Central Texas Regional Advisory Council
Trauma Service Area - L

Central Texas Regional Advisory Council

Trauma Service Area-L

Emergency Healthcare System Plan

2010

Table of Contents

Section Title	Page
Introduction	
• Record of Changes	5
• CTRAC Introduction	6
• Texas Department of State Health Services TSA Map	7
• CTRAC Trauma Service Area-L Map	8
• CTRAC Officers and Board of Directors	9
• CTRAC Subcommittees	10-12
Prehospital Services	
• Record of Changes	14
• EMS Providers by County	15
• EMS-Air Medical Providers	16
• EMS-First Responder Organizations by County	17-18
Hospitals	
• Record of Changes	20
• Hospitals by County	21-22
Guidelines	
• Record of Changes	24
• System Access	25
• Communications	26-30
• Regional Medical Control & Oversight	31-32
• Pre-Hospital Triage Criteria	33-35
• Pre-Hospital Patient Care Guidelines	36-42
• Air Medical Transport	43-45
• Facility Diversion	46-47
• Facility Bypass	48
• Facility Triage Criteria	49-51
• Interfacility Transfers	52-53
• Planning for Designation of Trauma Facilities	54
• System Performance Improvement	55-57
• Injury Prevention	58
• EMSystem Policy	59-63

• Regional STEMI Plan	64-73
• Regional STEMI/Stroke Form	74-75
• Stroke Transport/Transfer Guidelines	76-78
• Regional Health & Medical Disaster Plan	Under Separate Cover
• Regional Communications Frequencies	80-81

Introduction

RECORD OF CHANGES

INTRODUCTION

CHANGE #	DATE OF CHANGE	CHANGE ENTERED	CHANGE ENTERED BY
1.0	October 24th, 2007	Updated TSA map, Board of Directors, Subcommittee information and Bylaws.	Danielle Schmitz, CTRAC Exec. Director
1.1	February 11th, 2008	Updated Board of Directors and Subcommittee information.	Danielle Schmitz, CTRAC Exec. Director
1.2	May 27th, 2009	Updated Board of Directors, Bylaws and Subcommittee information.	Danielle Schmitz, CTRAC Exec. Director
1.3	May 26th, 2010	Updated Board of Directors, Subcommittee and Introduction information. Removed Bylaws.	Lavon Alls, CTRAC Admin. Assistant

Introduction

The Central Texas Regional Advisory Council (CTRAC) was established in 1992 through a grant from the *Texas Department of Health's Regional Trauma System Development Grant Program. It is one of 22 Trauma Service Areas in Texas and consists of six counties known as Trauma Service Area – L. CTRAC is recognized by the IRS as a 501(c) 3 non-profit organization since 1998.

During the 71st legislative session (1989), House Bill 18 was passed directing the establishment of a statewide trauma system for Texas. Specific rules and regulations related to the development of the statewide system were identified and implemented.

The state was divided into 22 Trauma Service Areas that account for the 254 counties in Texas. A Regional Advisory Council for trauma serves each Trauma Service Area. The Regional Advisory Councils were charged with developing a system plan based on standard guidelines for implementing a comprehensive trauma care system. The development of a regional plan is the ultimate responsibility of the stakeholders and participants of the Regional Advisory Councils. Some elements of the plan are required, while others may be added to best reflect the needs of the community. While the Plan may have numerous components, its heart is the dedication of the professionals who transform these guidelines into reality.

Since its inception, CTRAC has been active in trauma prevention and education programs as well as development and implementation of trauma patient care standards. Maintaining public education and awareness activities to increase the understanding of the trauma care system, access to trauma care and prevention of injuries, and providing coordination of acute medical services in mass casualty and disaster settings is an integral part of the mission and goals of CTRAC.

CTRAC covers over 6,192 square miles and has a population of 414,000. Sixty-two percent of the population lives outside of the largest cities of Killeen and Temple. TSA-L has a Level I Trauma Center, Scott & White Hospital, as its Lead Trauma Facility. Additionally, Fort Hood military base, located in Bell and Coryell Counties is the largest military installation in the free world with comprehensive training facilities for reserves and National Guard units from across the country. TSA-L consists of over 4,485 highway miles with Interstate Highway 35 dividing the region. Over 80% of TSA-L is rural, frontier rural and many areas are considered primitive-frontier.

Trauma and acute care should be part of a seamless emergency healthcare system that provides patients with well-organized and high-quality care. Incorporation of an overall health care system requires cooperation and availability of each component of the system.

The essence of an emergency healthcare system is the ability to get the right patient to the right hospital at the right time to reduce death and disability. CTRAC members have made great strides toward this goal and continue to collaborate and strive to improve care of trauma and acute patients.

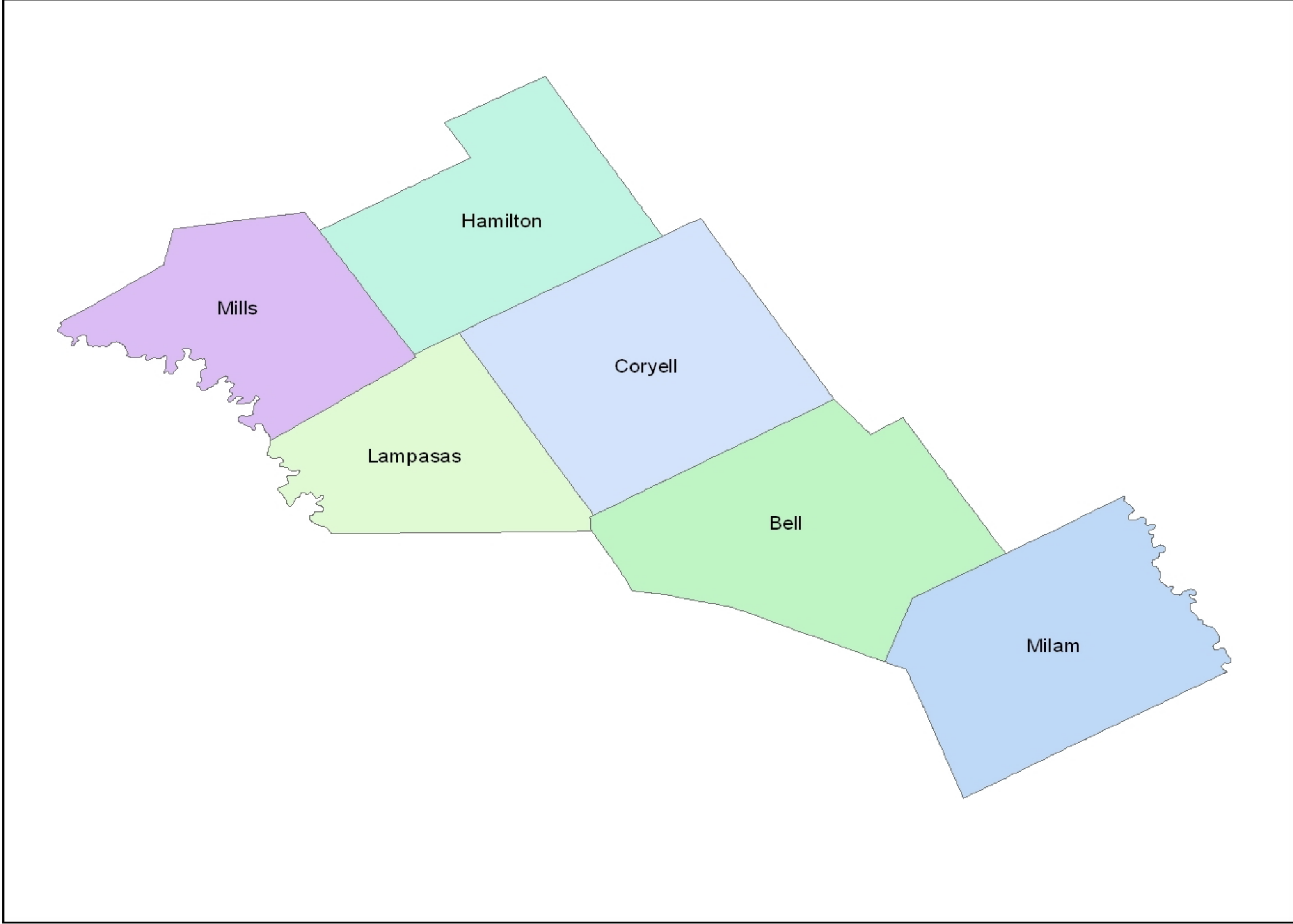
*(*Texas Department of Health became Texas Department of State Health Services in 2005)*

Texas Trauma Service Areas
March 2007

TEXAS
Department of State Health Services

Source: Health Quality Section/Office of EMS, March 2007
Created by: GIS Team, Center for Health Statistics, March 2007

TRAUMA SERVICE AREA - L



CTRAC 2010

Executive Board

Chair	Fred Gray, EMT-P Air Evac Lifeteam
Vice Chair	Jeffrey Mincy, EMT-P Coryell Memorial Healthcare System EMS
Treasurer	Brittney Misercola, RN, CEN, CFRN, NREMT-P PHI STAT Air
Secretary	Jennifer Henager Scott & White

Board of Directors

Fred Gray, EMT-P	CTRAC Chair
Jeffrey Mincy, EMT-P	CTRAC Vice Chair, EMSOC Committee Chair
Jennifer Henager	CTRAC Secretary
Brittney Misercola, RN, CEN, CFRN, NREMT-P	CTRAC Treasurer
Susan Burchfield	Injury Prevention/Public Education Committee Chair
Kelly Stowell	Hospital Care & Management Committee Chair
Walter Alvarado	Emergency Preparedness & Response Chair
Matthew Davis, MD	Medical Advisory Board Committee Chair
Anita Paniagua, RN	Performance Improvement Committee Chair
Vacant	Immediate Past Chair
Vacant	Rural Member-at-Large
Chad Berg, EMC	Emergency Management Member-at-Large
Stephen Beckwith, MD	Physician-at-Large
Wayne Rutherford	Community Member-at-Large
Gerald Slaton, RN	Trauma Program Rep. of Lead Trauma Facility
Eldon Tietje	Disaster Behavioral Health Planning Committee Chair
Jeremiah Lanford, MD	Acute Care Committee Chair
David Hardy, MD	Pediatric Committee Chair, Child Fatality Review Team Chair

Central Texas Regional Advisory Council
2180 N. Main St., Suite H5 & H6
Belton, Texas 76513
Phone (254) 770-2316
Fax (254)770-2382

Subcommittee	Chair & Vice Chair	Subcommittee Mission	Subcommittee Goals
Acute Care	**Chair** Jeremiah Lanford, Scott & White Hospital	To serve as liaison for Prehospital and facility providers in the delivery of ST-Elevation Myocardial Infarction (STEMI) and Stroke care within TSA-L.	1. Assist with development of regional guidelines and educational needs 2. Enhance communication and cooperation to facilitate the transfer of stroke patients to appropriate levels of care 3. Actively support facilities in the state Stroke Center designation process 4. Establish System QI/PI for Stroke Care 5. Establish a Regional STEMI System of Care 6. Establish System QI/PI for STEMI Care 7. Include STEMI and Stroke speakers in CTRAC Symposia.
Disaster Behavioral Health Planning	**Chair** Eldon Tietje, Central Counties Center MHMR	To increase the knowledge, skill, and capability levels of disaster behavioral health service providers in the CTRAC Region.	1. Use an "all-hazards" approach to developing disaster behavioral health services for the CTRAC region so all actions and outcomes will be compatible with all other CTRAC disaster services. 2. Identify the primary stakeholders and potential providers of disaster behavioral health services in the CTRAC region. 3. Develop a Regional Disaster Behavioral Health Plan for the CTRAC region 4. Identify areas and populations evaluated to be at high risk for the need of disaster behavioral health services within the CTRAC region. 5. Identify disaster behavioral health service needs of first responders and their families 6. Address disaster behavioral health services needs of victims of a local disaster and/or from a disaster occurring outside of the CTRAC region. 7. Develop a plan for long term disaster behavioral health services needs of disaster/trauma victims 8. Clarify legal liabilities/vulnerabilities of disaster behavioral health services providers/responders 9. Develop a training plan for the CTRAC region to steadily increase the knowledge and skill level of disaster behavioral health services providers. 10. Develop a plan and operating guidelines to effectively implement a Family Assistance Center locally, if needed
EMS Operations Committee	**Chair** Jeffrey Mincy, Coryell Memorial Healthcare System EMS	To serve as a liaison for pre-hospital providers within this region, to include the monitoring of system development, coordination of activities, performance improvement, and pre-hospital training.	1. To incorporate recruitment strategies in an attempt to promote active participation on the EMSOC Committee from all EMS/Hospital service within the TSA-L region. 2. The EMSOC Committee will assist the MAB with the development of regional Stroke guidelines and facilitate pre-hospital stroke education. 3. Assist the MAB in developing regional pediatric guidelines and assist agencies with pediatric equipment and training needs. 4. Assist the MAB with development of regional guidelines as needed and assist with pre-hospital educational needs.

Subcommittee	Chair & Vice Chair	Subcommittee Mission	Subcommittee Goals
Emergency Preparedness & Response (EPR)	**Chair** Walter Alvarado, Carl R. Darnall Army Medical Center	To coordinate preparedness and responses to acute medical mass casualty and disaster situations.	1. To coordinate preparedness activities between entities within our trauma service area. 2. Meet all required criteria outlined in the OASPR/DSHS grant guidelines for the Hospital Preparedness Program.
Hospital Care & Management	**Chair** Kelly Stowell, Scott & White Hospital	To serve as a liaison between healthcare facilities within this region to include the monitoring of system development, coordination of activities, performance improvement, facility designations and hospital training.	1. Actively support trauma education for ED/Trauma nurses in our trauma service area. 2. Establish standard competency list for ED/Trauma nurses in our trauma service area. 3. Enhance communication and cooperation between health care facilities and EMS to facilitate transfer of acute patients to appropriate levels of care.

2010 Subcommittees

Committee	**Chair**	**Purpose**	**Goals**
Injury Prevention/ Public Education	**Chair** Susan Burchfield, Scott & White Memorial Hospital	To reduce injuries through education and advocacy.	1. Increase awareness of value and role of injury prevention 2. Increase committee membership and participation 3. Determine priority prevention topics based on data review 4. Create structure which will provide support, leadership and resources for member entities to develop local educational activities 5. Increase visibility of CTRAC presence throughout area 6. Develop injury prevention page/links for CTRAC web site. 7. Develop injury prevention newsletter for distribution
Medical Advisory Board	**Chair** Eric Gourley, MD Carl R. Darnall Army Medical Center	To provide oversight and assistance related to patient care/system issues for the CTRAC region and assist the CTRAC PI Committee with PI issue resolutions.	1. To revise and review the CTRAC Emergency Healthcare System Plan on a yearly basis 2. To assist in loop closure with identified performance improvement issues brought forth by the CTRAC Performance Improvement Committee. 3. To monitor patient care/system issues that may arise warranting the need to develop specific guidelines in the CTRAC region.
Pediatric Committee	**Chair** David Hardy, MD, Scott & White Memorial Hospital	To provide leadership and identify resources to facilitate educational programs, promote child safety, increase health care provider skills in pediatric resuscitation and stabilization, and to decrease morbidity and mortality in the pediatric population (age 0 – 16)	1.
Performance Improvement Committee	**Chair** Anita Paniagua, Carl R. Darnall Army Medical Center	To provide ongoing performance assessment and improvement activities designed to objectively and systematically monitor and evaluate the quality of acute patient care through system analysis in an effort to identify and pursue opportunities to improve patient care.	1. To facilitate performance improvement in trauma patient care and services by establishing mechanisms to identify opportunities to improve. 2. To provide a framework for a planned, systematic and ongoing approach for the objective monitoring and evaluation of the quality appropriateness and effectiveness of acute patient services provided within TSA-L. 3. To create an organizational structure which will be accountable for the coordination and integration of performance improvement activities in accordance with established standards?

