

# TRAUMA & EMERGENCY HEALTHCARE SYSTEM PLAN

Capital Area of Texas Regional Advisory Council

## **TABLE OF CONTENTS**

<b>TRAUMA &amp; EMERGENCY HEALTHCARE SYSTEM PLAN.....</b>	<b>3</b>
<b>INTRODUCTION .....</b>	<b>3</b>
Mission Statement.....	4
Goals/Objectives .....	4
Record of Changes .....	5
<b>ORGANIZATION AND BOARD OF DIRECTORS .....</b>	<b>5</b>
Organization .....	5
<b>RAC BYLAWS .....</b>	<b>5</b>
Board of Directors .....	5
Committee/Workgroups.....	6
<b>MEMBER LISTING .....</b>	<b>7</b>
<b>EMS AND FIRST RESPONDER ORGANIZATIONS .....</b>	<b>7</b>
<b>LISTING OF HOSPITALS .....</b>	<b>7</b>
System Plan Participation .....	7
<b>PLAN COMPONENTS.....</b>	<b>8</b>
911 and System Access .....	8
Communications Network .....	8
Medical Oversight.....	9
Education .....	10
EMResource Guidelines.....	11
Inter-Hospital Transfers .....	13
Healthcare Facilities Designation .....	14
Quality Management (Performance Improvement) Program .....	15
Quality Improvement .....	16
System Management Indicators .....	16
Pre-hospital Indicators .....	16
System Audit Filters .....	17
Peer Review Participant Agreement .....	17
Confidentiality Agreement .....	18
Rehabilitation.....	19
Trauma System Plan.....	20
Prehospital Triage Criteria .....	20
Transport Considerations (Ground vs. Air Services) .....	20
Provider Notification .....	21
Regional Medical Control.....	21
Cardiac System Plan.....	21

<b>Objectives:</b> .....	<b>22</b>
<b>Regional STEMI Plan and Guidelines:</b> .....	<b>22</b>
<b>Transports (Ground vs. Air) .....</b>	<b>31</b>
<b>Transfers.....</b>	<b>31</b>
<b>Designation Facilities .....</b>	<b>31</b>
<b>Continuous Quality and Process Improvement .....</b>	<b>31</b>
<b>STEMI Field Guide Maintenance.....</b>	<b>31</b>
<b>Stroke System Plan.....</b>	<b>32</b>
<b>Transports: .....</b>	<b>33</b>
<b>Pre-Hospital Triage and Treatment:.....</b>	<b>33</b>
<b>INTER-HOSPITAL TRANSFERS: .....</b>	<b>34</b>
<b>Discussion:.....</b>	<b>34</b>
<b>Perinatal System Plan.....</b>	<b>35</b>
<b>Appendix A: List of TSA-O Hospitals .....</b>	<b>37</b>
<b>Appendix B: Map of Texas Trauma Service Areas .....</b>	<b>41</b>
<b>.....</b>	<b>41</b>
<b>Appendix C: TSA-O Demographics.....</b>	<b>42</b>
<b>Appendix D: TSA-O Air Medical Coverage.....</b>	<b>44</b>
<b>Appendix E: Inter-Facility Transfer of Patients Schema.....</b>	<b>45</b>
<b>Inter-facility Transfer of Burn Patients: PEDIATRIC &lt;15 years .....</b>	<b>45</b>
<b>Inter-facility Transfer of Burn Patients: ADULT ≥ 15 years .....</b>	<b>46</b>

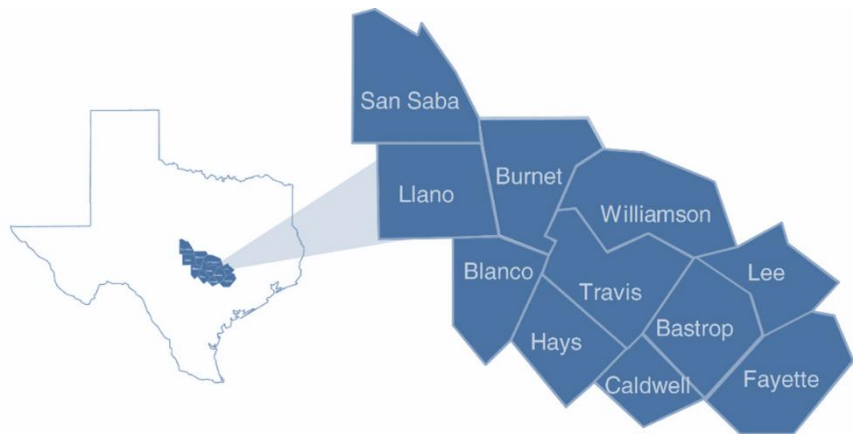
# Trauma & Emergency Healthcare System Plan

## CAPITAL AREA OF TEXAS REGIONAL ADVISORY COUNCIL

### INTRODUCTION

This plan has been developed in accordance with accepted guidelines and procedures for implementation of a comprehensive Trauma & Emergency Healthcare System plan. The plan does not establish a legal standard of care but is intended as an aid to decision-making in the development of patient care guidelines by provider organizations.

One purpose of the Capital Area of Texas Regional Advisory Council (CATRAC) is to advance the state of healthcare and emergency preparedness within the counties of Trauma Service Area (TSA) O, as designated by the Texas Department of State Health Services. TSA-O is comprised of 11 counties in central Texas as follows: Bastrop, Blanco, Burnet, Caldwell, Fayette, Hays, Lee, Llano, San Saba, Travis, and Williamson.



A mission of the CATRAC is to facilitate coordination amongst hospital, healthcare systems, and prehospital providers within TSA-O to ensure the most efficient, consistent, and expedient care of each patient, by developing and maintaining integrated quality processes in patient care, transportation, education, prevention, and preparedness.

TSA-O includes 9,713 square miles and has a population of over 2 million people. Austin, the Capital of Texas, is the largest city in the TSA-O region with a 2019 estimated population of 978,908 according to the US Census Bureau's website. Austin is home to state governmental agencies, a large film and music industry, technology industries, and the University of Texas. Austin is becoming more internationally known since the building of the Circuit of the America's Racetrack and the first Formula One Race held in November 2012. Round Rock, located in Williamson County, is the headquarters of Dell Inc., a global information technology company.

The region has seen a major increase in growth throughout the last ten years, especially within the counties of Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson. Since 2012, the area has grown by nearly 450,000 residents with a 2017 projected population of over 2.2 million according to the Department of State Health Services. Blanco, Llano, San Saba, Lee, and Fayette counties have not seen a significant increase in population and are more rural counties. The Lower Colorado River Authority, which runs through several counties, maintains the dams, water and wastewater utilities, power plants, and parks. San Saba County is the smallest county in the Region with a population of just over 6,000. The CATRAC demographics vary from county to county. See Appendix C for a brief description of the 11-county region's demography.

### **Mission Statement**

To get the “right patient” to the “right place” in the “right time”

CATRAC is dedicated to the provision of quality healthcare for the community and the surrounding region. It provides accessible, comprehensive, compassionate, high-quality healthcare to all disaster, and emergency healthcare patients regardless of age, race, religion, sex, nationality, ability to pay, diagnosis or prognosis, to assure that all patients receive the optimal level of care.

The purpose of continuous quality management is to provide ongoing assessment and improvement activities designed to monitor and evaluate the quality of patient care through system analysis, to identify and pursue opportunities to improve patient care, and sustain improvement over time and to improve survival and reduce morbidity from injury objectively and systematically.

By participating in CATRAC, all member organizations embrace the guiding principles for Trauma System QI outlined by the Texas Department of State Health Services (DSHS) and these principals are applied to other health conditions.

### **Goals/Objectives**

CATRAC quality management plan is designed to achieve the following goals:

1. To facilitate continuous quality improvement in healthcare and services provided by establishing mechanisms to identify opportunities to improve.
2. To provide a framework for a planned, systematic, ongoing approach for the objective monitoring and evaluation of the quality, appropriateness and effectiveness of time sensitive diagnosis patient services provided within the region.
3. To centralize the flow of information through the organized committee structure, to prevent duplication of effort and to facilitate early awareness of opportunities for improvement.
4. To identify and recommend corrective action for components of the emergency healthcare system which will significantly decrease delays in meeting our mission.

5. Develop a database through continuous quality improvement activities that allow identification of trends and/or remarkable events.
6. Develop and utilize tools for continuous quality improvement throughout the region, which will serve to identify areas for improvement within the healthcare delivery system.
7. To assist in developing guidelines and standards of care in TSA-O through identification of educational opportunities.

### Record of Changes

Date	Purpose
October 2022	Update EMResource section
December 2022	Update new Board members

## ORGANIZATION AND BOARD OF DIRECTORS

### Organization

The CATRAC Executive Board consists of representatives as stipulated in the Bylaws. County Representatives must be a resident or work in the county they are representing. Each representative from the other designated board positions is elected by the General Membership. The CATRAC Executive Board Officers include a Chair, Vice Chair, Secretary, and Treasurer who are elected by the CATRAC Executive Board. The CATRAC Executive Board reviews and approves the budget and financial operations, conducts strategic planning, approves the agency operating policies, and approves regional guidelines and proposals recommended by the membership to improve trauma and acute care.

### RAC Bylaws

Please click [here](#) to view the CATRAC Bylaws.

### Board of Directors

2023 Board Of Directors			
<u>Position</u>	<u>Name</u>	<u>Affiliate Organization</u>	<u>Term Date</u>
Chair*	Ben Oakley	North Blanco County EMS	December 2024
Vice Chair Prehospital*	Josh Vandever	Fayette County EMS	December 2024
Vice Chair Hospital*	Dr. Ira Wood, MD	Cedar Park Regional Medical Center	December 2024

Secretary*	Adam Johnson	Travis County STAR Flight	December 2025
Treasurer*	Mike Knipstein	Williamson County EMS	December 2023
Travis County Rep.	John Hamilton	Travis County STAR Flight	December 2024
San Saba / Llano County Rep.	Wes Alexander	Hamilton EMS	December 2023
Burnett / Williamson County Rep.	Jim Persons	Williamson Co. EMS	December 2025
Hays / Blanco County Rep.	Ken Strange	Wimberley EMS	December 2024
Caldwell / Bastrop Co. Rep.	James "Scooter" Green	Bastrop Co. First Responders	December 2023
Lee / Fayette Co. Rep.	Rodney Mersiovsky	B&M Ambulance Service	December 2025
Ascension Seton	Dr. Samson Jesudass, MD	Ascension Healthcare	December 2024
HCA St. David's	Dr. Ken Mitchell, MD	HCA St. David's Healthcare	December 2025
Baylor Scott & White	Dr. Robin "Rob" Watson, MD	Baylor Scott & White Healthcare	December 2022
Independent Hospitals	Thomas McKinney	CHRISTUS - Santa Rosa	December 2024
Air Medical Providers	Lynn Lail, RN	CareFlite	December 2023
HPP Coalition Chair	Dr. Mark Escott, MD	OCMO, ATCEMS	December 2025

### Committee/Workgroups

Committee	Chairperson(s)	Committee Chair Facility Association(s)
<b>Trauma &amp; Emergency Healthcare Systems</b>	Dr. Taylor Ratcliffe (Chair)	Baylor Scott & White Temple
<b>Education/ Injury Prevention</b>	Rhonda Manor-Coombes (Chair)	Baylor Scott & White Lakeway
<b>Data</b>	Diana Norris (Chair)	HCA/St. David's
<b>Prehospital</b>	Dr. Heidi Abraham (Chair)	Austin-Travis County EMS
<b>Capital Area Public Health &amp; Medical Preparedness Coalition</b>	Dr. Mark Escott	Austin-Travis County EMS

Medical Directors	Vacant	Vacant
-------------------	--------	--------

## **MEMBER LISTING**

### **EMS and First Responder Organizations**

Please go to EMResource's Regional Info / Document Library to view the CATRAC Regional Resource Guide for a detailed list of EMS/FRO and Air Medical Providers. This document provides the number of vehicles, type of services and the level of services provided.

