Big Country
Regional Advisory Council

Trauma Service Area-D

Regional ST Segment Elevation Myocardial Infarction (STEMI) Plan

2026

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Summary

As directed by the Governors EMS and Trauma Advisory Council (GETAC), the Big County Regional Advisory Council (BCRAC) has been charged with developing and maintaining a region-wide system and standard of care for patients experiencing an ST elevation myocardial infarction (STEMI). Guidelines from The American Heart Association (AHA) and The American College of Cardiology (ACC) have been incorporated into this document.

The purpose of the Regional STEMI Plan is to establish a uniform set of criteria for triage and transport of acute STEMI patients.

It is important to note that STEMI patients should be recognized as quickly as possible to identify those eligible for thrombolytic or invasive therapy. Copious data have shown that both morbidity and mortality can be reduced by an approach of rapid interventional reperfusion targeted to within ninety minutes of "first medical contact". Further data have demonstrated that in-the-field recognition by pre-hospital providers utilizing 12-lead ECG coupled with pre-hospital notification of the receiving facilities can further reduce time to reperfusion and is associated with further improvement in outcomes. EMS personnel must be trained to recognize, treat and transport ST Elevation Myocardial Infarction (STEMI) patients in a timely manner.

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.

The primary goal of the BCRAC Regional STEMI Plan is: **To develop a STEMI Emergency Care System that, when implemented, will result in decreased cardiac mortality and morbidity in the BCRAC Region.** In order to accomplish this, a number of specific processes are essential. These are:

1) The ability to rapidly and accurately identify patients suffering from STEMI.
2) Patients who have sustained a STEMI event must receive care in a hospital that has a STEMI treatment program in place which is capable of providing immediate and comprehensive assessment, resuscitation, intervention and definitive care.
3) The BCRAC must assist in the coordination of a process for continuous and effective region-wide coordination of pre-hospital and hospital care resources, so that STEMI patients will be most expeditiously transported to the closest available interventional facility capable of performing PCI, so patient care can be provided in a manner that is both appropriate and timely, while establishing and maintaining continuity. To accomplish this process there must be a method of tracking the care capability for STEMI patients and reviewing the quality of the process itself.

Definitions

12-lead electrocardiogram (ECG/EKG) - A test using a device that measures the electrical activity of the heartbeat and can help medical personnel determine if a heart attack has occurred and whether the heart attack was a STEMI or non-STEMI event. When a 12-lead ECG is done, 10 wires (" 12 leads"} are attached to the arms, legs and chest. These wires each record electrical impulses, but from a different position in relation to the heart.

15-lead electrocardiogram (ECG/EKG) – An additional ECG to help identify a posterior STEMI.

Right-sided electrocardiogram (ECG/EKG) – An additional ECG if right ventricular involvement is suspected. Patient may need volume and avoid use of NTG.

Acute Coronary Syndrome (ACS) - Is usually one of three disease processes involving the coronary arteries: STEMI, NSTEMI or Unstable Angina.

Acute Myocardial Infarction (AMI) - The medical term for a heart attack, which occurs when the blood supply to part of the heart muscle itself - the myocardium — is severely reduced or stopped. An AMI should be documented as a STEMI or NSTEMI.

Angina / Unstable Angina- Generally termed "Chest Pain" Angina is chest pain or discomfort that occurs when an area of the heart is deprived of oxygen.

Angioplasty - A procedure used to treat patients with a partially or completely blocked artery that restricts blood flow through the heart. A type of percutaneous coronary intervention (PCI}, this procedure requires a slender balloon-tipped tube to be threaded from an artery to a trouble spot in the artery of the heart. The balloon is then inflated, which compresses the blockage and widens the narrowed artery to restore blood flow.

