



Catastrophic Medical Operations Center, Image courtesy of SETRAC.

Higher Ground: The Sophisticated Healthcare Response of the SouthEast Texas Regional Advisory Council to Hurricane Harvey

Stephen E. Flynn

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EXECUTIVE SUMMARY

This report highlights the critical importance of saving lives by having in place effective regional healthcare response coalitions in support of the response to and recovery from major disasters. The report is produced by the Global Resilience Institute (GRI) at Northeastern University with the collaboration of the SouthEast Texas Regional Advisory Council (SETRAC). It highlights the impressive response efforts of SETRAC in the aftermath of Hurricane Harvey in 2017 as well as the invaluable role that the council played in the overall recovery of Greater Houston. The study traces the unique origins of SETRAC to include its institutional history, mission, and funding mechanisms. It analyzes the efforts of SETRAC before, during, and after Hurricane Harvey's landfall and it briefly explores similar healthcare coalitions across the country to provide further case examples of the importance of having robust regional coalitions in place. The findings of the report are informed by a fact-finding mission to Houston conducted by GRI in October 2017.

Core to the mission of the Global Resilience Institute is to help advance preparedness at multiple levels to effectively respond to both slowly emerging disruptions and sudden disasters, human-made and naturally-occurring. It accomplishes this objective by facilitating new interdisciplinary research collaborations; working in close partnership with industry, government, communities, and non-governmental organizations; and engaging in external outreach to inform and empower bottom-up efforts that contribute to individual and collective resilience.

In just four days from August 25-29, 2017, Hurricane Harvey pummeled the Houston area with over one trillion gallons of rain. The record-breaking late-August storm proved to be one of the most destructive in the region's history. Eighty-two lives were lost and thousands of emergency responders and civilian volunteers placed themselves in harm's way to conduct high-water rescues for the flood's many victims. However, Texans were fortunate to have the SouthEast Texas Regional Advisory Council fully mobilized and trained to meet the enormous challenges to public health services that Harvey presented. SETRAC, one of 22 regional healthcare coalitions in Texas, is a collaborative organizational construct that involves hundreds of hospitals, nursing homes, first responder networks, and other healthcare providers throughout a 25-county region in southeastern Texas. Its exceptional handling of the healthcare emergency following Hurricane Harvey demonstrates the importance of investing in thorough pre-disaster planning, effective organization, regular and relevant training exercises, and efficient crisis command and control.

SETRAC's Catastrophic Medical Operations Center (CMOC), a command post that is fully integrated into the state and regional response plans, is co-located in the Houston Emergency Operations Center. The CMOC was activated one day before Harvey made landfall. With the support of round-the-clock operators, the CMOC put teams on standby and readied personnel and equipment for the imminent healthcare response. Before, during, and after the event, the CMOC oversaw the completion of a total of 773 missions. These efforts included the tracking of open beds in hospitals, execution of evacuation protocols and patient transportation, managing ambulance staging operations, and meeting urgent healthcare needs. In large part due to SETRAC's preparedness, experience, and ability to adapt to rapidly changing circumstances, over 1,500 patients were successfully evacuated from 44 healthcare facilities, including 20 assisted living centers. Similarly, the vast majority of Houston area hospitals were operational in a short period of time following the inundation. It is clear that the CMOC was integral in allowing local, state, and federal officials the

ability to maintain full situational awareness across the spectrum of interdependent emergency domains throughout the event.

An important point of success for SETRAC's CMOC was demonstrated when calls for medical assistance began to quickly outpace the number of available resources. With access to a full suite of emergency center communications capabilities, the CMOC was able to set priorities and effectively leverage all available resources to most effectively manage the emergency response. Often, SETRAC was able to get stakeholders on the same call or even in the same room to further enhance communication and efficiency. In addition to coordinating critical actors, the CMOC was able to support the larger emergency management effort by taking overflow calls when the 9-1-1 and 2-1-1 systems became overloaded.

Without SETRAC'S CMOC, it would have been much more difficult for hospitals to match patient-specific needs with available resources, whether that meant matching a pediatric patient with a pediatric bed, guiding the transportation of patients around roads closed due to flooding, or determining where volunteer doctors' and nurses' skills would be of most use.

The staggering range of requirements during Harvey also entailed the need to support in-home healthcare, including those in need of supplemental oxygen and dialysis. SETRAC had pre-existing plans in place to care for vulnerable residents by deploying specialized mobile strike teams to distribute oxygen tanks and provide dialysis support services alongside the Dialysis Network. Team members were embedded within the Coast Guard Command Station and served as flight medics and nurses on a rescue helicopter. SETRAC's role further extended into the recovery phase of emergency management as it continued aiding healthcare organizations with the management tasks required to resume normal operations. SETRAC also collected and provided financial resources to the disaster affected counties to bridge the Federal Emergency Management Agency (FEMA) uninsured loss threshold before FEMA reimbursements would be available.

