

Texas Children's Hospital



Climate Resilience plan



Texas Children's Hospital®

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Texas Children's
Hospital®

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EXECUTIVE SUMMARY

Texas Children's Hospital

At Texas Children's our longstanding focus has always been on energy efficiency, reliability, and providing support to our patients and their families. The Hospital's mission statement is *"To create a healthier future for children and women throughout our global community by leading in patient care, education and research."* Our core mission aligns naturally with the climate pledge we recently signed:

1. *At minimum, reduce organizational emissions by 50% by 2030 (from a baseline no earlier than 2008) and achieve net-zero by 2050, publicly accounting for progress on this goal every year.*
 - a.) *Share publicly our strategies for reducing on-site emissions (where relevant – addressing sources related to on-site energy usage, waste anesthetic gases, vehicle fleets and refrigerants).*
2. *Designate an executive-level lead for our work on reducing emissions by 2023 and conduct an inventory of Scope 3 (supply chain) emissions by the end of 2024.*
3. *Develop and release a climate resilience plan for continuous operations by the end of 2023, anticipating the needs of groups in our community that experience disproportion at risk of climate-related harm.*

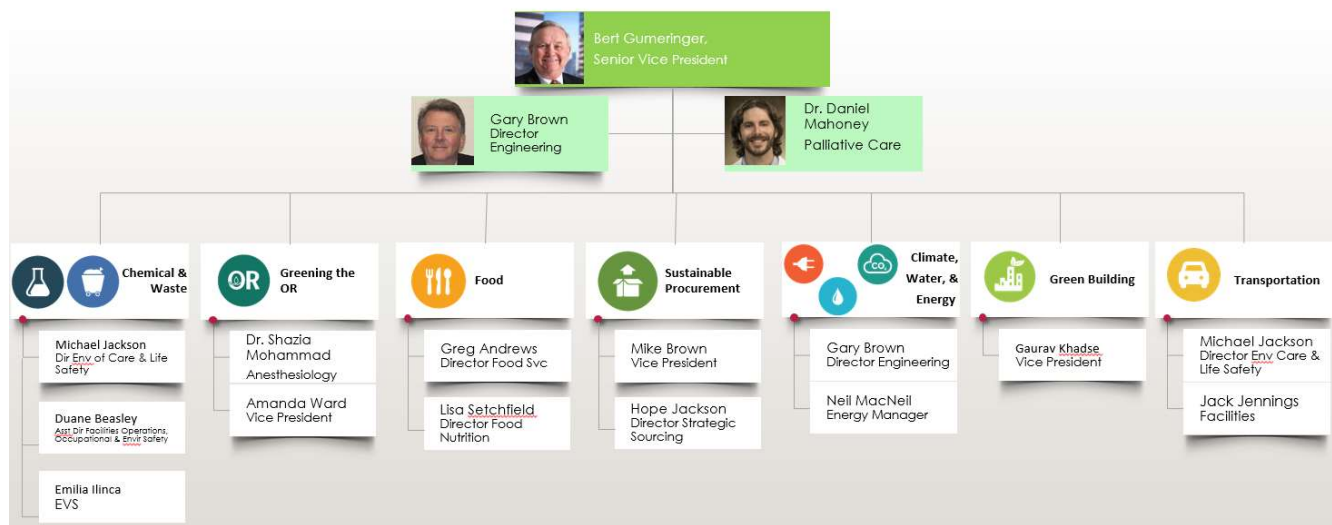
<https://www.epa.gov/greeningepa/eo-14057-catalyzing-clean-energy-industries-and-jobs-through-federal-sustainability>

Our leaders only asked, *"What do you need?"* - when we asked to participate in the pledge. Not what will be cost, if it was possible, or anything other fearful speculation. With that type of backing we accelerated our sustainability planning, reformed our green/sustainability team, and pushed these initiatives to the fore front.

" To create a healthier future for children and women throughout our global community by leading in patient care, education and research.

Sustainability Team:

