

OFFICE OF EMS-TRAUMA SYSTEMS
CONTINUAL DISASTER READINESS



TEXAS
Health and Human
Services

Texas Department of State
Health Services

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Most of us are looking forward to Spring, being outside with family and friends, and the decreased number of COVID patients. The COVID pandemic has increased our response skills and provided rich ground for learning and collaboration. Staff turn-over during a pandemic creates a need for continual disaster response education and training.. As we continue to learn lessons and celebrate our successes, we must also focus on our readiness for Spring storms and the no-notice responses. Tornados, flooding, and the potential hurricane response plans need to be reviewed.

Disasters in Texas

Texas historically has more disaster declarations than any other state in the US. The table below provides a review of the Texas disaster declarations from 2016 to 2021. As you review this list, ask yourself these questions:

- If this happened in my community, what is my role in this response?
- How have I been trained to respond?
- How do I prepare and protect my family?

Texas disaster declarations 2016-2021

Year	Month	Incident
2021	February	Texas Severe Winter Storms
2020	August	Texas Hurricane Laura
2020	August	Texas Tropical Storms Marco and Laura
2020	July	Texas Hurricane Hanna
2020	January	Texas COVID – 19 Pandemic
2019	September	Texas Tropical Storm Imelda
2019	August	Texas Copper Breaks Fire
2019	June	Texas Severe Storms & Flooding
2018	September	Texas Severe Storms & Flooding
2018	July	Texas Park Road Fire
2018	July	Texas 259 Fire
2018	June	Texas Severe Storms & Flooding
2018	May	Texas McDannald Fire
2018	April	Texas McClellan Fire

2018	April	Texas 335 Fire
2018	April	Texas Harbor Bay Fire
2017	August	Texas Hurricane Harvey
2016	May	Texas Severe Storms & Flooding
2016	April	Texas Severe Storms & Flooding
2016	March	Texas Severe Storms, Tornadoes, & Flooding
2016	January	Texas Severe Storms, Tornadoes, Straight-Line Winds, & Flooding

In addition to these events, Texas has experienced a high number of mass shooting events. These events significantly challenge the trauma and emergency response system due to the no-notice response, as well as the higher number of critical casualties from these events. These casualties typically require operative intervention and blood transfusions. Hospitals need to plan and exercise for multiple critical casualties (5 or more) and understand how many massive transfusions their blood bank can support simultaneously.. The table below identifies the mass shooting events experienced by Texans from 2016 to 2021. Note: Domestic related shootings are not included in this table.

Texas Mass Shooting Events 2016-2021

Year	Month	Incident
2021	April	Bryan, Texas
2019	August	El Paso, Texas
2019	August	Midland-Odessa, Texas
2019	December	White Settlement, Texas
2018	May	Santa Fe, Texas
2017	November	Sutherland Springs, Texas
2017	March	Seminole, Texas
2016	July	Dallas, Texas

This data exemplifies the reasons for continual response readiness. Every person, every EMS agency, every hospital, every RAC, and support agencies

need to know their role, when to report, where to report, and potential job functions they may be assigned.

Training Challenges

Training staff for these types of responses is often difficult, time consuming, and costly if using the standard functional exercises. Functional exercises are often unrealistic in the perspective that patients often don't arrive by EMS and private vehicles as they would in real situations. They usually arrive by bus and off-load at the same time. The hospital typically knows the timelines of when the casualty patients will arrive and what time they need to return to the bus for transport back to the staging areas. Other challenges are the commitment and participation of the medical staff when there is a busy emergency department (ED), operating room (OR), intensive care unit (ICU), and other simultaneous activities.

The disaster plan and training related to the disaster plan's job functions are typically annual, and once completed they are not accessible to review. Most hospitals have moved to online modular training. The modules are often ineffective learning programs for the adult learners; if the module is not interactive, retention of the training is usually minimal. Job action sheets to guide the activities of the assigned job function are minimally discussed. The role of didactic education combined with interactive simulation training can expand options for disaster training. Module learning can also be combined with simulation training.

Simulation can include the high-tech simulation lab and mannequins that interact with the team as they assess the patient. These simulators can provide training for toxic exposures, infectious disease management, bomb blast type injuries, as well as gunshot wounds and other types of disaster injuries. The reality is that most hospitals do not have access to these types of simulation centers. These centers also take the participants out of their routine areas so the training on supplies and resources are often lost.

Didactic overviews of the disaster response plans combined with simple simulation, hands-on training may benefit a broader variety of hospitals. The spring storms require a good understanding of hospital priorities, which usually focus on staff and patient safety; severe storms, tornado response, and flooding events need to be included in the training. Training needs to cover the changes in routine operations and measures taken for patient and

staff safety. Facilities should study and read the impact of the Joplin Tornado in 2011, and how it impacted the community, EMS, and the hospital. The same is true for the mass shooting events. Lessons learned and shared from these events are available and help facilities identify opportunities for improvement. Active shooter training for all staff is also important, but it is very difficult to exercise for a number of reasons.

Disaster Training Preparation

Hospitals can create simple training programs that allow their required staff to actively participate in simulated responses. This needs the approval and support of hospital leadership and the individual responsible for the hospital emergency management plan. This can be accomplished by obtaining floor plans of the facility. The specific units being trained and the key respective area floor plans are necessary. Example, if you are training the emergency department staff, floor plans for the OR, ICU, and ambulatory clinics may be needed to focus on patient movement. The ambulance receiving dock area needs to be included. Participants assigned to specific job functions with job action sheets should have ample time to review the documents and ask questions. Tools to simulate patients and staff is the next step. Each staff participating in the training should have an item to represent them to place on the floor plan. As events unfold, the staff members are asked questions regarding the response and must move themselves appropriately on the floor plan. Keeping it simple works best.

