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HEALTHCARE EMERGENCY PREPAREDNESS
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HOW THE PRIVATE SECTOR HELPS DIALYSIS PATIENTS & CLINICS PREPARE FOR AND RESPOND TO DISASTERS



Photo by Andrea Booher.

In addition to experiencing a devastating hurricane season with repeat “hits” from Hurricanes Irma and Maria, healthcare facilities in the U.S. Virgin Islands (USVI) and Puerto Rico (PR) participated in an unprecedented evacuation of dialysis patients (primarily to Atlanta, GA). ASPR TRACIE interviewed Bill Numbers (Senior Vice President, Business Continuity, Fresenius Medical Care) to discuss private sector-federal government coordination and collaboration and lessons learned from the event.

(Originally published in 2018)

■ John Hick (JH)

Bill, please tell us more about your position and the role you played after the storms.

■ Bill Numbers (BN)

I serve as the Senior Vice President of Business Continuity and the Incident Commander for all disaster programs in North America. Fresenius Medical Care has more than 2,200 dialysis facilities, including outpatient cardiac and vascular access centers, and urgent care centers, as well as the country’s largest practice of hospitalist and post-acute providers. The core of our disaster program is focused around getting every affected dialysis facility operational and communicating status with clients as quickly as possible after an event. We have one distribution company that provides supplies (e.g., personal generators) to 80% of patients in the U.S. This chain allows me to maintain assets in warehouses all around the country and I can have them moved at any point in time to support disasteraffected areas in the continental U.S. (CONUS). When storms struck the USVI and PR, however, we didn’t have the same local capabilities or easy access to equipment.

■ JH

What are some of the disaster preparedness services you offer dialysis patients in CONUS?

■ BN

We have several communications channels, and offer 24/7 coverage. Prior to an event, as long as we have warning, we provide patients with the telephone numbers for local and national emergency lines. Close to 1,000 case managers also call clients daily (e.g., to welcome new clients, to assist dialysis patients who will be traveling) and can add emergency communications to these calls. We also maintain other call centers and we have joint ventures with physicians' hospitals and other medical groupings. We can use any of these lines to find and communicate with patients in an emergency situation.

Every facility is in touch with their emergency operations center (EOC). Communication is not always perfect, but there is familiarity and we stay in touch during every disaster and respond to facilities that need power, water, and other supplies.

We also work closely with the Kidney Community Emergency Response (KCER) Program (our lifeline with the federal government). They are very much involved year-round from a disaster response perspective. We provide them with center data (e.g., open/close status, supply needs) and they are extremely responsive. Through this partnership, we can assist other dialysis companies who may need resources like generators, water, or other supplies. We share information and supplies frequently—it's a very communal field. While I almost always have the necessary assets, coordination can be tricky and we need to communicate with an agency like the Federal Emergency Management Agency (FEMA) to ensure supplies are making it where they are needed.

■ JH

How does your agency help clients with individual disaster preparedness?

■ BN

It is now a condition of coverage in the dialysis community to have—and we worked with KCER to develop—a disaster preparedness program. Through this program, every patient is given disaster preparedness training where they learn about dietary supplies to stock, medications to keep at home that can assist them if toxins build up due to missed treatments, having enough general supplies at home for three days, how to reach us via telephone, and what to put in go bags. We provide refrigerator magnets and a list of nearby centers they can go to for treatment if their usual one is closed due to disaster. Reminding patients that they've received this training is just as important as providing it!

Fresenius patients' medical records are virtual and accessible from any location. We also have processes and procedures in place to treat patients who just walk in the door after a disaster; our initial intake system ensures quick treatment for new patients.

On the staff side, every clinic goes through an annual all hazards assessment, and it is focused on local and general hazards. The CMS Emergency Preparedness Rule mandates that dialysis facilities must also

Considerations to Address Before Dialysis Patients Can Return Home

Provided by Bill Numbers, Fresenius Medical Care

- Assuming that shelter is not being set up, patient home needs to be habitable to ensure patient is free of infection.
- Is the home standing? Is damage to the home substantial?
- Is the home habitable?
- Can the home be secured and locked?
- Does the home have air conditioning?
- Does the home have a reliable source of hot water for personal hygiene and hand hygiene?
- Can the patient maintain a clean environment in the home?
- Is there any evidence of mold growing?
- Is local water being tested to ensure it is potable?
- Are there reliable electric services? (Patients should not have to rely on personal generators.)
- Can transportation reliably reach the patient three times a week and transport them to the dialysis clinic?
- Will the patient have access to 911 services?
- Will the patient have access to hospital services for emergency care?
- Will the patient have access to emergency de-clotting services?

participate in a community disaster exercise. Every dialysis facility also participates in internal tabletops; they are also required to work with local healthcare providers and EOCs on at least one community drill. The only time they don't have to do this is if they've gone through an actual disaster.