SUSTAINABILITY TEAM AKA THE GREEN TEAM

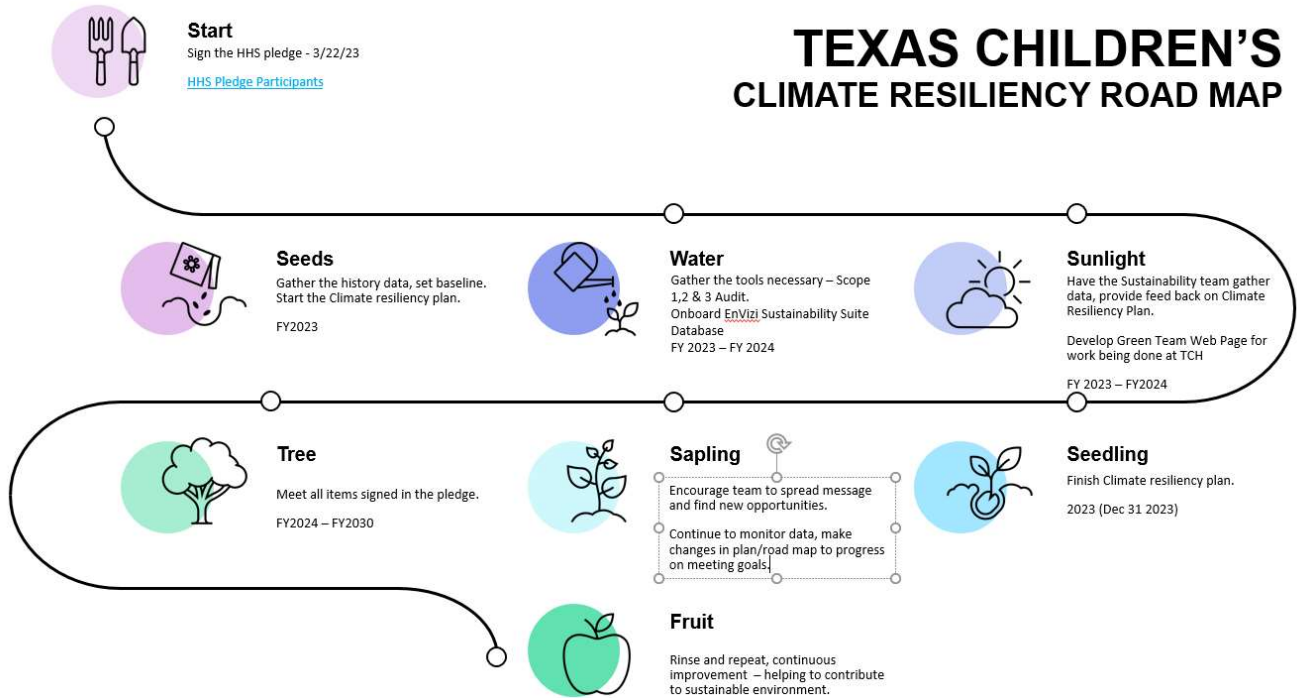


The sustainability team is simultaneously developing two plans: the TCH Sustainability Plan and the Climate Resiliency Plan. Priority is given to the Climate Resiliency Plan due to our commitment to the signed pledge.

Sustainability Plan: Focuses on long-term environmental, social, and economic sustainability, addressing a wide range of sustainability issues. Goals include reducing negative impacts, promoting economic development, and social equity.

Climate Resilience Plan: Concentrates on preparing for and adapting to climate change impacts, such as extreme weather events and sea-level rise. Goals center on building resilience to climate-related shocks and stresses, often with shorter to medium-term strategies.

These two plans often complement each other, and there may be areas of overlap where actions to enhance sustainability also contribute to climate resilience.



In our climate resilience plan we will outline several initiatives our team has undertaken, with a focus on risk management, vulnerability reduction, infrastructure enhancement, emergency preparedness, energy efficiency, supply chain optimization, and health and safety.

Concisely, our aim is to ensure thorough preparedness for foreseeable challenges while maintaining adaptability to unforeseen changes.

Texas Children's Hospital has a track record of resiliently overcoming unforeseen challenges, and is committed to maintaining this approach in the future and beyond as we continue to provide reliable care for the community.

RISK ASSESSMENT

Hazard Vulnerability Assessment	Annually completed
Risks we evaluate for climate related threat type is <u>Natural</u> .	Tornado Hurricane/ Tropical Storm Flooding Wildland Fire (External Fire) Extreme Freeze/Icy Roads Strong Winds

Incident documentation/AAR-2017-2023

Actual Incidents	2017	Hurricane Harvey
	2018 (July & Sept)	Heavy Rain/Flood
	2019	Tropical Storm Flood
	2020	Hurricane Laura Tropical Storm Beta Tropical Storm Cristobal Onalaska Tornado
	2021	Hurricane Ida Flood Tropical Storm Nicholas Freeze/Icy Roads
	2022	None
	2023	Tornado

Risk Analysis: Quantify the potential impacts of each risk on different aspects, such as infrastructure, operations, finances, and reputation.

Human Impact	Possibility of Injury or Death	Patient Impact	Any Incident that impacts patients directly or the ability to care for them.
		Employee Impact	Any Incident that impacts employees.
Property Impact	Physical Losses & Damages	Financial Impact	Cost of repair of damage vs total loss of property.
Business Impact	Interruption of Services	Operational Impact	Any Interruption to normal business operations.
		Technological Impact	An Impact to technology systems within the hospital.