### **Listing of Hospitals**

Please go to Appendix A to view a list of CATRAC's hospitals or click [here](#) for a list from the CATRAC website.

### **System Plan Participation**

It is crucial that each involved entity be accountable for participation in CATRAC to remain in compliance with standards set forth by the Texas Department of State Health Services (TX DSHS). Only with collective participation, can an effective and efficient trauma system plan function on a region-wide basis.

Meeting notices are published on the CATRAC website and are emailed to the following group lists based on the meetings that the participants attended, but not limited to:

- Health Care Facilities, i.e., Hospitals
- Emergency Medical Services (EMS)/ Pre-Hospital Providers
- CATRAC Executive Board Members
- CATRAC Committee Chairs and Committee Members
- Non-profit community health and safety agencies
- Physicians from various specialties
- Emergency Response Partners

CATRAC has various committees working to carry out its mission. A full listing of committees, chair members, meeting schedule, responsibilities of committee, along with current projects can be found [here](#).

At each RAC meeting, a QR Code is assigned and each attendee signs in by name and representing facility. If attending via Microsoft Teams, the attendance is captured and recorded manually on the



electronic record. These rosters serve as the identifiable means of tracking which facilities/agencies have been participating in the RAC.

General sign-in rosters are also kept by individual committee chairs and serve as further tracking information of which facilities are represented and participating in various committee-planning stages.

Participation is defined as individuals or entity representation actively pursuing interest and involvement in the priorities and goals set forth by the Regional Advisory Council as defined by each committee RAC approved mission statement and plans.

## **PLAN COMPONENTS**

### **911 and System Access**

Basic 9-1-1 is a regional system providing dedicated trunk lines which allow direct routing of emergency calls. Routing is based on the telephone exchange area, not municipal boundaries. Automatic Number Identification (ANI) is not provided with Basic 9-1-1. There are no basic 9-1-1 systems within the CATRAC 9-1-1 Emergency Communication System Plan. All systems are enhanced 9-1-1 with different levels of service. According to FCC.gov, all public/payphones must connect a 911 call immediately at no charge.

Enhanced 9-1-1 (which is the primary emergency communication system within TSA-O), is a system which automatically routes emergency calls to a pre-selected answering point based upon geographical location from which the call originated. The emergency communication systems were implemented providing citizen's access to emergency communications to municipalities and counties (incorporated and unincorporated areas) within TSA-O.

ANI is a system capability that enables an automatic display of the seven-digit number of the telephone used to place a 9-1-1 call. This system enables the automatic display of the calling party's name, address, and other information if this call is received from a land line. Alternate Routing (AR) is a selective routing feature which allows 9-1-1 calls to be routed to a designated alternative location if all incoming 9-1-1 lines are busy or the central system (PSAP) closes for a period.

### **Communications Network**

The Capital Area Council of Governments (CAPCOG) administers the 9-1-1 Emergency Communications Systems. The communications system includes the following counties: Bastrop, Blanco, Burnet, Caldwell, Fayette, Hays, Lee, Llano, San Saba, Travis, and Williamson.

The contingency plan for the 9-1-1 system includes redundancy of all communications links, with alternate routing capabilities for either system overflow or evacuation of any of the communications

centers. Each center is equipped with an emergency backup power source and ring down circuits connecting each 9-1-1 answering point. Connectivity is available through the cellular network, as well as radio communications.

To define the communications\dispatch centers their levels of resources and to provide contact information for each center including radio frequencies.

Geographic and population differences present major communication challenges in the region. Eight of the eleven counties are rural, which means the dispatch agency is run through the sheriff's office. The present requirement that permits dispatchers to be trained as medical or law enforcement is a real challenge when funding and personnel retention is an ongoing issue.

Each county in the region currently takes responsibility for dispatching its own EMS, fire and law enforcement personnel. When 9-1-1 terminals were initially set up, the rural counties elected to have the terminals located at their respective law enforcement centers and utilized the services of law enforcement dispatchers. Urban counties, through fire and EMS funding, created dispatch centers where all 9-1-1 calls terminate.

In many instances, communications personnel training has been handled by CAPCOG. The communications qualification courses are offered to counties at no cost for untrained personnel. If a county's law enforcement center has no dispatchers who are trained as medical dispatchers, there is no requirement that dispatchers upgrade their skills. If one of the dispatchers is a certified medical dispatcher, however, then all dispatchers in the organization must be certified.

Urban law enforcement, fire, and EMS agencies have moved their radio frequencies to the trunked radio systems to reduce congestion on the conventional frequencies. These trunked systems are in the VHF, 800, or 900 mMHz range. They are all compliant with State and Federal interoperability standards. Response time reviews for tracing the time involved for processing calls from the time the call is received until units are en route is the responsibility of the dispatching agency. Calls received through the 9-1-1 system generate the most emphasis as they are true emergencies in most instances. This is in no way meant to indicate that other calls are less important, but only that 9-1-1 has been the accepted means for communication when an individual has an emergency.

## **Medical Oversight**

### **Goals**

1. Ensure strong physician leadership and supervision for pre-hospital providers.
2. Secure medical involvement in regional planning and educational program development.

3. Provide for the development and implementation of regional standards and system plan components, as well as in systems evaluation.

### Objectives

1. Evaluate healthcare from a regional system perspective,
2. Involve CATRAC members in all phases and at all levels of the leadership and planning activities of regional development.
3. Ensure appropriate medical oversight of all pre-hospital providers through on-line and off-line medical control.
4. Identify common practices for Field Command when multiple providers respond, utilizing a NIMS/ICS System.
5. Medical Directors are responsible for ensuring their personnel are proficiently trained in accordance with DSHS guidelines.

### Discussion

The TSA-O region includes both rural and urban hospital and pre-hospital providers with varying levels of medical capability. There is no single EMS medical director for the region; however, there is one EMS medical director per provider or for multiple EMS providers within each county. Within TSA-O, the following committees have physician oversight: Executive Board, Trauma & Emergency Healthcare Systems Committee, Prehospital Committee, Stroke Workgroup, Cardiac Workgroup, and Perinatal Workgroup.

## Education

### Goals

All EMS personnel involved in prehospital care of injured patients will have access to initial and continuing education necessary to develop and maintain proficiency in trauma & emergency healthcare.

### Objectives

1. Initial Education – All EMT basic, AEMT, and paramedic students will adhere to the requirements set forth by the TX DSHS for certification with the NREMT.
2. Continuing Education: All EMT basic, AEMT, and paramedic personnel will participate in continuing education which is mandated by TX DSHS for re-certification.
3. A CATRAC Training calendar will be published on an as needed basis. The calendar will be expanded to incorporate all training information from our region and will be available to all entities in the region. On an on-going basis, data from the Trauma Registry and the regional quality improvement process will be used for training purposes to target specific areas of the initial and continuing education programs for continued improvement.

## EMResource Guidelines

All healthcare stakeholders have been provided with access to EMResource, which is an online platform that allows each hospital to update their status without the need to contact multiple stakeholders. Hospitals should always be logged into EMResource. EMS departments/ providers should routinely refer to EMResource for hospital and ED status as well as other service lines or specific needs (e.g. cath lab, CT scanner). If an EMS provider cannot check the status of EMResource, then the EMS provider should update the EMS personnel with the most recent status.

**Facility Status Definition:** Status of facility for EMS transport purposes.

- **Normal:** Accepting all patients.
- **Diversion Requested:** Facility is requesting EMS bypass for all patients
- **Internal Disaster:** Environmental or physical facility infrastructure disruption. Please specify in comments.

*Regional expectation is that EMS will not transport to a facility on Internal Disaster status.*

**ED Status Definition:** Current Emergency Department status is calculated using the National Emergency Departments Overcrowdings Score (NEDOCS) to measure emergency department capacity across the region in an objective and consistent manner.

- **Normal:** The Emergency Department is not busy. NEDOCS score 0-50.
- **Busy:** The Emergency Department is busy. NEDOCS score is 51-100
- **Overcrowded:** The Emergency Department is overcrowded. NEDOCS score is 101-140
- **Severe:** The Emergency Department is severely overcrowded. NEDOCS score is 141-180.
- **Disaster:** The Emergency Department is dangerously overcrowded. NEDOCS score is above 180.

It is recognized in advance that no capacity strategy can guarantee total compliance with these guidelines, and it is likely that ambulances will deliver patients to hospitals that have identified a state of diversion.

Each facility is responsible for defining facility-specific policies and procedures for implementation of these guidelines.

It is understood that the EMS system should not be expected to accurately screen patients transported to a facility based upon the capacity categories identified. When these questions arise, the EMS personnel should contact their on-line medical direction source, if available.

## CATrac Diversion Request Process

Prior to request being made, have the following been performed with no sufficient resolution in Facility Status?

**Hospital activates HCC**  
**Notifies Administrator on call**  
**Increases hospital support processes**

If no sufficient improvement in Facility Status, please conduct the following:

1. Facility Administrator contacts CATRAC Duty Officer at 512-926-6184 Option 9
2. Duty Officer will notate request, review regional healthcare status, and update Facility Status in EMResource to “Diversion Requested”, if applicable\*.

*\* Take into account the following factors: Review status diversion request of trauma, stroke, cardiac designation, NEDOCs, geography, weather, infrastructure impacts and take all under consideration for diversion request approval*

3. EMResource will broadcast an update to all users who have subscribed to the Facility Status changes. *It is the expectation of the organization’s User Administrators to account for user notification subscriptions.*
4. Facility Administrator will notify CATRAC Duty Officer when Facility Status can be returned to “Normal” if improvement occurs prior to 4 hours from initial request. Duty Officer will update EMResource, if needed. Otherwise, EMResource display status will automatically return to “Normal” after 4 hours.
5. Diversion request data will be reviewed routinely by EHS and Prehospital Committee.

