERGENCY PREPAREDNESS INFORMATION GATEWAY

ALTERNATIVE CARE SITES: THE FEDERAL EXPERIENCE IN NEW YORK CITY

Final patient departs from Javits Center. (Photo courtesy of ASPR.)

Throughout the spring of 2020, COVID-19 ravaged the City of New York. State and city authorities worked with the Jacob K. Javits Convention Center to create an alternate care site where healthcare providers could solely treat COVID-19 patients. ASPR TRACIE met with several members of the federal medical teams deployed to the Javits Center to learn more about their experience.

John Hick (JH)

Please tell our readers about your roles pre-pandemic and what your role was at the Jacob K. Javits Convention Center (Javits Center) alternate care site (ACS).

Lynn Hayes (LH)

I am the team commander for the Connecticut (CT) 1 Disaster Medical Assistance Team (DMAT) through NDMS and ASPR. I've been with the system for 18 years, and I've spent 12 as team commander. When I'm not deployed, I work as an emergency department critical care nurse and I teach critical care to transport teams and to emergency medical services at Yale. We were "late to the party;" we arrived at Javits a week before the last patient left.

CAPT Renee Pazdan (RP)

I am a chief medical officer (CMO) with the PHS Strike Team 1. I have been a member of Rapid Deployment Force (RDF) 3 and deployed as a CMO on several missions. I was at Javits from the beginning (end of March 2020); we helped start the operation with the Department of Defense (DOD). My day job is with the Defense Health Agency, where I serve as a medical director for TRICARE overseas.

Emma Dragon (ED)

I have been a staff nurse specialist with CT 1 -1 DMAT since 2009, and I have been deployed many times with Lynn Hayes as my commander.

When I am not deployed, I am the mom of three young kids, and I serve as a full-time emergency room and critical care nurse. I am also engaged with our local health department's operations and response.

CAPT Hollie Benson (HB)

I was the deputy team lead for the PHS Strike Team in New York City. I worked closely with CAPT Pazdan and was at Javits from beginning. I am also a regional pharmacist in Seattle for Medicare. I have been with RDF 3 for almost 12 years as an operations chief, and I've also served as a deputy team lead on numerous deployments.

Murad "Mojo" Raheem (MR)

I serve as the regional administrator for Region 2. I have been at the Javits Center before it was activated as an ACS and I'm actually taking this call from the floor at Javits.

JH

Why was the Javits Center was chosen as an ACS—was there a specific reason or factors that went into the decision?

MR

Javits was never on the city's horizon. It was partly on the state's horizon. Since the state effectively owns Javits, they quickly considered it because it had the space that could accommodate what the initial models estimated as far as necessary beds. The state requested four federal medical stations (FMS – four 250 bed units that need to be set up in flat space open areas), and that led to us using Javits as an ACS. After Hurricane Sandy, there was significant concern about future flooding at Javits, but they have done an amazing amount of mitigation, which made this facility perfect for the rapid set up of many beds.

Because there was so much space in the center (1,000,000 square feet), they could arrange it in virtually any combination. There was redundant power and plumbing, bathrooms (but we had to bring in showers), and security, adequate access, ingress, and egress. The ultimate goal was to have 2,500 beds—making this state facility a central point, or hub for treating COVID-19 patients—and free up hospital space.

I believe that the state health department ran the facility from a legal perspective; Northwell supported them from an administrative perspective. The state licensed it under an emergency action.

Logitstics professional delivers vital medical supplies and equipment to Javits Center. (Photo courtesy of ASPR.)

JH

Captain Pazdan, we know the mission changed over time; can you walk us through the transition from being a non-COVID ACS to a COVID-treating ACS?

RP

It was very dynamic in the beginning and our mission changed frequently. Our initial mission was to provide non-COVID care; we took in 11 patients at first. We were all planning for the possibility that we would become a COVID facility—and we wanted very much to help, knowing that local hospitals were being overrun with patients and we had the beds, the providers, and the equipment. It was challenging for us to get patients in the beginning. One reason was because the patients in the hospital who were non-COVID were so sick and had such complex healthcare needs that an ACS was not an option. Eventually, the need for COVID care became overwhelming and we made the decision to switch.