Prehospital Services

RECORD OF CHANGES

PREHOSPITAL SERVICES

CHANGE #	DATE OF CHANGE	CHANGE ENTERED	CHANGE ENTERED BY
1.0	Ocotber 24th, 2007	Updated Prehospital provider contact information and level of care	Danielle Schmitz, CTRAC Exec. Director
1.1	February 11th, 2008	Updated Prehospital provider contact information	Danielle Schmitz, CTRAC Exec. Director
1.2	May 27th, 2009	Updated Prehospital provider information.	Danielle Schmitz, CTRAC Exec. Director
1.3	May 26, 2010	Updated Prehospital provider information. Added air medical coverage map	Lavon Alls, CTRAC Admin. Assistant

EMS Providers

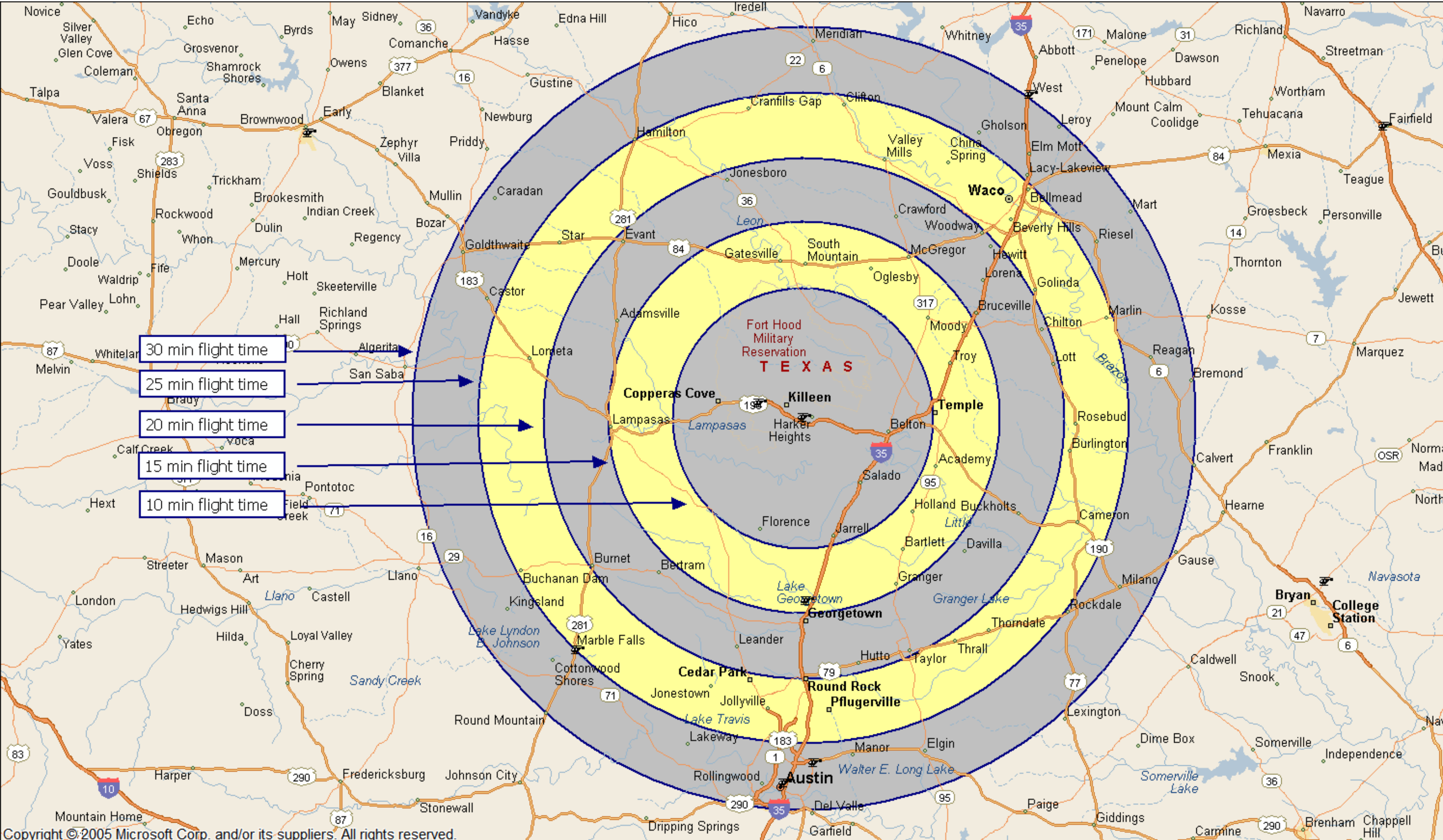
County Services	EMS Provider	Contact	Level	RAC Member
Bell	Belton Fire Department EMS	PO Box 120 Belton 76513 254 933-5881	BLS-MICU	Yes
	Harker Heights Fire Department EMS	401 Indian Trail Harker Heights 76548 254 699-2688	MICU-Ground	Yes
	Scott & White EMS, Inc.	2401 S 31 St Temple 76508 254 724-5630	BLS-MICU, Specialty	Yes
	Killeen Fire Department EMS	201 N. 28th Killeen 76543 254 501-7884	MICU-Ground	Yes
	Carl R. Darnall Army Medical Center EMS	36000 Darnall Loop Ft. Hood 76544 254 288-8302	BLS-MICU	Yes
	Copperas Cove Fire Department EMS	415 S. Main Street Copperas Cove, TX 76522 254-547-2514	BLS-MICU	Yes
	Central Texas Regional EMS	442 Champions Drive Georgetown, TX 78628	ACLS	Yes
Coryell	Coryell Memorial Hospital EMS	1507 W Main Gatesville 76528 254 865-1210	BLS-MICU	Yes
	Copperas Cove Fire Department EMS	415 S Main Copperas Cove 76522 254 547-2514	BLS-MICU	Yes
Hamilton	Hamilton EMS	400 N. Brown Hamilton 76531 254-386-5442	BLS-MICU	Yes
Lampasas	Copperas Cove Fire Department EMS	415 S Main Copperas Cove 76522 254 547-2514	BLS-MICU	Yes
	Capital Ambulance	PO Box 506 Lampasas 76550 512-556-0064	MICU-Ground	Yes
Milam	American Medical Response	3601 Bluestein Blvd Austin 78721 254 697-4391 512 926-5652	MICU-Ground, Specialty	Yes
	Thorndale EMS	PO Box 308 Thorndale 76557 512 898-2523	BLS	Yes
Mills	Mills County EMS	PO Box 687 Goldthwaite 76844 325-648-6422	BLS	Yes

Air Medical Providers

- AirEvac (DBA LifeStar Air Medical)
  Location – Metroplex Hospital
  1-877-633-3544 Dispatch
  254 628-1275 Crew quarters
  2407 Clear Creek Rd
  Killeen, TX 76549

- PHI Air Medical STAT AirII
  Location: Georgetown
  1-800-456-7477 Dispatch
  512 763-1486 Base
  1515 Airport Dr.
  Killeen, TX 76543

- PHI Air Medical STAT Air I
  Location: Killeen
  1-800-456-7477 Dispatch
  254 680-3644 Base
  1515 Airport Dr.
  Killeen, TX 76543



EMS-First Responder Organizations

County Services	EMS-First Responder Organization	Contact	RAC Member
Bell	Bartlett Volunteer Fire Dept.	PO Drawer H Bartlett, TX 76511 254-527-3219	No
	Fort Hood Fire Dept.	Bldg. 23025 Fort Hood, TX 76544 254-553-0640	Yes
	Harker Heights Volunteer Fire Dept.	401 Indian Trail Harker Heights, TX 76548 254 699-2688	Yes
	Holland First Responders	PO Box 326 Holland, TX 76534 254-857-2365	No
	Little River Academy Volunteer Fire Dept./EMS	PO Box 351 Little River, TX 76554 254-982-4251	No
	Moffat Volunteer Fire Dept.	5660 LAKEAIRE Blvd. Temple, TX 76502 254-986-8388	No
	Morgan's Point First Responders	8 Morgan's Point Blvd. Belton, TX 76513 254-780-2022	Yes
	Rogers Volunteer Fire Dept./First Responders	PO Box 309 Rogers, TX 76569 817-642-3312	No
	Salado Volunteer Fire Dept.	PO Box 503 Salado, TX 76571 254-947-8961	Yes
	Southwest Bell County Volunteer Fire Dept.	PO Box 10792 Killeen, TX 76547 254-526-4500	No
	Stillhouse Volunteer Fire Dept.	PO Box 457 Belton, TX 76513 254-933-2302	Yes
	Temple Fire & Rescue	505 N. 3rd Street Temple, TX 76501 254-298-5682	Yes
	Troy Volunteer Fire Dept.	PO Box 1 Troy, TX 76579 254-938-2188	No
Coryell	Coryell City/Osage Volunteer Fire Dept.	301 CR 255 Oglesby, TX 76561 254-230-8758	No
	Flat First Responder Organization	PO Box 60 Flat, TX 76526 254-487-2936	No

	Gatesville Volunteer Fire Dept.	109 S. 23rd Gatesville, TX 76528 254-865-8416	No
	Jonesboro Volunteer Fire Dept.	PO Box 6 Jonesboro, TX 76538 254-463-2200	No
	Mound First Responder Organization	PO Box 110 Mound, TX 76558 254-865-7666	No
	Oglesby VFD First Responder Org.	PO Box 185 Oglesby, TX 76561 817-470-2204	No
	Turnersville Volunteer Fire Dept.	1205 CR 226 Gatesville, TX 76528 254-494-6585	No
Hamilton	Hico Volunteer Fire Dept.	PO Box 383 Hico, TX 76457 254-485-1933	No
	Jonesborough Volunteer Fire Dept.	PO Box 6 Jonesborough, TX 76538	No
Lampasas	Lampasas Fire Dept.	408 S. Main Lampasas, TX 76550 512-556-3446	No
	Lometa Volunteer Fire Dept.	PO Box 246 Lometa, TX 76853 512-752-3333	No
	Oakalla Volunteer Fire Dept.	29111 FM 963 Oakalla, TX 78608 512-556-0540	No
Milam	No Registered EMS-First Responders	N/A	N/A
Mills	No Registered EMS-First Responders	N/A	N/A

Hospitals

RECORD OF CHANGES

HOSPITALS

CHANGE #	DATE OF CHANGE	CHANGE ENTERED	CHANGE ENTERED BY
1.0	Ocotber 24th, 2007	Updated Hospital contact information and designation level	Danielle Schmitz, CTRAC Exec. Director
1.1	February 11th, 2008	Updated Hospital designation level	Danielle Schmitz, CTRAC Exec. Director
1.2	May 27th, 2009	Updated Hospital designation level	Danielle Schmitz, CTRAC Exec. Director
1.3	May 26, 2010	Updated hospital designation levels. Added hospital stroke designation levels. Added Texas DSHS stroke designation level definitions	Lavon Alls, CTRAC Admin. Assistant

Hospitals

County	Hospital	City	Trauma Designation Level	Stroke Designation Level
Bell	Carl R. Darnall Army Medical Center 36000 Darnall Loop Fort Hood, TX 76544 254 288-8150	Ft. Hood	Level III	In active pursuit
	Cedar Crest Hospital 3500 S. Interstate 35 Belton, TX 76513 254-939-2100	Belton	Not Applicable	In active pursuit
	Central Texas Veterans Health System 1901 Veterans Memorial Drive Temple, TX 76504 254-778-4811	Temple	Not Applicable	In active pursuit
	King's Daughters Hospital 1901 SW HK Dodgen Loop Temple, TX 76502 254-771-8600	Temple	Undesignated	In active pursuit
	Metroplex Hospital 2201 S. Clear Creek Rd. Killeen, TX 76549 254-526-7523	Killeen	Level IV	In active pursuit
	Metroplex Pavilion 2201 S. Clear Creek Rd. Killeen, TX 76549 254-628-1000	Killeen	Not Applicable	In active pursuit
	Scott & White Memorial Hospital 2401 S. 31st Street Temple, TX 76504 254-724-2111	Temple	Level I	In active pursuit
	Scott & White-Santa Fe Center 600 S. 25th Street Temple, TX 254-773-1792	Temple	Not Applicable	In active pursuit
	Scott & White Pavilion 2401 S. 31st Street Temple, TX 76504 254-724-2111	Temple	Not Applicable	In active pursuit

	Scott & White Continuing Care Hospital 546 N. Kegley Road Temple, TX 76502 254-215-0900	Temple	Not Applicable	Not Applicable
Coryell	Coryell Memorial Hospital 1507 W. Main Street Gatesville, TX 76528 254 248-6300	Gatesville	Level IV	In active pursuit
Hamilton	Hamilton General Hospital 400 N. Brown Street Hamilton, TX 76531 254-386-1600	Hamilton	Level IV	In active pursuit
Lampasas	Rollins Brook Community Hospital 608 N. Key Avenue Lampasas, TX 76550 254 556-3682	Lampasas	Undesignated	In active pursuit
Milam	Richards Memorial Hospital 1700 Brazos Avenue Rockdale, TX 76567 512-446-2513	Rockdale	Undesignated	In active pursuit
	Central Texas Hospital 806 N. Crockett Avenue Cameron, TX 76520 254-697-6591	Cameron	Level IV	In active pursuit
Mills	No Facility	NA	NA	NA

Texas Department of State Health Services (DSHS) trauma designation levels:

- Level I: Comprehensive trauma facility which meets or exceeds the American College of Surgeons (ACS) and Texas DSHS essential criteria for ACS verification and DSHS designation as a Level I Trauma Center
- Level II: Major trauma facility which meets or exceeds the American College of Surgeons (ACS) and Texas
  DSHS essential criteria for ACS verification and DSHS designation as a Level II Trauma Center
- Level III: General trauma facility which meets or exceeds the Texas DSHS criteria for designation as a Level III Trauma Center.
- Level IV: Basic trauma facility which meets or exceeds the Texas DSHS criteria for designation as a Level IV Trauma Center.

Texas Department of State Health Services (DSHS) stroke designation levels:

- Level I: Comprehensive Centers ("CSCs") will meet the requirements specified in the Consensus Statement of Stroke on Comprehensive Stroke Centers. (Recommendations for comprehensive Stroke centers: a consensus statement from the Brain Attack Coalition. Stroke. 2005; 36(7):1597-616
- Level II: Primary Stroke Centers ("PSCs") will meet the requirements specified in "Recommendations for the Establishment of Primary Stroke Centers, JAMA 2000 June 21; 283 (23):3125-6." They will be able to deliver stroke treatment 24/7.
- Level III: Support Stroke Facilities ("SSFs") provide timely access to stroke care but may not be able to meet all the criteria specified in the Level 1(CSCs) and Level 2 (PSCs) guidelines.

Guidelines

RECORD OF CHANGES

GUIDELINES

CHANGE #	DATE OF CHANGE	CHANGE ENTERED	CHANGE ENTERED BY
1.0	Ocotber 24th, 2007	Updated Guidelines as appropriate.	Danielle Schmitz, CTRAC Exec. Director
1.1	February 11th, 2008	Updated Guidelines developed by Regional Protocol Task Force	Danielle Schmitz, CTRAC Exec. Director
1.2	May 27th, 2009	Updated Guidelines as appropriate with approval of General Assembly.	Danielle Schmitz, CTRAC Exec. Director
1.3	May 26th, 2010	Updated out-of-RAC transfer facilities, System Performance Improvement guidelines and inserted new Regional Stroke Plan	Lavon Alls, CTRAC Admin. Assistant

SYSTEM ACCESS

Goal

The Goal for System Access within TSA-L is two-fold. First, rapid access to notification of the need for emergency and trauma care at any location within TSA-L must be available to all persons in the Region. Second, Emergency Medical Services (EMS) must be rapidly available to provide quality health care to injured or ill persons in each CTRAC Community. In portions of this Region, First Responder Organizations (FRO) may provide initial treatment pending EMS arrival.

Objectives

1. To ensure that all persons located in Trauma Service Area L will have the availability to access Emergency Dispatch for EMS services.
2. To ensure emergency healthcare providers have communication equipment available.
3. To strive to maintain an adequate number of First Responders and EMS providers that have the knowledge, skills, and equipment needed to provide emergency care to persons requesting assistance within the Region.

Discussion

Basic '911' 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) and Automatic Location Identification (ALI) are not provided with Basic '911'. All of the '911' systems within TSA-L are enhanced '911', with the exception of the military installation known as Fort Hood which utilizes Basic '911'.

Enhanced '911' is a system, which automatically routes emergency calls to a pre-selected answering point based on geographical location from which the call originated. All '911' systems in TSA-L are enhanced with different levels of service.

This system engages when a telephone caller dials '911'. The call is routed to the local telephone company or CO where the ANI is attached to the voice and sent to the Public Safety Answering Point (PSAP). With ALI and selective routing, the call is set to the CO and is assigned an address to the phone number electronically and routes the call to the designated PSAP. Calls are routed to Dallas or Houston, and then based upon a pre-assigned ESN number, routed to the appropriate agency.

ANI is a system capability that enables an automatic display of the seven-digit number of the telephone used to place a '911' call. ALI is a system that enables the automatic display of the calling party's name, address and other information.

Alternate Routing is a selective routing feature which allows '911' calls to be routed to a designated alternative location if all incoming '911' lines are busy, or the central system (PSAP) closes down for a period of time.

Selective Routing (SR) is a telephone system that enables '911' calls from a defined geographic area to be answered at a pre-designated PSAP.

Emergency Care providers for accessing emergency communications use a variety of methods, such as 800 MHz, VHF, and UHF frequencies. CTRAC strives to ensure interoperable communications at all times.

COMMUNICATIONS

Goal

The Goal for Communications within TSA-L is to ensure communication capability between EMS providers, medical control, receiving facilities; and other First Responders entities. Rapid dispatch and notification of the need for emergency and trauma care at any location within TSA-L must be available to all persons in the region. Each agency is responsible for monitoring their own response time(s) using national established guidelines for their geographical area.