### **Facility Bypass Guidelines**

When developing bypass protocols, each individual facility should consider the capabilities of pre-hospital agencies and facility emergency resources within the region. Transport protocols must ensure that patients who meet triage criteria for activation of the regional EMS/trauma system plan will be transported directly to an appropriate trauma facility rather than to the nearest hospital except under the following circumstances:

If unable to establish and/or maintain an adequate airway, or in the case of traumatic cardiac arrest, the patient should be taken to the nearest acute care facility for stabilization.

Trauma patients who are medically unstable, unconscious, or at high risk of multiple and/or severe injuries will be quickly identified and transported to the appropriate trauma designated hospital. (See transport considerations Page 18)

### **Stroke / LVO Lab Guidelines**

To meet the facility designation requirements effective September 1, 2022 in Texas Administrative Code 157.133 stating that facilities will “provide written or electronic notification of any temporary event or decision preventing the facility from complying with requirements of its current stroke designation level”. This notification will “be provided to the following:

- (A) all emergency medical services (EMS) providers that transfer stroke patients to or from the designated stroke facility;
- (B) the health care facilities to which it customarily transfers-out or transfers-in stroke patients;
- (C) applicable RACs; and
- (D) the department.”

If there is an interruption in capabilities or capacity, the facility will “immediately notify local EMS providers, referring facilities, and their RAC by written or electronic communication with time-stamp capabilities, a phone call to their local medical control, and change their status through the RAC communication system such as EMResource or WebEOC” within “60 minutes of the recognition of the loss in capabilities.”

**LVO Lab Definition:** Current status at facility regarding LVO capabilities.

- **Available:** Open to LVO patients
- **Consider:** <60 minutes before available
- **Delayed:** 1 to 4 hours before available
- **Unavailable:** >4 hours before available
- **N/A:** No LVO services at this facility

All stakeholders with interest in these services will setup their EMResource notifications to be alerted to these updates in stroke service capabilities.

## Inter-Hospital Transfers

All inter-hospital transfers must comply with current Federal and State regulations, with appropriate transfer memoranda and patient data accompanying the patient. Inpatient-to-inpatient transfers are accomplished directly from transferring attending to receiving attending physician, and from transferring hospital administration to receiving hospital administration, which is coordinated by the facility call/transfer centers.

Written transfer agreements are available to the major tertiary care facilities within the region. These agreements may be broad in nature or specific, i.e., burn or pediatric. See Appendix E: Inter-facility Transfer Algorithms

### Goal

The following list is a guideline for the transfer of patients between a local hospital and a tertiary care center. The list identifies patients at a particular elevated risk of dying from multiple and severe injuries. Ideally, such patients should be treated at a trauma center where continuing exposure to such problems by team systems may afford a patient an optimum outcome. Such patients should be considered for transfer to a Level I or a Level II whenever possible.

See Facility Triage Patient Criteria with Category I, II, and III listing of injuries.

### **Responsibility for Transfer**

1. Shared by referring and receiving physicians. (Referring physician should establish direct communication with the receiving physician. This should not be delegated to hospital clinical or administrative staff).
2. Referring facility responsible for requesting transportation resources (i.e.: ground or air ambulance).
3. Receiving physician should be consulted regarding arrangements and details of the transfer, including transportation.

Referring physician/hospital staff is responsible for giving report and patient care information to the transferring EMS crew, to include special care or equipment, if needed.

### **Patient Records and Reports**

The referring hospital is responsible for sending a complete copy of the patient record or chart from the sending facility, whether it be digital or hard copy with appropriate transfer forms.

## **Healthcare Facilities Designation**

The purpose of designation is to allow healthcare facilities to determine the level of care they wish to provide, whether it be in Trauma, Cardiac, Stroke, Maternal, or Neonatal. Designation affords healthcare providers a means of recognizing the various levels of service capabilities, within their own institutions and other facilities, thus allowing them to make informed decisions as to the care and treatment of their injured patients. In urban areas, designation may assist with determining patient destination. Designation is not intended to provide a means of determining hospital capabilities by the lay public.

Trauma: In the Texas Trauma Systems, there are four recognized levels of facility designation. Level I, Level II, Level III, and Level IV. For CATRAC Facility Triage Criteria see page 18. Please click [here](#) for DSHS Trauma Systems page.

TX DSHS lists trauma facilities by designation level and can be found [here](#). RAC participation and trauma center designation is encouraged through individual contacts and through prevention programs as well as physician contacts.

## **Quality Management (Performance Improvement) Program**

To provide ongoing performance assessment and improvement activities designed to objectively monitor and evaluate the quality of patient care.

### **Objectives**

- Facilitate performance improvement in the care of the trauma, stroke, and STEMI patients as they move through the system by establishing mechanisms to identify opportunities to improve.
- Provide a framework for a planned, systematic, and ongoing approach for the objective monitoring and evaluation of the quality, appropriateness, and effectiveness for the trauma, stroke, and STEMI patients in this region.
- Create an organizational structure that will be accountable for the coordination and integration of performance improvement activities in accordance with established standards of care.
- Provide ongoing performance assessment and improvement activities designed to optimize patient care (i.e., education, injury patterns, and specialty care).
- Optimize patient outcomes and system efficiencies for field transport and inter-facility transfers.
- Distribute and communicate pertinent information to other committees within CATRAC.

### **Membership**

To ensure a multidisciplinary committee, membership of the Emergency Healthcare Systems (EHS) Committee shall include, below is the committee minimum limit:

- Chair – Physician
- Co-Chair
- 2 physicians from TSA-O
- 2 nurses from TSA-O
- 2 EMS personnel from TSA-O
- 2 representatives from TSA-O currently designated by DSHS as trauma facilities

The committee chair will be appointed by the Executive Board Chair. The tenure is 2 years. Meetings will be open to the membership, which includes all who attends the committee meetings.

### **Responsibilities**

The EHS Committee shall be responsible for the implementation of monitoring activities, data collection, statistical analysis, identification of opportunities for improvement, recommending action, and re-evaluation.

1. Performance Improvement
  - Identification of Indicators



- Collection of Data
  - Evaluation
  - Loop Closure
2. Compliance
    - Utilize CATRAC protocols
    - Participate in activities as defined by the CATRAC bylaws
  3. Communication
    - Quarterly reports
    - Monthly minutes (excluding any identifying information)
    - Agenda

### **Quality Improvement**

Functional Authority: The final authority and ultimate responsibility for a flexible, comprehensive, and integrated quality management plan shall rest with CATRAC.

Program Evaluation: The effectiveness of the Quality Management Plan will be evaluated on an annual basis and revised as deemed appropriate.

Confidentiality: All documents generated concerning quality management activities within the region shall be confidential and used only in the exercise of designated functions of the Quality Management Plan.

Conflict of Interest: No practitioner or other individual involved in quality management activities shall be required to review any case in which they are professionally involved but shall be given the opportunity to participate in the review.

The EHS Committee is involved in Quality Improvement for all critical areas of the regional trauma, stroke, cardiac, perinatal, and prehospital systems, including field triage, pre-hospital care, and hospital patient care. Recommendations are made from the EHS Committee to the Executive Board.

### **System Management Indicators**

System management indicators should include financial, injury prevention, and outcome indicators. It is essential that the overall budgetary impact of the trauma care system be analyzed, including the cost of the system and its impact on direct and indirect costs of decreased morbidity and mortality. Injury prevention is a critical area where CATRAC can have a major impact on lessening the injury and morbidity in our region. The Injury Prevention Workgroup helps to provide information to the region.

Many of the system management indicators focus on outcome evaluation.

### **Pre-hospital Indicators**

CATRAC will monitor areas such as access to the system, response time, efficacy of field therapy, triage, transport decisions, scene time, and transport time.

#### **EMS Audit Filters**

1. Ambulance scene time >20 minutes (system filter)
2. Trauma patient (GCS < 8) leaving the ED or arriving at the ED without a definitive airway (Endotracheal tube or surgical airway).

#### **Hospital Audit Filters**

1. Time of arrival to ED until admission, death, or transfer to another facility.
2. Patient transferred from a higher-Level designation to a lower-Level designation.

#### **System Audit Filters**

CATRAC serves in an advisory capacity only, with authority to make recommendations and develop standard of care guidelines for the region.

Peer review rests within the Workgroup or Committee it falls under and shall be for educational purposes. This may be delegated in individual situations to the Executive Board or other standing committee(s) as appropriate. Quality improvement activities are delegated to the Medical Director Workgroup, with mutual reporting and recommendations as appropriate.

All peer review activities conducted under the auspices of CATRAC shall be kept confidential under Texas legal requirements for peer review. Responsibility for any disciplinary action rests exclusively with the individual's agency regarding employees/medical staff.

Any liability arising from decisions made by the practicing individual will fall to the individual's agency.

#### **Peer Review Participant Agreement**

One of the purposes of the CATRAC EHS Committee is to assure a review that fully addresses all relevant data, including historical information and opportunities for trauma system improvement. Full disclosure by all involved parties is required. This information is protected from disclosure by law, especially medical information, and potential medical/legal liability issues. Therefore, team reviews are closed to the public and cannot be lawfully discussed unless the public is excluded. In NO CASE should any team member or designee disclose any information regarding team discussion/decisions outside the team, other than pursuant to team confidentiality guidelines.

Failure to observe this procedure may violate various confidentiality statutes that contain penalties under law.

#### Team Operating Procedures Regarding Confidentiality

1. Records acquired by the team to conduct a review are exempt from disclosure under the Open Records Law, Chapter 552 of the Government Code.
2. Data collected and information regarding a review team meeting is confidential.
3. A report or statistical compilation of a review team is a public record subject to the Open Records Law, Chapter 522 of the Government Code IF it does not permit the identification of an individual or HIPAA relevant policies.
4. A team member may not disclose any information that is confidential.
5. Information, documents, and records of the team are confidential and are not subject to subpoena or discovery and may not be introduced into evidence in any civil or criminal proceedings.
6. Information that would otherwise be available from other sources is immune because they were included in a review team meeting.

### **Confidentiality Agreement**

The confidentiality agreement pertains to all members and guests of the CATRAC EHS Committee meeting.

It is not considered a breach of confidentiality when:

1. A team member invites a guest, who has information on a case to be reviewed, to a meeting.
2. Information is shared by a team member or guest with the agency that members represent, provided no identifying information is given, to change policy, or to carry out prevention issues identified by the team.
3. Team members or guests share information which that member brought to the meeting and no mention is made that the case was reviewed at the CATRAC Trauma Systems and Operations Committee meeting.

It is considered a breach of confidentiality information when:

1. A team member or guest shares identifying information for any reason outside the CATRAC EHS Committee meeting.
2. Information is shared with any media without the expressed direction of the CATRAC EHS Committee or the CATRAC Executive Board. This does not apply to information of which the member had knowledge before the meeting occurred.
3. A team member or guest shares an opinion of anyone present or any facility represented at the CATRAC EHS Committee meeting outside of such a meeting.