Disaster Triage

Triage is one of the critical processes that is focused on during disaster training, but most programs do not provide actual training for disaster triage. Triage for the “greatest good for greatest number of casualties” is the common goal but can be more challenging in a real event due to lack of experience and lack of training. Group training with simple scenario-based flash cards can be helpful. This type of group training can be integrated into staff meetings and other competency trainings. The flash cards can be developed by the institution based on real events that have happened or purchased. The education needs to include where disaster triage occurs, how it is set up, and the elements of disaster triage.

Setting up the Scenario Play Board

The hospital floor plan serves as the “play board” and structure for the disaster response patient movement. Insulin syringes with different markings can be used to identify the various disciplines. Chest game pieces, monopoly game pieces, and other items can also be used. Emergency physicians, trauma surgeons, nurses, techs, RT, lab, registration, social workers, security, and others should participate in the scenarios. If syringes are used, placing corkboard under the floor plans allows the needle to stick and allows the participant to easily move themselves around the floor plan. The next challenge is to identify the current patients. The picture below on the right identifies current patients in an emergency department. White Legos are used to demonstrated patients being evaluated. Light blue Legos identify patients that are admitted and waiting on a bed. Green Legos represent patients with behavioral health issues that must be observed. Dark blue Legos represent patients needing ICU beds.

A critical failure in most disaster response plans and real situations is the inability to move patients out of the emergency department to clear spaces for arriving casualties. Items to demonstrate the casualty patients are needed for the simulation. In the below example miniature people are on red, yellow, green, and black Legos to represent the casualties. Each participant is given the tool to represent themselves on the floor plan.

Training Scenario in Action

Participants must take on a routine assignment in the emergency department. A PowerPoint presentation can be used to drive the training scenarios with a facilitator and observers to assist and guide the participants.

The participants must recognize the patient situation and follow the processes of notification and implementation of the disaster response. They must move into the disaster assigned roles and begin to move patients currently in the emergency department accordingly to their plan.

As the scenario unfolds, the participants assigned to disaster triage review the flashcard with the patient scenario history and then choose the casualty patient triage based on their acuity (immediate=red, delayed=yellow, minor=green, expectant=black). The team of participants that receives the casualty patient must verbalize their understanding of “disaster standards of care” and how that patient will be moved forward.

The charge nurse and emergency medicine physician assigned to the “flow coordinator” role to oversee the area is responsible for patient coordination and outflow. If a participant says the patient needs to be moved, they must move the patient forward following unidirectional flow principles. Having representatives from the OR, ICU, inpatient, and the clinic areas participate and represent their area and coordinate receiving the patient is recommended. Participants are challenged with keeping the charge nurse, unit leader and medical flow coordinator aware of the situation. The unit leaders are challenged with keeping the Medical Branch Officer aware of the activities in the emergency department. As the scenario continues, the pace of activity increases the challenges for staff to stay focused and on how to call for assistance.

Once the scenario is completed, a debriefing is held to discuss their knowledge of the response procedures, challenges of patient flow and remaining focused, and lessons learned. The facilitator is charged with making sure all participants are engaged during the scenario and the debriefing. The observers provide feedback regarding the participants and sections they observed. These training events can be scheduled quarterly and for all shifts to ensure all staff have the opportunity to participate or more frequently defined by the feedback and the demonstrated participant knowledge during the scenario. The training can be enhanced with someone assigned to complete the patient tracking in the WEBEOC boards. The communication to the regional advisory council through a simulated incident command should be considered a training requirement.

Figure 1



Figure 2

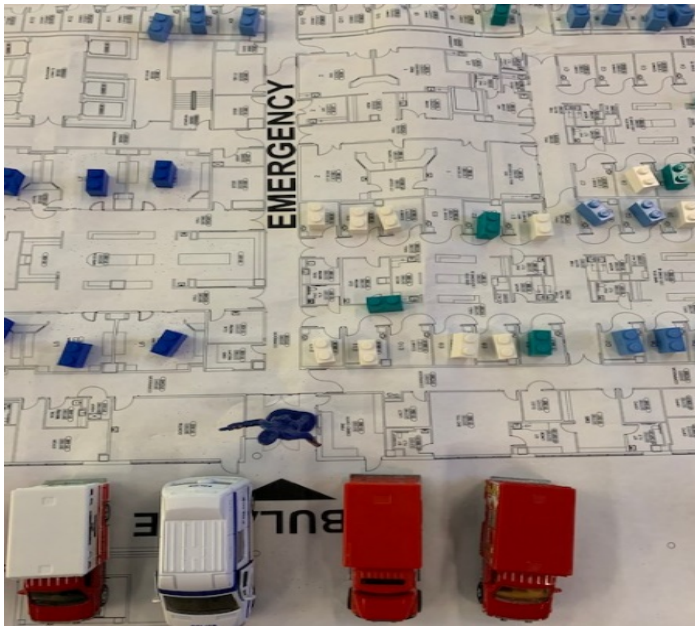


Figure 3



Figure 4



Final Thoughts

It should be noted that these types of simulated drills cannot replace the required functional exercises outlined by Joint Commission. This type of disaster simulation training builds knowledge, competencies, and performance and can be done at a low cost and low impact to the department. If you would like to explore these options, please start with your leadership team and the person responsible for the hospital emergency management plan.

Office of EMS-Trauma Systems

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