Balloon Inflation - Another name for angioplasty, which is a surgical procedure used to treat patients with a partially or completely blocked artery that restricts blood flow through the heart. A type of percutaneous coronary intervention (PCI}, this procedure requires a slender balloon-tipped tube to be threaded from an artery to a trouble spot in the artery of the heart. The balloon is then inflated, which compresses the blockage and widens the narrowed artery to restore blood flow.

Cath Lab - The department in a medical facility that specializes in cardiac catheterization, which is a procedure to examine blood flow to the heart and test how well the heart is pumping and performs PCI when indicated.

Door-to-PCI Time (D2PCI) - The amount of time between a heart attack patient's arrival at the hospital to the time he/she receives percutaneous coronary intervention (PCI}, such as angioplasty. Formerly called Door to Balloon (D2B). D2PCI goal $\leq$90 min (arrival via private vehicle) or $\leq$60 min for EMS arrivals or transfers.

Door-to-Needle Time (D2N) - The amount of time between a heart attack patient's arrival at the hospital to the time he/she receives clot-busting medications, referred to in medical terms as fibrinolytics or thrombolytics. D2N goal is ≤ 30 minutes.

Electrocardiogram (ECG/EKG) - A recorded tracing of the electrical activity of the heart. D2ECG goal $\leq$10 min

Emergency Medical Service (EMS) - A system of health care professionals, facilities and equipment providing pre-hospital emergency care.

First Medical Contact to PCI (FMC2PCI) – First documented contact by EMS to the time he/she receives percutaneous coronary intervention (PCI). Formerly First Medical Contact to Balloon (FMC2B)

First Facility arrival to PCI at receiving facility (D2D2PCI) First documented time of arrival at sending facility to PCI at STEMI receiving facility. D2D2PCI goal ≤120 minutes (if unable to achieve goal, consider fibrinolytic therapy utilizing inclusion/exclusion criteria prior to transfer)

Fibrinolytic Therapy - The use of pharmaceuticals or injections of medication to break up a blood clot inside an artery or cavity of the heart so that blood flow can be improved or restored. Also called thrombolytics, this type of treatment is widely available at hospitals across the United States. See Door to Needle (D2N).

Helicopter Emergency Medical Service (HEMS) - A system of health care professionals, facilities and equipment providing pre-hospital emergency care by air.

Non-PCI hospital - A type of hospital that does not have the means to deliver percutaneous coronary intervention (PCI} 24/7, the preferred means of treating a STEMI heart attack patient if done within the critical 90-minute window. Non-PCI hospitals can: administer clot-busting medicines that meet the health care needs of STEMI patients; refer STEMI patients to PCI hospitals, thus the name PCI-referral hospital; and treat STEMI patients with medications when it is not feasible for them to get to a PCI-capable hospital for treatment in ≤ 120 minutes from arrival at PCI-Referral hospital to PCI at receiving hospital.

Non- ST-elevation myocardial infarction (NSTEMI) - A myocardial infarction without 1 mm of ST elevation (or more} in 2 or more contiguous leads. A NSTEMI is usually treated as unstable angina until it is identified through lab reports.

Percutaneous Coronary Intervention (PCI) - The family of medical procedures that uses a "mechanical" means to treat patients with partially or completely restricted blood flow through an artery of the heart. Examples include balloon angioplasty, suction thrombectomy and stents.

PCI-Capable Hospital - A hospital that has the equipment, expertise and facilities to administer percutaneous coronary intervention (PCI}, a mechanical means of treating heart attack patients. These PCI-capable hospitals are called STEMI-receiving hospitals because they are well equipped to receive and treat STEMI patients.

Point of Entry (POE) - The part of the healthcare community where treatment of a patient begins, such as when emergency medical services arrive on the scene or the patient walks into the emergency department at a hospital.

Reperfusion Therapy - One or more techniques to restore blood flow to part of the heart muscle damaged during a heart attack. It may include clot-dissolving drugs (thrombolysis}, balloon angioplasty, stents or surgery.