4. A team member or guest expresses an opinion (outside of meeting) which was formed at or derived from a meeting of the CATRAC EHS Committee regarding a case that was reviewed.

## **Rehabilitation**

To adhere to the continuum of care from injury or illness and offer a high-level of service, rehabilitation is a critical service offered within the region through different programs, whether that be hospital-based or a private organization. The process for transfers to the rehabilitation facilities are determined by each individual facility. Local Resources: Please go to EMResource to view a list of Rehabilitation Facilities in the region.

## **Trauma System Plan**

### **Prehospital Triage Criteria**

Texas Department of State Health Services (DSHS) Bureau of Emergency Services is the regulatory agency for the emergency vehicles, equipment, and personnel. CATRAC has seventeen ground EMS services and four air medical services providing emergency care and transport to trauma centers. CATRAC's Regional Resource Guide, which can be found in EMResource, shows the staffing and service level of each of these agencies.

Prehospital providers triage, treat, and transport patients based upon agency specific guidelines and protocols. While many of the prehospital provider protocols have similar information and based on nationally recognized standards, each agency medical director is responsible for establishing patient specific protocols. These transportation standards include, but are not limited to, transport destination determination, transportation method (e.g., "load and go", emergency traffic, use of air medical providers), and use of advance medical control. Protocol updates are provided to pre-hospital personnel from the agency's medical director with information about changes in patient care recommendations. Case reviews should be conducted monthly to analyze and evaluate specific patient care situations and to provide recommendations.

Prehospital providers should make every effort to notify the receiving facility in advance of arrival and provide patient report. Agency specific performance improvement is expected to monitor staff compliance with the agency's standards.

To assist in determining the best possible receiving location, hospital's trauma accreditation levels are posted within EMResource. Trauma center accreditation levels help identify type of resources and level of care provided by the institution. Other information about the near real-time capability and capacity of the facilities are also available in EMResource (See Page 16 for more detail).

Pediatric patients, patients with burn injuries, or patients who sustain major injuries may require care at a Level I or Level II trauma center. Time to admit and transfer the patient to a definitive care facility should be considered when assessing transport time to a Level 3 or 4 facility.

Current licensed acute care facilities in the region are listed in Appendix A: List of Hospitals or click [here](#) to see the list on CATRAC's website

### **Transport Considerations (Ground vs. Air Services)**

Multiple factors are involved in determining the most expedient method of transportation to the trauma center. In some cases, the most expedient means may be via a helicopter service. The following are guidelines to be utilized in determining ground vs air transportation.

Ground transport to nearest Level I or Level II trauma center should be considered when:

1. Patient is not entrapped and time from scene to trauma center (by land) is 20 minutes or less.
2. Helicopter is not available, or helicopter land and lift time exceeds ground transport time.
3. Patient/family requests for transport to a specific hospital made by the patient.

Patient/family preference is the highest level of authority and patients/families have the right to choose their destination even if it is not in their best interest. If patients/families request to go a destination hospital that is not prepared to offer the care required, they must be given information to help them make an informed decision, including the associated risks of deciding on an inappropriate destination. Prior to initiating transport to the requested facility, the EMT/Paramedic is encouraged to contact the requested receiving facility to notify of patient's pending arrival.

### Provider Notification

Communication and patient report should be made/attempted by transporting unit to the receiving facility. When communications cannot be established, or are interrupted, the decision to triage potential trauma center candidates to a trauma center must be made by the prehospital provider. This policy is to be applied only in bona-fide situations of communication failure where multiple attempts to reach medical command has been unsuccessful.

### Regional Medical Control

#### Off-Line Medical Control

The Medical Directors Committee shall adopt standardized pre-hospital trauma protocols for regional use. This should establish a minimum level of care for trauma patients and may be eventually extended. These standards will be a guide for the region, but each agency's medical director is responsible for their own standard of care, which can allow that agency to extend their protocol as needed.

- a. Currently, CATRAC is advising all entities to incorporate the DSHS-approved portions of the trauma system plan in their local protocols. These minimum standards will be a guide for CATRAC medical directors for EMS departments standards of care. CATRAC will continue to investigate the feasibility of a regional medical control system.
- b. Regional On-Line Medical Control: not available in TSA-0

### Cardiac System Plan

Patients are rapidly identified and transported to an appropriate cardiac facility and goals are a balloon time of less than 90-minutes. **Time is muscle!**

### **Objectives:**

1. Identify cardiac treatment and resources needed for hospitals within our region.
2. Establish standard treatment and guidelines for prehospital providers.

### **Regional STEMI Plan and Guidelines:**

#### **12-Lead ECG Screening Guidelines**

A regional 12-lead ECG “who gets a 12 Lead” guideline was created to provide consistency in 12-lead triage and screening protocols being used by hospitals and EMS. The following graphic “ECG Screening Guideline” serves as a guide for regional expectation for stakeholders in determining when to conduct a 12-lead ECG.



## ECG Screening Guidelines

**When in doubt, do the ECG!**

➤ Patients > 30 years old & experiencing any of the following:

- Chest pain (any pain between the navel and jaw)
- Chest pressure, discomfort, or tightness
- "Heartburn" or epigastric pain
- Complaints of "heart racing" or "heart too slow"
- Syncope
- Severe weakness
- New onset stroke symptoms
- Difficulty breathing (with no obvious non-cardiac cause)

***Above patients require ECG in 5 minutes!***

➤ Patients (regardless of age) with any of the above symptoms & history of:

- Prior cardiac disease such as heart attack
- A family history of early heart disease
- Diabetes mellitus
- Severe obesity
- Recent cocaine use

***These patients also require an ECG within 5 minutes!***

**Present ECG for immediate interpretation!**

**Remember:**

- Women & diabetic patients are more likely to present with atypical symptoms
- Elderly patients may have symptoms such as generalized weakness, altered mental status, nausea/vomiting, shortness of breath, diaphoresis, or syncope as their only sign of acute heart attack
- Atypical pain can be in jaw, neck, arm, or upper back.
- Minimize patient exertion
- 12 Lead on any post resuscitation cardiac arrest to evaluate for AMI

**When in doubt, do the ECG!**



### 12-lead ECG Criteria for Field Activation of STEMI Receiving Center Cath Lab

The Regional recommendations for field activation of the STEMI Receiving Center are the following two criteria:

**Signs / Symptoms of Acute Coronary Syndrome (ACS)**

-----AND-----

**ST segment elevation of 1mm or more in two contiguous leads**

**If both criteria are met then recommend field activation of STEMI Receiving Center**

**If ST elevation inconclusive, isolated to V1 – V2, or LBBB identified then recommend consultation with physician and STEMI Receiving Center prior to activation.**

- ***Please note: Use of the word “STEMI” in notifying the STEMI Receiving Center is recommended***

### 12-lead ECG Communication of Findings

The 12-lead interpretation is vital in activating the STEMI Receiving Center. The region recognizes the following ways to interpret the 12-lead and recommends a “good, better, best” tiered approach:

- **Good** - Computer Algorithm Interpretation alone
- **Better** - Computer Algorithm Interpretation in combination with EMS Provider Interpretation
- **Best** - EMS Provider Interpretation in combination with Wireless Transmission

All other scenarios would involve activation by the STEMI Receiving Center after consultation, ideally while a patient is still enroute.

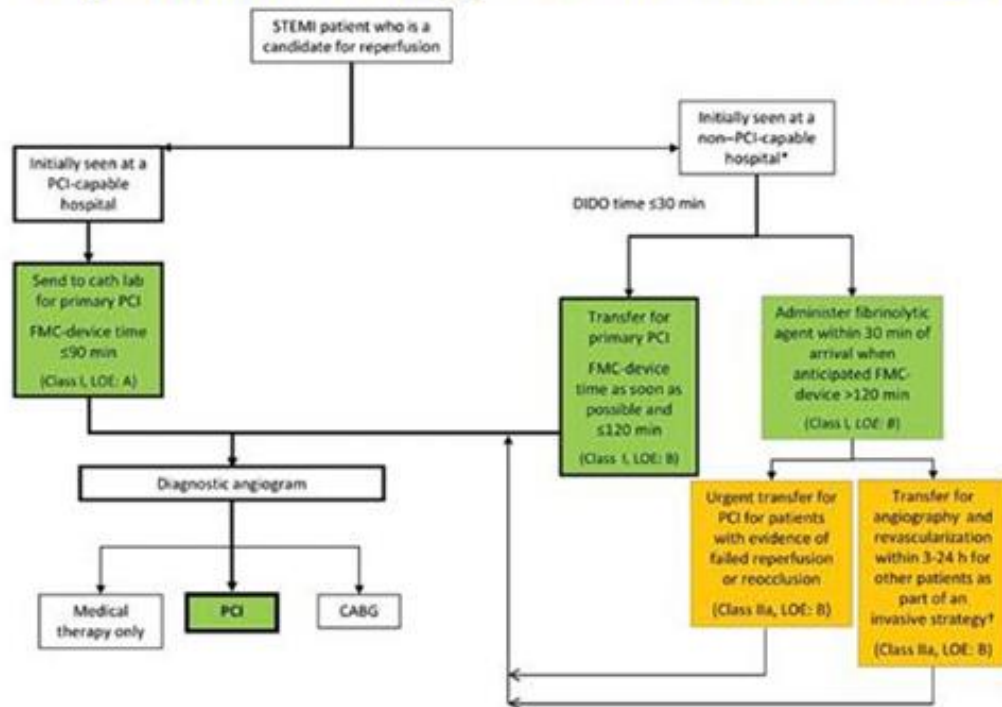
### Regional Destination Plan and STEMI Treatment Guidelines

Triage and Transfer for Percutaneous Coronary Intervention for Patients with STEMI have been updated to reflect the most current ACC/AHA 2013 STEMI Guideline recommendations:

It is an ACC/AHA class I recommendation that every community have a written protocol that guides EMS system personnel where to take patients with possible STEMI.

Based on the 2013 ACC/AHA STEMI treatment guidelines:

## Reperfusion Therapy for Patients with STEMI



\*Patients with cardiogenic shock or severe heart failure initially seen at a non-PCI-capable hospital should be transferred for cardiac catheterization and revascularization as soon as possible, irrespective of time delay from MI onset (Class I, LOE: B). †Angiography and revascularization should not be performed within the first 2 to 3 hours after administration of fibrinolytic therapy.



Helping Cardiovascular Professionals  
Learn. Advance. Heal.



### EMS Acute Coronary Syndrome Guideline

If field activation criteria for a STEMI is met (see page 26), declare a STEMI Alert and expedite transport to appropriate STEMI Receiving Center. If anticipated time from First Medical Contact with EMS to time of PCI at the STEMI Receiving Center is greater than 120 minutes (about 2 hours), consider transport to closest STEMI Referring Center (non-PCI capable) and complete the fibrinolytic checklist. Notify facility within 10 minutes of identification of positive STEMI 12-lead ECG.