Every part of our company is involved in the disaster program (from contracted suppliers to healthcare practitioners). We build 200 new dialysis clinics a year, and most clinics must have large emergency generators on site. We actually require that those generators be available (in their construction yard) a year in advance so that at any moment in time, we can move a giant, clinic-sized generator to a disaster site. Our distribution centers also maintain a lot of disaster supplies and equipment. For example, we have 1500 personal generators that we can provide to staff in affected areas to use at home. This can help staff ensure that their loved ones are taken care of and encourages staff to stay in the area if they can and report to work.

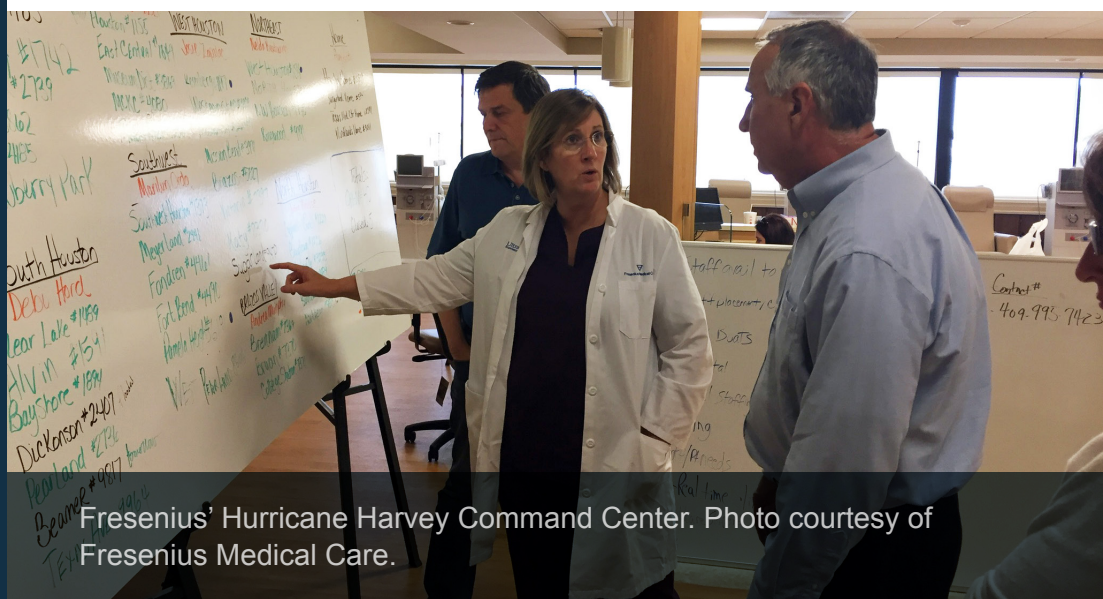
■ JH

How does the logistics of being on an island change what you are able to provide and coordinate?

■ BN

During Hurricanes Katrina and Sandy, there were evacuations ahead of time and those patients went far and wide—sometimes several states away. People either self-evacuated or were assisted by the government. In Puerto Rico, because the entire island was affected, residents couldn't just quickly hop on a bus and go somewhere—and this was the first time we've faced something like this in the 20 years I've been in the field. I was very much in favor of evacuating as many people as possible off of PR right after the storm. Most dialysis patients are compromised in one way or another (some with comorbid conditions). These people just shouldn't be living in conditions where there is no water, power, food, etcetera.

In a state, if the governor says evacuate, we (our providers) all evacuate, mainly to encourage our patients to evacuate. If providers stay, patients will be more likely to stay and we don't want that. This is one of our after-action review findings; we'll be working with the government of PR to adopt this mindset.



Fresenius' Hurricane Harvey Command Center. Photo courtesy of Fresenius Medical Care.

After a disaster, one facility can handle up to three other clinic populations. If a clinic has 50 patients, they could take on another 150 patients in an emergency. In non-emergency times, a patient gets four hours of treatment three times a week, but we'll drop that to two hours twice a week and we'll run 24/7. Evacuating can relieve some of this pressure, but recent disasters made this nearly impossible. In PR, we had to keep this situation going for weeks on end, which was unprecedented, and this compromised patient health.

Around CONUS, I can move assets very quickly—we have groups of people who will go in and set up a command center. In Texas, we set up six command centers after Hurricane Harvey. In PR, however, we could only set up one in San Juan because accessing other areas was so challenging. We also couldn't bring in supplies very quickly; we had to use six private cargo planes to bring in supplies. We supply dialysis supplies to all patients (approximately 6,000) on the island. This was extremely expensive, and something we don't normally have to do when working in CONUS.

In large disaster situations, we also contract with and send in guards who protect staff and assets. We had to charter about a dozen private planes to do this in PR. Because there were so many areas of the country hit by disasters at the same time, locating security staff was also very challenging. The next group that came in on planes were equipment repair and clinic assessment staff.

■ JH

Were there any challenges associated with patients from the USVI who stayed versus evacuating?