Tornado	Human Impact	High Impact- May cause death
	Property Impact	High Impact-May completely destroy property (irreparable)
	Business Impact	High Impact- May completely immobilize patient care services/business services
Hurricane/ Tropical Storm	Human Impact	High Impact- May cause death
	Property Impact	Moderate - May have major impact (more than insurance deductible)
	Business Impact	Moderate - May have major impact (limits direct patient care services)
Flooding	Human Impact	Moderate - May have major impact (broken bones, respiratory distress)

	Property Impact	Moderate - May have major impact (more than insurance deductible)
	Business Impact	Moderate - May have major impact (limits direct patient care services)
Wildland Fire (External Fire)	Human Impact	Low - may have minor impact (bumps, bruises, scrapes)
	Property Impact	Low - May have minor impact (less than insurance deductible)
	Business Impact	Moderate - May have major impact (limits direct patient care services)
Extreme Freeze/Icy Roads	Human Impact	Low - may have minor impact (bumps, bruises, scrapes)
	Property Impact	Moderate - May have major impact (more than insurance deductible)
	Business Impact	Moderate - May have major impact (limits direct patient care services)
Strong Winds	Human Impact	Low - may have minor impact (bumps, bruises, scrapes)
	Property Impact	Moderate - May have major impact (more than insurance deductible)
	Business Impact	Low - may have minor impact (limit support services)

Estimate the likelihood of each risk occurring.

Tornado	Moderate	Has happened here or nearby (Houston metro and surrounding areas) in last 5-10 yrs.
Hurricane/ Tropical Storm	High	Has happened here within the last year, Expect to occur annually

Flooding	Moderate	Has happened here or nearby (Houston metro and surrounding areas) in last 5-10 yrs.
Wildland Fire (External Fire)	Moderate	Has happened here or nearby (Houston metro and surrounding areas) in last 5-10 yrs.
Extreme Freeze/Icy Roads	Moderate	Has happened here or nearby (Houston metro and surrounding areas) in last 5-10 yrs.
Strong Winds	Moderate	Has happened here or nearby (Houston metro and surrounding areas) in last 5-10 yrs.

Risk Evaluation: Rank risks based on their potential impact and likelihood.

See attached documents **HVA Summary**

Consider the significance of each risk to your organization's mission and objectives.

The Hazard Vulnerability Assessment: ranks the significance impact type by calculating the Probability, human, property, and business impact with the level of preparedness, internal response, and external response.

Risk Mitigation and Adaptation: Develop strategies to mitigate or reduce the identified risks. Texas Children's Hospital utilizes the Facilities Management Team to ensure a safe, controlled, and comfortable environment for all building occupants. Each utility system and its components have been evaluated to assure proper capacity, operational reliability, failure reductions, and risk minimization. Utilities examined included:

Communication Systems	Flood Gate System	Security Systems
Electrical Power Systems (Normal)	Fire/Life Safety Systems	Elevator Services
Electrical Power Systems (Emergency)	Fire Protection Systems	Water System (Potable)
Environmental Support Systems	P-Tube Systems	Water System (Industrial)
	Refrigeration Systems	Sewage Systems
	Chilled Water and Steam	HVAC Systems
	Medical Gas Systems	Medical Air/Vacuum

Implement adaptation measures to enhance resilience against climate-related risks. The organization has identified alternative means of meeting essential building utility needs if

normal supply utility systems are compromised or disrupted. This means identifying alternate providers within and outside the local community and securing an MOU for priority delivery and supply during an emergency. A summary of key utilities and alternate provisioning appears below:

Essential Utility	Primary Back-up	Alternate Back-up(s)
Electricity	Backup generators	Portable generator
Water for Consumption	Domestic/Hot Water tanks average daily consumption 420,365 gallons	21,552 bottled water located in warehouse
Water Needed for Equipment & Sanitary Purposes	Domestic/Hot Water tanks,	Alternate restroom facilities for staff and patient use. Vendor will be contacted for additional supplies.
Fuel Required for Building Operations	50,000 gallons of diesel maintained for generators. Vendor will be contacted for additional supplies.	
Fuel Required for Transport Activities	Minimal amount of fuel maintained for vehicles. Vendor will be contacted for additional supplies.	
Medical Gases	11,000 gallon main supply, portable O ₂ available in Respiratory Therapy.	9,000-gallon back-up Back up cylinders
Vacuum	Portable suction units in patient rooms	
Heating, Ventilation & Air Conditioning	Chilled water tanks purchased off-site from TECO	Blankets, fans
P-Tube System	Runners	

Monitoring and Review: Texas Children's uses the Fusion RM platform to conduct the annual HVA. Using the data entered in to the HVA, the Organizational resilience team at TCH is able to track trends in perceived threats to Texas Children's assets.

VULNERABILITY ANALYSIS:

Assess the hospital system's vulnerability to climate-related risks. Identify critical infrastructure, systems, and equipment that may be susceptible to damage or disruption. Consider the impact on patient safety, access to healthcare, and continuity of essential services.

Vulnerability Assessment: Identify vulnerable assets, systems, and processes that could be affected by the identified risks.