Moreover, SETRAC and the CMOC illustrated their coordination and communication prowess as the lead organization for Emergency Management Task Force (EMTF) 6. During Hurricane Harvey, SETRAC managed the deployment of all organic SETRAC personnel and equipment and controlled support from other EMTF regions. Each Texas EMTF region is organized with a set of resources and personnel that can be mobilized to support catastrophic events. These assets include mobile refrigeration units, communications equipment, morgue trucks, ambulance strike teams, and ambulance buses, all with corresponding staff. The CMOC's ability to guide this diverse set of resources under crisis conditions to meet both anticipated and unexpected needs was integral in minimizing Harvey's impacts on public health.

These successes were made possible as a result of years of conducting full-scale exercises and responding to real-world disasters. Following Tropical Storm Allison in 2001, SETRAC began to carefully and deliberately internalize the lessons learned from each event and build the organization into a national model of effective emergency medical management. This model has been refined as the region endured the impacts of Hurricanes Katrina, Rita and Ike, as well as several lesser weather-related disasters. At the start of the Atlantic hurricane season in June 2017, SETRAC conducted "Operation Tempest," an exercise designed to test coalition response to a major hurricane. This was another key factor in the success that SETRAC demonstrated months later when it once again applied the lessons learned towards improving its processes and functionality.

SouthEast Texas Regional Advisory Council

Origins and Evolution

SETRAC is the most extensively tested organization of its kind. The Texas State Legislature stood it up in 1989 with a provision of the Omnibus Rural Healthcare Rescue Act, which aimed to improve the state's trauma system and emergency medical services. In 2001, Tropical Storm Allison hit Houston with 30 to 40 inches of rain, causing major citywide flooding. The multiple facilities that make up the Texas Medical Center (TMC) were in the flood zone; as a result, three teaching hospitals and Memorial Hermann Hospital, which is a Level 1 trauma center, had to be evacuated. In all, 3,500 patient beds, including 500 intensive care units, were lost due to the storm.¹ The flooding also caused physical damage to multiple hospitals and healthcare facilities, requiring staff to rotate amongst them in order to maintain the capacity to provide critical trauma and general medical care. During this flooding event, hospitals operated individually without consulting one another on available resources, transportation, or strategy – a longstanding problem that has been identified in multiple after-action reports. The experience brought to light the pressing need for a competent, neutral, unified body to minimize disaster-related damages, particularly in the healthcare sector.

Just a few months after Tropical Storm Allison, the attacks of September 11th brought renewed attention to the necessity for preparedness and emergency response planning for mass-casualty events and major disasters. In response, the federal government made new grant funding available to states through the Department of Health and Human Services' Health Resources and Services Administration (HRSA). The goal was to support states in bolstering their emergency medical preparedness. Texas uniquely decided to task its Regional Advisory Councils (RACs) with administering these federal HRSA grants. The stakeholders from the hospitals created a HRSA grant planning/program body through the Regional Hospital Preparedness Council (RHPC). From 2001 to 2011, the RHPC and SETRAC partnered in managing the program and fiduciary requirements of the HPP grant for a coalition that grew to include healthcare facilities, emergency medical services, and representatives from public health and city emergency managers. The coalition was able to secure resource-sharing agreements amongst members, purchase regional equipment, train personnel uniformly, and install redundancies in communication systems.

In 2005, the RHPC created and launched the Catastrophic Medical Operations Center (CMOC) to address the challenge of medical coordination that emergency management and healthcare professionals had encountered during Tropical Storm Allison in 2001. As the

SETRAC

Established in

1989

Residents Served

9.3 Million

Communities Served

277 Cities

Hospitals

180

Nursing Homes

900

Seats on Houston EOC

13

Source: SETRAC

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operational response component of the RHPC, the CMOC deployed for the first time during Hurricane Katrina when approximately 250,000 displaced Louisianans came to the city of Houston. All the new arrivals that required a transfer to a medical facility were referred to the CMOC for placement. The CMOC drew on the limited patient data it was able to collect and oversaw the transfer of over 1,000 patients to functioning healthcare facilities.

Following the responses to Hurricane Rita in 2005 and Hurricane Ike in 2008, the board members of the RHPC and the board members of SETRAC agreed to a merger of their two organizations. The preparedness council transformed into the Regional Healthcare Preparedness Coalition (RHPC) and is now an integrated part of SETRAC, providing stakeholder support in the region for “preparedness, trauma, injury prevention, stroke, cardiac, and pediatric services.”²

While SETRAC administers public grant money, helps prepare the region for disasters, and aids in establishing standards of care, it does not hold any formal authority over healthcare stakeholders.

Rather, it incentivizes cooperation by providing mutually beneficial services.

SETRAC’s mission is “...to facilitate coordination of trauma providers to ensure the most efficient, consistent, and expeditious care of each individual who experiences an acute injury.”³ It is one of 22 RACs in Texas. SETRAC’s Board of Directors and Executive Committee include members of the county EMS and fire departments, representatives from major hospitals, and representatives from Harris County’s Office of Homeland Security and Emergency Management. The coalition also operates through several specialty committees on critical medical areas including prehospital care, trauma care, and finance. Additionally, SETRAC’s RHPC addresses planning and coordinating details of the healthcare response in a crisis, including evacuations and transportation, and, notably, is responsible for activating the CMOC during a disaster.⁴

SETRAC’s RHPC region includes 180 hospitals, over 900 nursing homes, and services 9.3 million Texans in three Trauma Service Areas. These Trauma Service Areas encompass 25 counties and 277 cities and



