OUTPATIENT ENDOVASCULAR AND INTERVENTIONAL SOCIETY

Disaster Preparedness in the OBL

Carl P. Fastabend, MD, FACC, FSCAI, RPVI, DABVLM, Lake Charles, Louisiana

The Eye of the Storm

On August 27, 2020, Hurricane Laura made landfall as a high Category 4 storm in Cameron Parish, Louisiana, and swept into Lake Charles, Louisiana, with sustained winds of 145 mph and gusts much higher. The impact was immense and devastating over a widespread area of southwest Louisiana and points north as it pushed through. The entire local power grid was destroyed, and the water plant was severely damaged, along with many homes and businesses, some completely demolished. A second storm, Hurricane Delta, arrived five weeks later and wreaked additional havoc. The community as a whole remains in recovery mode as this is written nine months later, but we can point to significant progress. Multiple healthcare facilities in the city sustained major damage and have mounted a heroic effort to restore service. Sharing the impact of the storms on an office-based laboratory (OBL) and efforts to recover and resume operations may prove useful should other organizations find themselves in harm's way as another hurricane season approaches. Our experience clearly indicates that preparing in advance in the OBL plan for a natural disaster is necessary in order to minimize damage and restore operations as quickly as possible.

Table 1. Disaster Preparedness

1.	**Power** — generators with adequate power to run entire facility with access to diesel fuel and oil with pre-arranged personnel to maintain.
2.	**Internet**— backup internet capability. Ability to move IT personnel and server to location with electricity in order to continue operations.
3.	**Potable water** — be aware external water sources cannot be used.
4.	**Business interruption insurance** — essential to recover from a natural disaster.
5.	**Employee support** — establish a disaster response team to support with food, bottled water, clothing, etc., so that staff can return from evacuation and begin lab remediation.

Aftermath

Our OBL, The Cardiovascular Center of SWLA (Southwest Louisiana), is jointly owned by our group of cardiologists, Cardiovascular Specialists, and NCP/Azura, (now Fresenius) and has enjoyed considerable success over the past four years it has been open. We perform a spectrum of cardiac diagnostic and interventional, peripheral arterial, electrophysiology, and venous procedures. The COVID-19 pandemic greatly affected our volume beginning in March 2020, with all elective procedures placed on hold, but by mid-summer, our lab was ramping back up with significant volume growth. When Hurricane Laura hit, everything stopped abruptly. The building was not severely damaged, with only some initial window leaks. There was to be no power for several weeks, which is a unique problem for an OBL, since the temperature of the lab needs to be kept cool to prevent damage to the imaging systems. The facility has a generator designed to run patient care areas only, but availability of fuel proved to be a critical problem. The generator needs diesel fuel, and there was none available, as every gas station in the entire city was either destroyed or not functioning. One of the vice presidents of the company, Scotty Kiser, had a diesel truck with a 200 gallon auxiliary tank that he brought in from Texas to keep the generator fueled in the early days. This one unanticipated need filled by Mr. Kiser likely prevented major damage to the equipment that may have not been repairable. The generator also needed to have the oil level checked and topped off every 48 hours, and our facility director at the time, Theresa George, and her husband, Paul, took on this important task, and performed consistently and admirably. This was far removed from Ms. George's job as director in charge of running a busy lab and serves as a perfect example of the sort of heroic effort these

circumstances require. Eventually the medical office building's owner provided a large generator to power the entire building until the power grid was repaired.

When the power came back on, it was discovered the fire alarm system had recorded 77 alerts due to damage to the fire panel. The panel had to be repaired prior to re-opening in order to pass inspection. Surprisingly, inspections are required by the state's Department of Health and Hospitals, local health department, and fire department to allow resumption of the business of providing healthcare after a disaster, so a return to providing patient care is not just about mitigation of damage and going back to work. Another hurdle was the availability of potable water. The powerful hurricane severely damaged the city's water plant, and there was no potable water for several weeks, then the second storm prolonged the restoration of service. It is not permissible to use water from a pump truck to provide healthcare, so we had to await normal function of the city water plant to resume operations. Once potable water and water pressure were restored, we found stagnation of flow in the pipes, which required additional repair. The staff pitched in to assist with cleanup and prepping for the required inspections.

One of the more vexing obstacles was the loss of internet service. We were surprised and dismayed to learn the many aspects of our operations that require internet service to function, which include the lab hemodynamic system, image storage, billing, dictation, book keeping, processing reimbursements, and on and on. Our internet provider was completely offline for a number of weeks, and our calls to them to request service and information were routed to call centers outside the country, with no answers forthcoming. Several workarounds were attempted, to no avail. Although we were not operating from August 27 to October 28, we could have re-opened on October 5 if we had been able to restore internet service, because all the other issues had been mitigated.

Unanticipated Impact

These hurricanes had widespread effects on a very large swath of Texas and Louisiana. OBLs from Baton Rouge, Louisiana to Houston, Texas, were impacted. The wide "zone of uncertainty" in the 48 hours prior to landfall produces not only some uncertainty, but issues of patient and employee safety that have to be considered. Many OBL schedules in areas far removed from Lake Charles were disrupted, even though the storm passed them by. Hurricanes are notoriously capricious, with last-minute shifts of direction, which makes planning difficult. It is important to have plans in advance with designated roles for staff to fill, in case you end up being the bull's eye, as we were.

The Human Element

The human element of a natural disaster is central to understanding the scope of the devastation and the many needs to be addressed. The immediate aftermath of a large hurricane is very difficult to visualize, because everyone is affected by damage of some sort or another. There are immediate family members who need to be cared for. The damage to personal dwellings is widespread. Roofs need to be tarped, wet sheetrock needs to be broken up and removed, and personal possessions need to be saved. Some have to find a new home to live in. It is challenging to also attend to a place of business. Fortunately, our parent company, Fresenius, has a disaster mitigation team, which rose to the occasion. They provided hotel rooms, generators, perishable food, water, clothing, and fuel for personal needs. In some cases, rental cars were paid for. Disaster pay with benefits was also provided for the time the business was closed. Business interruption insurance has to be a given to sustain this level of support. It is essential to have dedicated

staff and leaders who can come together and act decisively when a disaster strikes. Our OBL was blessed with talented people who sacrificed personal needs and led the way to get us back up and running, including Theresa George, Facility Administrator, and Dr. Thomas Mulhearn, Medical Director of The Cardiovascular Outpatient Center of SWLA.

Lessons Learned

Managing the impact of a natural disaster on an OBL is difficult. The lessons learned from our experience in surviving direct hits from two hurricanes may be of value to others. First, advance planning with a strategy to support staff for all personal needs is critical, including food, water, and shelter, so personnel can return to the locality immediately after storm passage to begin remediation. With electric power out indefinitely, generators are mandatory, keeping in mind fuel and maintenance needs must be met by capable individuals, as well as for mitigation of infrastructure damage. Most importantly, in our experience, backup internet capability, with backup to the backup, is needed. Internet "hot spots" and other workarounds did not function, but it is possible having an underground cable would have sped the recovery of internet functionality or perhaps having a freestanding server. There is no solution to the potable water issue, as one must depend on local water plant to repair and return to service in order to pass inspection. Business interruption insurance is necessary in all cases of natural disaster, because it provides an opportunity to maintain essential support and eventually, recover fully. Here in Lake Charles, on the cusp of another hurricane season, we are hoping to be spared, but if not, we will be prepared. I hope sharing our experience will help anyone subject to a natural disaster to prepare for adversity and deal with the challenges it brings.

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