Tornado	Assets	Acute care Hospitals, TCHP, TCUC, TCP, The Centers
	Systems	IS Data Centers- TMC and Austin , Supply Chain
	Processes	Patient Transfers, Supply Chain, Emergent Patient Transports, Pediatric ICU, NICU, Computed Tomography (CT), General Laboratory, Respiratory Therapy / Sleep / Neurophysiology, PACU, Operating Rooms, Acute Care, Emergency Center Operations, Blood Bank, HVAC, Potable Water, Ultrasound, Radiology, Emergency Power
Hurricane/ Tropical Storm	Assets	Acute care Hospitals, TCHP, TCUC, TCP, The Centers
	Systems	IS Data Centers- TMC and Austin, Supply Chain
	Processes	Patient Transfers, Supply Chain, Emergent Patient Transports, Pediatric ICU, NICU, Computed Tomography (CT), General Laboratory, Respiratory Therapy / Sleep / Neurophysiology, PACU, Operating Rooms, Acute Care, Emergency Center Operations, Blood Bank, HVAC, Potable Water, Ultrasound, Radiology, Emergency Power
Flooding	Assets	Acute care Hospitals, TCHP, TCUC, TCP, The Centers

	Systems	IS Data Centers- TMC and Austin, Supply Chain
	Processes	Patient Transfers, Supply Chain, Emergent Patient Transports, Pediatric ICU, NICU, Computed Tomography (CT), General Laboratory, Respiratory Therapy / Sleep / Neurophysiology, PACU, Operating Rooms, Acute Care, Emergency Center Operations, Blood Bank, HVAC, Potable Water, Ultrasound, Radiology, Emergency Power
Wildland Fire / External Fire	Assets	Acute care Hospitals, TCHP, TCUC, TCP, The Centers
	Systems	IS Data Centers- TMC and Austin, Supply Chain
	Processes	Patient Transfers, Supply Chain, Emergent Patient Transports, NICU, Pediatric ICU, Computed Tomography (CT), General Laboratory, Respiratory Therapy / Sleep / Neurophysiology, PACU, Operating Rooms, Acute Care, Emergency Center Operations, Blood Bank, HVAC, Potable Water, Ultrasound, Radiology, Emergency Power
Extreme Freeze/Icy Roads	Assets	Acute care Hospitals, TCHP, TCUC, TCP, The Centers
	Systems	IS Data Centers- TMC and Austin, Supply Chain
	Processes	Patient Transfers, Supply Chain, Emergent Patient, Transports, NICU, Pediatric ICU, Computed Tomography (CT), General Laboratory, Respiratory Therapy / Sleep / Neurophysiology, PACU, Operating Rooms, Acute Care, Emergency Center Operations, Blood Bank, HVAC, Potable Water, Ultrasound, Radiology, Emergency Power
Strong Winds	Assets	Acute care Hospitals, TCHP, TCUC, TCP, The Centers
	Systems	IS Data Centers- TMC and Austin, Supply Chain
	Processes	Patient Transfers, Supply Chain, Emergent Patient Transports, NICU, Pediatric ICU, Computed

		Tomography (CT), General Laboratory, Respiratory Therapy / Sleep / Neurophysiology, PACU, Operating Rooms, Acute Care, Emergency Center Operations, Blood Bank, HVAC, Potable Water, Ultrasound, Radiology, Emergency Power
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Evaluate the potential consequences of a risk event on these assets.

Human Impact	High Impact- May cause death
Property Impact	High Impact-May completely destroy property (irreparable)
Business Impact	High Impact- May completely immobilize patient care services/business services

COMMUNITY HEALTH RESILIENCE:

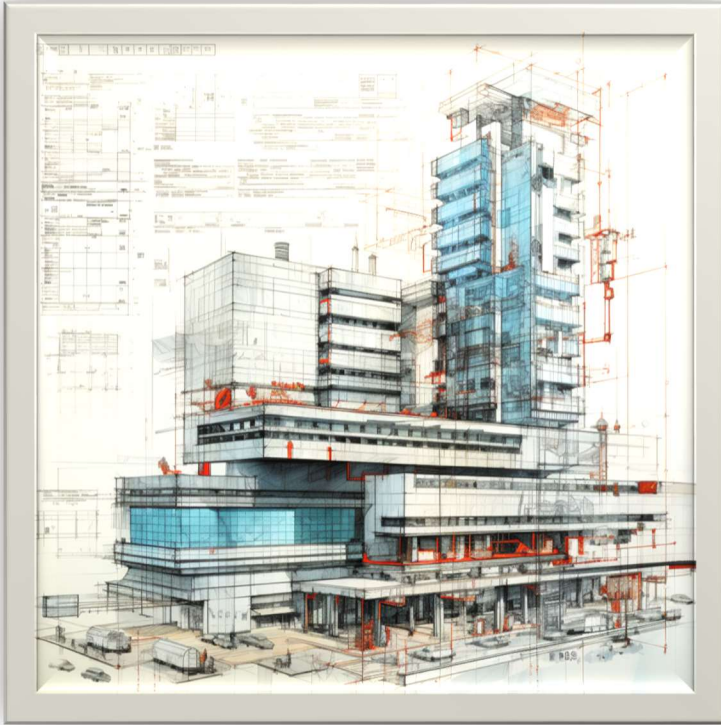
Texas Children's Hospital fulfills an important role as the community leader in children's health. There are many important facets to health resilience for the children and families we serve. Many families already struggle with issues related to healthcare access and food insecurity, and those needs are anticipated to rise in the face of climate change. Via partnership with the Baylor College of Medicine Department of Pediatrics Division of Public Health Pediatrics and other local groups, Texas Children's will continue to develop a climate resilience plan that incorporates the needs of the most vulnerable among the populations we serve. For example, a recent report on local food insecurity, a major component of climate resilience and public health, can be found at

<https://www.texaschildrens.org/sites/default/files/uploads/Food%20Insecurity%20Report%20Final.pdf>

PUBLIC HEALTH INFRASTRUCTURE:

Texas Children's is a leader among the institutions that make up the Texas Medical Center, the largest medical center in the world. Through collaboration with our partners and neighbors, we take an active role in conversations about the state of public health infrastructure. As the needs of that public health infrastructure change to meet the demands imposed by climate change, Texas Children's will continue to advocate for the needs of the children and families in our community and region.