Consider the following treatments, defer to agency protocol:

- If SpO<sub>2</sub> saturation is less than 94%, apply oxygen per nasal cannula at 4L/min and titrate to maintain O<sub>2</sub> saturation at 94%.
- Aspirin 324mg PO chewed x 1 Analgesic PRN for pain Antihypertensive for BP >160/90

- Nitrate: Vascular access before administration because of significant risk of hypotension. Hold if SBP is ever <100 mmHg.
- Fluid Bolus: 500 cc. Contraindications for patient's current clinical state (e.g. congestive heart failure) should be considered.

**Clinical PEARLS:**

- Consider not administering nitrates to patient who has used Sildenafil (Viagra, Revatio) or Vardenafil (Levitra) in the past 24 hours or Tadalafil (Cialis) in the past 36 hours (about 1 and a half days) due to potential severe hypotension.
- Regional standards include a balloon time of less than 90-minutes. Which is measures from first medical contact with EMS to PCI/Balloon inflation time. If geography or hazards exist that would cause transport times to exceed 60 minutes providers should consider air transport.
- Consider establishing a second IV line for patients with ECG changes or is likely to go directly to the cardiac catheterization lab.
- Monitor patient for hypotension and respiratory depression after administration of nitrate, antihypertensive or analgesic.
- Remember:
  - Females, diabetics, and geriatric patients often have atypical symptoms.
  - Patients in hypersympathetic state from amphetamine, cocaine or PCP use usually presents with sustained HR >120 bpm and HTN.

## STEMI Referring Center (Non-PCI) STEMI Guidelines

**STEMI Referring Center STEMI Guidelines (2019)**

Page 1

**STEMI Criteria:****Signs / Symptoms of Acute Coronary Syndrome (ACS)**

.....AND.....

**ST segment elevation of 1 mm or more in two contiguous leads**

- If both criteria are met then recommend activating the STEMI Receiving Center
- If ST-elevation inconclusive, isolated to V1-V2, or LBBB identified, then recommend consultation with physician and STEMI Receiving Center prior to activation

**Goal: Patient in the door and out the door < 30 minutes**

1st Medical Contact/EMS Time: \_\_\_\_\_ Pt. ED Arrival Time: \_\_\_\_\_ Pt. ED Discharge Time: \_\_\_\_\_

**Signs / Symptoms of Acute Coronary Syndrome (ACS)**

YES →

NO → Refer to hospital's non-ACS guidelines

- ☐ Acquire 12 lead ECG
- ☐ Physician reads 12 lead within 10 minutes

**STEMI / ST elevation conclusive?**

YES →

NO → Consult PCI Receiving Physician

- ☐ Activate Code STEMI / STEMI Alert
- ☐ Contact Transport (EMS or Air Medical) and Obtain ETA: \_\_\_\_\_
- ☐ Call for transfer to STEMI Receiving Center with Code STEMI / STEMI Alert

**Estimated time from 1st Medical Contact\* to Device < 120 minutes? If no, consider Fibrinolytics\*\***

\* EMS Scene Arrival or ED Arrival

YES →

NO → \*\*See Page 2 - Fibrinolysis Therapy or Consult PCI receiving physician

**Patient Care Priorities Prior to Transport or During Transport DO NOT DELAY TRANSPORT**

- ☐ If O2 Sat < 94% apply Oxygen at 4L/min and titrate to maintain O2 Sat between 94-99%
- ☐ Aspirin 324 mg PO chewable
- ☐ Apply Cardiac Monitor & have hands-free defibrillator pads available at bedside
- ☐ Obtain vital signs and pain scale
- ☐ Establish Saline Lock #1 large bore needle
- ☐ Administer Heparin IV loading dose 70 units/kg
- ☐ Administer Ticagrelor (Brilinta) 180 mg PO (preferred). If unavailable, Clopidogrel (Plavix) 600 mg PO or Prasugrel (Effient) 60 mg PO. **Precautions** with Prasugrel: Do not use in patients with active bleeding, history of TIA or stroke, age > 75 years, body weight less than 60 kg or 132 lbs.

**Patient Care when time allows — DO NOT DELAY TRANSPORT**

- ☐ Fax ECG to STEMI Receiving Center
- ☐ Establish Saline Lock #2 large bore needle
- ☐ Obtain Lab: cardiac markers (CKMB, Trop I), CBC, BMP, PT/INR, PTT, and pregnancy serum if childbearing age
- ☐ Administer NTG 1/150 gr.SL every 5 min x3 doses or Nitropaste PRN for chest pain (hold for SBP < 90); caution with inferior MI
- ☐ Administer Analgesia (Morphine sulfate or Fentanyl) IV PRN for chest pain unrelieved by NTG
- ☐ Consider Metoprolol (Lopressor) 5 mg IV x 1 if patient hypertensive (>160/90). May consider additional doses if clinically indicated. **Hold** if SBP < 120, Pulse ox < 92%, HR < 60 or active CHF or Asthma, or cocaine use.



## Non-PCI Hospital STEMI Guidelines (v 04.13)

Page 2

### Fibrinolytic Therapy

**Goal: Patient in Door to Needle Time < 30 minutes**

Is Estimated Time from First Medical Contact (EMS or Door) to Device/Reperfusion > 120 minutes?



Reperfusion Checklist **MUST BE COMPLETED** Prior to Administration of Fibrinolytic Therapy

ABSOLUTE contraindications to Fibrinolytic Therapy			RELATIVE contraindications to Fibrinolytic Therapy		
Active internal bleeding or bleeding diathesis	Yes	No	Active internal bleeding in past 2-4 weeks	Yes	No
Any prior Intracranial Hemorrhage	Yes	No	Prior exposure to Fibrinolytics	Yes	No
Allergy to Fibrinolytics	Yes	No	Severe hepatic and renal dysfunction	Yes	No
Ischemic stroke < 3 months (exception: acute ischemic stroke within 4.5 hours)	Yes	No	Recent GI bleed or active Ulcer disease	Yes	No
Known malignant intracranial neoplasm	Yes	No	Traumatic or prolonged CPR > 10 minutes	Yes	No
Known/suspected aortic dissection or aneurysm	Yes	No	Current use of anticoagulants	Yes	No
Cerebral aneurysm or AVM	Yes	No	History of prior ischemic stroke > 3 months	Yes	No
Trauma / Surgery (Intra-cranial Or Intra-spinal) < 3 months	Yes	No	Major surgery or trauma within 3 weeks	Yes	No
Significant closed-head or facial trauma within < 3 months	Yes	No	Pregnancy or early postpartum	Yes	No
Severe hypertension unresponsive to emergency therapy (SBP > 180 mmHg or DBP > 110 mmHg)	Yes	No	Significant Hypertension on presentation (SBP < 180 mmHg or DBP < 110 mmHg)	Yes	No
Known structural cerebral vascular lesion (e.g. Arteriovenous malformation)	Yes	No	History of chronic, severe, poorly controlled hypertension	Yes	No
			Dementia	Yes	No
			Known intracranial pathology not covered in Absolute Contraindications	Yes	No
			Non-compressible vascular punctures	Yes	No

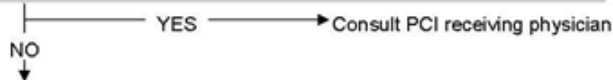


**Non-PCI Hospital STEMI Guidelines (v 04.13)**

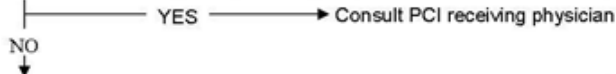
Page 3

**Fibrinolytic Administration Guidelines****Goal: Patient in Door to Needle Time < 30 minutes**

Has patient experienced chest discomfort for greater than 12 hours?



Are there contraindications to Fibrinolytic? (see Page 2)

**Primary Drug Treatment Plan**

Fibrinolytic should be given in a dedicated IV line. Flush line before and after administration of medication

- ☐ Tenecteplase (TNKase) IV over 5 seconds:

\*\*\* (If unable to give TNKase, give Reteplase (Retavase) per *Alternative Drug Treatment Plan* on page 4) \*\*\*

Patient Weight		TNKase Reconstituted	
kg	lbs	mg	mL
<60	<132	30	6
60 to <70	132 to <154	35	7
70 to <80	154 to <176	40	8
80 to <90	176 to <198	45	9
≥90	≥198	50	10

- ☐ Enoxaparin (Lovenox): (If unable to give Enoxaparin, give Heparin per alternative drug plan below)

Patient Age	Dose
<75	30 mg IV plus 1 mg/kg SC (maximum dose 100 mg)
≥75	No bolus. 0.75 mg/kg SC (maximum dose 75 mg)

- ☐ Clopidogrel (Plavix):

Patient Age	Dose
≤75	300 mg PO loading dose
>75	75 mg PO dose

- ☐ If O2 Sat <94% apply Oxygen at 4L/min and titrate to maintain O2 Sat between 94-99%
- ☐ Aspirin 324 mg PO chewable times 1 dose (if not already given)
- ☐ Repeat EKG 30 minutes after fibrinolytics administration if possible

Ensure transport agency will accept Fibrinolytic Drip during patient transport to PCI hospital

If Goal is missed talk to PCI Hospital





**Non-PCI Hospital STEMI Guidelines (v 04.13)**

Page 4

**Fibrinolytic Administration Guidelines****Goal: Patient in Door to Needle Time < 30 minutes**

Has patient experienced chest discomfort for greater than 12 hours?

YES → Consult PCI receiving physician

NO ↓

Are there contraindications to Fibrinolytic? (see Page 2)

YES → Consult PCI receiving physician

NO ↓

**\*\*\*Alternative Drug Treatment Plan\*\*\***

- ☐ Reteplase (Retavase) 10 Units IV over 2 minutes x 2 at 30-minute intervals
- ☐ 1st dose given at: \_\_\_\_\_ ☐ 2nd dose given at: \_\_\_\_\_
- ☐ Unfractionated Heparin bolus 60 IU/kg IV (maximum 4,000 IU)
- ☐ If O2 Sat <94% apply Oxygen at 4L/min and titrate to maintain O2 Sat between 94-99%
- ☐ Aspirin 324 mg PO chewable times 1 dose (if not already given)
- ☐ Repeat EKG 30 minutes after fibrinolytics administration if possible

**OR**

- ☐ Alteplase (tPA) 90 min weight-based infusion
- ☐ Unfractionated Heparin bolus 60 IU/kg IV (maximum 4,000 IU)
- ☐ If O2 Sat <94% apply Oxygen at 4L/min and titrate to maintain O2 Sat between 94-99%
- ☐ Aspirin 324 mg PO chewable times 1 dose (if not already given)
- ☐ Repeat EKG 30 minutes after fibrinolytics administration if possible

**Ensure transport agency will accept Fibrinolytic Drip during patient transport to PCI hospital****If Goal is missed talk to PCI Hospital**

### **Transports (Ground vs. Air)**

When a suspected STEMI patient is identified the pre-hospital provider should do a STEMI activation to the closest PCI facility. Ground vs Air transfer transport will be considered. If ground transport will take longer than 30 minutes, then air transport should be considered. Patients will be transferred based on availability and the needs of the patient.