SETRAC and FEMA medical vehicles deployed during Hurricane Harvey (SETRAC)

are further divided into five corridors.⁵ The Coalition is governed by its Strategic Board, which includes representatives from the five corridors, city and county public health, EMS, city and county offices of emergency management, the FBI, and Long Term. Each corridor elects a Chair and meets every two months to discuss issues regarding recent drills, past response to disasters, implementation of the strategic vision and identification of gaps and needs.⁶ These meetings, facilitated by SETRAC, help hospitals better coordinate response by increasing awareness of each other's capabilities and resources, having already established connections that can be leveraged to meet requests for aid. As an example, SETRAC held a meeting during the initial recovery period after Hurricane Harvey to check in with hospitals and gauge potential medical supply shortages or other issues. Because these meetings are routine, they are especially effective.

The larger framework supporting SETRAC's successful missions is the Texas Disaster Medical System (TDMS). TDMS is a statewide initiative that provides guidance, establishes processes and develops deployable assets for response efforts in Texas.⁷ One component of TDMS is the Texas Emergency Medical Task Force (EMTF), a joint state and federal program funded by the Texas Department of State Health Services and the US Department of Health and Human Services' Assistant Secretary for Preparedness and Response (ASPR). There are eight EMTF teams in Texas, each of which manages communications, on-call experts, and teams for EMTF-managed response equipment.⁸ SETRAC manages EMTF 6, which works to coordinate large-scale incident response in the three trauma service areas that encompass Greater Houston.⁹ The physical resources under SETRAC's jurisdiction include a regional communications vehicle and satellite equipment, mass casualty

evacuation ambulances, trailers, trucks, medical supply caches, and mobile field hospitals.¹⁰ This equipment is highly flexible and can provide specialized services in disaster. Its Mobile Medical Unit is a key example; it can provide ventilator support, cardiac monitoring, and nursing care for trauma, orthopedic, or obstetric patients.¹¹

Funding for Regional Coordination

SETRAC's continued growth and success is made possible through funding from multiple sources. According to an August 31, 2016 report from the auditing firm Belt Harris Pechacek, LLLP, approximately 85 percent of SETRAC's grant revenue is federal funding from the Department of Health and Human Services (DHHS) through ASPR and the Hospital Preparedness Program (HPP). The Department of Health and Human Services allocated \$4,152,391 to SETRAC for the fiscal year ending August 2016; SETRAC also received \$58,126 from the Department of Homeland Security as part of its Urban Security Initiative.¹² The remaining portion of the budget is primarily supported by the state.

Once a year, ASPR awards healthcare coordinating bodies and U.S. public health systems funding assistance through HPP. Sixty-two grants are awarded from an estimated total program funding of \$850 million with the lowest award possible being \$300,000 and highest being \$42 million. These five-year finance programs are aimed at further developing grantees' public healthcare emergency response, awareness, and preparedness capabilities.¹³

The allocation of HPP funds is dependent on DHHS's current focus. For example, from 2002 to 2011, the main objective was for hospitals to be, broadly, more adequately equipped and to facilitate a regional network of partnerships.¹⁴ During this period, DHHS encouraged HPP funds to facilitate hospital purchases of "personal protective equipment,

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mobile medical units, and pharmaceutical caches.” After building a solid foundation, the next objective was to provide increased support for the growth of Healthcare Coalitions (HCCs) and their capabilities. Now, HPP funding is intended to “focus on operationalizing HCCs for effective response by optimizing their membership, as well as population and geographic coverage.”¹⁵

SETRAC also grants sub-awards to other emergency healthcare organizations in the region, helping to integrate critical interdependent stakeholders with SETRAC’s own plans and programs. For example, in early 2014 SETRAC awarded \$176,488 to enhance emergency services capabilities in one of its constituent regions, Liberty County.¹⁶ The grant was to be used for the purchase of new radio equipment as well as selected emergency medical services in county fire departments. It is worth noting that the original application for funding requested \$88,000, but after review, SETRAC awarded more than double that amount based on an analysis of its value to the region.¹⁷ These sub-awards are also an excellent function for expanding SETRAC’s network of partnerships and further disseminating the value of and capability for instating meaningful disaster preparedness practices.

HURRICANE HARVEY

In just four days from August 25 – 29, 2017, Hurricane Harvey pummeled the Houston area with over one trillion gallons of rain—the amount that typically cycles through Niagara Falls in nearly four times that time span.¹⁸ The record-breaking late-August storm proved to be one of the most destructive in the region’s history. Eighty-two lives were lost and thousands of emergency responders and civilian volunteers placed themselves in harm’s way to conduct high-water rescues for the flood’s many victims.¹⁹

Preparation and Response

When Hurricane Harvey was first recognized as a hazard to the Texas coastline, SETRAC’s CMOC activated its Incident Management System, which follows the National Incident Management System model, to begin preparations. Usually, the system rests at Level 4 which reflects a limited day-to-day activation, but before landfall, the state chose to raise the CMOC’s level of activation to Level 3, standard when a threat must be monitored due to its potential to escalate. Accordingly, the CMOC began holding coordination calls with their hospitals and nursing homes, assembling its ambulance strike teams, and preparing its ambulance staging area. As Harvey made landfall on the Texas Gulf Coast, the CMOC’s status was increased to full Level 1 activation, making all resources and on-call personnel available.