INFRASTRUCTURE RESILIENCE:



Identify and prioritize critical infrastructure upgrades or retrofits to enhance Hospital resilience. Consider measures such as flood-proofing, reinforcement against high winds, and backup power systems. Implement measures to protect essential equipment, data centers, and supplies. Enhancing infrastructure resilience is crucial for mitigating the impacts of climate-related risks and ensuring the continued functionality of essential systems

- Asset Inventory and Prioritization: Create an inventory of all

critical infrastructure components, including buildings, utilities, communication systems, and equipment. Prioritize these assets based on their importance to your organization's operations and their vulnerability to climate-related risks.

- Social and Environmental Context: Consider the social and environmental context in which your organization operates. Evaluate potential impacts on employees, communities, and ecosystems.
- Impact Assessment: Quantify and qualify the potential consequences of the identified risks on your organization's assets, operations, finances, reputation, and stakeholders.
- Risk Prioritization: Rank the assets and systems based on their vulnerability, considering the exposure, sensitivity, adaptive capacity, and potential impacts identified.
- Mitigation and Adaptation Strategies: Based on the prioritized vulnerabilities, develop strategies to mitigate or adapt to the potential impacts. This could involve physical modifications, operational changes, policy adjustments, or investments in resilience measures.

ENERGY AND RESOURCE MANAGEMENT:

Effective energy and resource management lies at the core of an organization's sustainability and resilience efforts. To achieve these goals, several key components must be seamlessly integrated into the organizational framework.

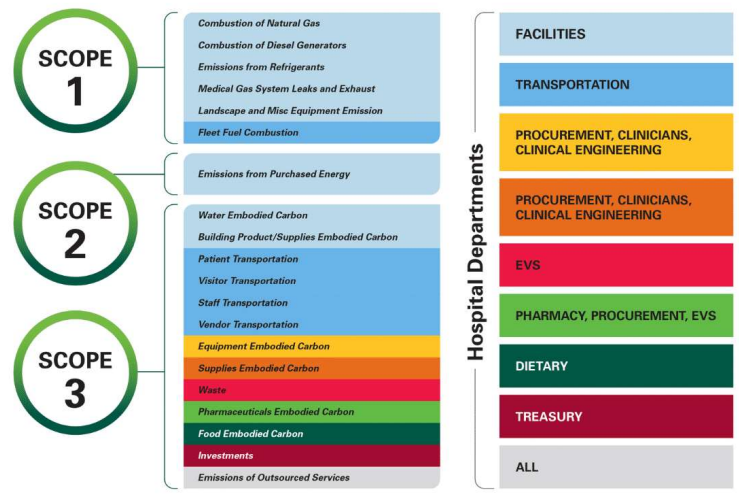
A proactive maintenance program is vital for efficiently running facilities. It includes preventive maintenance, real-time monitoring, energy-efficient upgrades, conservation measures, and employee awareness. This program helps optimize energy efficiency, reduce costs, and contribute to sustainability. For years our facility engineering department has worked tirelessly to be at the forefront of practical maintenance programs like the BMP program or continually updating our preventative maintenance work orders in order to keep up to date with our ever changing facility.

Energy assessments, continuous auditing, and retro commissioning supported by the maintenance program helps identify areas of energy consumption and highlights opportunities for efficiency improvements. These programs can lead to tangible actions, such as upgrading lighting systems, HVAC equipment, and supporting infrastructure, all geared towards reducing energy consumption. We have continually tried to improve upon our building automation system to assist naturally with the above. TCH is currently installing a continuously condition based monitoring system to our organization identify inefficiencies and in order to have a more targeted approach for our capital improvements.

Resource conservation is another vital pillar of sustainability. Organizations must identify the key resources they rely on, including water, raw materials, and consumables. The next step involves implementing strategies to minimize resource consumption, reduce waste, and optimize resource utilization throughout their operations. Water management is another pivotal aspect, with measures such as low-flow fixtures, leak detection systems, and continuous water quality monitoring. TCH's water management plan just recently received recognition from the joint commission as a best practice. These programs are vital for our sustainability.

Reducing our carbon footprint is a top priority. Organizations should measure their carbon emissions and establish ambitious targets for greenhouse gas reduction. TCH has engaged an auditing firm to assess all aspects of organizational emissions across various scopes and have set a highly ambitious goal of achieving zero emissions by 2050, a level of ambition rarely seen in large health institutions.