Had we thought about a few of these things just a week in advance, we could have avoided some of the challenges we faced and would have been able to decant the hospitals faster. There were several logistical issues we had to quickly address, including safely getting oxygen into the building; we switched to using oxygen concentrators for safety and space purposes. Another issue was the initial level of care for patients. We really tried to capture those who were more stable. At the time, the data showed that people would be “past the crash” 14 days after onset of symptoms. When we tried to identify those patients for treatment, we found that they had already been sent home. The level of patient we took and the level of mission criteria we ultimately settled on was appropriate and helpful to the city. We served primarily as medical-surgical patient care providers, with limited intensive care/critical care capability within the facility. Our patients had to meet certain requirements to be transferred to Javits. They had to be COVID positive, on 6L/min of oxygen or less to maintain 90% saturations at rest, and stable for at least 24 hours with no other acute work-up in progress. We estimated that 10% of our patients would crash [decompensate] and require Intensive Care Unit (ICU)-level care while in the ACS. Our estimate was accurate during the peak, when between 8 and 10% of ACS census required ICU-level care and occupied our critical care beds. Some were on ventilators, and some who were declining stayed on the medical surge side but needed a higher level of care. For those that are planning for another wave, you need to recognize and plan for unpredictability and know that you’ll be providing a higher level of care than what we’re used to in disaster planning.

JH

Tell us more about the level of care and what others should be prepared to manage. When a patient crashed, for example, was it always cardiac arrest, or was it due to increasing respiratory distress? What percentage were you able to keep on site versus emergently transferring them back to a hospital?

ED

For us, the presentation was respiratory in nature; abrupt cardiac arrest was very rare. We saw patients with more progressive dyspnea. We almost had to act in reverse of how we normally treat respiratory ICU patients. Once someone became weak and tired, it was almost too late to stabilize them and they would need multiple interventions to keep their blood pressure up and keep them alive. We were using acute airway methods more than we normally would in a hospital-based system. As far as percentages we had to transfer out, I would estimate between 10 and 15%, and from anecdotal reports, when they were bursting at the seams and they were up to 45 ICU patients, they were admitting and discharging patients so frequently, it was almost unmanageable.

We were able to maintain many patients in the “Tier Four” or med surge area by increased monitoring, using the oxygen concentrators, rounding on them more frequently, and using a rapid response team. We appreciated the central nurse call bell system and the central vital sign monitoring systems. They allowed us to remotely monitor our patients.

In terms of discharging patients at the end and closing down Javits, two other facilities had a diverse and robust case management team that helped ensure safe transfer and/or discharge. Barriers associated with patient

transfer included medical stability and need for acute interventions, and challenges with determining payer source, which created delays in discharge and admission to other facilities.

RP

Discharging patients, even to a higher level of care, was not easy. Facilities need to be able to at least stabilize, monitor, and safely transfer patients. During peak time, there were not easy hospital beds to transfer patients to. We wanted to send patients back to the facilities they came from; most of those hospitals were already crowded and couldn't receive them. We ended up caring for some very sick patients for the duration of their care.

JH

What were some of the on-site pharmacy needs and challenges? How did this change over time?

HB

We started off as an FMS, and under that model, we are used to taking care of older patients and those that need a little extra assistance. In this case, we ended up taking care of hospitalized patients, including ventilated patients in ICU. The FMS cache is not prepared for that, so we ended up using a military hospital unit cache in combination with the FMS cache. And while the DoD cache has a separate cache for ICU patients, it is geared towards wartime and associated wounds, not necessarily ventilated patients with comorbid conditions. The needs we had were different from what HHS and the Army provided. We had one IV hood (vertical laminar flow hood), and it was in an isolation unit (a 20 foot container that expands). Once it was loaded from a flatbed truck into the Javits Center, it was expanded and ran 24/7. I'm sure it didn't meet all of the expectations that a "clean room" would have required, but we accommodated that by short dating some of the sterile products we compounded (e.g., with four-hour expiration dates). This meant we were running that hood all the time, we had more personnel in a small room (not social distancing), and the PPE burn rate was higher. We were very concerned about the use of the one IV hood should it go down; we were constantly being asked about capacity, how many more patients could we take, and at what tier level. Our biggest limiting factor was that we had just the one IV hood. Building an in-patient pharmacy in a convention center is no small task and requires very different resources than FMS level care.