Objectives

1. To facilitate regional communications, and to work cooperatively with the Central Texas Council of Governments (CTCOG) to ensure that all EMS & First Responder Units as well as hospital emergency personnel will have a list of the communication devices & operating frequencies of the EMS and emergency care providers operating in the CTRAC region and to encourage all participating agencies to enter into a Memorandum of Understanding with the State of Texas for adherence to established permissions and guidelines for use of interoperability or mutual aid radio channels.
2. To ensure that all EMS providers, First Responders, and hospital facilities in the CTRAC region have functional communications equipment in order to communicate information related to the patient's condition, the need for medical, EMS, or helicopter back-up, and to receive and communicate information related to patient care and disposition.
3. To ensure that emergency dispatch within the CTRAC region is accomplished by persons who have the knowledge, skills, and equipment necessary to rapidly mobilize the appropriate level of emergency care to persons requesting assistance throughout the region. It is recommended that dispatchers attend Emergency Medical Dispatch training or other appropriate training for consistent knowledge among dispatchers within the CTRAC region.
4. To ensure agencies are utilizing the National Incident Management System (NIMS)/Incident Command System (ICS) Communications for Multi-agency scenes.
5. To establish communications protocol for interagency responses that serve the best interest of all agencies involved in remediating the emergency situation they are currently working on and to do this in a manner that is consistent with the utilization of the Texas Interoperability Channel Plan when possible.

Discussion

There are numerous communication systems currently in use in the TSA-L. In time of disaster it is essential that all agencies have the ability to communicate seamlessly and that all agencies and their employees are extremely familiar with all communication capabilities that are available to their agency. Regardless of the method that may be used on a regular basis to communicate with other emergency service agencies and hospitals, in a time of disaster these normal communication mediums may be overwhelmed and or may fail. The use of multiple communications systems ensures regional communications are maintained between public and private EMS agencies, police, fire, and hospital entities however, all personnel that may be called upon to use wireless and wired communications must be proficient in the use of those systems in worst case scenarios.

Dispatch - Emergency dispatch in each of the six (6) CTRAC counties is accomplished through various methods (i.e., sheriff's office, local police department, or county 911 services). All 911 PSAP's in the CTRAC are equipped with a Director IP radio system or its equivalent. These Director IP or equivalent radio systems have communication capability for day to day operations on frequencies (channels) designated by each agency as well as designated VHF and 800MHz Interoperability channels. Each of these systems also have the ability to cross link (patch) multiple radios to provide users operating on different frequencies the ability to communicate with other users

regardless of the frequency band that they have access to.

Pre-hospital Care Providers – EMS Providers throughout TSA-L use various frequencies and communication devices to handle day to day radio traffic, those frequencies are most typically VHF, UHF and 800 MHz. Traditional UHF MED CHANNELS are still in use in many areas to contact area hospitals; however, this is not all inclusive to all hospitals as a result other communications methods are being used on a day to day basis. It is the intent of the TSA-L to support a more streamlined method for agencies communications capabilities and needs in the area and to work toward the simplest method possible that meets all of the needs of each agency.

Hospital Care Providers - All CTRAC hospital facilities maintain communications capability with pre-hospital care providers through the use of various communications means to include VHF, UHF, 800, cellular phones, or standard phone lines. CTRAC purchased each facility a HAM radio that is programmed as follows:

CTRAC is an active participant in the interoperability planning efforts being address by the Central Texas Council of Governments. CTRAC strives to remain at Level 4 interoperability will support all efforts to reach and maintain an interoperability Level 6.

The Central Texas Council of Governments (CTCOG) administer the '911' communications system in Texas Trauma Service Area–L (TSA-L). All of the '911' systems within Trauma Service Area – L are enhanced '911'. Enhanced '911' is a system, which automatically routes emergency calls to a pre-selected answering point based upon geographical location from which the call originated. All '911' systems in TSA-L are enhanced with different levels of service.

Interagency Air Medical Operations – Due to the number of air medical responses that occur in the TSA-L each year, and in effort to enhance safety measures associated with air medical operations in the TSA-L region, it ESSENTIAL that units on the ground have a reliable means of communicating with responding air medical units. Air medical personnel should have the capability of tuning the aircraft radio to various departmental frequencies, but in order to avoid confusion and reduce the risks involved with helicopters landings all agencies should utilize VHF Texas MED 1, Copperas Cove Helicopter channel (talk group 1559) or Bell County Helicopter channel to communicate with air medical units whenever possible. Backup channels will be Texas Fire 1 and Bell County VFD main. If more than one helicopter will be responding to the same incident, the incident commander shall notify each air medical agency dispatch with the ETA of the other aircraft and the appropriate radio frequency for all to communicate. Crews are encouraged to utilize common aviation frequency 123.025 to communicate air to air during multi-ac scene responses if unable to establish communication via above listed frequencies.

Interagency Operations- When two or more agencies will be working together on an emergency scene those agencies under the direction of the established IC should communicate on frequencies (channels) that are designated under the Texas Interoperability Channel Plan as a first Priority. Users on 800 MHz radio communications systems primarily in Copperas Cove and Bell County will use designated MUTUAL channels as established by the Bell County Communications Center. And in situations where VHF and 800 MHz users will be working jointly, a patch between designated Texas Interoperability Channel Plan channels can be established with 800 MHz talk groups at the discretion of the IC.

The communication system includes the following counties:

CTRAC: Bell, Coryell, Hamilton, Lampasas, Milam, Mills

BELL COUNTY: Bell County has three communications Centers.

- An 800 MHz system for the civilian population

- A 400 MHz system for the military emergency responders including mutual aid within civilian communities.

- A 400 MHz system for Scott and White Hospital Med Comm.

The Bell County Communications Center provides communications for the following departments:
:

Law Enforcement	Fire Departments	EMS	Hospital
• Bell County Sheriff's Dept.	• Belton Fire Department	• Belton EMS	• Scott & White Memorial Hospital
• Belton Police Department	• Harker Heights Fire Dept.	• Harker Heights EMS	• Scott & White-Santa Fe
• Temple Police Department	• Temple Fire Department	• Scott & White EMS	• Scott & White Continuing Care Hospital
• Killeen Police Department	• Killeen Fire Department	• Killeen EMS	• Scott & White Pavilion
• Morgan's Point Police Dept	• Morgan's Point VFD		• King's Daughters Hospital
• Bartlett Police Department	• Bartlett VFD		• Metroplex Hospital
• Holland Police Department	• Holland VFD		• Metroplex Pavilion
• Little River/Academy PD	• Little River/Academy VFD		• Cedar Crest Hospital
• Nolanville Police Department	• Troy VFD		• Carl R. Darnall Army Medical Center
• Troy Police Department	• Rogers VFD		
• Rogers Police Department	• Salado VFD		
• Salado Police Department	• Moffat VFD		
	• Stillhouse VFD		
	• Southwest Bell VFD		

Bell County Communications Center also provides support for the following local offices of:

- TX Department of Public Safety
- CTC Police Department
- DTF & Constables
- City Public Works Departments
- TX Parks & Wildlife
- KISD
- Justices of Peace
- Army Corps of Engineers
- UMHB
- District Attorneys

CORYELL COUNTY:
Coryell County has two enhanced '911' communication centers:

- Copperas Cove Police Department dispatches for the City of Copperas Cove and transfers Coryell County Calls to Coryell County Sheriff's Department.
- Copperas Cove Fire Department and EMS respond to calls in South Coryell County.
- The City of Gatesville Dispatch Center Dispatches EMS calls within their city on

154.540 (VHF).
- The City of Copperas has an 800 MHz EDACS radio system.

Interoperability Communications Capabilities in accordance with the Texas Interoperability Channel Plan for the City of Copperas Cove include:

- Texas Fire 1
- Texas Med 1
- Texas Law 1
- Texas Law 2
- 8CALL90
- 8TAC92

Law Enforcement	Fire Departments	EMS	Hospital
• Copperas Cove PD • Gatesville PD • Coryell County Sheriff's Dept	• Copperas Cove FD • Gatesville FD	• Copperas Cove EMS • Coryell Memorial EMS	• Coryell Memorial Healthcare System

HAMILTON COUNTY:

Law Enforcement	Fire Departments	EMS	Hospital
• Hamilton County Sheriff's Dept	• Hamilton VFD • Hico/219 VFD • Shive/Evant VFD • Carrolton/Jonesborough VFD • Pottsville VFD	• Hamilton EMS	• Hamilton General Hospital

LAMPASAS COUNTY:

Lampasas County has two enhanced '911' dispatch centers

- Lampasas Police Department dispatches EMS and fire department to areas of the City of Lampasas and portions of Burnet County.
- Lampasas County Sherriff's Dept dispatches EMS and fire department to Lampasas County

Law Enforcement	Fire Departments	EMS	Hospital
• Lampasas Police Department • Lampasas County Sherriff's Dept	• Lampasas Fire Dept. • Kempner Fire Dept. • Adamsville Fire Dept. • Lometa Fire Dept.	• Capital Ambulance	• Rollins-Brook Community Hospital

MILAM COUNTY:

Law Enforcement	Fire Departments	EMS	Hospital
• Rockdale Police Dept	• Rockdale FD	• American Medical Response	• Central Texas Hospital
• Cameron Police Dept	• Cameron FD	• Thorndale EMS	• Richards Memorial Hospital

MILLS COUNTY:

Law Enforcement	Fire Departments	EMS	Hospital
• Mills County Sheriff's Dept	• Goldthwaite FD	• Mills County EMS	• No Facility

.

REGIONAL MEDICAL CONTROL & OVERSIGHT

Goal

The goal for Regional Medical Control and Oversight in TSA-L is multifaceted:

1. To ensure strong physician leadership and supervision for pre-hospital care providers in both on-line and off-line functions.
2. To secure medical involvement in regional planning and educational program development.
3. Provide for the development and implementation of regional protocols and system plan components, as well as in systems evaluation.

Objectives

1. To evaluate regional trauma and acute care from a systems perspective, under the direction of representatives of CTRAC medical staff throughout the region.
2. To involve CTRAC medical staff in all phases and at all levels of the leadership and planning activities of regional development.
3. To ensure appropriate medical oversight of all pre-hospital care providers through a Performance Improvement (PI) process and other administrative processes.
4. To identify and educate regional medical control resources, standardize treatment protocols, and analyze accessibility of medical control resources.
5. To identify and educate CTRAC EMS providers and sources of on-line and off-line medical control.
6. To have each EMS agency track and maintain scene times, which will be periodically monitored by the CTRAC Performance Improvement Committee for quality improvement.
7. To identify common practices for Field Command when multiple providers respond, utilizing a NIMS/ICS System.
8. To standardize pre-hospital report forms based on the minimal State reporting requirements to ensure each agency has included these into their own document(s).
9. Medical Directors are required and responsible for ensuring their personnel are proficiently trained. The CTRAC may assist with providing adequate training when funds are available and a need for training has been adequately documented.

Discussion

The CTRAC region includes both rural and urban hospital and emergency care providers with varying levels of medical capability. There is no single EMS medical director for all the TSA-L EMS providers; however there is one EMS medical director per provider or for multiple EMS providers within each county. All EMS medical directors are members of the CTRAC Medical Advisory Board, which meets on a quarterly basis.

Physician Involvement in Regional Plan Development - The Medical Advisory Board Committee meets on a quarterly basis to conduct its usual business and to review and approve regional planning components, policies, and protocols related to medical care. Each EMS medical director, trauma surgeon, and physician from each CTRAC hospital has representation on this standing committee. Any interested CTRAC physician is invited to attend committee meetings.

Medical Direction of Pre-hospital Care Providers - In accordance with DSHS guidelines, all CTRAC pre-hospital care providers function under medical control. Regional EMS protocols are printed and distributed to all EMS providers for incorporation into local protocols. Periodic reviews and updates are completed and upon approval are distributed as necessary. These protocols serve as a baseline and individual Medical Directors may adapt for their local community.

Central Texas Regional Advisory Council

A tiered system of patient care based on severity of injury utilizes First Responder Organizations and EMS providers with varying level of capability to ensure the rapid assessment and initial care of the trauma patient and transport to the appropriate level of care. Off-line medical control protocols direct EMS provider interventions. On-line medical control from the receiving CTRAC facility is also utilized when the patient's condition or scene conditions cannot be addressed by off-line protocols.

The Central Texas Regional Advisory Council (CTRAC) Trauma Service Area-L encompasses six counties with fourteen different physician medical directors.

Prehospital Provider- EMS	On-line Medical Control Provider
American Medical Response	Larry Miller, MD
Belton Fire Department EMS	Scott & White Hospital
Capital Ambulance	Rollins Brook Hospital
Carl R. Darnall Army Medical Center EMS	Carl R. Darnall Army Medical Center
Central Texas Regional EMS	Steven Elehrby, MD
Copperas Cove Fire Department EMS	Scott & White Hospital
Coryell Memorial Hospital EMS	Coryell Memorial Hospital
Hamilton EMS	Hamilton General Hospital
Harker Heights Fire Department EMS	Scott & White Hospital
Killeen Fire Department EMS	Joseph Piper, MD
Mills County EMS	Brownwood Regional Hospital
Scott & White EMS	Scott & White Hospital
Thorndale EMS	Joseph Jones, MD
Prehospital Provider- Air Medical	**On-line Medical Control Provider**
Air Evac-West	David Hardesty, MD
Air Evac-Marble Falls	James Kempema, MD
AirEvac Air Medical	Robert Genzel, MD
PHI STAT Air Medical	Scott & White Hospital
Fixed Wing Provider- Air Medical	**On-line Medical Control Provider**
United MedEvac Solutions (DBA-Angel Air)	Stephen Ellison, MD

PRE-HOSPITAL TRAUMA TRIAGE CRITERIA

Goal

Patients will be identified, rapidly and accurately assessed, and based on identification of their actual or potential for serious injury, will be transported to the nearest appropriate TSA-L trauma facility.

Objectives

In order to ensure the prompt availability of medical resources needed for optimal patient care, each patient will be assessed for the presence of abnormal vital signs, obvious anatomic injury, mechanism of injury, and concurrent disease/predisposing factors.

Definition

Trauma Patient—the patient is a victim of an external cause of injury that results in major or minor tissue damage or destruction caused by intentional or unintentional exposure to thermal, mechanical, electrical, or chemical energy, or by asphyxia, submersion, or hypothermia.

System Triage

1. Unless immediate stabilization (ABC's, cardiac arrest, etc.) is required, patients in TSA-L with the following injuries, with significant mechanism of injury, should be taken directly to the closest Level 1 Trauma Facility if ground transport time is ≤ 30 minutes. Also refer to the **CTRAC Pre-Hospital Trauma Triage Criteria Algorithm** for additional high-risk considerations for transporting the patient directly to Scott and White Memorial Hospital:

   - Penetrating injuries to head, neck, and torso
   - Respiratory compromise, obstruction, and/or intubation
   - GCS less than or equal to 12
   - Unstable Vital Signs-Any **ONE** below:
     - SBP <90 (SBP <100 if patient >60 y.o.)
     - RR <10 or >29 with distress
     - O2 Sat <90%
   - Traumatic Paralysis (**NOT** numbness/tingling)
   - Amputation proximal to the wrist or ankle
   - Two or more proximal long bone fractures (Femur, Humerus)
   - Pelvic fractures
   - Burns ≥ 20% BSA or ≥ 10% if under 6 years old **(2nd & 3rd degree only)** – **Transport to Burn Center if Possible**
   - **Pediatrics**-Unstable Vital Signs-Any **ONE** below:
     - Tachycardia for age **PLUS** poor perfusion
     - BP not appropriate for age (70 + 2x age)
     - RR not appropriate for age