Hospital GHG Emissions Carbon Impact by Category

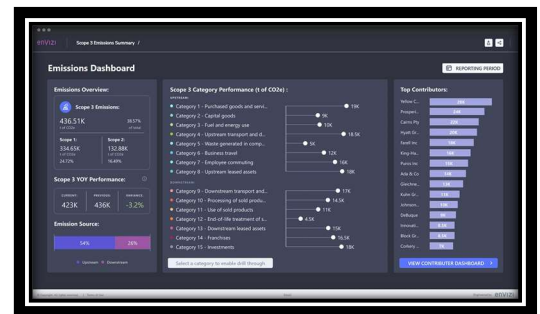


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Effective reporting and metrics are essential for accountability. Establishing key performance indicators (KPIs) and regularly tracking progress toward energy and resource management goals ensures transparency. Publishing sustainability reports

communicates achievements and commitments to stakeholders. TCH has developed a plan to pull most of the critical information in centralized locations - whether carbon data or critical response data necessary for our Service Response Center - Mission Control.



Finally, continuous improvement is an ongoing journey. Regularly reviewing and updating energy and resource management strategies allows organizations to adapt to changing technologies, risks, and opportunities.

By implementing these comprehensive energy and resource management strategies, the TCH organization will not only reduce operational costs but also enhance their resilience and contribute to a more sustainable and environmentally responsible future.

SUPPLY CHAIN AND LOGISTICS:

Assess the resilience of the hospital system's supply chain and identify alternative suppliers or distribution channels. Establish stockpiles of critical medical supplies, medications, and equipment to sustain operations during disruptions. Develop protocols for rapid response and coordination with suppliers in the event of climate-related emergencies. Managing supply chain and logistics effectively is crucial for ensuring the resilience and sustainability of your organization. Here's a guide to help navigate supply chain and logistics considerations.

Supply Chain Mapping:

Create a comprehensive map of your supply chain, identifying all suppliers, manufacturers, distributors, and other partners involved in the process.

Understand the geographical locations and potential vulnerabilities of each node in the supply chain.

Risk Assessment:

Evaluate the potential risks that could disrupt supply chain, such as natural disasters, geopolitical events, economic fluctuations, and regulatory changes.

Diversification and Redundancy: Consider diversifying supplier base to reduce dependence on a single source. Develop redundant or alternative supply chain routes and partners to minimize disruptions.

Collaborative Relationships: Foster strong relationships with suppliers, manufacturers, and distributors based on collaboration, transparency, and mutual understanding. Share information and collaborate on risk mitigation strategies.

Resilient Sourcing: Identify suppliers with strong sustainability and resilience practices that align with organization's values and goals. Consider factors like environmental performance, ethical practices, and disaster preparedness.

Technology Integration: Implement digital tools and technologies to enhance visibility, traceability, and real-time monitoring across the supply chain. Use data analytics to predict and manage potential disruptions.

Inventory Management: Optimize inventory levels to strike a balance between meeting demand and reducing excess stock. Implement just-in-time inventory practices where feasible to minimize carrying costs.

Demand Forecasting: Use accurate demand forecasting to anticipate fluctuations and align supply chain accordingly. Consider using AI and machine learning to improve forecast accuracy.

Transportation and Logistics: Optimize transportation routes and modes to minimize costs and environmental impact. Consider factors such as fuel efficiency, carbon emissions, and congestion.

Emergency Response and Continuity: Develop contingency plans and emergency response protocols for supply chain disruptions. Establish clear communication channels to coordinate with suppliers and partners during emergencies.

Continuous Improvement: Regularly review and update supply chain and logistics strategies based on changing conditions, risks, and opportunities.

An agile and well-managed supply chain can provide a competitive advantage, enhance resilience, and contribute to your organization's overall sustainability goals. Regularly reassess and adapt strategies to meet evolving challenges and market conditions.

HEALTH AND SAFETY:

Texas Children's Hospital is committed to providing a safe, functional, and supportive environment for patients, visitors, employees, and affiliated personnel at all owned and occupied locations. Environmental Health and Safety (EHS) supports this overall mission through programs designed to prevent injuries and illnesses from work-related causes, manage hazardous materials and waste, minimize interruptions from accidental occurrences, and oversee safety regulatory compliance.

Three significant "pillars" of the safety program are hazard identification, risk assessments and regulatory compliance. Hazard identification and risk assessments are multi-disciplinary. Sources of hazard information include ad-hoc and scheduled Environment of Care (EOC) rounds, staff reports, incident reports, renovation/construction activities, and general maintenance. The risk assessment process takes these hazards, considers the potential impact to patients, visitors, employees, and operations, and identifies appropriate mitigations. Regulations promulgated by the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), the National Fire Protection Association (NFPA), The Joint Commission, and state and local fire officials set the baseline for compliance.

The overall safety program consists of the following key functions:

1. Risk assessments
2. Safety audits and inspections
3. Industrial hygiene monitoring
4. Fire and life safety
5. Hazardous materials management
6. Training and education
7. Emergency response
8. Safety Committees

Risk assessments:

Identification of hazards and potential impacts is a key part of a proactive safety program. EHS uses the results of safety audits/inspections, incident reports (including near miss reporting), and staff reporting to identify risks. Using a formal risk assessment tool, EHS partners with key stakeholders to complete risk assessments, identify mitigations, and then shares the results with the EOC Committee for final approval.

