

ABSTRACT

Project Summary
This project focused on an in-depth gap analysis and comprehensive overhaul of patient evacuation processes and procedures at Memorial Hermann Health System. Through analysis of our organizational threats and hazards, as well as lessons learned from recent events, it was determined that evacuation training, policies, and procedures across the system needed to be standardized and streamlined to ensure employees are prepared to perform patient evacuations. A workgroup was created to include stakeholders from key areas to carry out the project.

Key Project Components

- An in-depth review of current training, policies, and procedures;
- a thorough review of published literature regarding hospital evacuation, as well as various program evacuation accreditation requirements;
- standardization of evacuation equipment;
- design of new training types, structures, and requirements;
- development of a System Evacuation Policy;
- incorporation of the policy into the Emergency Operations Plan; and
- creation of standardized procedures templates.

Our Purpose
The ultimate mission of the workgroup is a more resilient Health System which can respond effectively to large-scale emergencies, specifically evacuations, ensuring the safety and well-being of patients, staff, and visitors.

BACKGROUND

Evacuation Preparedness
According to a study done by Cambridge University, over 150 hospitals reported evacuating between 2000-2017. 70% of those evacuations were due to natural disasters.

The Greater Houston Area is prone to a range of natural hazards, including hurricanes (FEMA rated Harris County as 100 on the Hurricane Risk Index score-- tied only with Florida's Miami-Dade County), highlighting the need for hospital evacuation preparedness.

The decision to evacuate is difficult because of the extreme safety concerns and logistic problems that come with moving very vulnerable patients in less-than-ideal circumstances, and risk to the patient must be weighed against the risks of sheltering in place through a potentially unsafe event.

Catalyst for Change: May 2024 Storm
On May 16, 2024, the Greater Houston/Harris County area experienced a rare windstorm event called a Derecho, during which lighting struck one Memorial Hermann hospital, causing the backup generator to fail.

Although the restoration of electricity to the building preempted the need for evacuation, gaps in evacuation planning and preparedness were identified. The Derecho event prompted the leadership buy-in needed to devote more resources to evacuation planning.

REFERENCES

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Sharma, A., & Mace, S. (2019, May 6). Reviewing disasters: Hospital evacuations in the United States from 2000 to 2017: Prehospital and disaster medicine. Cambridge Core.
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METHOD/DESIGN

Evacuation Workgroup Summary

The Evacuation Workgroup was formed with stakeholders from 12 departments and disciplines throughout the hospital system. A meeting cadence was established and the workgroup determined that the best first step was to conduct an in-depth gap analysis of evacuation preparedness efforts at Memorial Hermann compared to other healthcare around the country.

Gap Analysis & Research Highlights
The workgroup coordinated on this effort, conducting research and reaching out to regional, state, and national partners. The literature review consisted of over 60 documents, including:

- Best practices and general guidance
- Lessons learned
- Accreditation standards

Documents were categorized by topic and document type for targeted analysis. Thorough review of best practices informed an in-depth review of current evacuation materials and identification of key opportunities for improvement in Memorial Hermann evacuation preparedness.

12
Workgroup
Stakeholders / SMEs

67
Literature Review
Documents Analyzed

<2%
Staff Trained in the
Last 5 Years

RESULTS		
	Gap Analysis Opportunities for Improvement	Workgroup Action Item
Regulatory & Legal	<ul style="list-style-type: none">• Emergency Management and Rehabilitation department’s evacuation accreditation standards, no survey deficiencies, meeting minimum requirements• Women’s and Children’s departments new evacuation standards in 2024	<ul style="list-style-type: none">• Utilize best practices to update and improve existing documentation and create new as needed to go above minimum standards
	<ul style="list-style-type: none">• Transportation vendor contracts not sufficient to meet evacuation needs	<ul style="list-style-type: none">• Review vendor contracts and capabilities for transportation needs
	<ul style="list-style-type: none">• Risk Management & Legal not been included in discussions about evacuation.	<ul style="list-style-type: none">• Coordinate with Legal for evacuation, closing, and reconstitution procedures
Documentation	<ul style="list-style-type: none">• No System or Campus Evacuation Policies• Evacuation guidelines in the Emergency Operation Guide (EOP) and the Emergency Quick Reference Guide Trifold too high level and outdated• No campus procedures outside the EOP	<ul style="list-style-type: none">• Write System-wide Evacuation Policy and template campus policy• Update Emergency Operations Plan to align with the policy• Rewrite Emergency Quick Reference Guide Trifold evacuation section• Write templated procedure for acute and rehab hospitals
	<ul style="list-style-type: none">• Women’s and Children’s evacuation procedures not standardized	<ul style="list-style-type: none">• Write templated procedure for the Women’s and Children’s Service Line departments
	<ul style="list-style-type: none">• Training in sporadic, unorganized, ‘as requested’ manner• Many hospitals and units no training in several years (if at all)• Online modules not comprehensive and are not applicable to all staff• Approximately 600 staff members taken a module in the last 5 years	<ul style="list-style-type: none">• Develop awareness level evacuation training applicable to all staff• Develop operations/leadership level evacuation training• Develop Education Plan and make recommendations for required training
Training	<ul style="list-style-type: none">• A Vendor ‘how to’ utilized for equipment training; not accurate for use at Memorial Hermann and 15 minutes long	<ul style="list-style-type: none">• Create equipment video to demonstrate how to use Med Sleds
	<ul style="list-style-type: none">• No in person course content or talking points standardized• No guidelines for approved instructors	<ul style="list-style-type: none">• Create in-person, hands on training course content• Develop a Trainer Program
	<ul style="list-style-type: none">• No Job Action Sheets to assist in response	<ul style="list-style-type: none">• Create Job Action sheets for key response positions
Equip.	<ul style="list-style-type: none">• Drills and exercises carried out ad hoc, if at all, with no official documentation	<ul style="list-style-type: none">• Create recommended drill materials and tracking method (LMS)
	<ul style="list-style-type: none">• Some equipment could be found at most locations• Equipment old, misplaced, not sufficient for current patient census, unable to be located by general staff, and inconsistent in quantity and type	<ul style="list-style-type: none">• Recommend standardized adult and bariatric evacuation equipment• Develop list of recommended pediatric and neonatal evacuation equipment