ST-elevation myocardial infarction (STEMI) - A severe heart attack caused by a prolonged period of blocked blood supply that affects a large area of the heart. These attacks carry a substantial risk of death and disability and call for a quick response by many individuals and systems. It will be easily identified by 1 mm ST elevation (or more} in 2 or more contiguous leads.

ST-elevation myocardial infarction (STEMI) equivalents – Includes:

- New onset Left Bundle Branch Block (LBBB) OR
- Posterior STEMI with ST depression (15-lead ECG needed.) OR
- Multi-lead ST depression with coexistent ST elevation in lead aVR

STEMI System - An integrated group of separate entities focused on reperfusion therapy for STEMI within a region that typically includes emergency medical services (EMS} providers, at least one community (non-PCI or STEMI-referral} hospital and at least one tertiary (PCI-capable or STEMI receiving} hospital. The system may include one or more of the following components: leadership teams of EMS, emergency medicine, cardiology, nursing and administration; standardized communication (i.e., STEMI alert system}; standardized transportation; and data collection and feedback. Please note: In some systems, there may be a single hospital with PCI capabilities that has established protocols with EMS providers and contains at least one of the components stated above.

Thrombolytics - The use of pharmaceuticals or injections of medication to break up a blood clot inside an artery or cavity of the heart so that blood flow can be improved or restored. Also called fibrinolytic therapy, this type of treatment is widely available at hospitals across the United States with a goal of arrival at hospital to thrombolytic administration ≤ 30 minutes when FMC2B is not achievable ≤ 90 minutes.

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:

1} Collect and report STEMI performance data
2} Assign a STEMI contact

Definition of a PCI Facility

The goal of this effort is to move patients experiencing STEMI to PCI capable hospitals 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 facilities in TSA-D:

1} Hendrick Medical Center North, 1900 Pine St, Abilene, Texas

Primary PCI is available at the following facilities in TSA-D except when on divert. (Diversion is communicated through EMResource)

1} Hendrick Medical Center Brownwood, 1501 Burnett Road, Brownwood, Texas
2} Hendrick Medical Center South, 6250 US-83, Abilene, Texas

Primary PCI is not available at the following facilities:

1} Anson General Hospital
2} Coleman County Medical Center
3} Comanche County Medical Center
4} Eastland Memorial Hospital
5} Fisher County Hospital
6) Haskell Memorial Hospital
7} Knox County Hospital
8} Mitchell County Hospital
9} Rolling Plains Memorial Hospital
10} Stephens Memorial Hospital
11} Stonewall Memorial Hospital
12} Throckmorton County Hospital

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} and the American Heart Association (AHA). The ACC and AHA have established a minimum standard for performance as door to PCI time of 90 minutes or less 85% of the time. Additional performance measures are (1) FMC2PCI ≤ 90 minutes or ≤ 120 minutes with transport drive > 45 minutes and D2PCI ≤ 30 minutes and STEMI Alert prior to arrival and (2) D2D2PCI ≤ 120 minutes or if unachievable, consider thrombolytics with D2N ≤ 30 minutes.

Additionally, inpatient mortality rates will be tracked.

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

Facility Representation

Each PCI capable facility should designate a BCRAC contact person.

Facility Diversion

Designated STEMI receiving facilities do not divert STEMI patients. If a regional facility has some PPCI coverage, they must communicate when PPCI is not available. TSA-D facilities will communicate "facility diversion" status promptly and clearly to the regional EMS and other facilities through the EMResource in order to ensure that STEMI patients are transported to the closest appropriate facility.

Facility Triage Criteria

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

A confirmed 12-lead should activate a facility's STEMI protocol. After confirming a STEMI, the patient should be transferred immediately to the closest PCI capable hospital if FMC2B can be achieved in ≤ 90 minutes or ≤ 120 minutes if > 45 minute drive AND/OR reperfusion checklist shows contraindication to thrombolytics. Consider administering a thrombolytic with D2N ≤ 30 minutes before transfer when these times are not achievable.