Preconstruction Risk Assessment Process and Contractor Safety

Construction, renovation and general maintenance are necessary for the maintenance and advancement of Texas Children's mission. These activities introduce hazards that affect patients, visitors, staff, and building components. EHS oversees the risk assessment process

(PCRA). Additional process stakeholders include Engineering, Infection Control, Project Management, General Contractor and Departmental Leadership.

The PCRA process covers all work at all owned and occupied locations. The process starts in the planning phase of all projects with a focus on air quality, infection control, utility requirements, noise, vibration, and any other hazards that affect care, treatment and services. In CY22, Texas Children's conducted 199 preconstruction risk assessments. Task or work-specific risk assessments (permits) are issued as part of this process. The table below shows the number of permits issued in CY22:

Permit Types	Total
Interim Life Safety	385
Infection Control	290
Hot Work	69
Utility Shutdown	247
Above Ceiling and Barrier Integrity	184
Lockout/Tagout	46
Asbestos-Containing Material (ACM)	18
Hazardous Materials	2
Permit-Required Confined Space Entry Acknowledgment	5
Total	1247

EHS coordinates weekly construction inspections with Engineering and Infection Control. All contractors are required to complete contractor safety orientation initially and annually prior to receiving a badge. Contractor safety orientation includes an overview of TCH policies and procedures, infection control, life safety, environmental safety and general safety requirements for construction projects.

Safety audits/inspections

EHS coordinates the safety inspection (i.e. rounds) at all TJC-accredited sites/departments and all BCM-occupied labs at the Feigin Tower and NRI. The table below summarizes these activities for CY22.

Rounds types	Number of areas surveyed	Number of findings
Clinical rounds	310 - surveyed twice a	1018
Non-clinical rounds	269 - surveyed once a	148

Research lab rounds	83 - surveyed once a year	94
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Industrial hygiene monitoring

EHS conducts periodic industrial hygiene monitoring for noise and chemical exposures. Applying past monitoring experience, professional judgement and risk assessment, EHS identifies areas that need periodic monitoring and develops a schedule for the calendar year. Xylene and formaldehyde exposure monitoring occurs in multiple Pathology locations. Noise monitoring occurs periodically in select central plants and during generator testing activities. Additionally, EHS leads the water leak assessment and indoor air quality programs (including mold sampling) in the system.

Hoods (chemical fume hoods, biological safety cabinets, clean benches, etc.)

EHS is responsible for maintenance and certification of all hood in the system, with the exception of hood in Pharmacy areas. Those hoods are maintained by Pharmacy. The total number of hoods under EHS management is 584.

Personal Protective Equipment

Texas Children's applies the hierarchy of controls to address hazardous exposures - substitution, elimination, isolation, administrative controls, and personal protective equipment. When substitution, elimination, isolation, administrative controls cannot effectively address a hazardous exposure, personal protective equipment (PPE) is used to reduce or eliminate exposures. Texas Children's provides PPE at no cost to employees. Departmental leadership is responsible for ensuring availability, training and maintenance of PPE.

The most commonly used PPE include -

- Eye and Face protection (safety glasses, face shields, goggles)
- Head protection
- Chemical exposure protection
- Noise & Hearing Protection
- Respiratory protection

Respiratory protection requires an initial and annual fit test - a process managed by EHS. In CY22, EHS conducted 10,088 fit tests across the system.

Fire and Life Safety

EHS conducts and documents all fire drills in each Texas Children's owned building in the Texas Medical Center, the Woodlands, and the West Campus, high-rise business occupancies, and offsite clinics in accordance with The Joint Commission (TJC) and Houston Fire Department (HFD) regulations. In CY22, EHS conducted 126 fire drills across the system.

EHS also provides fire and life safety training to staff and fire safety walkthroughs as requested ensuring that staff is aware of how to activate the fire alarm system and implement their fire response plan

Hazardous Materials and Waste

Hazardous materials are a necessary part of Texas Children's operations. EHS provides oversight to the chemical and biohazardous materials programs and directly manages all regulated hazardous chemicals waste.

Texas Children's is required by EPA regulations (40 CFR 260-262) and Texas state code (30 TAC 335 Subchapter A, B, and C) to ensure the proper disposition of hazardous wastes. Proper handling of surplus and waste chemicals, reaction by-products, and contaminated materials is an important part of safety procedures. Each employee is responsible for handling hazardous materials and waste in a manner that minimizes personal exposure and the potential for environmental contamination.

Additionally, multiple policies and procedures have been developed to facilitate compliance with hazardous waste regulations. These policies and procedures include:

- Hazardous Chemicals and Waste Management Policy (# 335)
- Hazardous Drug Spill Clean-up Procedure (# 6351)
- Hazardous Materials and Waste Management Policy (# 5169)
- Preparation, Handling and Disposal of Antineoplastic and Hazardous Agents Pharmacy Procedure (# 1766)
- Chemical Hygiene Plan

The EPA generator status and 2022 waste totals by building are in the table below.