### **Transfers**

Non-PCI facilities may transfer to a PCI facility with the standard interfacility transfer processed discussed in the Trauma area of the plan, but the patient will be transferred to a PCI facility not a trauma center. Once a STEMI patient is identified in a timely manner, then a transfer to PCI Facility for further treatment within our region should be immediately.

### **Designation Facilities**

The purpose of designation is to allow healthcare facilities to determine the level of care they wish to provide. Designation affords healthcare providers a means of recognizing the various levels of service capabilities, within their own institutions and other facilities, thus allowing them to make informed decisions as to the care and treatment of their injured patients. In urban areas, designation may assist with determining patient destination. Designation is not intended to provide a means of determining hospital capabilities by the lay public. Cardiac Care Centers: In the Texas Cardiac Facilities are categorized by Primary PCI Hospital – STEMI and Chest Pain Centers. For CATRAC Facility list click [here](#). Please click [here](#) for CARES (Cardiac Arrest Registry to Enhance Survival) page.

### **Continuous Quality and Process Improvement**

The region recognizes the need to review improvement opportunities regarding cardiac patients. A mechanism for monitoring patient outcomes and process measures will be established. A multidisciplinary group with representation of the EMS, first responders, and hospital ED, hospital cardiac catheterization laboratory, hospital coronary care unit that includes both physicians and nurses would meet regularly to identify problems and implement solutions.

Facilities in the region have agreed to pull data from a variety of sources to look at regional trends. Gathering of data trends may come from the CATRAC STEMI Receiving Centers , Referring Centers and EMS providers.

### **STEMI Field Guide Maintenance**

This plan will be reviewed periodically by the Cardiac Systems Workgroup which includes collaboration by EMS, first responders, hospitals, physicians, and nurses. The Workgroup will provide facilitation in bringing stakeholders together to review and make changes to the regional field guide based on research, best practices, and newly published guidelines.



## **Stroke System Plan**

The mission of the Stroke Committee is to review and maintain a written plan for regional triage and transfer of stroke patients to appropriate facilities; to create a stroke registry for regional data collection; to maintain a system to provide education to pre-hospital and emergency healthcare providers with updates of the availability and advances in stroke care; and to enhance community awareness of early recognition of stroke through educational resources.

### **Organization:**

CATRAC's Missions regarding stroke care includes providing leadership and guidance necessary to sustain a stroke system of care within TSA-O; improving the level of care provided to those persons living in or traveling through the region; and facilitating stroke awareness education to the public and healthcare providers in the region. CATRAC strives to ensure the quality of care provided to the stroke patient is at its highest level through work and cooperation of our standing committees and work groups. This plan addresses triage of the stroke patient, use of air medical resources and choosing the appropriate facility for managing the patient.

### **Purpose:**

The purpose of the Stroke Committee is to facilitate the development, implementation, and operation of a comprehensive stroke system based on accepted, evidence-based standards of care to decrease morbidity and mortality related to stroke. CATRAC will solicit participation from EMS and first responders, health care facilities, organizations, professional societies involved in health care.

### **Objectives:**

1. Rapidly identify and assess a suspected stroke patient and transfer to closest appropriate facility.
2. Develop a standardized guideline for stroke patients in our region (this document).
3. Establish system coordination relating to access, guidelines, and referrals. This coordination is intended to establish continuity and uniformity of care for the stroke patient.
4. Promote internal communication as the mechanism for system coordination which will include EMS providers, hospitals, and members of the Stroke Committee.
5. Create system efficiency for the patient and the programs through continuous quality improvement programs which will identify the patient's needs, outcome data and help develop standard uniformity.
6. Create system efficiency through continuous quality improvement processes to develop standardization and uniformity in approaches to stroke patient care.

7. Assess patient's onset of symptoms, vital signs, and a F (face) A (arm) S (speech) T (time) stroke scale or assess patient with the VAN scale.

Symptoms of stroke include:

- Suddenly feeling numb or weak in your face, arm, or leg — especially on one side of the body
- Suddenly feeling confused, having trouble speaking or understanding speech
- Suddenly having trouble seeing in one or both eyes
- Suddenly having trouble walking, feeling dizzy, or losing your balance or coordination
- Suddenly having a severe headache with no known cause

**Transports:**

When a patient is suspected or identified in the pre-hospital setting the provider should do a Stroke activation to the closest Comprehensive or Primary facility, whichever is quickest for the patient. Ground vs Air transfer transport will be considered. If ground transport will take longer than 30 minutes, then air transport should be considered. Patients will be transferred based on availability and the needs of the patient.

Patients with an onset of stroke symptoms less than 3 hours will be taken to the closest Level I or Level II Stroke Facility for treatment and evaluation for interventional care. It is expected that, after determining the patient is hemodynamically stable, the EMS personnel will make the determination that, if transport to a Level I or Level II facility will increase the transport time by more than 15 minutes the patient should be taken to the closest Level III stroke facility.

Unless immediate intervention (ABC's cardiac arrest etc.) is required, patients with an onset of stroke symptoms less than 8 hours should be taken to a Level I facility to be evaluated for advanced therapy. If the ground transportation time adds greater than 15 minutes or if lifesaving interventions are required for safe transport, EMS should consider calling for helicopter transport. Early consideration of Air Medical transport will be used to decrease transport time. (See Appendix D) Patients meeting criteria for helicopter dispatch should be transported to the nearest Level I or Level II Stroke Center.

Medical Air Transport resources should be appropriately utilized to reduce delays in providing optimal stroke care.

**Pre-Hospital Triage and Treatment:**

Patients will be identified, rapidly and accurately assessed, and based on identification of their actual or suspected onset of symptoms, will be transported to the nearest most appropriate stroke facility. Please see the attached Pre-hospital Transport Guidelines.

### **Inter-Hospital Transfers:**

The goal for establishing and implementing a facility's inter-hospital transfer plan in the CATRAC Region is to ensure that those stroke patients requiring additional or specialized care and treatment beyond a facility's capability are identified and transferred to an appropriate facility as soon as possible.

### **Designation Facilities:**

The purpose of designation is to allow healthcare facilities to determine the level of care they wish to provide, whether it be in Trauma, Cardiac, Stroke, Maternal, or Neonatal. Designation affords healthcare providers a means of recognizing the various levels of service capabilities, within their own institutions and other facilities, thus allowing them to make informed decisions as to the care and treatment of their injured patients. In urban areas, designation may assist with determining patient destination. Designation is not intended to provide a means of determining hospital capabilities by the lay public. Stroke: In the Texas Stroke Facilities, there are three recognized levels of facility designation. Comprehensive (Level I), Primary (Level II), and Support (Level III). For CATRAC Facility list click [here](#). Please click [here](#) for DSHS Stroke System page.

### **Discussion:**

- The Stroke Committee will set the agenda for PI processes by determining the type of data, the manner of data collection and identify the events and indicators to be evaluated and monitored. Indicator identification will be based on high risk and problem prone parameters. Indicators will be objective care techniques, and/or systems/process outcomes. This will be done within regularly scheduled meetings of the committee.

## Perinatal System Plan

The CATRAC Perinatal Workgroup endeavors to improve the care of pregnant women and newborns in TSA-O. The workgroup consists of neonatal and maternal leaders seeking to better understand community needs and encourage collaboration and coordination. As part of the new state guidelines: facilities need to have maternity designation by September 1, 2020, to receive Medicaid payment for obstetrical care by September 1, 2020. A requirement of designation is “active participation” in the Perinatal Regional Advisory Council, which has subsequently been defined as the one of the current twenty-two (22) Trauma Services Areas.

### Goals:

Perinatal patients will be transported and treated at the most appropriate facility for which both, mother and baby needs will be meet.

Objectives: *(To be completed at a later date)*

Regional Perinatal Plan: *(To be completed at a later date)*

Triage Criteria: The following list is to be considered when determining the level of transport:

Obstetrical	Medical	Fetal	Surgical	Neonatal
Premature rupture of the membranes	Disease - Cardiovascular, Renal, Vascular, Pulmonary, Endocrine	Fetal evaluation or monitoring	Trauma needing ICU	Preterm less than 32 weeks (about 7 and a half months)
Pre-eclampsia	Diabetes Mellitus	Intrauterine growth restrictions	Abdominal emergency	Respiratory distress
Hypertensive complications	Infection			Infection
Pre-term labor	Drug Overdose			Hypoglycemia
Multiple Babies	Live disease			Seizures
Vaginal Bleeding	Cancer during pregnancy			Hypoxemia
	Neurologic disorder			Drug withdrawal

### Transports:

When a patient is pregnant in the pre-hospital setting the provider should do a triage of labor and activate the closest delivering facility that is appropriate for care of mother and baby, whichever is closest to the patient. Ground vs Air transfer transport will be considered. If patient is in active labor with contractions less, then 5 minutes apart or with crowning visible then ground transport should be considered the most appropriate for active labor patients. Patients will be transferred based on availability and the needs of the patient.

### **Transfers:**

Lower-level labor and delivery or Neonatal Care facilities may transfer to a higher-level labor and delivery or Neonatal Care facility with the standard interfacility transfer processed discussed in the Trauma area of the plan, but the patient will be transferred to a Neonatal or Maternal facility not a trauma center. Once a patient is identified in a timely manner, then a transfer to Facility for further treatment within our region should be immediately.

### **Designation Facilities:**

The purpose of designation is to allow healthcare facilities to determine the level of care they wish to provide, whether it be in Trauma, Cardiac, Stroke, Maternal, or Neonatal. Designation affords healthcare providers a means of recognizing the various levels of service capabilities, within their own institutions and other facilities, thus allowing them to make informed decisions as to the care and treatment of their injured patients. In urban areas, designation may assist with determining patient destination. Designation is not intended to provide a means of determining hospital capabilities by the lay public.

Neonatal: In the Texas Neonatal Facilities, there are four recognized levels of facility designation. Level I (Well Nursery), Level II (Special Care Nursery), Level III (Intensive Care Unit), and Level IV (Advanced Intensive Care). Neonatal facilities level is backwards from trauma and stroke with Level IV being the highest level. For CATRAC Facility list click [here](#). Please click [here](#) for DSHS Neonatal System page.

Maternal: In the Texas Maternal Facilities, there are four recognized levels of facility designation. Level I, Level II, Level III, and Level IV. Please click [here](#) for DSHS Maternal System page.