Inter-Facility Hospital Transfers

STEMI patients require specialized care and treatment beyond a non-PCI hospital's capability. STEMI patients require rapid identification and transfer to a PCI capable hospital as soon as possible.

The level of cardiac care resources required for STEMI patients is outlined in the TSA-D Field STEMI Triage Decision Scheme algorithm (page 12). When a suspected STEMI patient is identified, activation of a STEMI ALERT should be initiated as soon as identified. A transferring facility should state that the patient is a "STEMI ALERT" when calling EMS and the accepting PCI capable hospitals.

EMS should be called for transport as soon as identification of STEMI EKG (with goal of 5 minutes or less) These criterions (see attached Regional STEMI Form) are monitored through the regional PI program.

Identification of STEMI Patients & STEMI Transfers - STEMI patients and their treatment requirements for optimal care are identified in the TSA-D facility triage criteria and pre-hospital triage criteria.

STEMI Patient Transport - STEMI patients in TSA-D are transported according to patient need, availability of resources, and environmental conditions. EMS transport may include BLS, ALS, MICU or SCT ground ambulance but due to potential life-threatening complications and need for advanced treatment, ALS or higher is recommended. HEMS transport is also available in this Region.

Role of the EMS

Develop Acute Coronary Syndrome (ACS) Protocols

It is important to develop a standardized ACS protocol for all EMS agencies. There are several treatments and medications considered standards of care that should be instituted on all ACS cases.

- Aspirin-Administer non-enteric coated Aspirin 324 mg PO, chewed, to patients with no history of aspirin allergy and without signs of active or recent bleeding.
- Oxygen-Maintain oxygen saturation >90% with the lowest concentration of supplemental oxygen possible.
- Nitroglycerin-(After 12-lead ECG obtained)-Administer 3 nitroglycerin (tablets or spray) at intervals of 3 to 5 minutes, if the patient is still symptomatic. Monitor for hypotension.
- Nitrates in all forms are contraindicated in the following patients:
    - SBP < 90 mmHg
    - Extreme caution advised in patients with known inferior wall STEMI and suspected right ventricular (RV) involvement. These patients require adequate RV preload. A right-sided ECG should be performed to evaluate the RV infarction.
    - Patients taking phosphodiesterase-5 (PDE-5), Sildenafil (Viagra, Revatio) or Vardenafil (Levitra) in past 24 hours or Tadalafil (Cialis) in the past 36 hours due to potential severe hypotension.
- Narcotics-Morphine or Fentanyl IV PRN for chest pain unrelieved by NTG.
- IV Fluids-Per protocol. Two IV's if possible, avoid wrists/hands. Do NOT delay transport for a second IV.
- Vital Signs-Monitor for hypotension and respiratory depression after administration of NTG, narcotics and anti-hypertensive agent.

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

Performance measures and STEMI feedback will be reported by the PCI-Receiving hospitals with assistance from EMS and NPCI-Referral hospitals providing needed information. An EMS report and copy of the 12-lead ECG will follow the patient during their care.

Adopt the STEMI Bypass Guideline

All EMS agencies that do not have a STEMI Bypass Guideline should introduce the BCRAC 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; however, this guideline will serve as a regional standard of care. This guideline serves as a template to be used by EMS agencies when formulating their individual plans.

ECG Transmission

Early hospital notification by EMS significantly reduces the door-to- PCI time. PCI-Receiving hospitals will collaborate with EMS to receive 12-lead ECG transmission 24 hours per day/7 days a week.

EMS should transmit 12-lead ECGs if technically feasible, reliable and if a system exists for immediate ECG interpretation by a physician. This is helpful for ECGs that have an uncertain EMS interpretation.

Pre-hospital Triage

To ensure the best possible patient care and utilization of resources, every patient suspected of ACS will be assessed for abnormal vital signs; concurrent disease/predisposing factors; and abnormal 12-lead EKG.