NDMS pharmacist at the Javits Center. (Photo courtesy of ASPR.)

We had a significant medical supply issue; we were unable to obtain the medications we needed timely and reliably. In a normal FMS deployment, we would be able to rely on outside sources for traditional medication (e.g., local pharmacy or big box center). In the case of a hospital pharmacy, however, it was very difficult to establish these relationships, as other local hospital pharmacies were also in short supply. The amount of medication being used was higher than in a typical hospital. There are also legal barriers to “borrowing” and transferring medications like fentanyl and others necessary for patients that are ventilated. We were running out of medications—at one point, we got down to a 6- or 12-hour supply and the supply chain was not reliable.

Our sources of medications included DoD, HHS, West Point (in CT) and Fort Bragg (NC), Northwell (a nearby hospital system), and the state. We had multiple taskers whose sole purpose was to obtain drugs and that was unsustainable.

In addition to supply and stability issues, we had personnel issues. We did not have enough pharmacists or technicians, and not enough technical experience. Part of this is because we were originally sent to staff an FMS, not a hospital. Most of our pharmacy staff did not have inpatient experience; it’s very different from outpatient pharmacy work. That said, Army and Navy pharmacists and technicians provided excellent assistance.

JH

Were there any laboratory or imaging challenges?

RP

One of the challenges up front was that we needed to establish the right admission criteria for patients. In a hurricane, for example, we set up a medical shelter and have pre-established criteria that explain what we can and cannot do (e.g., we have basic labs, basic imaging, x-ray, ultrasound). This helps providers know who they can send to us. In this case, we were establishing the mission criteria at the same time as we were determining what we could do, and what the need was, and that was a challenge. We did have x-ray and ultrasound capabilities and considered expansion of services to include CT scan and dialysis capability due to the acuity of patients, though this was ultimately determined to be not a critical need.

In terms of lab capability, in addition to what we already had in the facility, setting up a contract very early on through the state was very helpful because it expanded the types of labs that we could send out. Once providers understood the turnaround time for those labs, they could prepare and plan for that from a caregiving perspective. All providers could access labs from the outside portal.

JH

Did you send a liaison to Elmhurst and/or other severely affected hospitals to help ease surge?

RP

We sent out liaison teams to the 11 most overrun publicly run hospitals in the city. Those teams worked with doctors and administrators to describe the patient types we can treat, and they would scrub patient lists to determine which patients were appropriate to move to Javits. We also had doctors in Javits reviewing medical records and scrubbing patient lists. We knew our capabilities and were able to provide relief to the providers that were overwhelmed. Hospitals eventually sent providers to Javits to observe and they were able to remotely access patient records to actively triage and pull patients.

JH

How was record keeping handled on site?

RP

That was a critical gap. Ideally, we would have had electronic medical records (EMR) from the start. HHS has a system that many of us has used before, but it wasn’t available. This critical gap must be addressed ahead of future missions.

MR

Also, once Northwell came in, and we started having more regular conversations with the hospitals, we found that they lacked the administrative staff required to do the paperwork to transfer patients. We enabled the DOD team to work in those hospitals in an administrative fashion to help with paperwork.

In a similar scenario in the future, we need to plan for augmenting administrative and medical staff. In this case, administrative staff had been sent home early.

The ASPR version of the i-STAT is very old, hasn't been renewed, and didn't work. DOD brings very robust lab capabilities to the ICU, but everyone agreed at some point in time that those functions weren't really necessary here (although they'd be nice to have). Having the i-STATs on site was critical and to be able to check things like arterial blood gases was important.