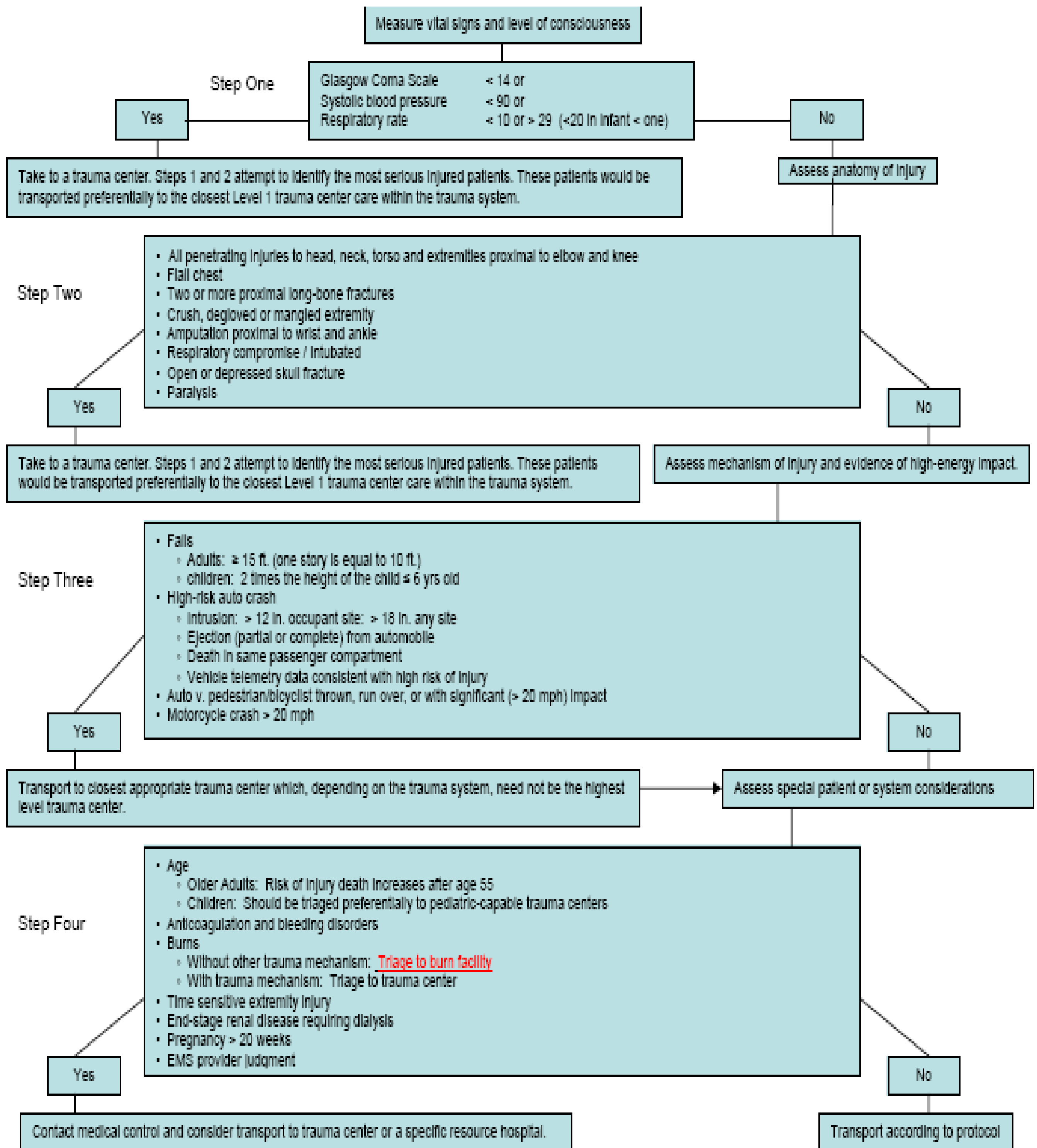
2. If lifesaving interventions (e. g. airway stabilization, chest tube insertion, etc.) are required for safe transport, take the patient to the nearest designated trauma facility and/or **call for helicopter transport to meet you at the closest agreed upon landing zone**.

3. When on-scene EMS personnel are unable to establish on-line contact with medical control at the receiving TSA-L facility, off-line medical trauma triage criteria will be followed.
4. Patients with the below **Mechanism of Injury** should be transported directly to the nearest appropriate TSA-L designated trauma facility for evaluation:

Mechanism of Injury:

- Motor Vehicle Collision
  - With ejection
  - High speed ≥ 40 mph
  - Unrestrained ≥ 20 mph
  - Death in same car
  - Extrication ≥ 20 minutes
  - Auto-Pedestrian
- MCC/ATV/Bike/Large animal
  - Separation of rider
  - Crash speed ≥ 20 mph
- Falls
  - ≥ to 15 feet
  - 2x height if child ≤6 yrs old (minimum of 4 ft)

- Assault/child abuse
- Burns (partial or full thickness)
- Crush injury (not hands or feet)



C:\SW Documents\Field Triage Decision Scheme

WHEN IN DOUBT, TRANSPORT TO A TRAUMA CENTER

PRE-HOSPITAL PATIENT TRAUMA CARE GUIDELINES

Goal
The attached guidelines for the Central Texas Regional Advisory Council should be used as a minimum standard of care to treat patients with traumatic and acute injuries. The guidelines should be used in conjunction with your agency's established protocols and not in place of.

Introduction
- A quick and accurate initial assessment of the traumatically injured patient is essential.
- Evaluate and manage any airway and breathing problems first, followed by assessment of circulation. Then perform a brief neurological examination with complete exposure of the patient.
- Always remember to protect the cervical spine with in-line stabilization.
- With major trauma, one of the most important goals of prehospital management is a brief scene time- "**LOAD AND GO**". Spend as little time as possible to evaluate the patient, to perform life-saving maneuvers, and prepare the patient for transport to the hospital. Optimally, all scene times for the critically injured trauma patient should be less than 10 minutes (20 minutes maximum) unless extenuating circumstances (extrication, multiple patients, etc.). Do **not** delay scene times on non-lifesaving procedures!
- Often major trauma is a surgical disease and rapid transport to the closest appropriate hospital is vital in all unstable patients.
- If indicated, request aeromedical helicopter transport.
- Request additional resources (additional ambulances, rescue equipment, helicopter, etc.) early in the scene assessment.

Basic Life Support
1. Scene safety.
2. Airway, breathing, circulation. Assess adequacy of perfusion (mental status), character of pulses, and capillary refill.
3. Stabilize the cervical spine with manual in-line stabilization.
4. Apply oxygen (high-flow via non-rebreather if altered mental status, shortness of breath, or severe multisystem trauma). Assist with bag-valve-mask as needed.
5. Control gross external bleeding with direct pressure. Remember to also hold pressure over penetrating trauma sites (gunshot wounds, stab wounds) to stop any internal bleeding into the tissues.
6. Perform a brief neurological exam (level of consciousness (**AVPU**), pupil reactivity, and gross motor function).
7. Immobilize the cervical spine as needed with long backboard, head blocks, cervical collar, straps, etc.
8. Immobilize and splint obviously fractured extremities.
9. Obtain vital signs and monitor pulse oximetry if avaliable.
10. Expose patient and perform a secondary survey (head-to-toe). Preserve body heat when possible.
11. Obtain history (**SAMPLE**): **S**igns and **S**ymptoms, **A**llergies, **M**edications, **P**ast medical / **P**ast surgical history, **L**ast oral intake / **L**ast menstrual period, **E**vents of accident (mechanism of injury).

Advanced Life Support
1. Advanced airway control (intubation, surgical cricothyrotomy) as needed.
2. If patient has a suspected tension pneumothorax (shortness of breath, hypotension, decreased breath sounds, hyperresonance to percussion) perform a needle thoracostomy (pleural decompression).
3. Establish IV access (large bore antecubital or external jugular IV). Establish a second IV line if patient is hemodynamically unstable and time allows.
4. Administer IV fluid normal saline bolus 250cc - 1000cc (*20cc/kg child*) IV if the patient is hypotensive or tachycardic, titrate the IV fluids to keep systolic BP >90mmHg.
5. Monitor ECG rhythm.

6. Administer pain medication if indicated
7. Assess the Glasgow Coma Score (GCS), and Revised Trauma Score (RTS) enroute.
8. **Contact medical control** with patient report early so that the trauma team can be assembled.
9. Reassess the vital signs frequently.

The following are general patient care guidelines for ALL patients and are not specifically listed in each protocol.

ECA	EMT	Intermediate	Paramedic
Assure scene safety	Assure scene safety	Assure scene safety	Assure scene safety
Assess CABC's	Assess CABC's	Assess CABC's	Assess CABC's
Perform Secondary Assessment	Perform Secondary Assessment	Perform Secondary Assessment	Perform Secondary Assessment
Place patient in position of comfort unless contraindicated	Place patient in position of comfort unless contraindicated	Place patient in position of comfort unless contraindicated	Place patient in position of comfort unless contraindicated
O2 **(if indicated)**	O2 **(if indicated)**	IV, O2, Airway control **(if indicated)**	IV, O2, Cardiac monitor, Airway control **(if indicated)**

BURNS:

Exposure to heat, chemicals, electrical or inhalation believed to have caused damage to body tissues.

STOP THE BURNING PROCESS!

ECA	EMT	Intermediate	Paramedic
High flow O2	High flow O2	High flow O2	High flow O2
Cool and dress burns , Flush chemicals	Cool and dress burns , Flush chemicals	Intubation if indicated	Intubation if indicated
Moist sterile bandage if <10% SBA	Moist sterile bandage if <10% SBA	Cool and dress burns , Flush chemicals	Cool and dress burns , Flush chemicals
Dry sterile bandage if > 10% SBA	Dry sterile bandage if > 10% SBA	Moist sterile bandage if <10% SBA	Moist sterile bandage if <10% SBA
Assess % & depth of burn. Remove constricting jewelry and clothes	Assess % & depth of burn. Remove constricting jewelry and clothes	Dry sterile bandage if > 10% SBA	Dry sterile bandage if > 10% SBA
Transport	*Transport*	Assess % & depth of burn. Remove constricting jewelry and clothes	Assess % & depth of burn. Remove constricting jewelry and clothes
		Start IV in unburned area if possible. % of burn area x patient weight in KG x 4 ml = total amount to infuse over 24 hours with ½ being infused in first 8 hours.	Start IV in unburned area if possible. % of burn area x patient weight in KG x 4 ml = total amount to infuse over 24 hours with ½ being infused in first 8 hours.
		Transport	Monitor ECG
			Transport

EYE INJURIES:

Do not remove foreign body from the eye. Cover, patch, and transport.

ECA	EMT	Intermediate	Paramedic
Chemical to eyes, continuous flush with NS	Chemical to eyes, continuous flush with NS	Chemical to eyes, continuous flush with NS	Chemical to eyes, continuous flush with NS
Open eye injury, bandage both eyes closed	Open eye injury, bandage both eyes closed	Open eye injury, bandage both eyes closed	Open eye injury, bandage both eyes closed
Abrasion and/or foreign objects—cover effected eye	Abrasion and/or foreign objects—cover effected eye	Abrasion and/or foreign objects—cover effected eye	Abrasion and/or foreign objects—cover effected eye
Impaled objects, stabilize in place, cover both eyes	Impaled objects, stabilize in place, cover both eyes	Impaled objects, stabilize in place, cover both eyes	Impaled objects, stabilize in place, cover both eyes
Transport	*Transport*	*Transport*	*Transport*

HEAD INJURIES

Treatment goals are high-flow oxygen (intubate early if needed), spinal immobilization, and rapid transport.

ECA	EMT	Intermediate	Paramedic
Determine responsiveness **(AVPU)**	Determine responsiveness **(AVPU)**	Determine responsiveness **(AVPU)**	Determine responsiveness **(AVPU)**
High flow O2	High flow O2	High flow O2	High flow O2
LOAD & GO	LOAD & GO	LOAD AND GO	LOAD AND GO
Elevate backboard 30% at head	Elevate backboard 30% at head	Obtain IV if necessary	Obtain IV if necessary
Transport	*Transport*	Secure airway with ET intubation **(if indicated)**	Monitor ECG
		Elevate backboard 30% at head	Secure airway with ET intubation **(if indicated)**
		Transport	Elevate backboard 30% at head
			Transport
Refer to TBI Guideline for additional information on treatment	**Refer to TBI Guideline for additional information on treatment**	**Refer to TBI Guideline for additional information on treatment**	**Refer to TBI Guideline for additional information on treatment**

MULTI-SYSTEMS TRAUMA:
*Trauma to one or more of the following: **Head Neck Chest Abdomen Pelvis***
***OR** multiple trauma to extremities or soft tissue with evidence of shock.*

ECA	EMT	Intermediate	Paramedic
High flow O2	High flow O2	High flow O2	High flow O2
Correct immediate threat to life if possible: Tension pneumothorax, sucking chest wound, aspirations, uncontrolled bleeding	**Correct immediate threat to life if possible:** Tension pneumothorax, sucking chest wound, aspirations, uncontrolled bleeding	**Correct immediate threat to life if possible:** Tension pneumothorax, sucking chest wound, aspirations, uncontrolled bleeding	**Correct immediate threat to life if possible:** Tension pneumothorax, sucking chest wound, aspirations, uncontrolled bleeding
Transport	*Transport*	*Transport*	*Transport*
Continue to re-assess vital signs enroute	Continue to re-assess vital signs enroute	Bilateral large bore IV's with isotonic solution	Bilateral large bore IV's with isotonic solution
		Treat minor injuries and fractures as time allows	Monitor ECG
		Continue to re-assess vital signs enroute	Treat minor injuries and fractures as time allows
			Continue to re-assess vital signs enroute

MUSCULO-SKELETAL:
Goal is to stabilize injury and/or control bleeding and continuously re-asses patient for change in condition/vital signs/neurological function.

ECA	EMT	Intermediate	Paramedic
O2	O2	O2	O2
Control bleeding/Splinting as indicated	Control bleeding/Splinting as indicated. Assess PMS	Control bleeding/Splinting as indicated. Assess PMS	Control bleeding/Splinting as indicated. Assess PMS
Transport	*Transport*	IV if long bone fractures are suspected, patient is hypotensive, and/or possible analgesia administration is imminent.	IV if long bone fractures are suspected, patient is hypotensive, and/or possible analgesia administration is imminent.
		Transport	Monitor ECG if pain medication is to be administered
			Transport

TRAUMATIC ARREST:
*Pulseless and apnic **WITH** evidence of traumatic cause(s) of cardiac arrest. **Goal is to correct underlying cause of the arrest.***

ECA	EMT	Intermediate	Paramedic
CPR	CPR	CPR	CPR
Correct immediate life threatening emergencies if possible: Tension pneumothorax, sucking chest wound, uncontrolled bleeding, hypovolemia, hypoxia, etc.	**Correct immediate life threatening emergencies if possible:** Tension pneumothorax, sucking chest wound, uncontrolled bleeding, hypovolemia, hypoxia, etc.	**Correct immediate life threatening emergencies if possible:** Tension pneumothorax, sucking chest wound, uncontrolled bleeding, hypovolemia, hypoxia, etc.	**Correct immediate life threatening emergencies if possible:** Tension pneumothorax, sucking chest wound, uncontrolled bleeding, hypovolemia, hypoxia, etc.
*If obvious signs of death on arrival (decapitation, crushed head, asystole on monitor) **do not** attempt resuscitation*	*If obvious signs of death on arrival (decapitation, crushed head, asystole on monitor) **do not** attempt resuscitation*	*If obvious signs of death on arrival (decapitation, crushed head, asystole on monitor) **do not** attempt resuscitation*	*If obvious signs of death on arrival (decapitation, crushed head, asystole on monitor) **do not** attempt resuscitation*
Transport (contact medical control for possible pronouncement in the field)	*Transport (contact medical control for possible pronouncement in the field)*	*Transport (contact medical control for possible pronouncement in the field)*	*Transport (contact medical control for possible pronouncement in the field)*
		Secure airway with ET intubation	Secure airway with ET intubation
		Bilateral large bore IV's with isotonic solution	Monitor ECG
		Follow appropriate protocol(s) as time allows	Bilateral large bore IV's with isotonic solution
			Follow appropriate protocol(s) as time allows

Notes:

- Remember **not** to overlook potential chest and abdominal injuries which are often more life-threatening than the obviously deformed limb. Anyone can recognize a severely displaced limb, but it takes an astute prehospital provider to recognize a potentially more severe injury in the abdomen or chest.
- All lacerations should have direct pressure held on them. The first responder should hold pressure on the wound and **not** place a formal bandage until the ALS crew has visually assessed the wound. The paramedic is ultimately responsible for the wound and needs to visualize them. Remember that penetrating lacerations (*i.e*. gunshot wounds, stab wounds) may still be bleeding internally even if external bleeding is absent. Always hold direct pressure on these wounds.
- In a single car MVC, always consider the "**5 S's**" as a possible cause for the wreck: **S**yncope (arrhythmia, MI), **S**eizure, **S**ugar (hypoglycemia), **S**uicide, **S**lush (intoxication).