■ BN

We were contacted by KCER to see if we could provide assistance to St. Thomas and St. Croix. My first comments were that I didn't want to send equipment in—I did not want patients to stay there without water or power. I handle Fresenius Medical Care's disaster program around the world and have witnessed situations similar to those that occurred in the USVI. For many patients who didn't evacuate, infections set in and there was no other medical care available to them. The next few weeks become very bad. I said no, we would not to send anything in, but we would spend every resource we could to get them out, knowing how difficult that would be. The flight was the easy part, but coordinating services after that was the challenge. In the future, we might consider working closer or better with on-ground emergency centers to provide dialysis services.

The same thing happened on Tortola (in the British Virgin Islands). We don't normally operate there either. In this case, we offered to take patients to other clinics. The British government decided not to fly staff or patients off the island, based on a vote they said they held with the patients. We have carried out similar votes in the past and we find that while people generally don't want to evacuate, patients don't know what they don't know in these situations, and it often ends up terribly. In this situation, we sent some staff and equipment in, but every staff member that reported to Tortola said it wasn't safe and expressed the need to get patients out of

A single chair in a dialysis clinic can handle either two patients per day in a ten-hour shift or three patients per day in a sixteen-hour shift. In emergency situations, a ten-hour day usually works best because staff and patients can travel in the daylight and avoid challenges with power issues. Three patient shifts per day are appropriate if the infrastructure is stable and power is reliable.

To serve 80 patients a week at a clinic that is open for ten hours per shift, we would schedule 40 patients on Monday, Wednesday, and Friday and 40 patients on Tuesday, Thursday, and Saturday. This set-up would require 20 dialysis stations (chair and machine).

there. As employees returned after a couple of weeks, they shared heroic stories of working in austere conditions to treat patients, but the bottom line was that it wasn't a good situation and there were a lot of problems. Several patients became infected and had to be evacuated; some did not return because they became so ill. They essentially had to create a shelter at the dialysis center—the roof was half off, electrical power and water supply were spotty, and we ended up having to feed patients. This was very similar to what happened after Hurricane Katrina in Gulfport (MS)—we wanted to evacuate that dialysis center, but staff voted not to, and it ended up turning into a shelter with pets, family members, everyone who saw a light on, and we had to provide other services in addition to dialysis (e.g., food, shelter, other medical needs). To this day on Tortola, the situation is still bad, and no staff should go in there and assist until each patient's living conditions are assessed. I really believe the U.S. government did the right thing evacuating the USVI.

■ JH

How can portable dialysis units be used after a disaster?

■ BN

I want to be sure that your readers understand the definition of portable/mobile dialysis: this is something we do in over 1,000 hospitals in the U.S. today. Sometimes this is done in the patient's room, sometimes in the ICU, and sometimes in intermediate care environments. We do all of that with a machine on wheels that we roll around the hospital or ship on trucks.

We've also looked at, but have not fully developed, mobile dialysis in a trailer that could sit outside of a hospital, fitted out to include five or six dialysis machines. No dialysis company has bought into this—it's expensive, and in addition to the cost, we have to think about its utility. If we move this unit to an area that has been affected by a disaster, and dialysis capabilities were wiped out, why are we there in the first place? Our focus should be on getting patients out of the area.

There are three primary factors we must consider when it comes to mobile dialysis. First, do you have access to electric power/can you get it? Next, do you have access to (a lot of) water? The average treatment uses between 65 and 85 gallons. There are some machines in development that use less water, but they are not ready for disaster use yet. And, finally, can you properly dispose of/drain the used water?

In PR, many patients do their dialysis at home, using a dialysis machine, a gravity-fed program, or a cycler that helps cycle the fluids in and out of their bodies (this is called CCPD). The majority of our PR patients were CCPD, and while that is similar to mobile dialysis, these patients didn't have electricity and had to bring their cyclers into the dialysis facilities. I was pushing those patients to get to a shelter where they could then be transported to the operational dialysis centers to prevent infection due to lack of running water and power at their homes. This was met with some resistance, so we did provide personal generators. While this is not my preference, sometimes we have to give in to the doctor and patient who convince us they can perform dialysis at home.

■ JH

What are you incorporating into your plans based on lessons learned from this situation?

■ BN

Communication with the EOC in PR was not as good as we wanted it to be. Prior to the storm, it wasn't up to par, either. Working with the command center and trying to get their attention was a bit more challenging than we expected. They were getting their water, diesel, and gas from the same sources that we were, so while we had access to those locations, we weren't prepared enough ahead of time and hadn't made it clear that we also needed these resources; in some cases these resources were allocated to other locations. In general, our main challenge was communication—this was the first time we could not communicate to large geographic areas for more than a day (or in some cases, many days). We are working on other communications options. We recently met with HAM operators in PR, and the Coast Guard has been helpful with communication.

Editor's Notes

This interview highlighted the role played by a key private partner in the response to unprecedented challenges faced when evacuating dialysis patients after 2017's devastating hurricanes. Planners should consider the robust and relatively mobile resources these agencies have and incorporate them into their exercises and materials. While moving supplies around CONUS is relatively easy and done quite frequently, we quickly learned that getting dialysis supplies to more remote OCONUS areas poses an array of challenges, often making evacuation a safer and more costeffective solution.



Fresenius disaster response vehicle. Photo courtesy of Fresenius Medical Care