1} If a provider is unable to complete a 12-lead ECG, suspected cardiac patients should be taken to the nearest hospital.

2} If a provider suspects a STEMI (confirm by 12-lead}, the patient should be taken directly to a PCI capable hospital if FMC2B can be achieved in ≤ 90 minutes or ≤ 120 minutes if > 45 minute drive AND/OR reperfusion checklist shows contraindication to thrombolytics.

3} If a provider is unable to provide MICU care to the suspected cardiac patient, paramedic intercept should be considered. Paramedic intercept may be by ground or air.

4} If transport by ground to the nearest appropriate facility is more than 30 minutes, consider activating the closest HEMS.

Facility Bypass

Regional transport treatment guidelines ensure that patients who meet the triage criteria for activation of the TSA-D Regional STEMI Plan will be transported directly to the closest appropriate PCI capable hospital rather than to the nearest hospital except under the following circumstances:

1} If unable to establish and/or maintain an adequate airway, the patient should be taken to the closest non-PCI hospital for stabilization.

2} 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.

3} If expected transport time to the nearest appropriate PCI capable hospital is excessive (> 30 minutes} and if FMC2B cannot be achieved in ≤ 90 minutes or ≤ 120 minutes if > 45 minute drive AND/OR reperfusion checklist shows contraindication to thrombolytics, the EMS crew on scene should consider activating HEMS or transport to the closest non- PCI capable facility for fibrinolytic therapy. Should there be any question regarding whether or not to bypass a facility consult with your Base Station Physician (BSP}.

TSA D – EMS Services

1) Abilene Fire Department-EMS
2) Air Evac Lifeteam 63-Abilene
3) Air Evac Lifeteam Eastland
4) Citizens EMS
5) Coleman County EMS – Sacred Cross
6) Comanche County EMS
7) Cross Plains EMS
8) Dublin EMS
9) Eastland Memorial Hospital EMS
10) Eula VFD
11) Fisher County Hospital District EMS
12) Hamlin EMS
13) Haskell County Ambulance Service
14) Jim Ned VFD
15) Knox County EMS
16) Lifeguard Ambulance Service-Brownwood
17) MetroCare Services Abilene-L.P.
18) Mitchell County EMS
19) Native Air of Texas
20) North Runnels Hospital EMS
21) Potosi VFD
22) Ranger Fire Department-EMS
23) Scurry County EMS
24) Shackelford County EMS
25) Stamford EMS
26) Stephens County EMS - Sacred Cross
27) Stonewall Memorial Hospital EMS
28) Sweetwater Fire Department
29) Taylor County EMS
30) Throckmorton County EMS

Contact information can be found on the Big Country Regional Advisory Council Home page
”List of EMS & Hospitals”