History:	**Signs and Symptoms:**	**Differential:**
• Time of injury • Mechanism: blunt/penetrating • Loss of consciousness • Bleeding • Medical History • Medications • Evidence of multi-trauma • Helmet use of damage to helmet	• Pain, swelling, bleeding • Altered mental status • Unconscious • Respiratory distress/failure • Vomiting • Significant mechanism of injury	• Skull fracture • Brain injury (concussion, contusion, hemorrhage, or laceration) • Epidural hematoma • Subarachnoid hemorrhage • Spinal injury • Abuse

Remember:

- Never remove any penetrating object to the body unless the object is impaled into the face and blocks effective airway management.
- Try to perform D-stick for any alterations in LOC if possible and time permits

---

Universal Precautions
C-Spine, A, B, C's
Spinal Immobilization

Assessment Practice:

1. Blood Pressure, Pulse, and Respiratory Rate
2. Oxygen saturation measurement, using pulse oximetry
3. Glasgow Coma Scale (GCS) score measurement
4. Eye examination for pupillary asymmetry, fixation, and dilation

Treatment Practices:

A. *Airway, Ventilation, and Oxygenation:*
1. Administration of supplemental oxygen
2. Airway securement with endotracheal intubation (Advanced Level)

B. *Fluid Resuscitation:*
1. Fluid resuscitation with isotonic crystalloid solution
2. Avoid hypotension (systolic <90)

C. *Brain-Targeted Therapy:*
1. Hyperventilation in patients with suspected or impending cerebral herniation: ***See Pearl at bottom***
2. Sedation, analgesia, and neuromuscular blockade to optimize transport of the head-injured patient with an unsecured airway
3. Rapid glucose determination in patients with AMS

D. *Hospital Transport Decisions:*
1. Direct transport of severe traumatic brain injured patients to the highest-level trauma center available
2. **Follow local emergency service transport protocols**

Pearls:

- **EXAM:** Mental Status, HEENT, Heart, Lungs, Abdomen, Extremities, Back.
- The airway should be secured via **endotracheal intubation** (if able) in patients who have a TBI with a GCS <9, the inability to maintain an adequate airway, or hypoxemia not corrected by supplemental oxygen.
- Hyperventilate **ONLY** if cerebral herniation is suspected. (Signs: pupillary abnormalities, bradycardia, posturing). Increased intracranial pressure (ICP) may cause hypertension and bradycardia **(Cushing's Response)**.
- Fluid resuscitation should be administered to avoid hypotension (<90 systolic) and / or limit hypotension to the shortest duration possible. **Hypotension = Decreased Cerebral Perfusion Pressure.**
- **Document** - any change in the patient's level of consciousness and GCS prior to and after administration of sedation, analgesic, and / or neuromuscular blockade medications.

AIR MEDICAL TRANSPORT GUIDELINES

Goal

To establish guidelines for access and dispatch of Helicopter Ambulance Services (HAS) to achieve effective, efficient and coordinated responses to emergencies involving trauma victims. The goal of these guidelines is to reduce delays in providing optimal care for severely injured patients, and to decrease morbidity and mortality.

Decision Criteria

Helicopter activation /scene response should be considered when it could reduce transportation time for trauma patients meeting dispatch guidelines.

Time Intervals

When considering time intervals as they relate to HAS, it is important to consider all aspects of the response and transport. For the purposes of this guideline and for performance improvement criteria, the following time intervals and definitions will be used. All of the following intervals should be considered when evaluating time issues.

- Response Time: Includes the time interval for notification of the Helicopter Communication Center + Time to Launch + Flight Time + Scene Time
- Scene Time: Includes the time spent by the Flight Crews on Scene
- Transport Time: Includes the time for the HAS to fly to receiving Facility, land and deliver the patient.

I. Guidelines for Activation /HAS Dispatch:

The ground emergency medical services (EMS) provider may request a scene response from a HAS when one or more of the activation or triage criteria exist:

- Once an air ambulance has been activated to a scene only the transporting agencies highest level of certification should make the determination to cancel the air response.
- Ground EMS providers should not remain on scene awaiting arrival of HAS if an appropriate Trauma facility is nearby and the trauma patient can be transported faster by ground.
- Ground EMS providers should activate the HAS as early as possible, including Prior to arrival to scene if the mechanism of injury meets activation guidelines.
- The ground EMS provider may activate HAS if the patient has an emergent need for a procedure or intervention not available from ground provider and the HAS can deliver this intervention faster than transport time to trauma facility.
- HAS that participate in the TSA-L RAC should be utilized in the TSA- L service area.
- In all instances the available HAS that best meet the needs of the patient will be utilized.
- Other factors to consider: Location of Incident, Number of Patients, Age of patients, Weight of Patients, Response time of HAS.
- The EMS provider should utilize the Triage guidelines for HAS Activation.

- Appropriate utilization and activation of HAS will be reviewed by the CTRAC Performance Improvement Committee.
- Trauma Patients are to be taken to the nearest Level I, II trauma center unless on diversion for specialty services. Then the patient is to be taken to the next closest Trauma center.

II. Guidelines for Air Activation

General guidelines for use of HAS

Speed - If ground transport time is >20 min. to closest Trauma Center or lifesaving interventions are required for safe transport. Examples include difficult Airway needing immediate stabilization or severe blood loss.
Accessibility – Severely injured or ill patients located in remote or off road area not readily accessible to ground ambulance.
MCI- Multiple Patients that will exhaust region or resources or exceed response times to that region.

Anatomic Considerations

Penetrating Trauma to Head, Chest or Abdomen
Amputations (except Digits)
2 or more long bone fractures or pelvis Fracture
Spinal cord injury
Major Burns > 20 % or burns to the Airway, hands, feet or genitalia
Depressed or open skull Fracture
Trauma patients requiring endotracheal intubation or having difficulty maintaining an airway

VS/ Physiologic Considerations

GCS <10 or deterioration of Mental Status
Significant Hypotension- B/P = or <90 with signs of shock
RR <10 or >29
HR <60 or >120

Mechanism of Injury

Falls > 3 X the Pt. Height or >20 feet
Autoped > 20 MPH
Ejection from MVC
Rollover MVC
Prolonged extrication >20 min.
Death of other occupant in same vehicle
Multiple patients on scene

III. Medical Guidelines

The RAC recognizes that HAS may be useful and appropriate for Non-Trauma cases as well.

Suggested Medical Considerations for Scene Activation for HAS

-Near Drowning with or without Hypothermia
-Acute MI
-Cardiogenic Shock
-Suspected CVA
-Severe uncontrolled HTN

IV. Air Medical Dispatch and Safety Guidelines

HAS may be dispatched via direct dial or via each EMS providers local dispatch center. When activating a HAS to a scene please give the following information if available:

- City and Location of Incident (2 cross streets or intersection)
- Location of pre-designated LZ site available
- Nature of incident
- Adult or Pediatric Patient
- Requesting Unit and Unit Number to contact
- Radio Frequency

HAS may be placed on Standby or pre-launched (Delta Launch) based on dispatch, fire, EMS, or Police personnel when the situation meets or exceeds activation criteria. The standby mechanism alerts the HAS to prepare for a potential flight. By alerting HAS early, it allows the pilot to check weather, GPS coordinates and maps as well as allows the crews to prepare the a/c for flight. This action will decrease the response time if he HAS is needed. The agency requesting a HAS Stand-by should give the following information:

- City and accident location (please list major cross streets if known)
- Ground Contact unit and unit number to contact via radio
- Radio Frequency to contact
- Nature of incident

V. Air Medical Landing Zone and General Safety Considerations

- The Landing Zone (LZ) should be on a firm level ground, free from loose debris, vehicles, signs or wires.
- The LZ should be approximately 100 X 100 Feet
- An LZ officer should be designated to land the HAS at the LZ site
- A trained tail rotor guard should be available to prohibit bystanders from entering the LZ area.
- Never approach the aircraft (a/c) until signaled by a flight crew member
- Always approach from the front
- No smoking or running around the a/c
- No one is permitted by the Tail rotor.
- Crowds must be kept away from the a/c
- HAS will direct the loading of the a/c and secure the doors

VI. Dispatch and Operational standards for HAS in TSA-L

- An estimated time of arrival (ETA) provided to the requesting agency shall be within 5 minutes of the actual arrival time. The HAS dispatch center shall in a timely and effective manner, update the requesting agency on any changes in ETA or response time. The HAS shall also report any delays or factors that might affect the helicopter's response.
- Helicopter Ambulance Services must maintain effective and direct communication with field providers and receiving hospitals.
- HAS must interface effectively and safely with the field providers. The responding HAS should report to the Incident Command or Triage officer for assignment.
- HAS will transport Trauma Patients to the Nearest Level I, or Level II facility or closest appropriate designated facility.
- HAS shall demonstrate safe operations at all times when operating within the RAC. Standards of "Safe Operations" shall include those applicable standards endorsed by the National EMS pilots Association, National Association of Air Medical Services, and the Committee on Accreditation of the Air Medical Transportation Services.

VII. Indications for HAS use: Interfacility Transports

HAS is generally indicated for the transfer of a trauma or acute care patient between hospitals when:

- The patient requires specialty or critical care services during transport not available by ground operators or
- The patient's out of hospital time must be minimized.

VIII. Selection of Responding HAS

Only those Helicopter Ambulance Services which participate in the RAC and are in compliance with RAC guidelines should be utilized for transports within the RAC.
For Interfacility Transfers it is recognized that the selection of the HAS to be utilized for Transport is driven by interfacility arrangements, insurance requirements and physician or patient choice.
The RAC also recognizes that clinical and operational capabilities may vary among HAS each agency in the RAC must study HAS options in its area and develop individual guidelines

for their departments taking into consideration:

- Response Time
- Clinical Capabilities and QI processes
- Operational Interface and Safety Practices

FACILITY DIVERSION

Goal

TSA-L facilities will communicate "facility diversion" status promptly and clearly too regional EMS and trauma facilities through EMSystem in order to ensure that trauma patients are transported to the nearest appropriate alternate trauma system hospital.

Acknowledgements

TSA-L facilities, both designated an undesignated, should request diversion activation only when the resources or capabilities of that facility have been exhausted to the point that further EMS traffic would jeopardize the care and treatment of patients at that facility as well as any subsequent patient transported to that facility by EMS. It is recognized in advance that no diversion strategy can guarantee total compliance with these guidelines and it is likely that EMS will deliver patients to hospitals that have requested diversion activation. It is further understood that a request for diversion activation is honored as a courtesy by EMS. Patient's informed wishes will be honored. Each facility is responsible for defining facility-specific policies and procedures for implementation of these guidelines.

Definitions

Transfer: Movement of a patient from one hospital to another based upon the patient's need (inter-hospital transport) or request.

Bypass: Intentional movement of a patient from the scene to the most appropriate hospital, not necessarily the nearest hospital, based upon the patient's medical need.

Diversion: Intentional movement of a patient from the scene to an alternate hospital capable of providing appropriate care at the request of the diverting hospital due to lack of available resource or capability. Appropriate Facility: A hospital, not necessarily the nearest hospital, with the resources and capability to care for a patient based upon the patient's medical needs.

Authorization for diversion status implementation and deactivation:

- **Hospital administrator or designee**

Communication of diversion status:

- A hospital shall communicate "facility diversion" status promptly and clearly to regional EMS and trauma facilities through EMSystem.

TIME PERIOD FOR DIVERSION STATUS:

- Diversion status will be in allotments up to four (4) hours. A hospital may deactivate a diversion status at any time.
- Failure of a hospital to update EMSystem at the end of the requested four (4) hour allotment will result in automatic deactivation of that hospital's diversion status.

AUTHORIZATION FOR OVER-RIDE OF DIVERSION STATUS:

EMS may over-ride a diversion status after consideration of the following:

- The patient's clinical presentation
- Distance and estimated time to an alternate appropriate facility
- Inclement weather conditions
- Resource availability and capability of the transporting pre-hospital provider
- An Informed Patient Preference

FACILITY BYPASS

Goal

Patients who have been assessed and determined to be medically unstable, unconscious, or at high risk of multiple and/or severe injuries will be safely and rapidly transported to the TSA-L Lead Level I Trauma Center. All other trauma patients will be safely and rapidly transported to the nearest appropriate trauma facility or nearest appropriate acute care facility within TSA L.

Decision Criteria

Regional transport protocols ensure that patients who meet the triage criteria for activation of the TSA-L Regional Emergency Healthcare System Plan will be transported directly to the nearest appropriate trauma facility rather than to the nearest hospital except under the following circumstances:

1. 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.

2. A Level III or Level IV trauma facility may be appropriate if the expected scene to Level I Trauma Center transport time is excessive (> 30 minutes) and there is a qualified physician available at the facility's Emergency Department capable of delivering stabilizing care.

3. Medical Control may wish to order bypass in any of the above situations as appropriate, such as when a facility is unable to meet hospital resource criteria or when there are patients in need of specialty care (burns).

4. If expected ground transport time to the nearest appropriate Trauma Center is excessive (> 30 minutes) or if a lengthy extrication time (> 20 minutes) is expected, medical control or the EMS crew on scene should consider activating air transportation resources.

Note: Should there be any question regarding whether or not to bypass a facility, on-line medical control should be consulted for the final decision from the receiving facility.

FACILITY TRAUMA TRIAGE CRITERIA

Goal

The goal of establishing and implementing facility triage criteria in TSA-L is to ensure that all regional hospitals use standard definitions to classify trauma patients in order to ensure uniform patient reporting and facilitate inter-hospital transfer decisions.

Objectives

1. To ensure that each trauma patient is identified, rapidly and accurately assessed, and based on identification and classification of their actual or potential for serious injury, transferred to the nearest appropriate TSA-L trauma facility.
2. To ensure the prompt availability of medical resources needed for optimal patient care at the receiving trauma facility.

Discussion

1. The Trauma Patient - The definition of the trauma patient in TSA-L is derived from the American College of Trauma Surgeon's definition of trauma. In TSA-L, the trauma patient is defined as one who is a victim of an external cause of injury that results in major or minor tissue damage or destruction caused by intentional or unintentional exposure to thermal, mechanical, electrical, or chemical energy, or by asphyxia, drowning, or hypothermia.
2. Facility Triage Criteria - Trauma patients are assessed in the pre-hospital setting and transferred to the nearest appropriate trauma facility in accordance with the TSA-L Pre-hospital Trauma Triage Criteria. Upon admission to the hospital emergency department, trauma patients receive initial treatment and re-assessment of their condition. The severity of injury of the trauma patient in the initial treating emergency department determines the optimal level of trauma care needed. Inter-hospital transfer is initiated as appropriate according to TSA-L facility triage decision criteria.

Trauma Facility Triage Criteria

Trauma patients meeting the below criteria should be considered high-risk and immediate transfer arrangements to closest Level 1 Trauma Facility should be initiated. Also refer to the **CTRAC Facility Trauma Triage Criteria Algorithm** for additional high-risk considerations for initiating early transfer:

- Penetrating injuries to head, neck, and torso
- Respiratory compromise, obstruction, and/or intubation
- GCS ≤ to 13
- Unstable Vital Signs-Any **ONE** below:
  - ➢ SBP <90 (SBP <100 if patient >60 y.o.)
  - ➢ RR <10 or >29 with distress
  - ➢ O2 Sat <90%
- Traumatic Paralysis (**NOT** numbness/tingling)
- Amputation proximal to the wrist or ankle
- Two or more proximal long bone fractures (Femur, Humerus)
- Pelvic fractures
- Burns ≥ 20% BSA or ≥ 10% if under 6 years old – **Transport to Burn Center if Possible**
- **Pediatrics**-Unstable Vital Signs-Any **ONE** below:
  - ➢ Tachycardia for age **PLUS** poor perfusion
  - ➢ BP not appropriate for age (70 + 2x age)
  - ➢ RR not appropriate for age

Central Texas Regional Advisory Council
Facility Trauma Triage Criteria

High-Risk Criteria For Consideration of Early Transfer / Transport to Level 1 Trauma Center

Critical Patients:

*Chest:
1. major chest wall injury
2. penetrating thoracic wound
3. flail chest

*Pelvis:
1. pelvic ring disruption with shock (sys <90)

*Abdomen
1. blunt trauma with hypotension
2. penetrating abdomen wound

* Multiple System Trauma:
1. chest injuries with head injuries
2. abdominal or pelvic injuries with head injuries

* Head:
1. penetrating injury to head (GSW, stabbing)
2. Unconsciousness

Urgent Patient:

*CNS:
1. prolonged LOC, posturing, paralysis
2. spinal injuries with deficits
3. GCS $\leq$ 13
4. open, penetrating, or depressed skull fractures
5. CSF leak
6. deterioration GCS

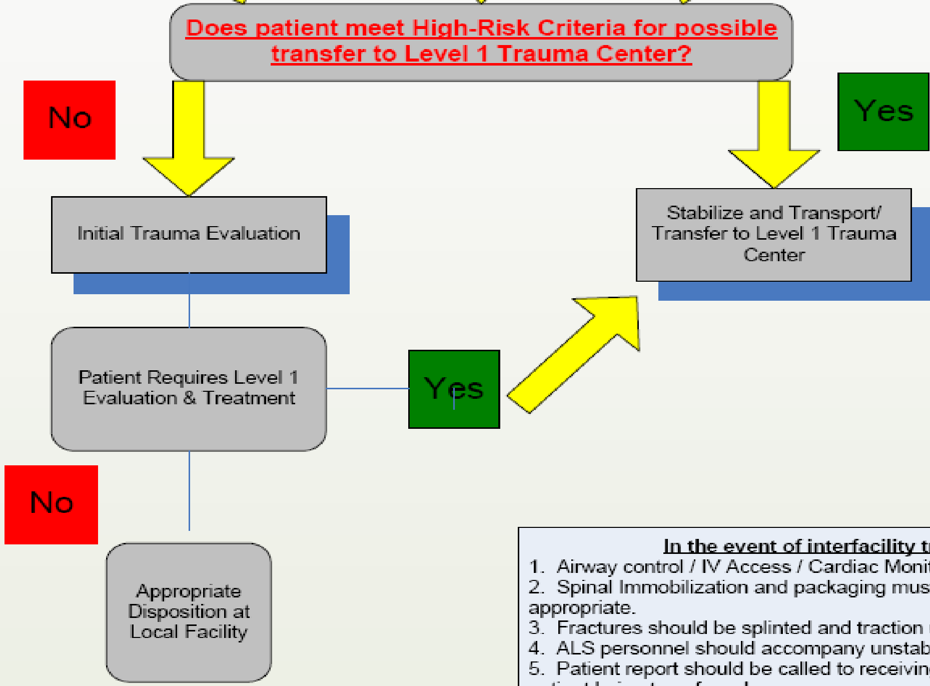
*Thoracic:
1. suspected cardiac/great vessel injury
2. possible requirement for prolonged mechanical ventilation
3. respiratory distress with rate >29 or <10

*Abdomen:
1. blunt trauma without hypotension

*Multiple System Trauma:
1. severe facial injury with head injury

Other Considerations:

1. 2nd or 3rd degree burns >10% or airway involvement
2. barotrauma
3. uncontrolled hemorrhage
4. GCS less than or equal to 14
5. SBP less than or equal to 90 mmHg
6. HR above 130 or below 50
7. penetrating injuries to the head, neck and or torso
8. two or more long-bone fractures
9. amputations proximal to wrist or ankle
10. open fractures
11. falls from > 20 feet
12. rollover MVC
13. ejection from vehicle
14. vehicle vs. pedestrian



In the event of interfacility transfer:
1. Airway control / IV Access / Cardiac Monitor as appropriate.
2. Spinal Immobilization and packaging must be maintained as appropriate.
3. Fractures should be splinted and traction used if appropriate.
4. ALS personnel should accompany unstable patients.
5. Patient report should be called to receiving facility prior to patient being transferred.
6. Ensure appropriate documents are sent with the patient (x-rays, lab results, MOT, etc)

* When it becomes clear that the patient should be transferred, the physician should make a request for transfer **As Soon As Possible.** The patient should be stabilized as much as possible while awaiting the transfer vehicle.