## Appendix A: List of TSA-O Hospitals

(CAH) Critical Access Hospital; (AC) Acute Care

Hospitals	Address	Phone Number	Trauma Level	Bed Quantity	Pedi Services	Rehab Services	ICU-CCU	Radio Frequency 800 MHz
Arise Austin Medical Center	3003 Bee Caves Rd Austin, TX 78746	(512) 314-3800		19			2	X
Ascension Seton - Bastrop	630 Hwy. 71 W. Bastrop, TX 78602	(737) 881-7481		7				X
Ascension Seton Edgar B. Davis Hospital (CAH)	139 Hays St. Luling, TX 78648	(830) 875-7000	IV	24				X
Ascension Seton Highland Lakes Hospital (CAH)	3201 S. Water St. Burnet, TX 78611	(512) 715-3000	IV	25			4	X
Ascension Seton Medical Center	1201 W. 38th St. Austin, TX 78705	(512) 324-1000	IV	524			68	X
Ascension Seton Medical Center - Hays	6001 Kyle Parkway Kyle, TX 78640	(512) 504-5058	II	154			32	X
Ascension Seton Medical Center - Williamson	201 Seton Parkway Round Rock, TX 78665	(512) 324-4000	II	149			32	X
Ascension Seton Northwest Hospital	11113 Research Blvd. Austin, TX 78759	(512) 324-6900	IV	117			8	X
Ascension Seton Shoal Creek	3501 Mills Ave. Austin, TX 78731	(512) 324-2000		147				X
Ascension Seton Smithville Regional Hospital	1201 Hill Road Smithville, TX 78957	(512) 237-3214		8				X
Ascension Seton Southwest Hospital	7900 FM 1826 Austin, TX 78737	(512) 324-9000	IV	28				X
Austin Lakes Hospital	1025 E. 32nd St. Austin, TX 78705	(512) 544-5253		58				

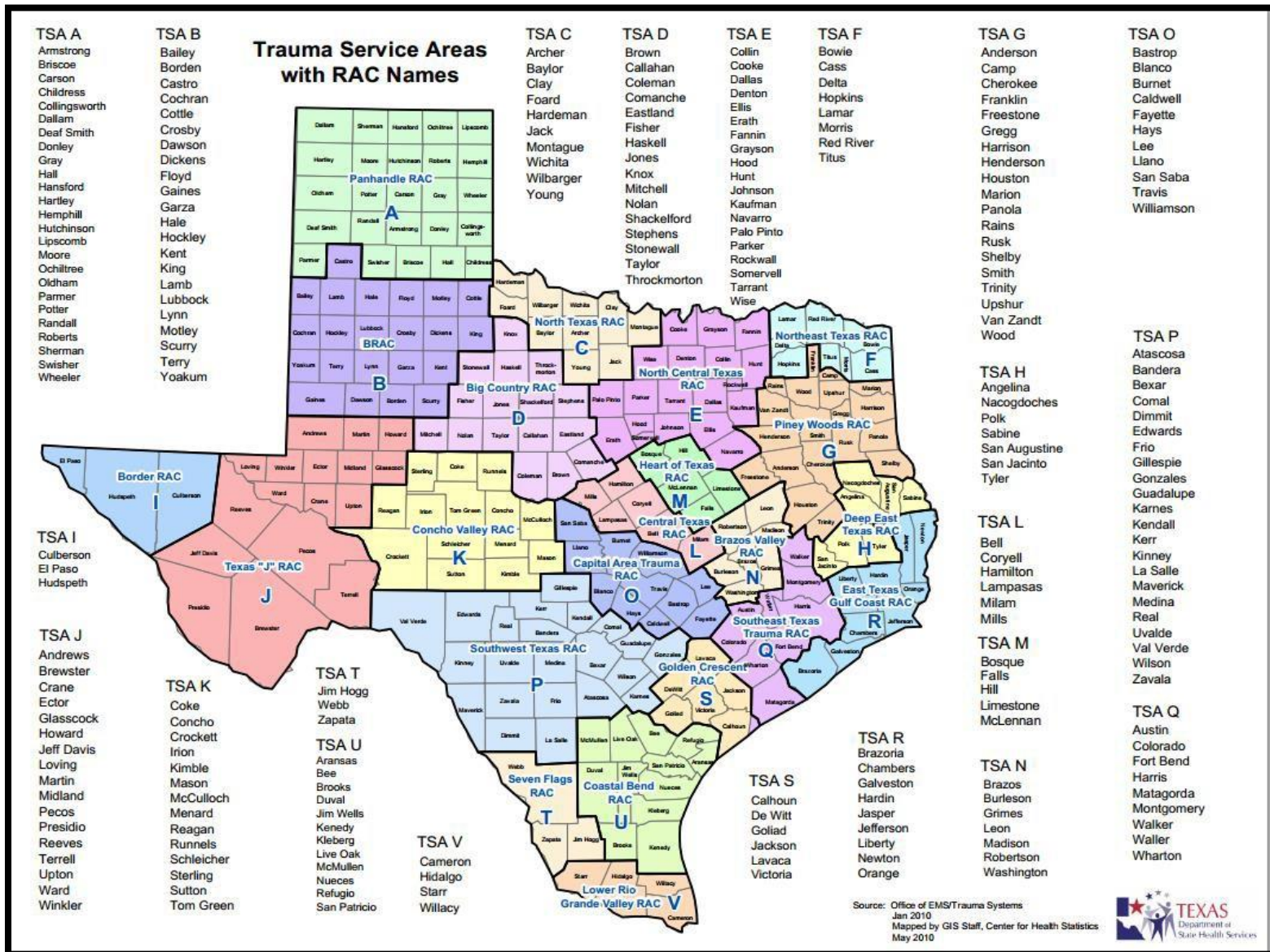
Austin Oaks Hospital	1407 W. Stassney Ln. Austin, TX 78745	(512) 440-4800		80				
Austin State Hospital	4110 Guadalupe St. Austin, TX 78751	(512) 452-0381		324				X
Baylor Scott & White Medical Center - Cedar Park	900 E. Whitestone Blvd. Cedar Park, TX 78613	(512) 684-4000		8				
Baylor Scott & White Institute for Rehabilitation - Lakeway	2000 Medica Parkway Cedar Park, TX 78613	(512) 263-4500		36		36		
Baylor Scott & White Medical Center - Austin	5245 W. Hwy 290 Austin, TX 78735	(512) 654-2100		25			25	
Baylor Scott & White Medical Center - Buda	5330 Overpass Rd. Suite 110 Buda, TX 78610	(737) 999-6200		15			15	
Baylor Scott & White Medical Center – Lakeway	100 Medical Parkway Lakeway, TX 78738	(512) 571-5000	IV	106			22	X
Baylor Scott & White Medical Center - Marble Falls	810 W. Hwy 71 Marble Falls, TX 78654	(830) 201- 8000	IV	46			8	X
Baylor Scott & White Medical Center - Pflugerville	2600E. Pflugerville Parkway Suite 100 Pflugerville, TX 78660	(512) 654-6100		25				
Baylor Scott & White Medical Center - Round Rock	300 University Blvd. Round Rock, TX 78665	(512) 509-0401	IV	101			3	X
Baylor Scott & White Medical Center - Taylor (CAH)	305 Mallard Ln Taylor, TX 76574	(512) 352-7611	IV	25				X
Cedar Park Regional Medical Center	1401 Medical Parkway Cedar Park, TX 78613	(512) 528-7000	IV	108			12	X
Central Texas Rehabilitation Hospital	700 W. 45th St. Austin, TX 78751	(512) 407-2111		50		50		X
Christus Santa Rosa Hospital - San Marcos	1301 Wonder World Dr. San Marcos, TX 78666	(512) 353-8979	IV	170			10	X
Cornerstone Hospital of Austin (AC)	4207 Burnet Rd. Austin, TX 78756	(512) 706-1900		103			6	X
Cornerstone Hospital of Round Rock (AC)	4681 College Park Dr. Round Rock, TX 78665	(512) 671-1100		54			12	X

Cross Creek Hospital	8402 Cross Park Dr. Austin, TX 78754	(512) 215-3900		90				
Dell Children's Medical Center of Central Texas	4900 Mueller Blvd. Austin, TX 78723	(512) 324-0101	I	240	136		48	X
Dell Seton Medical Center at the University of Texas	601 E. 15th St. Austin, TX 78701	(512) 324-5825	I	210			30	X
Encompass Health Rehabilitation Hospital of Austin	330 W. Ben White Blvd. Austin, TX 78704	(512) 730-4800		60		60		
Encompass Health Rehabilitation Hospital of Round Rock	1400 Hester's Crossing Round Rock, TX 78681	(512) 244-440		75		75		
Georgetown Behavioral Health Institute, LLC	3101 S. Austin Ave. Georgetown, TX 78626	(512) 819-9400		118				
Heart Hospital of Austin	3801 N. Lamar Austin, TX 78756	(512) 407-7000	IV	58			14	X
Mid Coast Medical Center - Central	200 W. Ollie Llano, TX 78643	(245) 242-2824	IV	25				X
Northwest Hills Surgical Hospital	6818 Austin Center Blvd. Austin, TX 78731	(512) 346-1994		8				X
Post-Acute Medical Specialty Hospital of Luling (AC)	200 Memorial Dr. Luling, TX 78648	(830) 875-8400		34		17		
Rock Springs	700 Southeast Inner Loop Georgetown, TX 78626	(512) 819-9400		72				X
St. David's Georgetown Hospital	2000 Scenic Dr. Georgetown, TX 78626	(512) 943-3000	IV	114		22	16	X
St. David's Surgical Hospital	1201 W. Louis Henna Blvd. Austin, TX 78681	(512) 901-1000		46			6	
St. David's Medical Center	919 E. 32nd St. Austin, TX 78705	(512) 476-7111	IV	371			40	X
St. David's North Austin Medical Center / St. David's Children's Hospital	12221 N. Mopac Expressway Austin, TX 78758	(512)901-2529	IV	395		16	30	X
St. David's Rehab Hospital	1005 E. 32nd St. Austin, TX 78705	(512) 544-5100		64		64		



St. David's Round Rock Medical Center (AC)	2400 Round Rock Ave. Round Rock, TX 78681	(512) 341-1000	II	171		12	18	X
St. David's South Austin Medical Center	901 W. Ben White Blvd. Austin, TX 78704	(512) 447-2211	II	334			28	X
St. Mark's Medical Center	1 St. Mark's Place La Grange, TX 78945	(979) 242-2102		65			4	X
Texas Neuro Rehab Center (AC)	1106 W. Dittmar Building 1 & 15 Austin, TX 78745	(512) 444-4835		32				
The Hospital at Westlake Medical Center	5656 Bee Caves Rd. Austin, TX 78746	(512) 327-0000		23			2	X
Warm Springs Rehab Hospital in Kyle	5980 Kyle Parkway Kyle, TX 78640	(512) 262-0821		40		40		
Wellbridge Healthcare San Marcos	1106 N. IH 35 San Marcos, TX 78666	(512) 353-0914		24				