As a result of an already established relationship with the 2-1-1 community assistance phone lines, emergency calls rolled directly to the CMOC telephone, allowing the coalition to identify and assist over 15,000 homebound individuals with special medical needs.²⁰ However, the calls to SETRAC by patients requiring assistance during Hurricane Harvey soon exceeded the available resources.²¹

CMOC briefings were held twice daily, allowing state and federal partners to exchange information regularly about calls for help and the capabilities that were available to fulfill them. During the hurricane, hospitals updated the CMOC EMResource, a patient tracking software platform, three times daily on the type and number of beds open.²² This process, known as the Whole Bed Method, ensured that patients were moved as infrequently as possible and the necessary movements were well coordinated. In addition to making sure patients were brought to a hospital with the capacity and capability to care for them, the CMOC’s efforts allowed emergency responders to reach more patients overall. For instance, a SETRAC flight medic was embedded with the Coast Guard to assist with rescues and another was placed in the Coast Guard Command to facilitate medical transport missions. The organization

Hurricane Harvey Houston Area

August 25 – 29, 2017

Rainfall

> 1 trillion gallons

CMOC missions

773 Harvey related

Patients Evacuated

> 1,500

Homebound

Individuals Assisted

> 15,000 homebound individuals assisted

Healthcare Facilities Evacuated

44

Source: Todd Ackerman. Chron.

further prepared for a potential mass-fatality event by deploying a mobile refrigeration truck to serve as a morgue. A mobile communications vehicle was deployed to the central ambulance staging area to facilitate mission assignments. Neighboring emergency medical task forces also contributed ambulance strike teams, Medical Incident Support Teams, and ambulance buses that can treat 20 patients at a time.²³

These efforts, in turn, helped to reduce the strain on the hospital system. Administration issues were deferred to the post-storm recovery phase, when SETRAC assumed responsibility for such things as facilitating reimbursements to Cooke County which sent emergency personnel and ambulances to Houston. In total, the CMOC was activated for 17 days, completing 773 missions. The coalition's tracking efforts recorded the successful evacuation of 1,500 patients from 44 healthcare facilities, including 20 assisted living centers.²⁴ Impressively, after the storm, 95 percent of Houston area hospitals were operational within one week.²⁵

Recovery and Adaptation: Operationalizing Lessons Learned

SETRAC's outstanding success in Hurricane Harvey was built on real-world experiences over nearly three decades in dealing with multiple natural disasters. Importantly, it invested time and energy into closely examining its performance after each disaster for lessons that could enhance its organizational and operational practices. After Harvey, SETRAC did so again. On October 11, 2017, the coalition hosted the Regional Healthcare Preparedness Coalition Symposium for emergency officials and healthcare experts, with a primary focus of identifying lessons learned from Harvey. Encouragingly, Harvey reaffirmed the importance of the CMOC in executing the regional coordination component of the healthcare aspect of Emergency Support

Function #8, which is FEMA's "...mechanism for coordinated Federal assistance to supplement State, tribal, and local resources in response to a public health and medical disaster."²⁶ The twice-daily briefings and daily hospital calls during the storm also proved useful, as did the existing relationships with partners including dialysis networks, state and federal partners, and public health professionals.

Catastrophic Medical Operations Center (CMOC)

SETRAC demonstrated observable, repeated success and sustainable progress through the operation of its CMOC. The Center, operated through SETRAC's RHPC, coordinates patient transportation and distribution and additionally takes the lead on managing medical resource requests during an emergency. The CMOC also has purchasing authority when activated, allowing it to acquire resources needed for response and recovery as circumstances warrant. Its primary responsibility is to support 25 counties, but its role can be expanded when needed. In past disaster events, the CMOC has coordinated support for 34 counties and two parishes in Louisiana.²⁷

When activated, the CMOC operates from the Houston Emergency Operations Center (EOC), where it has 13 seats alongside representatives from other first responder organizations. The CMOC can be activated during a disaster by several bodies: state, county, and city Offices of Emergency Management; Emergency Management Coordinators; public health authorities; and the Texas Department of State Health Services. Once activated, the CMOC develops an action plan for each disaster, tailoring its distinctive characteristics and challenges. All responding health organizations coordinate their activities through the CMOC, which may also deploy its own personnel into the disaster area. The level of activation and corresponding staffing

necessary is determined by the CMOC Operations Chief based on the severity of the disaster. The cost of the first 12 hours of CMOC activation is considered “mutual aid,” however, charges associated with continued operation beyond this period can be charged to the requesting jurisdiction.

One of the most difficult challenges for hospitals during large-scale disasters is matching patients’ unique needs with available resources, whether that means pairing a pediatric patient with a pediatric bed, transporting patients in the face of road closures due to flooding, or determining where doctors’ and nurses’ skills would be best put to use. Because SETRAC’s CMOC leverages the capabilities of a multi-jurisdictional coalition of healthcare providers and emergency responders, each member of the collaboration is able to gain access to information and key personnel beyond what they normally control. By enabling the information and resources to be readily shared across SETRAC’s network, the CMOC allows the region to more quickly adapt to circumstances, reinforce overwhelmed facilities, and prioritize areas of greatest need more effectively than can be accomplished if each organization were to operate independently.