Central Texas Regional Advisory Council

REGIONAL TRAUMA TEAM ACTIVATION CRITERIA

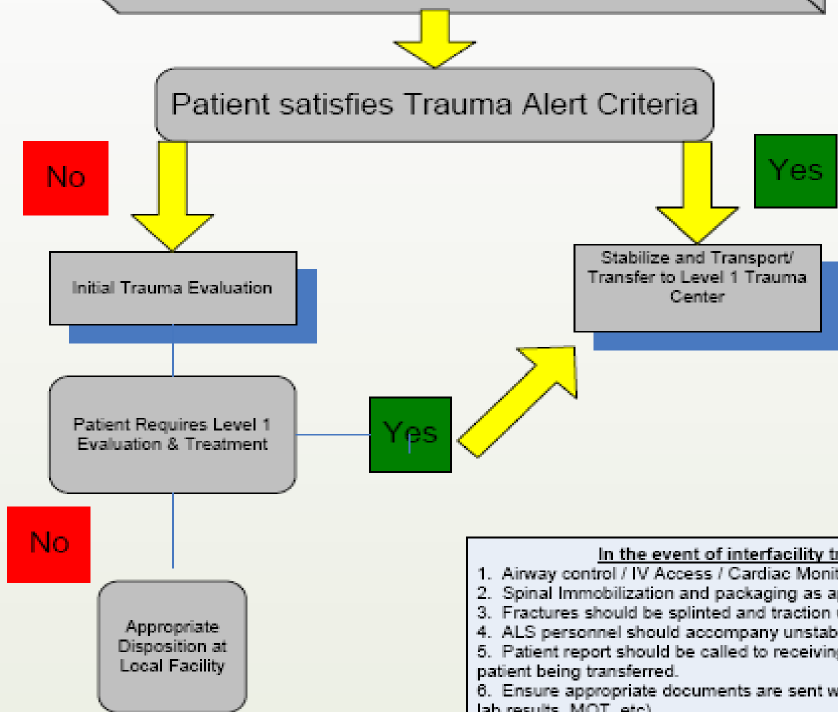
Central Texas Regional Advisory Council
Trauma Team Activation Criteria

Trauma Team Activation Criteria

1. Blood Pressure < 90 systolic.
2. GCS $\leq$ 13 associated with a **traumatic injury**.
3. Penetrating injury to head, neck, or chest.
4. Respiratory distress with respiratory rate: <10 or > 29
5. Airway compromise/Intubation
6. Traumatic Paralysis (**NOT** numbness/tingling)
7. Discretion of the Emergency Room Physician.

Pediatric Indicators ($\leq$ 6 y.o.)

1. Unstable Vital Signs – Any One below:
   * Tachycardia for age **PLUS** poor perfusion
   * BP not appropriate for age (70 +2x age)
   * Respiratory rate not appropriate for age



In the event of interfacility transfer:
1. Airway control / IV Access / Cardiac Monitor as appropriate.
2. Spinal Immobilization and packaging as appropriate.
3. Fractures should be splinted and traction used if appropriate.
4. ALS personnel should accompany unstable patients.
5. Patient report should be called to receiving facility prior to patient being transferred.
6. Ensure appropriate documents are sent with the patient (x-rays, lab results, MOT, etc).
7. If patient needs Level 1 trauma care, goal should be to transfer patient within $\leq$ 2 hours from patient arrival.

* When it becomes clear that the patient should be transferred, the physician should make a request for transfer **As Soon As Possible.** The patient should be stabilized as much as possible while awaiting the transfer vehicle.

INTERFACILITY TRAUMA TRANSFERS

Goal

The goal for establishing and implementing inter-hospital transfer criteria in TSA-L is to ensure that those trauma 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.

Objectives

1. To ensure that all regional hospitals make transfer decisions based on standard definitions which classify trauma patients according to TSA-L facility triage criteria.
2. To identify trauma treatment and specialty facilities within and adjacent to TSA-L.
3. To establish treatment and stabilization criteria and time guidelines for TSA-L patient care facilities.

Discussion

The level of trauma care resources required for **poly-**trauma patients is outlined in the TSA-L facility triage criteria and pre-hospital triage criteria. Scott and White Medical Center is the Lead Trauma Facility in TSA-L and accepts all poly-trauma transfer patients from any requesting TSA-L facility. A toll-free number has been established and distributed to all TSA-L emergency medical and hospital providers:

Scott and White Trauma Transfer Phone Line: 1–877-783-6422

Medical personnel calling this number receive an "automatic acceptance" for **poly-**trauma patients after speaking with the on-call **Attending Trauma Surgeon** or **Staff Emergency Medicine Physician**. Severely injured trauma patients should be immediately transferred to the TSA-L Lead Level I Trauma Facility. Patients with less life-threaten injuries should be initially transported to the closest trauma facility for stabilization. If admission is necessary, the patient should be transferred to the Lead Level I Trauma Facility within (2) hours from the time the patient arrived at that facility. The CTRAC Performance Improvement program will monitor all delay in trauma transfers out (>2 hours) for acute patients, trauma transfers outside TSA-L, and any ICU trauma patient admissions (**except the Lead Level I**).

Identification of Trauma Patients & Trauma Transfers

Trauma patients and their treatment requirements for optimal care are identified in the TSA-L facility triage criteria and pre-hospital triage criteria. Written transfer agreements are available between all TSA-L hospital facilities, and hospital facilities in adjacent regions. Trauma patients with special needs may be transferred to the Lead Trauma Facility for assessment and initial treatment by the trauma team. The TSA-L initial-receiving hospitals may also choose to transfer patients with special needs (burns) directly to these facilities, bypassing the Lead Level I Trauma Facility when appropriate. Below are lists of possible facilities that may be utilized outside TSA L:

- **Children's Medical Center of Dallas (Level I Trauma/Pediatric) – TSA E, Dallas**
- **Dell Children's Medical Center (Level I Trauma/Pediatric) – TSA O, Austin**
- **Parkland Health & Hospital System (Level I Trauma/Burn) – TSA E, Dallas**
- **Brooke Army Medical Center (Level I Burns) – TSA P, San Antonio**
- **University Medical Center (Level I Burns) – TSA B, Lubbock**
- **Brackenridge Hospital (Level I Trauma) – TSA O, Austin**

Trauma Patient Transport

Trauma patients in TSA-L are transported according to patient need, availability of air transport resources, and environmental conditions. Ground transport via BLS, ALS, or MICU ground ambulance is available throughout the Region. Air Medical transport (fixed and rotor wing) is also available in this Region.

Inter-hospital Transfer Process

Trauma Patients requiring specialized treatment should be transferred to an appropriate facility for continued care.

Written transfer agreements should be available between the Lead Trauma Facility (Scott and White Hospital) and all the hospitals within the trauma service area. Outlined below are the TSA-L Inter-hospital Transfer Components that have been evaluated and implemented:

- Scott and White Hospital will accept all emergent transfers provided they have the capacity and capability.
- Written transfer agreements are in place for all facilities participating in TSA-L. It is recommended that transfer agreements be renewed at least every three years.
- Available transport agencies have been identified and each acute healthcare facility has been provided with contact information.
- It is recommended that all agencies adopt the two hour rule for completing transfer process for the major trauma patient.

When it's determined that the patient needs to be transferred to a higher level of care, the following procedures should take place:

- Order obtained from the physician for transfer.
- Obtain acceptance from receiving hospital.
- Complete Memorandum of Transfer (MOT), and consent for transfer from patient.
- It is the transferring facilities responsibility to make transport arrangements. The receiving facility may assist with the decision making if requested by the transferring facility.
- All pertinent ED documentation (x-rays, lab work, medication administration records, MD and nursing notes, etc.), the original MOT, consent for transfer, and other pertinent information should be sent with the patient.
- Report should be called to the receiving hospital and ETA given.
- Appropriate equipment and personnel will accompany the patient during the transfer.

PLANNING FOR DESIGNATION OF TRAUMA FACILITIES

Goal

All facilities actively participating in TSA-L should be designated at one of the four levels of trauma care.

Objectives

1. Provide regional resources to assist facilities in maintaining their designation level and those in pursuit of trauma designation.
2. The lead level trauma center (Scott and White Memorial Hospital) should have an active roll in the development, planning, and education for those facilities currently trauma designated and those seeking trauma designations.
3. Maintain transfer agreements between all facilities as indicated by resource needs within the TSA-L region.
4. Increase participation on the CTRAC Hospital Care and Management Committee by ensuring that each acute care hospital within the TSA-L region has a participating member from their facility on the committee.

Planning for Designation of Trauma Facilities

The Omnibus Rural Health Care Rescue Act of 1989 charged the Texas Department of Health through the Bureau of Emergency Management with the responsibility of designation trauma facilities in Texas. The law requires the Bureau to designate trauma facilities that are part of a regional system of trauma care. The law requires that the trauma facilities be designated in accordance with the standards for the American College of Surgeons for Level I, II and III facilities. Level IV facilities may be surveyed based on criteria adopted by the State Board of Health.

In the Texas Trauma System, there are four recognized levels of trauma facility designation: Comprehensive (Level I), Major (Level II), General (Level III) and Basic (Level IV).

At this time, Five (5) out of the nine (9) acute care hospitals in the TSA-L are trauma designated. Three (2) facilities are in active pursuit of Level IV trauma designation. See the “Hospital” section in the TSP for a complete list of TSA-L facilities and their currently trauma designation level/status.

SYSTEM PERFORMANCE IMPROVEMENT PROGRAM

Goal

To provide ongoing performance assessment and improvement activities designed to objectively and systematically monitor and evaluate the quality of acute patient care through system analysis in an effort to identify and pursue opportunities to improve patient care.

Objectives

1. To facilitate performance improvement in acute patient care and services by establishing mechanisms to identify opportunities to improve.

2. To provide a framework for a planned, systematic and ongoing approach for the objective monitoring and evaluation of the quality, appropriateness and effectiveness of acute patient services provided within TSA-L.

3. To create an organizational structure which will be accountable for the coordination and integration of performance improvement activities in accordance with established standards.

Membership

To ensure a multidisciplinary committee, membership of the System Performance Improvement Committee shall include, but is not limited to the following:

Trauma Medical Directors or designee
Trauma Coordinators
Physicians
Hospital Administrators
Prehospital providers, including first responders and aero medical services
Nurses
Trauma Registrars

The Committee Chair shall be selected by the membership of the Committee.
The Chair of the CTRAC Medical Advisory Board, shall provide medical oversight.

Meetings will be held in closed session only when necessary to protect confidential information and only designated committee members from member organizations will be permitted to attend. Alternate members are not permitted to attend the SPI Committee meetings, unless alternate member is a SPI committee member already.

- Representatives from other organizations must receive approval from the SPI Committee Chair prior to attending and must sign a confidentiality statement. They will be offered the opportunity to address a specific area of concern but will not be included in any ensuing discussion concerning the issue. These meeting will be held face-to-face; not by telephone conference call.
- Meetings will be held at least 4 times per year at a minimum, providing there are members from three different organizations present. Members must attend at least 75% of the scheduled meetings or risk being removed from the committee. The meeting sign-in sheet will include a confidentiality statement for committee members. Signing into the telephone conference call will automatically be documented as signing a confidentiality statement.
- The Chair, or his/her designee, of the SPI Committee will attend the Medical Advisory Board meeting to report on the committee's activities, as well as to receive input from the members regarding selection of indicators and other activities.

Responsibilities

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

A. Performance Improvement

1. Identification of Indicators
   Indicators are related to the quality and/or appropriateness of processes and services related to acute patient care. The indicators are objective, measurable components that reflect the integration of resources, system organization, and outcomes.

- The System Performance Improvement Committee, with input from other committees, will recommend specific indicators for review, with approval by the Medical Advisory Board and/or Board of Directors.
- Selection of indicators will be based on standards of care, current knowledge and research.

2. Collection of Data
   Data is collected and organized for review under the direction of the System Performance Improvement Committee.

- Each member organization shall be responsible for submitting the essential information to the Department of State Health Services Trauma Registry (recommend quarterly down loads)
- Indicators shall be reviewed on a quarterly basis. Aggregate data from the registry database will be extracted and reported out as a percentage value.
- Indicators that are not retrievable from the trauma registry database will be reported by each member organization as aggregate numbers.

3. Evaluation
   The System Performance Improvement Committee will analyze the data collected and determine if further investigation is needed. When areas for improvement are identified, the root causes will be established. Root causes are defined as one of the following:
   1. System
   2. Education
   3. Behavior

- Evaluation includes analysis of trends and patterns in the data collected, to be accomplished by the System Performance Improvement Committee.
- Sentinel events and individual peer review will be referred to the Medical Advisory Board. Sentinel events are defined as any event that causes harm or has a high potential to cause harm. These may be identified through mechanisms such as system concern forms, referrals from member organizations or data analysis.

4. Actions
   When evaluation identifies an opportunity for improvement, actions are determined and implemented. Actions are directed toward the root cause with the overall goal being to improve the quality of service. Actions may involve, but are not limited to the following:
   - Committee recommendations
   - Educational offerings
   - Performance improvement teams

5. Re-Evaluation (Loop Closure)
   Through statistical analysis, the System Performance Improvement Committee will determine if actions/recommendations taken have been successful. Until that time, any identified problem or concern shall be considered "open" and will require continued evaluation until satisfactory closure has been achieved

B. Agency Compliance

- Submit data to the state trauma registry as required by DSHS and TSA-L. Data shall be submitted to the state on a quarterly basis. (Submit proof of downloads on a quarterly basis to the CTRAC PI Committee Chair and the CTRAC Admin. Assistant.
- Utilize RAC Protocols
- Participate in RAC activities as determined by CTRAC by-laws.

C. Communication

The System Performance Improvement Committee will communicate results of all monitoring and evaluation activities to the Medical Advisory Board along with a copy for CTRAC files in the following manner:

- Quarterly reports of selected indicators, including actions and recommendations.
- Monthly minutes of activities (excluding any identifying information)
- All loop closures

INJURY PREVENTION

Goal

Established to provide leadership to facilitate public education and awareness through trauma prevention activities. Members work closely with entities and community organizations to promote safety and prevent injuries. Topics and activities are selected based on injury trends and by community request.

Objective

- To provide leadership and resources to facilitate educational programs that increase awareness by changing behaviors regarding prevention of injuries and promote community safety.

Discussion

Activities include but are not limited to:

1. Increase awareness of value and role of injury prevention
2. Increase committee membership and participation
3. Determine priority prevention topics based on data review
4. Create structure which will provide support, leadership and resources for member entities to develop local educational activities
5. Increase visibility of CTRAC presence throughout area
6. Develop injury prevention page/links for CTRAC web site
7. Develop injury prevention newsletter for distribution

CTRAC has injury prevention literature and materials available for distribution. Contact the CTRAC office for additional information.

EMRESOURCE POLICY

Goal

To provide guidelines for EMSystem/EMResource use by hospitals, pre-hospital providers, public health departments, as well as others who have access to the system.