Building(s)	Generator Status	CY22 waste totals (lbs)
Medical Center (Abercrombie, West Tower, MWT, Legacy, PFW, and FT)	Large Quantity Generator	84,394
Neurological Research Institute	Small Quantity Generator	4,182
West Campus	Very Small Quantity Generators	3,463
Woodlands Campus	Very Small Quantity Generators	2,775

Chemical Inventory Management

OSHA requires organizations to identify hazardous chemicals in the workplace. Hazard Communication is regulated under 29 CFR 1910.1200. This standard is aligned with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Two major provisions of the Hazard Communication standard are:

1. Maintaining a list of chemicals stored and used
2. Providing access to Safety Data Sheets (SDSs)

All Texas Children's department maintain a list all hazardous chemicals in the area. Upon receipt of new chemicals and at least annually, departments update their hazardous chemical

inventory in a cloud-based program. In CY22, Texas Children's unique SDS count was 14,839.

Training and education

EHS supports Texas Children's safety training program as owner of the following training programs: respiratory protection, pharmaceutical waste disposal, hazard communication, and fire response. EHS is a stakeholder in other safety training programs owned by individual departments.

Emergency response

EHS responds to all chemical spills that exceed the department's ability to address. EHS has the monitoring equipment, PPE, and training (HAZWOPER 40 hour) to address most chemical spills with in-house resources. EHS has an MSA with an emergency response company to assist with chemical spills that exceed our capacity.

EHS also serve as Safety Officer whenever the Hospital's Decontamination Team is mobilized.

Safety Officer

The Executive with administrative responsibility for EHS appoints a system Environment of Care (EOC) Safety Officer. The EOC Safety Officer is authorized to take actions necessary to ensure a safe working and patient care environments. To the extent possible, the EOC Safety Officer will consult with the Chief Executive Officer, Physician-in-Chief, Surgeon-in-Chief, or designee of Senior Management before taking actions that may prevent or interrupt the delivery of patient care.

Safety Committees

Texas Children's Hospital has a standing EOC Committee that meets at least quarterly. The EOC Safety Officer chairs the EOC Committee. The Hazardous Materials Subcommittee and System Facilities Quality Council serve under the EOC Committee and provide regular reports.

The EOC Committee has established monitoring guidelines to measure program compliance.

This includes regular reports on at least a quarterly basis addressing deficiencies, failures, and user errors in the following program areas:

1. Environmental Safety Management
2. Security Management
3. Fire / Life Safety Management
4. Hazardous Waste Management
5. Equipment Management
6. Medical Equipment
7. Utility Management

Safety management issues and summaries of Environment of Care Committee activities to include key incidents, accidents and trends that may compromise the safety of patients, visitors or staff, actions taken to correct the above, and the effectiveness of the actions taken, are communicated through periodic reports to the following individuals or Committees:

1. President, Chief Executive Officer, Texas Children's
2. Presidents, Texas Children's Components
3. Leadership Forum
4. Board of Trustees (through the Risk Management & Insurance Committee)

MONITORING AND EVALUATION:

Implement systems to monitor climate-related risks, assess the effectiveness of resilience measures, and identify areas for improvement. Regularly review and update the climate resilience plan based on new information, lessons learned, and emerging best practices. Monitoring and evaluation (M&E) is a crucial process that helps organizations track progress, assess the effectiveness of their initiatives, and make informed decisions for continuous improvement. Here's a guide to help you establish an effective monitoring and evaluation framework:



Establish Clear Objectives: Define specific, measurable, achievable, relevant, and time-bound objectives for your programs or projects.

Select Key Performance Indicators (KPIs): Identify KPIs that align with your objectives and provide quantifiable measures of success. KPIs should be relevant, reliable, and easy to measure.

Data management and Analysis: Implement a system to store and manage collected data securely and efficiently. Use technology, such as databases or software tools, to facilitate data organization and analysis. Regular Data Collection at specified intervals to track progress and changes over time. Ensure consistency and accuracy in data collection methods.

Analyze collected data to measure progress toward objectives and KPIs.

Use appropriate statistical and analytical methods to draw meaningful insights.

Reporting and Communication: Prepare clear and concise reports that present findings, trends, and insights from the M&E process. Tailor reports to different stakeholders, highlighting relevant information.

Decision-Making and Learning: Use M&E findings to inform strategic decisions and allocate resources effectively. Foster a learning culture within the organization, encouraging adjustments based on lessons learned.

Adaptation and Improvement: Use M&E findings to refine program strategies, activities, and outcomes. Continuously adapt and improve based on the insights gained from the evaluation process.

Evaluation of Lessons Learned: Conduct periodic reviews of the M&E process to identify lessons learned and areas for enhancement.

Remember that M&E is an ongoing and iterative process. By systematically monitoring and evaluating your organization's activities, you can make informed decisions, demonstrate accountability, and continuously enhance the effectiveness of your initiatives