Tools and Methods

SETRAC is uniquely positioned both to collect and disseminate critical information that enhances medical coordination. SETRAC continues to refine and expand its data management strategies, building on a home-built software program for tracking patient data that it used during Hurricane Rita. That program enabled the evacuation of 2,400 patients from 29 hospitals and 121 nursing homes and was able to compile patient data and recipient hospital capacity with only a .08 percent error rate.²⁸

The EMTrack software system that it subsequently developed for tracking patients was able to support advanced searches and included information about patients’ special needs. SETRAC then integrated synthesized data from a resource management program, EMRecouse, with EMTrack into a “Whole Bed” approach. The Whole Bed approach was critical during Hurricanes Katrina and Rita, aiding in the evacuation of a total of 3,400 people, with only two patients having to be transferred from their initial facility “due to a lack of capacity or inability to care.”²⁹ Further, during Hurricane Harvey, SETRAC used Centers for Disease Control and Prevention (CDC) Empower data in areas where power was shut off to support search and rescue operations to determine who still required electricity for critical medical devices.



SETRAC coordinates care for elderly patients during Hurricane Harvey (SETRAC)

After-Action Reports and Training Exercises

A key component of SETRAC's effective response to Hurricane Harvey lies in its attention to improving the processes that make success possible. Since Tropical Storm Allison in 2001, SETRAC has capitalized on its experiences in crises as opportunities to learn using reflective after-action reports. With each deployment including during Hurricanes Katrina and Ike, the organization has added to its knowledge base, refined its management capabilities, created a flexible control system, and learned the lessons vital to operating effectively under significant pressure.³⁰

Experiences with past hurricanes, such as Rita in 2005 and Ike in 2008, have helped to shed light on the Houston area's significant homebound population with unique needs. These observations gained in real-world experiences became the basis for improvement on a variety of issues, ranging from evacuation logistics to special needs services and transportation planning.³¹ The coalition also coordinated with organizations that had access to information about special needs populations, including the Transportation Assistance Registry, DeafLink, and 2-1-1 Texas. Additionally, SETRAC now has initiatives such as a "pink vest program," where special needs patients are given bright pink vests with waterproof pockets for documents and medications. The vests enable patients to be quickly identified in times of disaster and easily carry essential items. Finally, SETRAC worked in the aftermath of these storms to increase field operations capabilities by collaborating with the Houston Fire Department and regional hospitals to create field hospitals that could provide shelter, equipment, and pharmaceuticals as necessary.

Examination of the lessons of Hurricane Ike in 2008 allowed SETRAC to see the need to add resources to manage home health and to

increase preparedness in proximity to evacuation areas. Looking ahead, the coalition also saw several operational changes for the future, including improved patient evacuation procedures, increased transportation coordination, and higher priority for the wellbeing of responders.³² SETRAC has taken steps to strengthen Texas' emergency response functions through integration of the CMOC WebEOC with state IT servers in order to increase visibility on actions at every level.

By extension, the bulk of SETRAC's successes were made possible due not just to its experience responding to real-world disasters, but also to its longstanding commitment to routinely conduct full-scale exercises. In June 2017, at the start of the Atlantic hurricane season, SETRAC had conducted "Operation Tempest," involving 4,597 participants from 150 different agencies, testing the coalition's response to a simulated major hurricane. This well-timed and comprehensive training would be put into action during Hurricane Harvey just a few months later.

SETRAC's demonstrated ability to learn from both small and large disruptions and, most importantly, to embrace those lessons so as to improve its processes and functionality, provides an exceptional example for other communities who are seeking to bolster their regional emergency management capacity.

REGIONAL HEALTHCARE COALITIONS IN THE U.S.

SETRAC is perhaps the most comprehensive and extensively tested healthcare coalition of its kind. However, there are examples of other regions that have recognized the importance of multi-jurisdictional coordination when responding to health emergencies. Indeed, these regional organizational constructs reinforce the value and necessity of creating similar healthcare response coalitions on a national scale.

Michigan's Region 8 Healthcare Coalition

In December 2016, in L'Anse, Michigan on the Upper Peninsula, a driver fell asleep at the wheel and hit a natural gas line, sparking an explosion that shot flames up to 60 feet in the air. Shortly after, there was an overnight ice storm that brought down power lines and trees.³³ Approximately 1,200 homes, a hospital, and a long-term care facility lost power for three days.