TSA-L HOSPITALS INCLUDE:	TSA-L EMS INCLUDE:
Cedar Crest Hospital	Belton Fire Department EMS
Central Texas Veterans Health Care System	Harker Heights FD EMS
Central Texas Hospital	Scott & White EMS
Coryell Memorial	Killeen Fire Department EMS
Carl R Darnall Army Medical Center	CRDAMC EMS
Hamilton General Hospital	Copperas Cove FD EMS
King's Daughters Hospital	Central Texas Regional EMS
Metroplex Hospital	Coryell Memorial Hospital EMS
Metroplex Pavilion	Capital Ambulance
Richards Memorial Hospital	Hamilton EMS
Rollins Brook Community Hospital	American Medical Response
Scott and White Memorial Hospital	Thorndale EMS
Scott and White Continuing Care Hospital	AirEvac/LifeStar
Scott and Pavilion	Mills County EMS
Scott and White-Santa Fe	PHI STAT Air

HOSPITAL RESPONSIBILITY

All local, state, and federal laws, including but not limited to EMTALA, pertaining to patients presenting to emergency departments for care still apply. Nothing in this plan should be interpreted in a manner that would violate the right of patients seeking emergency care. Patients presenting to any hospital in the care of EMS will not be denied triage/treatment on the basis of that hospital's patient acceptance status.

REQUIREMENTS

1). All listed hospitals are required to update the EMSystem daily between 7:00am and 9:00am or as situations warrant as described/defined in this document.
2) All listed EMS agencies are required to update the EMSystem at a minimum of twice a week, preferably Mondays and Fridays between 7:00 am and 9:00 am or as situations arise as described/defined in this document. Air medical services should update daily as feasible.

EMSystem® PROTOCOLS AND POLICIES:

A. EMSystem® Description

1. EMSystem® is a Web-based program providing real-time information on status, capacity and availability of resources for emergency departments, hospitals and transport services.
2. EMSystem® is used to coordinate "routine" and emergency medical operations [e.g., mass casualty incidents (MCI)] throughout the defined service area. The purpose of the

EMSystem® is not to make decisions regarding transportation, but to facilitate patient transportation and communication.

3. EMSystem® is used to communicate important information, such as disasters, public health alerts or notification of potential terrorist events, simultaneously and consistently to all users.
4. EMSystem® is operated on a computer located in the hub of operations, i.e., in the hospital emergency department or other location staffed 24 hours a day and in the dispatch centers of transporting EMS agencies. EMSystem® is in use 24 hours a day, seven days a week.

B. Purpose

1. The implementation of the EMSystem® is an effort to efficiently and effectively:

    1. Communicate situations in which the diversion of an ambulance(s) may be necessary due to the existence of temporary conditions in hospital emergency departments or the hospital that may affect patient care.
    2. Determine hospital patient capacity, availability of staffed beds and availability of specialized treatment capabilities during an MCI or a terrorist incident.
    3. Notify pre-hospital care providers, as well as other health care facilities, of temporary limitations of services or resources at receiving hospitals.
    4. To provide real-time public health and other special alerts.

2. With EMSystem®, the definition of hospital status is standardized across the entire state. Participating hospitals will update EMSystem with their current hospital status. However, EMS providers and/or emergency medical systems should continue to follow their local policies and procedures regarding the determination of hospital destinations.

3. Use of EMSystem® will aid in taking patients to the most appropriate facility.

4. Use of EMSystem® and these policies is intended to effectively manage and coordinate hospital and EMS resources, including but not limited to:

    a. Minimizing prolonged patient transport times.
    b. Minimizing prolonged out-of-hospital care when definitive hospital based resources are needed.
    c. Determining EMS resources available to the service area.
    d. Helping to determine or obtain timely information important during an MCI, public health or other special event.

C. EMSystem® Functions

1. Hospital Emergency Department Status

    a. Participating hospitals update their routine emergency department/hospital status at defined intervals. (Daily between 7:00am and 9:00am or as situation warrants.)
    b. A status screen displays the status of each hospital in service area.
    c. The 9-1-1 or dispatch center then uses the displayed information to appropriately alert EMS units to area emergency departments' status.
    d. Hospitals, EMS services and other users view the current status page to assess system capacity, potential bottlenecks and the availability of resources.

2. Mass Casualty or Bio-Terrorism Incident Support

   a. Unplanned, acute, medical emergencies involving significant numbers of ill or injured people require instantaneous EMS resource allocation.
   b. Participating hospitals enter MCI details required to respond.
   c. Each hospital then enters its ability to accept patients including decontamination patients and/or special needs patients.
   d. Incident-specific evaluation and treatment protocols are easily uploaded and immediately available to all facilities.
   e. Critical information can be instantaneously disseminated to health care providers, public health agencies and other key emergency medical personnel.

Hospital Status Definitions:

Open—green color:	Accepting all traffic
Divert—red color:	Diverting ambulance traffic (update every 2 hrs)
Resource Alert—maroon color:	Actual or pending resource limitations exist
Internal Disaster – black color:	Indicates that there is an environmental or physical plant situation, such as utility outage, unsafe situation in the hospital, etc.

The following abbreviations and terms may be used in comments as resources:

Med/Surg Beds - Medical/Surgical inpatient beds
ICU Beds – Adult Intensive Care Unit beds to include Medical, surgical, or coronary.
Telemetry Beds - Beds with monitoring capabilities
NICU Beds - Beds in the Neonatal Intensive Care Unit
PICU Beds - Beds in the Pediatric Intensive Care Unit
PED Beds - Pediatric beds
L & D Beds - Beds in Labor and Delivery
Psych Beds - Available beds in the Psychiatric Unit
Closed Psych beds – Locked Psychiatric beds
OR - Operating Room
Trauma Center Level - Designated Trauma Center Level I, II, III, or IV.
CAT SCAN - Computerized axial tomography
Fixed MRI - Fixed Magnetic Resonance Imaging Unit
Mobile MRI - Mobile Magnetic Resonance Imaging Unit

Pre-Hospital Status Definitions:

Available – green color:	Unit or organization is ON-CALL and AVAILABLE to respond to emergency calls
Caution – yellow color:	Resource limitations exist. Must specify In comments.
Unavailable – red color:	Unit or organization is UNAVAILABLE TO RESPOND to new emergency requirements at this time.

Example from system:

Central Texas
EMResource™ powered by EMSystem®

Update Status
help

EXAMPLE HOSPITAL
Update information below. You MUST update required information.
Select All - Clear All
Select the status(es) to update:

- [x] **ED** -- Current ED availability
- (•) **Divert** -- Diverting ambulance traffic.
  Please note: You must select one or more from this list when choosing **"Divert"** status:
  - [ ] ED Saturation -- All ED beds occupied
  - [ ] Internal disaster (indicate in comments) -- Such as flood or power failure. Please indicate in comments section.
  - [ ] No ICU beds -- All ICU beds occupied
  - [ ] No inpatient beds -- No available inpatient beds.
  - [ ] No monitored beds -- No monitored beds in house.
  - [ ] Other (indicate in comments)
- ( ) **Internal Disaster** -- Indicates that there is an environmental or physical plant situation, such as utility outage, unsafe situation in the hospital, etc.
- ( ) **Open** -- Accepting all traffic
- ( ) **Resource Alert** -- Actual or pending resource limitations exist. Indicate in comments.

Comment:

Select All - Clear All

Save

D. Primary Users

a. Primary users are service area hospitals, pre-hospital agencies, EMS first responders, public health, and mental health. Additional primary users may be added as they are identified. Primary users have read and write access to their specific information on the system and read-only access to all other users' information.
b. Primary users may view status information and update their respective area service data. User-specific historical data also can be retrieved for data collection, downloading or printing.

E. Secondary Users

a. Secondary users are all other interested agencies such as Offices of Emergency Management, EMS dispatchers, etc. These users will have read only access to the system.
b. Secondary users may view defined area status information. These users cannot update or alter system information unless mutually agreed upon by the Primary user agency and the Secondary user agency.

F. Access to Data

The Administrator will have full access to EMSystem® data.

The following policy is in place for data access:

1. Each Primary User shall have access to its individual data elements.
2. Anyone seeking data queries of a specific facility's information should direct their request to Administrator or that specific Primary User.
3. Requests from the public and media for statistics should be given to that agency's designated spokesperson.

G. Accessing EMSystem® Help

a. First discuss any EMSystem problems you encountering with your own IS or IT department.

Technical assistance:

EMSystem® has a 24-hour help desk to assist users with technical issues with the operation of EMSystem®.
They can be reached at (888) 290-6710.

Central Texas
Regional Advisory Council

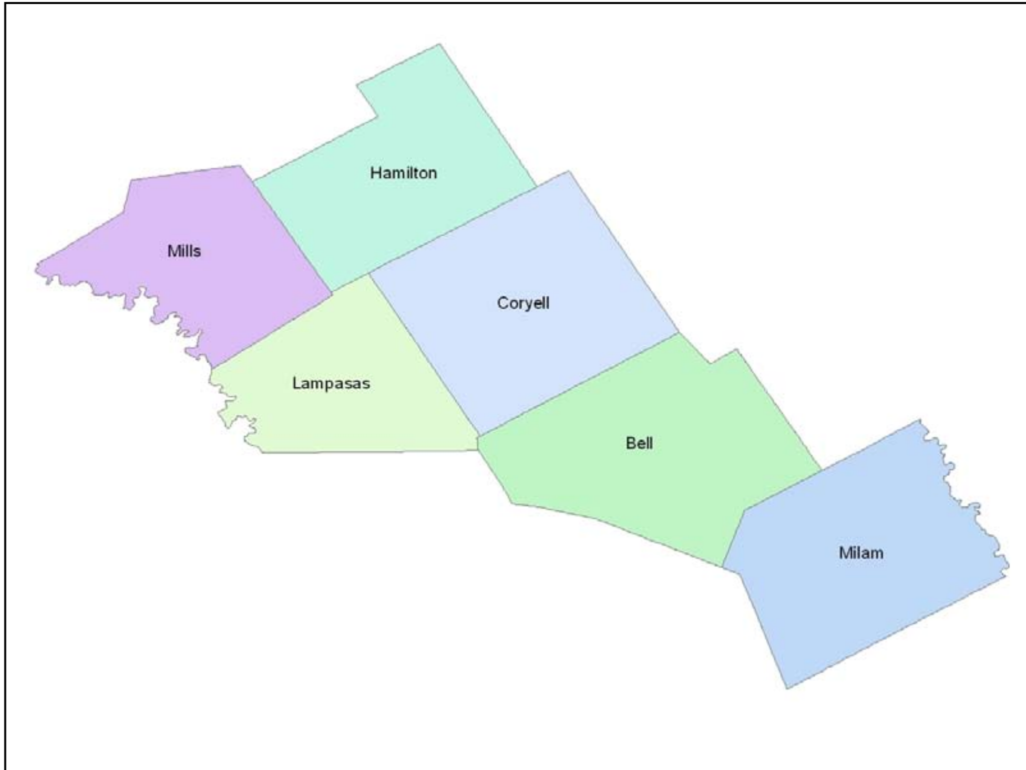
Trauma Service Area-L

Regional ST Segment Elevation Myocardial Infarction (STEMI) Plan

2010

Introduction

Trauma Service Area – L (TSA-L)



The purpose of this document is to develop a coordinated, region-wide system of care for patients experiencing an ST elevation myocardial infarction (STEMI). Guidelines from The American Heart Association (AHA) and the Society of Chest Pain Centers (SCPC) have been incorporated into this document.

ST Segment Elevation Myocardial Infarction (STEMI) is a life-threatening condition that must be recognized and treated promptly. Multiple studies have shown that morbidity and mortality can be reduced by prompt treatment directed at opening the occluded coronary artery. However, several studies have also demonstrated that many patients are not treated quickly enough to derive the clinical benefits of reperfusion therapy. System barriers can cause significant delays in treating patients quickly and efficiently. Our goal is to mitigate system related issues and enact the recommendations in this plan.

Role of the Hospitals

Summary

Active participation on the part of the Hospital emergency departments, catheterization labs, intensive care units and all personnel therein will eventually define the success or failure of this program. Several key activities must be undertaken for the system to be proficient:

- Collect and report STEMI performance data
- Assign a STEMI contact

Definition of a PCI Facility

The goal of this effort is to move patients experiencing STEMI to PCI facilities that are capable of performing the procedure rapidly and immediately after the patient presents with STEMI. The definition of a PCI facility, for the purposes of this plan, is any facility that is willing and capable of accepting EMS transported patients for emergent PCI on a 24/7 basis.

Primary PCI is available 24/7 at the following facility in TSA-L:

Scott and White Memorial Hospital, Temple, Texas

Cardiac Catheterization facilities are available and limited PCI services exist at:

King's Daughters Hospital, Temple, Texas
Metroplex Hospital, Killeen, Texas

Limited PCI services means elective PCI is performed at these facilities and primary PCI may or may not be performed based on the hour of the day and the presence of a qualified physician.

Primary PCI is not available at the following facilities:

Carl R. Darnall Army Medical Center, Ft. Hood, Texas
Central Texas Hospital, Cameron, Texas
Coryell Memorial Hospital, Gatesville, Texas
Hamilton General Hospital, Hamilton, Texas
Olin E. Teague VA Medical Center, Temple, Texas
Richards Memorial Hospital, Rockdale, Texas
Rollins Brook Community Hospital, Lampasas, Texas

Data Reporting By Facilities

EMS agencies must have accurate knowledge of a specific facility's ability to perform emergent PCI. It is recommended that hospitals be held to the same standard as required by the American College of Cardiology (ACC). All PCI facilities currently report STEMI performance data based on the ACC criteria to CMS to receive reimbursement. The American College of Cardiology (ACC) has established a minimum standard for performance as door to balloon time of 90 minutes or less 75% of the time.

Additionally, inpatient mortality rates will be tracked.

For the first year, the facility performance data will be sent to CTRAC on a quarterly basis. In the first year of this process the only information that will be reported out, in a blinded fashion, to CTRAC members is whether the facility has met the minimum ACC standards.

Facility Representation

Each PCI capable facility should designate a CTRAC contact person.

Role of EMS

Develop Acute Coronary Syndrome (ACS) Protocols

It is important to develop a standardized ACS protocol for all EMS agencies. There are several standards, considered quality of care measures that should be instituted on all ACS cases (i.e. immediate administration of aspirin). For a summary of evidence to construct an ACS protocol based on scientific evidence EMS agencies lacking a protocol should consult the following web site:

http://emergency.medicine.dal.ca/ehsprotocols/Protocols/LOE.cfm?ProtID=6229.0510

The purpose of an ACS protocol is to rapidly recognize STEMI and other cardiac emergencies, treat with appropriate medications, notify the receiving facility as soon as possible, and provide rapid transportation to a PCI facility when indicated.

Acquire 12 Lead ECG Analysis

The ability to rapidly treat a STEMI is predicated on an accurate prehospital assessment to include a 12-lead ECG analysis by EMS providers in the field. The early recognition of a STEMI in the field, allows early activation of the PCI facility. All EMS agencies should acquire 12-lead technology and training.

Report Performance Data

The American College of Cardiology (ACC) launched the D2B initiative in 2006 to emphasize the goal of 90-minute door to balloon time. In March 2007, an EMS initiative sought to assist the hospitals in meeting this goal by minimizing EMS patient contact time to 30 minutes. This 30-minute goal should also be the goal of EMS agencies participating in this endeavor. This is part of the overall 30-30-30 concept that means 30 minutes or less in the field pre-hospital arrival, 30 minutes or less in the hospital ED, and 30 minutes or less from arrival in the cardiac catheterization laboratory until the artery is open. Similar to the requirements on the hospitals, EMS agencies should prepare to collect and report performance data to the CTRAC. The data requirements are listed below.

Adopt the STEMI Bypass Guideline

All EMS agencies that do not have a STEMI Bypass Guideline should introduce the CTRAC STEMI Bypass Guideline to their medical directors and administration. The Bypass Guideline has been developed with the thought that most EMS agencies have an ACS protocol currently in place. The recommended guideline (shown below) assumes the care of the patient is still governed by the local medical director. This guideline serves as a template to be used by EMS agencies when formulating their individual plans.

ECG Transmission

There are conflicting opinions on the value of transmitted ECGs from the field vs. voice notification of an incoming STEMI. It is clear that early hospital notification by EMS significantly reduces the door-to-balloon time. In this region, only 25% of the EMS agencies currently transmit an ECG to the hospital while all EMS providers in the region report having 12-Lead capability. 67% of EMS agencies report having 12-Lead capability on every ambulance on the road.