Field STEMI Triage Decision Scheme

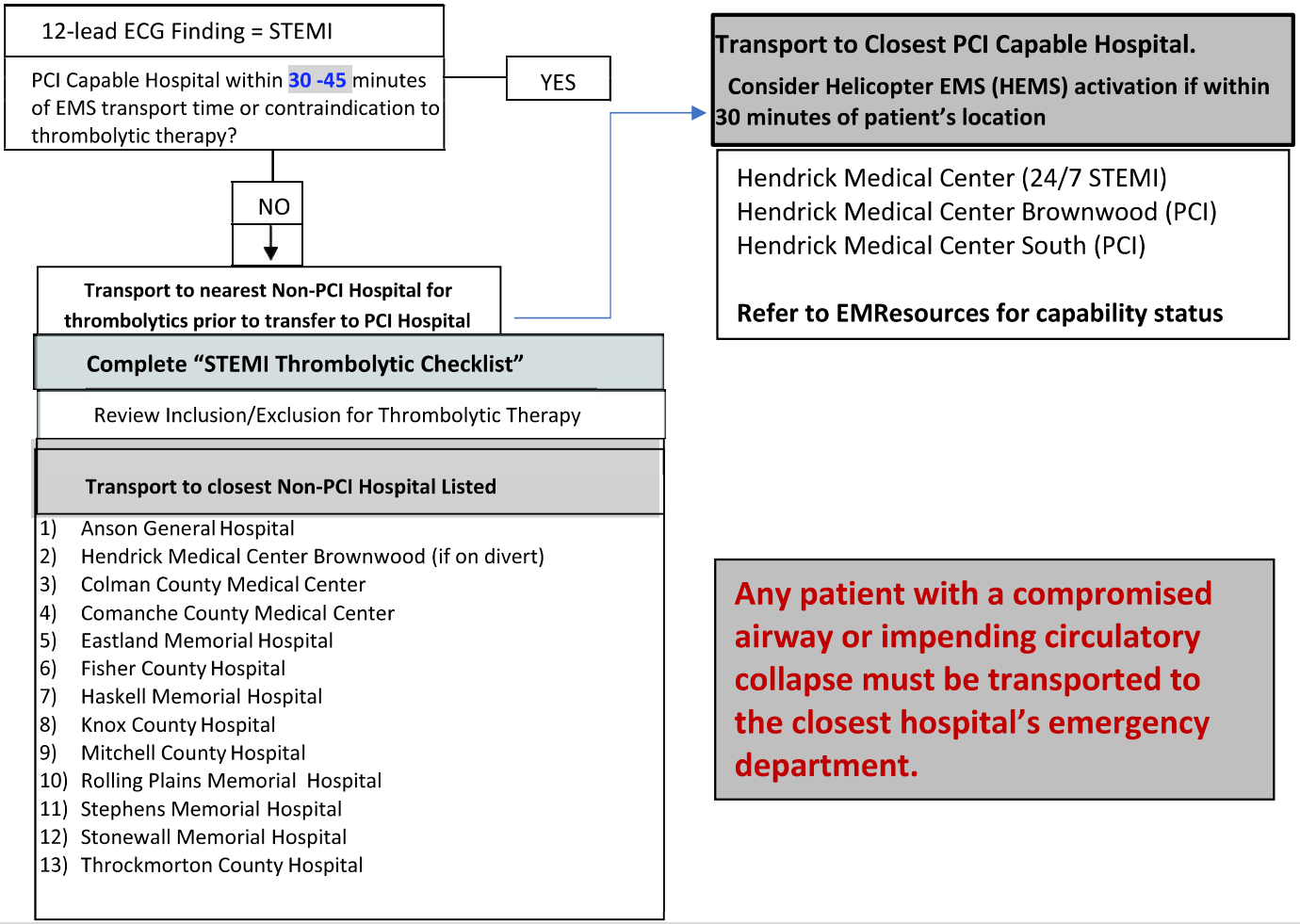
The Purpose of this Decision Scheme is to:

1) Rapidly identify STEMI patients who call 911 or present to EMS
2) Minimize the time from onset of STEMI symptoms to coronary reperfusion
3) Quickly recognize a potential STEMI by 12-lead ECG
4) Complete a reperfusion checklist (unless being transported directly to a PCI hospital) to determine thrombolytic eligibility
5) Rapidly identify the best hospital destination based on symptom onset time, reperfusion checklist, and predicted transport time
6) Call STEMI Alert to the hospital as soon as STEMI is identified.
7) Minimize scene time to 15 minutes or less (including a 12-lead ECG)

STEMI Patient (ST Elevation Myocardial Infarction)

1) Cardiac symptoms **AND**

a) 12-lead ECG criteria of 1 mm ST elevation (or more) in 2 or more contiguous leads OR
b) 12-lead ECG interpretation with an "ACUTE MI" statement OR
c) Left Bundle Branch Block NOT KNOWN to be present in the past OR
d) Posterior STEMI with ST depression (15-lead ECG needed.) OR
e) Multi-lead ST depression with coexistent ST elevation in lead aVR



ECG/EKG Screening Guide

Patients > 18 years old **experiencing any of the following:**

1) Chest pain (any pain between the navel and jaw)
2) Chest pressure, discomfort, or tightness
3) "Heartburn" or epigastric pain
4) Complaints of "*heart racing*" or "*heart too slow*"
5) Syncope
6) Severe weakness
7) New onset stroke symptoms
8) Difficulty breathing (with no obvious non-cardiac cause)
9) Nausea/vomiting (with no obvious non-cardiac cause)

Above patients require ECG in 10 minutes!