With years of preparedness exercises under its belt, the Region 8 Healthcare Coalition was poised to coordinate heating for the long-term care facility, which did not have backup heating equipment, using items that had been bought with HPP funding. This proved essential as the next closest facility was 60 miles away. The Coalition warmed 2,000 area residents as temperatures plummeted below 25 degrees Fahrenheit by using other HPP-funded resources to set up three heating stations. It credited past exercises and "HPP funding, training, and guidance" for the fast response.³⁴

Seattle's Northwest Healthcare Response Network

In September 2015, a "Ride the Ducks" tour bus crashed on the Aurora Bridge in Seattle, killing five and injuring 71, with almost 60

people needing serious care. In total, the crash involved people from 14 countries.³⁵ The Northwest Healthcare Response Network (NWHRN) coordinated transferring all the injured to the hospital within an hour with the help of WATrac, a software system for communication and crisis management, as well as reuniting patients with families. In addition to tracking open beds, WATrac follows the condition of patients, a function that allowed Bloodworks Northwest, a Seattle-area blood bank, to anticipate where supplies will be needed.³⁶

While its competent and efficient response is credited with minimizing the impact of the crash, after the event, NWHRN analyzed its performance to improve its procedures for future crises. The Network shared these lessons, including streamlining data management processes for healthcare facilities and training personnel on the legal boundaries of tracking patient information in an emergency setting, with its partners, the Seattle Office of Emergency Management, and even the city's foreign diplomats. Its actions before, during, and after the crash are an illustration of the importance of paying attention to all four components of the threat cycle--preparation, response, recovery, and adaptation.³⁷

East Tennessee Healthcare Coalition

In July 2015, the wheel of a train rubbed through a tank of hazardous chemicals in Tennessee, spilling acrylonitrile, a flammable chemical infamous for its potential to turn into cyanide gas when exposed to rain. It took 20 minutes for the spill to be reported to the conductor and the train to stop. In total, 24,000 gallons of acrylonitrile emptied out of the train, but the result could have been much worse; eight other cars contained the

chemical and 16 additional ones were full of liquid propane.³⁸

Prior to the accident, the East Tennessee Healthcare Coalition (ETHC) had allocated HPP funding to hazardous chemical training and preparation, which included decontamination showers and updated communication systems. As a result, the local healthcare facility, Blount County Hospital, knew about acrylonitrile's connection to cyanide gas. Accordingly, officials evacuated 5,000 people across 15 counties. In what would turn out to be a three-day process, 157 people, primarily first responders, were decontaminated and treated for cyanide exposure. As part of this effort, Blount County leveraged ETHC's network of partners to procure 41 extra kits of cyanide antidote. The Director of Safety and Emergency Management, Carole Chambers, credited the success of the response to the "collaborative efforts of the community, the dedicated and well-trained hospital staff and the partnership between HPP, the Tennessee Department of Health, and local coalition members."³⁹

CONCLUSION

The SouthEast Texas Regional Advisory Council achieved greater success in providing emergency healthcare during Hurricane Harvey than in any preceding event. It accomplished this even though Harvey was one of the most devastating disasters in U.S. history. Growing out of the Texas' 1989 Omnibus Rural Healthcare Rescue Act, SETRAC has systematically honed its capacity to support a comprehensive healthcare response across multiple jurisdictions during major emergencies. Since Tropical Storm Allison in 2001, SETRAC has emerged as a national leader, owing in no small part to its emphasis on continuously learning from disasters and exercises so as to improve the quality of its operations. Its Catastrophic Medical Operations Center, now a cornerstone of SETRAC's response capabilities, is an exceptional example of an experience-based improvement that came about as a result of SETRAC hosting regular meetings with neighboring Regional Advisory Councils in Texas, and building consensus as to its value. The conferences that SETRAC regularly organizes and hosts provide an ongoing forum to identify operational issues and smooth out logistical planning while also strengthening the lines of communication amongst a complex network of healthcare providers. There is no doubt that many lives have been saved thanks to the operating practices and formal channels for sharing information and resources that SETRAC has established and supported, and that it continues to refine. SETRAC is a model that should be adopted nationwide for fostering more effective regional, multi-jurisdictional emergency healthcare collaboration when major disasters occur.