There are a variety of EMS agencies in the region and each may utilize a different type of cardiac monitor. Each type of monitor requires its own proprietary software to transmit and receive its own data and these different monitor systems do NOT interface with each other. Specifically, you cannot transmit an ECG from a Phillips system and receive the data on a Zoll receiving station. The weakness is obvious in that if a hospital wants to receive ECG data from the several different EMS agencies it will require them to purchase multiple brands of ECG receiving stations at considerable expense. Moreover, there is little hope that all EMS agencies will agree on using one type of monitor. A question regarding this situation was submitted to a national EMS list serve with a thousand members to solicit. The response received was that a viable ECG transmission solution does not exist that can handle the three plus ECG monitor vendors.

CTRAC HOSPITAL STEMI INFORMATION FORM

Measure Set: ST-Segment Elevation Myocardial Infarction (STEMI)
Set Measure ID#: CTRAC HOSPITAL STEMI 1.0
Performance Measure Name: Door to PCI Time for STEMI patients arriving by EMS.
Description: Median time of all cases from EMS arrival at the PCI facility to percutaneous coronary intervention (PCI) in patients with ST-segment elevation on the electrocardiogram (ECG) performed closest to hospital arrival time.
Included Populations: Discharges with:
• An ICD-9-CM Principal Diagnosis Code for AMI
AND
• ICD-9-CM Principal and Other Procedure Codes for PCI
AND
• ST-segment elevation on the ECG performed closest to hospital arrival time
AND
• PCI performed within 24 hours after hospital arrival
Excluded Populations:
• Patients less than 18 years of age
• Patients received in transfer from another acute care hospital, including another emergency department
• PCI described as non-primary by a physician/APN/PA
• Patients who did not receive PCI within 90 minutes and had a reason for delay documented by a physician/APN/PA (e.g., social, religious, initial concern or refusal, cardiopulmonary arrest, or other necessary diagnostic evaluation)
Data Elements and Formatting:
• Performance data will be placed in an Excel (or like) spreadsheet. The headers are described in the Data Elements below. Performance data will be in columnar format.

- Patient ID; to ensure patient confidentiality, names will not be used only first and last initials. A unique identifying number will be attached once the data is submitted to the STEMI Data Agent. EMS will use the same patient ID so we can match hospital patients with EMS patients. Format "FNLN" initials only.
- Birth date; format "mm/dd/yyyy"
- Arrival Date; format "mm/dd/yyyy". Use the EMS arrival date.
- Arrival Time; format hh:mm. Use the EMS arrival time.
- First PCI Date; format "mm/dd/yyyy"
- First PCI Time; format hh:mm
- Arrival Source (EMS Agency Name); format
- Initial ECG Interpretation; document interpretation including presence of bundle branch blocks, ST elevation in mm height and leads found, rate and rhythm, any other relevant ECG changes.
- Reason for Delay in PCI (if any); document valid reason

CTRAC EMS STEMI INFORMATION FORM

Measure Set: ST-Segment Elevation Myocardial Infarction (STEMI)
Set Measure ID#: CTRAC EMS STEMI 1.0
Performance Measure Name: EMS to Door (E2D) for EMS STEMI patients.
Description: Median time of all cases from EMS call received to arrival at the ED door in patients with ST-segment elevation on the 12-lead ECG.
Included Populations: Calls with:
• An ICD-9-CM Principal Diagnosis Code for AMI or STEMI
AND
• ST-segment elevation on the pre-hospital ECG
Excluded Populations:
• Patients less than 18 years of age
• Patients received in transfer from another acute care hospital, including another emergency department
Data Elements and Formatting:
• Performance data will be placed in an Excel (or like) spreadsheet. The headers are described in the Data Elements below. Performance data will be in columnar format.

- Patient ID; to ensure patient confidentiality, names will not be used only first and last initials. A unique identifying number will be attached once the data is submitted to the STEMI Data Agent. The hospitals will use the same patient ID so we can match hospital patients with EMS patients. Format “FNLN” initials only.
- Birth date; format “mm/dd/yyyy”
- Call Received Date; format “mm/dd/yyyy”
- Call Received Time; format hh:mm
- Unit On Scene Date; format “mm/dd/yyyy”
- Unit On Scene Time; format hh:mm
- Unit Transporting Date; format “mm/dd/yyyy”
- Unit Transporting Time; format hh:mm
- At Destination Date; format “mm/dd/yyyy”
- At Destination Time; format hh:mm
- EMS Agency Name; format
- Initial ECG Interpretation; document interpretation including presence of bundle branch blocks, ST elevation in mm height and leads found, rate and rhythm, any other relevant ECG changes.
- Reason for Delay (if any); document any known reason for >30 minute E2D time.

CTRAC STEMI Bypass Guideline

Guideline

A. The CTRAC STEMI Bypass Guideline encourages EMS agencies to transport patients directly to the nearest open PCI facility.

B. Each EMS agency will utilize their own protocol for the clinical care of a patient experiencing STEMI or ACS.

Procedure

A. Patients who present with ST elevation of ≥2 mm in two or more contiguous leads accompanied with worrisome visceral symptoms should be selectively routed to a designated PCI facility.

B. EMS units that initiate this guideline should notify the receiving facility as soon as STEMI is suspected or verified with the term "STEMI Alert."

Patient care should be administered during transport as much as feasible.

Trauma Service Area – L
EMS & Hospital Agencies

EMS Agencies

American Medical Response
Belton Fire Department/EMS
Capital Ambulance
Carl R. Darnall Army Medical Center EMS
Central Texas Regional EMS
Copperas Cove Fire Department/EMS
Coryell Memorial Healthcare System EMS
Hamilton EMS
Harker Heights Fire Department/EMS
Killeen Fire Department/EMS
LifeStar/Air Evac
Mills County EMS
PHI STAT Air
Scott & White EMS
Thorndale EMS

Hospitals

Carl R. Darnall Army Medical Center
Central Texas Hospital
Central Texas Veterans Healthcare System (Temple)
Coryell Memorial Healthcare System
Hamilton General Hospital
Kings Daughter's Hospital
Metroplex Hospital
Richards Memorial Hospital
Rollins Brook Community Hospital
Scott & White Memorial Hospital

CTRAC Acute Care Committee Members (include, but not limited to)

A special thanks to the following members who contributed their valuable time and effort to making this plan a reality:

Chair: Robert Greenberg, Scott & White
Vice Chair: Charlotte Resto-Mafnas, Scott & White

Members and/or contributors:
Leigh Allen, Scott & White
Kim Ingrum, Metroplex Hospital
Sonya Ochoa, Metroplex Hospital
Fred Gray, AirEvac
Jerry Caldwell, Scott & White
Terri Thompson, Metroplex Hospital
Terry Valentino, Scott & White
Karen Spangle, Carl R. Darnall Army Medical Center
Jeffrey Mincy, Coryell EMS
Brittney Misercola, PHI STAT Air
Don Kasperik, Central Texas Veterans Healthcare System (Temple)
James Lee, Hamilton General Hospital
Malae Lucas, Metroplex Hospital
Ron Johnson, Rollins Brook Community Hospital
Becky Musgrove, Hamilton General Hospital
Tricia Radenz, Rollins Brook Community Hospital
Kelly Stowell, King's Daughters Hospital
Joe Piper, Killeen FD/EMS
Scott McAninch, Metroplex Hospital
Glenn Gallenstein, Harker Heights FD/EMS
Mike Ingraham, Central Texas Regional EMS
Wayne Rutherford, Killeen FD/EMS

Central Texas Regional Advisory Council (CTRAC)
Regional Stroke Plan

Mission
The mission of the Central Texas Regional Advisory Council (CTRAC)-Stroke is to decrease disability and mortality associated with acute stroke by utilizing an organized and integrated system wide approach for treatment and transport of acute stroke patients.

The Regional Plan
This plan has been developed in accordance with generally accepted American Stroke Association guidelines and The Joint Commission Primary Stroke Certification. This plan does not establish a legal standard of care, but rather is intended as an aid to decision-making in stroke patient care scenarios. It is not intended to supersede the physician's prerogative to order treatment.

Goal
- Establish guidelines for transportation of stroke patients.
- Develop a system that incorporates American Heart Association Chain of Survival for stroke with all participants having a key role in the delivery and care of the stroke patient.
- Recognize a facility's capability to treat stroke patients according to state standards until a standardized state survey application and tool can be utilized for those centers which a standardized process does not currently exist.
- Establish a system with a mechanism to continually evaluate the quality of care the stroke patient receives within the system.

Stroke Facility Recognition
The RAC may recognize those facilities that seek Level 3 or Stroke Support Facility recognition. For all other facilities in the RAC that wish to be Level 1 or 2, current process will continue as stated in Texas Administrative Code RULE §157.133. For those that wish to be recognized by the RAC, until a standardized process is implemented by the state, they much contact the RAC office to set up a survey date. Facilities that wish to be surveyed and designated as such much meet all elements noted as "essential" on the Stroke Capable Facility Essential Criteria Summary Sheet (also see *Criteria Clarification*). Once the survey is completed, it will go to the Acute Care Committee Chair to be signed. Designation will be good for 2 years at which time a repeat survey will need to be completed. If at any time the support facility wishes to change designation status the facility must notify the RAC in writing of the intent.

For all other facilities wishing to be designated Level 1 or 2 standard definitions should be used to classify, transport, treat, and care for stroke patients. In order to ensure this, patients to be rapidly triaged and screened for appropriate treatment or transfer (See *Stroke Algorithm* example) to appropriate facility.

Patient Transfers
Patient transportation and transfers should be guided by guidelines set forth by CTRAC. Reasons to bypass a stroke center can be found at the bottom of the transport guidelines page.

Quality Improvement (QI)

Facilities within the CTRAC must have system of QI in place. Additionally, all facilities within CTRAC that care for stroke patients must participate in the CTRAC Regional Stroke QI. A plan for the evaluation of operations is needed to determine if system developments is meeting its stated goals. The direction for the development of a CTRAC Stroke QI program is derived from the Texas EMS Rules: Section 157.124 Regional EMS Trauma Systems: (2.K) of the EMS Rules (effective 2/17/92) requires the development of a "performance management program that evaluates outcome from a system perspective". The Acute Care Committee will determine the type of Stroke data and manner of collection, set the agenda for the Stroke QI process within the regularly-scheduled meetings of the committee, and identify the events and indicators to be evaluated and monitored. Indicator identification will be based on high risk, low volume, and problem prone parameters. Indicators will be objective, measureable markers that reflect stroke resources, procedural/patient care techniques, and or systems/process outcomes (see *CTRAC Stroke Data Collection Tool*).

Central Texas Regional Advisory Council (CTRAC)

PREHOSPITAL TRANSPORT GUIDELINES FOR STROKE

SUSPECTED STROKE PATIENT

Assessment Guidelines:

- Vital Signs
- Cincinnati Stroke Scale (FAST)
- Focused History & Physical Exam
- Time of Last Known Normal
- Consider other etiologies, hypoglycemia, seizure, etc.
- Blood Glucose Assessment
- 12-Lead ECG
- Contact number of witness/family member

Treatment Guidelines:

- Oxygen 2-4 L/min
- Continuous monitoring
- IV 18 gauge in the AC (preferred)
- Rapid transport to appropriate facility as indicated.
- Early Consideration of Air Medical transport to decrease transport time.
- Online Medical Control (preferred over triage)

Transport decision should be based on time of onset as appropriate.
Consider Air Medical Transport if ground transportation is > 30 min or life saving intervention are required for safe transport.
Transport to highest level stroke center with no more than 15 min delay

< 3 hours → **CLOSEST DESIGNATED STROKE CENTER (1,2, and 3)**

3-8 hours → **CONSIDER CLOSEST LEVEL 1 STROKE CENTER**

Beyond 8 hours
(Or undetermined time of onset)
→ **Transport to level 1 or 2 stroke center.**

*This patient is outside the window for FDA approved reperfusion therapy, but does require a stroke center.

CTRAC Stroke Center Bypass may only occur for the following reasons:

1. Patient Preference 2. Physician Preference 3. Paramedic discretion

Stroke Appendix A
Central Texas Stroke Centers

Level 1 Stroke Centers	
Scott & White Memorial Hospital	Temple, TX

Level 2 Stroke Centers

Level 3 Stroke Centers

Hamilton General Hospital
Metroplex Hospital
Carl R. Darnall Army Medical Center
Richards Memorial Hospital (considering)
Central Texas Hospital (considering)

Undesignated

Kings Daughter's Hospital
Rollins Brook Community Hospital
Coryell Memorial Hospital
Central Texas VA Hospital

Recommendations by the GETAC Stroke Committee

1) **Level 1: Comprehensive Centers ("CSCs")**
    a. A 24/7 stroke team
    b. Personnel with expertise to include vascular neurology, neurosurgery, neuroradiology, interventional neuroradiology/endovascular physicians, critical care specialists, advanced practice nurses, rehabilitation specialists with staff to include physical, occupational, speech, and swallowing therapists, and social workers.
    c. Advanced diagnostic imaging: magnetic resonance imaging (MRI), computerized tomography angiography (CTA), digital cerebral angiography and transesophageal echocardiography.
    d. Capability to perform surgical and interventional therapies such as stent placement and angioplasty of intracranial vessels, carotid endarterectomy, aneurysm clipping and coiling, endovascular ablation of AVM's, and intra-arterial reperfusion.
    e. Supporting infrastructure such as 24/7 operating room support, specialized critical care support, 24/7 interventional neuroradiology/endovascular support, and stroke registry
    f. Educational and research programs

2) **Level 2: Primary Stroke Centers ("PSCs"):**
    a. 24 hour stroke team
    b. Written care protocols
    c. EMS agreements and services
    d. Trained ED personnel
    e. Dedicated stroke unit
    f. Neurosurgical , Neurological, and Medical Support Services
    g. Stroke Center Director that is a physician
    h. Neuroimaging services available 24 hours a day
    i. Lab services available 24 hours a day
    j. Outcomes and quality improvement plan
    k. Annual stroke CE requirement
    l. Public education program

3) **Level 3: Support Stroke Facilities ("SSFs"):**
    a. Develop a plan specifying the elements of operation they do meet.
    b. Have a Level 1 or Level 2 center that agrees to collaborate with their facility and to accept their stroke patients where they lack the capacity to provide stroke treatment.
    c. Identify in the plan the Level 1 or Level 2 center that has agreed to collaborate with and accept their stroke patients for stroke treatment therapies the SSF are not capable of providing
    d. Obtain a written agreement between the Level 1 or Level 2 Stroke Center with their facility specifying the collaboration and interactions.
    e. Develop written treatment protocols which will include at a minimum:
        1. Transport or communication criteria with the collaborating/accepting Level 1 or Level 2 center.
        2, Protocols for administering thrombolytics and other approved acute stroke treatment therapies.
    f. Obtain an EMS/RAC agreement that:
        1. clearly specifies transport protocols to the SSF, including a protocol for identifying and specifying any times or circumstances in which the center cannot provide stroke treatment; and,
        2. specifies alternate transport agreements that comply with GETAC EMS Transport protocols.
    g. Document ED personnel training in stroke.
    h. Designate a stroke director (this may be an ED physician or non-Neurologist physician)
    i. Employ the NIHSS for the evaluation of acute stroke patients administered by personnel holding current certification
    j. Clearly designate and specify the availability of neurosurgical and interventional neuroradiology/endovascular services.
    k. Document access and transport plan for any unavailable neurosurgical services within 90 minutes of identified need with collaborating Level 1 or 2 Stroke Center.

REGIONAL HEALTH AND MEDICAL DISASTER PLAN

Under Separate Cover

Attachment 1

REGIONAL COMMUNICATIONS FREQUENCIES

RADIO INTEROPERABLE COMMUNICATIONS CHANNELS
DIRECTOR IP ADDRESSES

Copperas Cove Police/Fire/EMS	
VHF	Tex Fire 1
VHF	Tex Med 1
VHF	Tex Law 1
VHF	Tex Law 2
800 MHz	8CALL90 aka NPSPAC1, 800 Hail
800 MHz	8TAC91 aka NPSPAC2, 800 TAC1
Hamilton Sherriff	
Channel 2	NPSPAC - Hail
Channel 3	NPSPAC – M/A
Channel 4	Tex Law 1
Channel 5	Tex Law 2
Channel 6	Tex Fire 1
Channel 7	Hamilton Emergency Services
Gatesville PD	
Channel 2	800 Hail
Channel 3	800 M/A
Channel 4	Tex Law 1
Channel 5	Tex Law 2
Channel 6	Tex Fire 1
Channel 10	EMS
Lampasas Sherriff	
Channel 2	800 Hail
Channel 3	800 TAC 3
Channel 4	Tex Law 1
Channel 5	Tex Law 2
Channel 6	Tex Fire 1
Milam County	
Channel 2	800 Hail
Channel 3	800 M/A
Channel 4	Tex Law 1 RX
Channel 5	Tex Law 2
Channel 6	Tex Fire 1
Channel 7	Milam EMS
Rockdale PD	
Channel 4	Tex Law 1
Mills County Sherriff	
Channel 2	800 Hail
Channel 3	800 M/A
Channel 4	Tex Law 1 RX
Channel 5	Tex Law 2
Channel 6	Tex Fire 1

Cameron PD	
Bell County	