## Appendix B: Map of Texas Trauma Service Areas



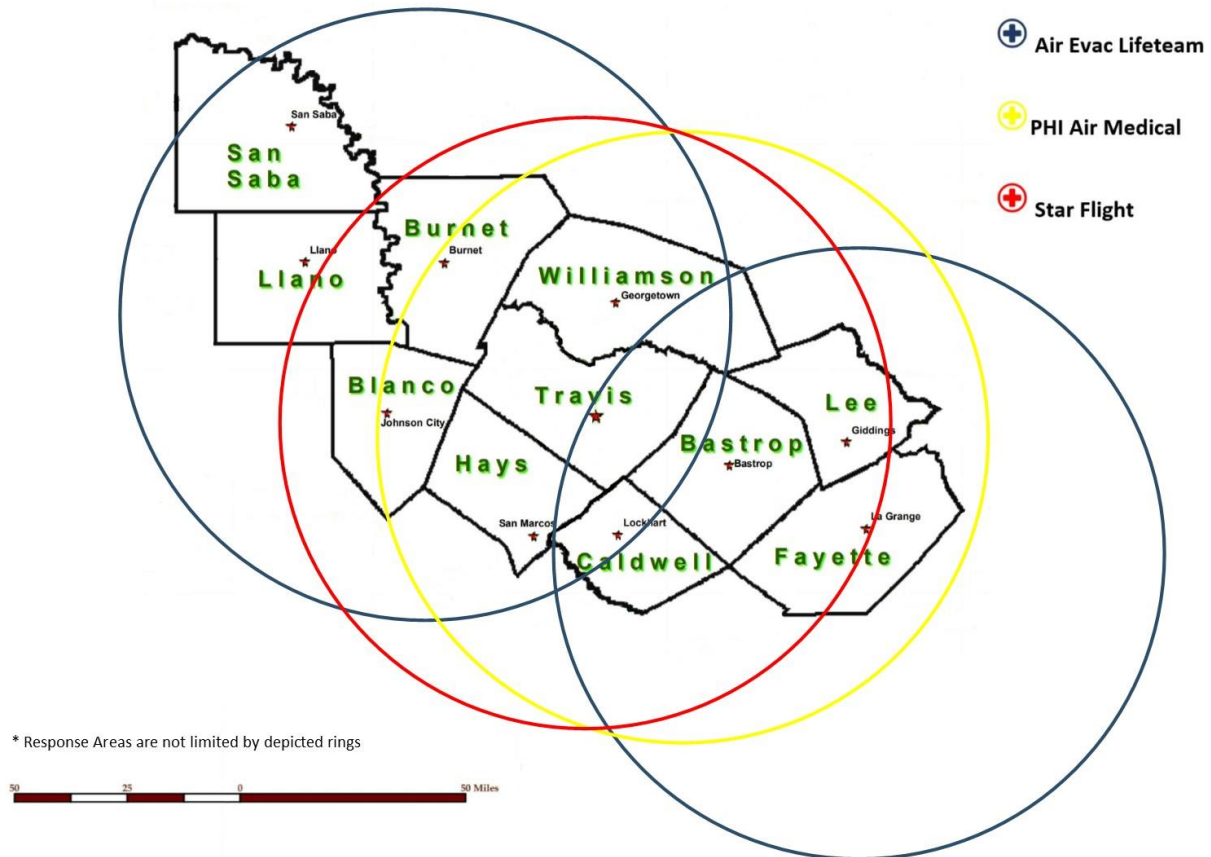
**Appendix C: TSA-O Demographics**

DEMOGRAPHIC DATA	TSA-O
Population Estimate (July 2019)	2,125,032
% < 5 yrs. old, (July 2015)	5.5
% < 18 yrs. old, (July 2015)	21.9
% > 65 yrs. old, (July 2015)	18.4
Female Persons, %, (July 2015)	49.9
White alone, %	89.5
Black alone, %	5.6
American Indian or Alaska Native, %	1.3
Asian alone, %	1.8
Native Hawaiian and Other Pacific Islander alone, %	0.1
Two or more Races, %	1.8
Hispanic or Latino, %	27.8
White alone, not Hispanic or Latino, %	63.7

County	County Seat	2010 Population	2020 Est. Population	Total Area (square miles)	Water Area (square miles)
<b>Bastrop(U)</b>	Bastrop	74,171	90,262	895	7
<b>Blanco (R)</b>	Johnson City	10,497	12,365	713	4
<b>Burnet (R)</b>	Burnet	42,750	49,225	1,021	27
<b>Caldwell (U)</b>	Lockhart	38,066	43,501	547	2
<b>Fayette (R)</b>	LaGrange	24,554	26,522	960	10
<b>Hays (U)</b>	San Marcos	157,107	232,080	680	2
<b>Lee (R)</b>	Giddings	16,612	17,432	634	5
<b>Llano (R)</b>	Llano	19,301	21,890	966	32
<b>San Saba (R)</b>	San Saba	6,131	6,223	1,138	3
<b>Travis (U)</b>	Austin	1,024,226	1,285,526	1,023	33
<b>Williamson (U)</b>	Georgetown	422,679	602,686	1,134	16

Appendix D: TSA-O Air Medical Coverage

# TSA—O Air Medical Coverage

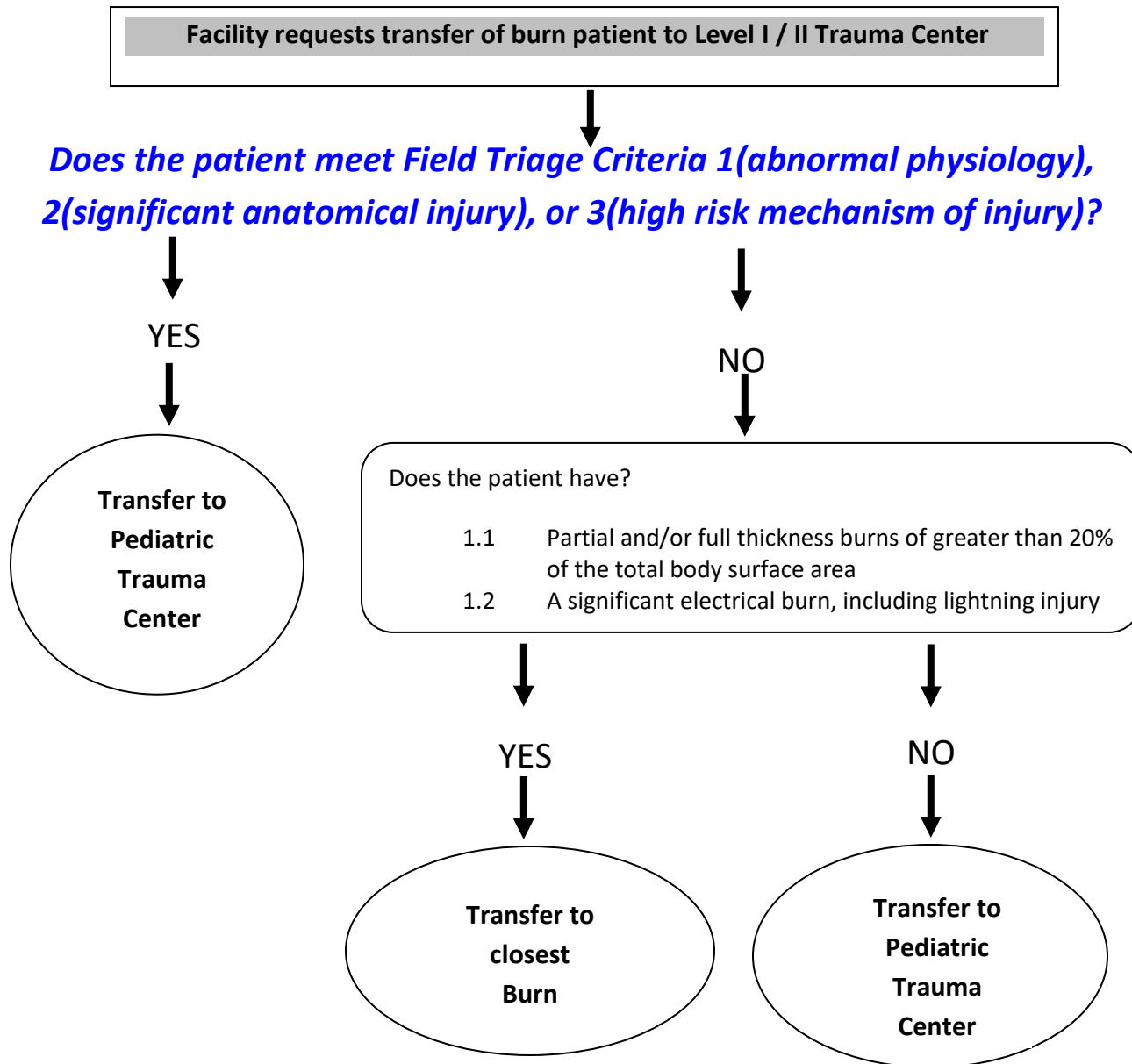


## Appendix E: Inter-Facility Transfer of Patients Schema

### Inter-facility Transfer of Burn Patients: PEDIATRIC <15 years

#### PURPOSE:

To standardize the transfer of burn patients from facilities within the CATRAC region, TSA "O"



#### Regional Burn Centers with Pediatric Capabilities

Dallas/Parkland Hospital (214)590-8000  
Galveston/Shriners' Burn Center (409)770-6773  
San Antonio/University Hospital (800)247-6428

\* Caveat-there may be circumstances in which the transferring physician might deem it beneficial to first transfer the patient to the regional pediatric trauma center for initial stabilization, airway management or vascular access prior to transfer to Burn Center.

## Inter-facility Transfer of Burn Patients: ADULT ≥ 15 years

### **PURPOSE:**

To standardize the transfer and management of burn patients from facilities within TSA “O’

**Facility requests transfer of burn patient to Level I / II Trauma Center**

**Does the patient meet Field Triage Criteria 1, 2, or 3?**

*CDC National Trauma Triage Protocol: Field Triage Decision Scheme*

YES

**Transfer to  
Trauma  
Center**

NO

Does patient meet criteria for transfer to Burn Center?

- 1.3 Partial thickness burns of greater than 10% of the total body surface area
- 1.4 Burns that involve the face, hands, feet, genitalia, perineum, or major joints
- 1.5 Third degree burns in any age group
- 1.6 Electrical burns, including lightning injury
- 1.7 Chemical burns
- 1.8 Inhalation injury
- 1.9 Burn injury in patients with pre-existing medical disorders that could complicate management, prolong recovery, or affect mortality.
- 1.10 Burned children in hospitals without qualified

YES

Austin/Dell Seton MC at UT	(512) 324-3515
Dallas/Parkland Hospital	(214) 590-8000
Galveston/UTMB	(800) 962-3648
Houston/Memorial Hermann	(713) 704-2500
San Antonio/BAMC	

NO

**Transfer to  
Trauma**