One company the city works with had x-ray machines that could do remote radiology reads; this made imaging a lot easier. Awareness of these contracts is important.

LH

Regarding EMR one of our lessons learned was if an area is going to set up an ACS, they should think about using their own EMR programs, rather than using one we (the government) provide. That way, they can access the records later (after we leave). Many pockets of the country use different systems. For example, EPIC allows you to query and access other medical records. In the case of a pandemic, the infrastructure is intact—we should be able to access records virtually and not have to physically go into a facility to gather this information. That wasted a lot of time.

JH

Emma, what was your day like, from admission on?

ED

In terms of admission, a nurse typically served as what we would refer to as a bed coordinator, manager, or patient flow manager (different facilities use different titles). Every shift was comprised of a huge skill mix. In addition to our staff, we had travel or contract providers, HHS staff, and private agency nurses. We had to integrate so many great civilians into an ACS set up they had never experienced, speaking a language they had never heard before. Staffing was very different from a traditional FMS and what we had experienced before. For the medical surge/ Tier 4 (higher acuity) side, one pod was comprised of 32 beds and was staffed by six floor nurses, one nursing supervisor, four nursing assistants, and ideally a ward clerk monitoring remote oxygen. We also identified DOD staff as paramedics watching central monitoring stations, runners, and rapid response team members. These teams served the entire ACS and were comprised of one acute/ critical care registered nurse, one respiratory therapist or paramedic, and one provider, which was typically a DOD

certified registered nurse anesthetist (CRNA). There were also providers serving in the hospital leadership role and they were typically not on a specific floor; they were floating or rounding.

When we look at augmented staff for the whole hospital, including labs, respiratory therapy, physical and occupational therapy, nutrition—all of these areas were necessary to cover in this in-patient level of care scenario. We also needed support from security, case management, and IT.

For the ICU, one pod was 16 medical beds, ideally staffed by eight registered nurses or medics and one nursing supervisor. We also had one ICU float position covering 1.5 pods in addition to a direct provider and a mid-level provider (CRNA, NP or PA) for every 8 patients.

I also want to echo the benefit of having a unified command. They were wonderfully supportive.

One thing that is critical for a successful COVID mission with concerns for PPE donning and doffing is having separate stations with staff who monitored the processes and helped keep us all safe. They were separate from clinical staff and they really made a difference.

JH

Is there anything else you want our readers to know about staffing?

RP

When I looked at the numbers recommended for staffing in Version 2 of the ACS toolkit,[1] they do not capture the level staffing required for the type of care we were providing; we think they should be re-examined (contact ASPR TRACIE for sample templates and resources from the Javits New York Medical Station).

Something else to consider is the shift duration based on the amount of PPE that is needed by those working COVID clinical shifts. It's not like in a hospital, where you don your PPE just prior to entering a patient's room, then doff it when you leave. When staff went into the hot zone, whether they were taking care of patients or providing pharmaceutical care, they were wearing the level of PPE necessary to care for a COVID patient. The ideal shift duration is 8 hours, from a safety standpoint. Twelve-hour shifts really run the risk of wear and tear as well as decreased ability to safely wear the PPE, and we need to consider work-rest cycles, especially during peak times.

We also used a tiered model of care. We worked under one intensivist at the beginning, and he served as the overall subject matter expert. We then had a hospitalist serve as the team leader this was successful and safer than having individuals working on their own.

JH

What about PPE and supply? Any lessons learned?

RP

Even when we were non-COVID (at first), we recognized that there was a chance we would see COVID patients. We established a PPE posture early on and that included rules for wearing PPE before entering patient areas. We also ensured that staff had the space to do the donning and doffing and lockers for their belongings to make it safer and easier for them.

JH

What do you recommend doing again, or not repeating?

MR

Need to be able to access stuff organically and stand up our units without the DOD. We also need to figure out how to set up a disaster medical records system that is HIPAA compliant. One decision I made early on was to go

[1]Version 3 of the toolkit, which addresses these considerations, is forthcoming.

with paper records and we were very lucky to have enough resources to make that work.