Glossary

ASPR: Assistant Secretary for Preparedness and Response

CDC: Center for Disease Control

CMOC: Catastrophic Medical Operations Center

DHHS: Department of Health and Human Services

EMS: Emergency Medical Services

EMTF: Emergency Medical Task Force

EOC: Emergency Operations Center

FBI: Federal Bureau of Investigation

HCC: Healthcare Coalition

HPP: Hospital Preparedness Program

HRSA: Health Resources and Services Administration

NWHRN: Northwest Healthcare Response Network Healthcare Coalition

OEM: Office of Emergency Management

RAC: Regional Advisory Council

RHPC: Regional Healthcare Preparedness Coalition

SETRAC: SouthEast Texas Regional Advisory Council

TMC: Texas Medical Center

Works Cited

- ¹ Upton, Lori. "Hurricane Harvey 2017." Southeast Texas Regional Advisory Council. Oct. 2017. Web. 11 Jan. 2017. <http://www.astho.org/Programs/Preparedness/Documents/SETRAC-Hurricane-Harvey-Presentation/>.
- ² "SouthEast Texas Regional Advisory Council." SouthEast Texas Regional Advisory Council. Web. 11 October 2017. <https://www.setrac.org/>.
- ³ "Our Mission." SouthEast Texas Regional Advisory Council. Web. 11 October 2017. <https://www.setrac.org/mission-vision-goals/>.
- ⁴ Slabodkin, Greg. "Medical infrastructure continuity is goal of Houston command center." Health Data Management. 30 August 2017. Web. 24 October 2017. <https://www.healthdatamanagement.com/news/medical-infrastructure-continuity-is-goal-of-houston-command-center>.
- ⁵ Upton, Lori. "Hurricane Harvey 2017." Southeast Texas Regional Advisory Council. Oct. 2017. Web. 11 Jan. 2017. <http://www.astho.org/Programs/Preparedness/Documents/SETRAC-Hurricane-Harvey-Presentation/>.
- ⁶ "Houston hospitals kept patients safe during Harvey thanks to years of forced team bonding." Quartz. 31 August 2017. Web. 11 October 2017. <https://qz.com/1066787/hurricane-harvey-how-houston-hospitals-handled-the-storm/>.
- ⁷ "Home." TXEMTF Texas Emergency Medical Task Force. Web. 7 December 2017. http://txemtf.org/TXEMTF/TXEMTF_Home.html
- ⁸ "RHPC, SETRAC and CMOC." Harris County ARES. Web. 7 December 2017. <http://harriscountyares.org/training/KNW/KNW-126.pdf>
- ⁹ Epley, Eric. "Texas Emergency Medical Task Force (EMTF) Infectious Disease Response Unit (IDRU)." 9 August 2016. Web. 12 December 2017. <http://dshs.texas.gov/TaskForceID/docs/GovTFID-TDMS-EMTFepley.pdf>.
- ¹⁰ "SouthEast Texas Regional Advisory Council National Flood Workshop Houston Texas 2012." SETRAC. 2012. Web. 29 November 2017. <http://slideplayer.com/slide/3498734/>.
- ¹¹ Epley, Eric. "Texas Emergency Medical Task Force (EMTF) Infectious Disease Response Unit (IDRU)." 9 August 2016. Web. 12 December 2017. <<http://dshs.texas.gov/TaskForceID/docs/GovTFID-TDMS-EMTFepley.pdf>>.
- ¹² "Southeast Texas Regional Advisory Council." Belt Harris Pechacek LLP. 30 November 2016. Web. 29 November 2017. <http://www.govwiki.info/pdfs/Non-Profit/TX%20Southeast%20Texas%20Regional%20Advisory%20Council%202016.pdf>.
- ¹³ "CDC-RFA-TP17-1701. Hospital Preparedness Program--Public Health Emergency Preparedness Cooperative Agreement." DHHS. 3 Feb. 2017. Web. 29 Nov. 2017. <https://www.grants.gov/web/grants/view-opportunity.html?oppId=290860>.
- ¹⁴ Slabodkin, Greg. "Medical infrastructure continuity is goal of Houston command center." Health Data Management. 30 August 2017. Web. 24 October 2017. <https://www.healthdatamanagement.com/news/medical-infrastructure-continuity-is-goal-of-houston-command-center>
- ¹⁵ "Hospital Preparedness Program: An Introduction." ASPR. Web. 29 Nov. 2017. <https://www.phe.gov/Preparedness/planning/hpp/Documents/hpp-intro-508.pdf>.
- ¹⁶ Stinnett, Casey. "Grant for new EMS and fire dept. radios is surprisingly doubled." Houston Chronicle. 14 Jan. 2014. Web. 12 Jan. 2018. <http://www.chron.com/neighborhood/cleveland/news/article/Grant-for-new-EMS-and-fire-dept-radios-is-9878819.php>.
- ¹⁷ "Grant for new fire department radios doubled." FireGrantsHelp. 15 Jan 2014. Web. 7 November 2017. <https://www.firegrantshelp.com/news/1648917-Grant-for-new-fire-department-radios-doubled/>.
- ¹⁸ "Wet, so wet, with little hope of getting dry." The Washington Post. 29 Aug. 2017. Web. 30 Aug. 2017. https://www.washingtonpost.com/national/wet-so-wet-with-little-hope-of-getting-dry/2017/08/29/1b817e68-8cf2-11e7-8df5-c2e5cf46c1e2_story.html?utm_term=.096b45260a10.
- ¹⁹ Moravec, Eva Ruth. "Texas officials: Hurricane Harvey death toll at 82, 'mass casualties have absolutely not happened'." The Washington Post. 14 September 2017. Web. 20 September 2017. https://www.washingtonpost.com/national/texas-officials-hurricane-harvey-death-toll-at-82-mass-casualties-have-absolutely-not-happened/2017/09/14/bff3ffea-9975-11e7-87fc-c3f7ee4035c9_story.html?utm_term=.03c83e28ab37. "Harvey Live Updates: Storm's Wrath Shifts After Second Landfall." The New York Times. 30 Aug 2017. Web. 30 Aug 2017. <https://www.nytimes.com/2017/08/30/us/hurricane-harvey-flooding-houston.html>.
- ²⁰ Upton, Lori. "Hurricane Harvey 2017." Southeast Texas Regional Advisory Council. Oct. 2017. Web. 11 Jan. 2017. <http://www.astho.org/Programs/Preparedness/Documents/SETRAC-Hurricane-Harvey-Presentation/>.
- ²¹ "In Houston, Most Hospital's 'Up and Functional.'" NPR. 30 August 2017. Web. 11 October 2017. <http://www.npr.org/sections/health-shots/2017/08/30/547327581/in-houston-most-hospitals-up-and-fully-functional>.
- ²² "In Houston, Most Hospital's 'Up and Functional.'" NPR. 30 August 2017. Web. 11 October 2017. <http://www.npr.org/sections/health-shots/2017/08/30/547327581/in-houston-most-hospitals-up-and-fully-functional>.
- ²³ Reece, Kevin. "A look at Houston's mass casualty response preparations." KHOU. 13 Jun 2016. Web. 12 Jan 2018. <http://www.khou.com/news/local/a-look-at-houstons-mass-casualty-response-preparations/242746645>.
- ²⁴ Ackerman, Todd. "The final count: 44 hospitals, health facilities evacuated because of Harvey." Chron. 4 October 2017. Web. 24 October 2017. <http://www.chron.com/local/prognosis/article/The-final-count-on-Harvey-related-hospital-12250877.php>.
- ²⁵ Hubberd, Mike. "Catastrophic Medical Operations Center helped Houston hospitals avoid disaster." CW39. 7 Sep 2017. Web. 12 Jan 2018. <http://cw39.com/2017/09/07/catastrophic-medical-operations-center-helped-houston-hospitals-avoid-disaster/>.
- ²⁶ "Emergency Support Function #8 – Public Health and Medical Services Annex." FEMA.gov. Jan 2008. Web. 12 Jan 2018. <https://www.fema.gov/media-library-data/20130726-1825-25045-8027/emergency-support-function-8-public-health-medical-services-annex-2008.pdf>.

The Global Resilience Institute SouthEast Texas Regional Advisory Council

- ²⁷ "Catastrophic Medical Operations Center." SETRAC. 1 February 2017. Web. 7 December 2017. <https://www.setrac.org/cmoc/>
- ²⁸ Upton, Lori. "Hurricane Harvey 2017." Southeast Texas Regional Advisory Council. Oct. 2017. Web. 11 Jan. 2017.
- ²⁹ "Responding to medical Surge in Rural Communities: Practices for Immediate Bed Availability." National Association of County & City Health Officials. Sept. 2014. Web. 12 Jan. 2018. <http://nacchopreparedness.org/wp-content/uploads/2014/11/Responding-to-Medical-Surge-in-Rural-Communities.pdf>.
- ³⁰ "Houston hospitals kept patients safe during Harvey thanks to years of forced team bonding." Quartz. 31 August 2017. Web. 11 October 2017. <https://qz.com/1066787/hurricane-harvey-how-houston-hospitals-handled-the-storm/>.
- ³¹ Smith, Niky. "Regional Collaboration." SETRAC. Web. 16 Jan. 2018. <http://thepostnewspaper.net/wp-content/uploads/2017/06/THEPOST-6-4-17-FULL.pdf>.
- ³² "Regional Disaster Response Coordination to Support Health Outcomes." Institute of Medicine. 23 February 2015. Web. 29 November 2017. <https://www.ncbi.nlm.nih.gov/books/NBK274563/>.
- ³³ Peterson, Greg. "Less than 10 homes to relight in L'Anse – and the driver that allegedly caused crisis apparently fell asleep at the wheel, says Baraga County Sheriff Rick Johnson – SEMCO and L'Anse/Baraga residents showed each other love and respect during unexpected crash and explosion." Upper Peninsula News. 26 December 2016. Web. 28 November 2017. <https://upperpeninsulabreakingnews.wordpress.com/category/region-8-healthcare-coalition/>.
- ³⁴ "HCC Response to Heating Crisis Keeps 2,000 Residents Warm and Home for the Holidays." Office of the Assistant Secretary for Preparedness and Response. 31 May 2017. Web. 12 Jan. 2018. <https://www.phe.gov/Preparedness/planning/hpp/events/Pages/michigan-heating.aspx>.
- ³⁵ "The Story You Haven't Heard: How the Northwest Healthcare Response Network Saved Lives After a Tragic Tour Vehicle Crash." Public Health Emergency. 31 May 2017. Web. 30 November 2017. <https://www.phe.gov/Preparedness/planning/hpp/events/Pages/aurora-bridge.aspx>.
- ³⁶ TristanEfelle. "Patient tracking in response to fatal Seattle bus crash." Northwest Healthcare Response Network. 17 August 2017. Web. 30 November 2017. <https://nwhrn.efellecloud.com/impact/patient-tracking/>
- ³⁷ "The Story You Haven't Heard: How the Northwest Healthcare Response Network Saved Lives After a Tragic Tour Vehicle Crash." Public Health Emergency. 31 May 2017. Web. 30 November 2017. <https://www.phe.gov/Preparedness/planning/hpp/events/Pages/aurora-bridge.aspx>.
- ³⁸ Ford, Heath, Shane Trent, and Stephen Wickizer. "Pharmacy services after a tank car derailment and toxic chemical release in Blount County, Tennessee." Journal of American Pharmacists Association. 57.1: 56-61. January-February 2017. Web. 1 December 2017. <http://www.sciencedirect.com/science/article/pii/S1544319116307804>.
- ³⁹ "Tennessee Chemical Spill." Office of the Assistant Secretary for Preparedness and Response. 22 Jul. 2016. Web. 12 Jan. 2018. <https://www.phe.gov/Preparedness/planning/hpp/events/Pages/tn-chem-spill.aspx>.