We need to survey the convention centers across the country; some are set up better than others. Javits has enough generator power to last 30 days (including HVAC). We are not adding these locations to a national list

It is also important to have a diverse team of people available, including DOD. Things like complexities of inpatient care, compounding pharmaceuticals, hoods, and the like—we need to hold working groups around what we can do on the fly in the future. We need to plan ahead for the type of oxygen source that will run a ventilator. We need to better understand the just-in-time work.

We also need to acknowledge what not to do. A Tier 4 or 5 level of care should not be called an FMS. That label is misleading. In these scenarios (COVID, bio events), we need to be able to manage a higher level of acuity.

HB

You can't do anything without stuff, and you have to also be able to resupply the stuff. It's not just drugs—it's syringes, and bed pans—we could not have done this without the DOD at any location. I don't know how you could replicate this anywhere without them. PHS is small but integral to the process. We bring a lot of experience and corporate knowledge; in fact, nine of us had deployed for Ebola and brought that knowledge with us. We were the ones that created the donning and doffing system.

ED

What we were tasked with was look at what was an FMS cache and compare that to what would be needed for a Tier 2 set up for 50 beds and a Tier 4 set up for 200 beds for a total hospital capacity of 250 beds. When we looked at the supplies in the FMS, only 33% of the cache we required for Tier 2 was in the FMS list. Only 51% of Tier 4 was included. The oxygen challenge was very real. Central monitoring systems, rapid response teams, and lab capacity—even what seems simple (e.g., patient room numbering and signage)—were critical to the safety and quick response. The pods and bed numbering system could have been improved. If we continued using paper charting, we would need dividers to better organize sections.

We found that the linen and scrub contracts were just as important as the additional steps created for donning and doffing PPE.

LH

We must also take a hard look at staffing. We could not have done this to the same magnitude and scale without the DOD. If this is going to be replicated in another city, we really must consider increasing the number of PHS and DMAT staff. Cities and states really need to consider this—they need current clinical practitioners. Can you tap into surrounding areas of your city or state to get competent and current clinical practitioners? And manage expectations—in our case, nurses were in PPE for up to 12 hours. Some hired agency healthcare providers did not return for another

shift. We need to tap into local staff ahead of time who understand and are committed to this type of mission.

RP

Recognizing that there is likely to be a second wave, planning for the COVID-19 environment and providing a higher level of care upfront is safest. You can always take a step back and reduce levels, but we have to remember that these patients have a high degree of instability and we must have the PPE and appropriate medical equipment, supplies, and pharmaceuticals (and resupply) to treat higher-level of care patients and those also further decompensating in our ACS.

Notes from Dr. John Hick, ASPR TRACIE Senior Editor

We are thankful to these providers for sharing these lessons. Javits and other similar "flat-space" venues offer advantages of rapid installation and scale as well as easier patient monitoring. Other locations (such as hotels, dorms, and recently retired healthcare facilities) offer private or semi-private bathrooms which eases transfers, reduces infectious risk, and improves comfort for patients. There are many considerations and no "best" site for an ACS; during this (COVID-19) pandemic, infection prevention considerations and safe operations are paramount, and you will usually have some lead time prior to initiation. Version 3 of the ACS toolkit, which addresses these considerations, is forthcoming. During a mass trauma, anthrax, or other no-notice incident, a community will need to have some sites and equipment in its base plan that can be drawn upon and ideally integrate with FMS and other arriving assets. During the pandemic, jurisdictions cannot rely on federal staffing and supplies, making this even more challenging to consider how it will be staffed and operated. Training Medical Reserve Corps, National Guard, and others to this mission, and looking at outpatient clinic staff as supplemental resources (e.g., physical therapists and other staff from orthopedic practices) could be options in addition to usual sources. Community ACS should be a last resort option and level-loading to ensure that hospital patients are cared for in hospitals whenever possible is encouraged, using constructs such as the Medical Operations Coordination Center (MOCC) in conjunction with healthcare coalition partners.

NDMS responders at the Javits Medical Station. (Photo courtesy of ASPR.)