Patients (regardless of age) **with any of the above symptoms** and history of:

1) Prior cardiac disease such as heart attack
2) A family history of early heart disease
3) Diabetes mellitus
4) Severe obesity
5) Recent illicit drug use (cocaine, methamphetamines)

These patients also require an ECG within 10 minutes!

Present ECG for *immediate* interpretation!

Remember:

1) Women and diabetic patients are more likely to present with atypical symptoms
2) Elderly patients may have symptoms such as generalized weakness, altered mental status, nausea/vomiting, shortness of breath, diaphoresis, or syncope as their only sign of acute heart attack
3) Atypical pain can be in jaw, neck, arm, or upper back.

When in doubt, do the ECG

Consider obtaining 15-L ECG to identify posterior MI or right sided ECG if right ventricular involvement is suspected.

Big County Regional Advisory Council

Regional STEMI Plan

STEMI: THROMBOLYTIC CHECKLIST

Photocopy This Form and Leave A Copy With Emergency Department Physician At Bedside

INCIDENT

Date _____ Agency_____ Unit #_____

Patient Name _____Age_____ DOB _____

INDICATIONS FOR USE OF CHECKLIST

For Patient's experiencing chest discomfort for greater than 15 minutes and less than 12 hours, AND

12-lead ECG shows STEMI or presumable new LBBB.

ABSOLUTE CONTRAINDICATIONS	YES	NO
Any prior intracranial hemorrhage		
Known structural cerebral vascular lesion (eg: arteriovenous malformation)		
Known malignant intracranial neoplasm (primary or metastatic)		
Ischemic stroke within 3 months, except acute ischemic stroke within 4.5 hours of onset		
Suspected aortic dissection		
Active bleeding or bleeding diathesis (excluding menses)		
Significant closed-head or facial trauma within 3 months		
Intracranial or intraspinal surgery within 2 months		
Severe uncontrolled hypertension (unresponsive to therapy) (SBP>180mmHg or DBP>110mmHg)		

RELATIVE CONTRAINDICATIONS	YES	NO
History of chronic, severe, poorly controlled hypertension		
Significant hypertension on presentation (SBP> 180mmHg or DBP > 110mmHg) (This can be mitigated somewhat if the blood pressure is reduced prior to fibrinolytic administration)		
History of prior ischemic stroke > 3 months		
Dementia		
Known intracranial pathology not covered in absolute contraindications		
Traumatic or prolonged (>10 minutes) CPR		
Major surgery < 3 weeks		
Recent (within 2 to 4 wk) internal bleeding		
Noncompressible vascular punctures		
Pregnancy		
Active peptic ulcer		
Oral anticoagulant therapy		

For relative contraindications or questions related to risk/benefit of thrombolytic therapy- the transfer center can coordinate the doc-to-doc phone call with the cardiologist on call for STEMI after initial acceptance by ED provider. Do not delay care/transfer process.

Comments_____

_____

_____

BCRAC Regional STEMI Checklist Form

EMS Checklist EMS/Air Transport Name:_____

Step

_____ Obtain 12 lead ECG (Goal <5 min from initial contact)

Consider 15 lead ECG (posterior) if non diagnostic or right sided ECG if right ventricular involvement suspected (leads II, III, aVF)

_____ Activate STEMI Alert (Goal <5 min)

_____ Aspirin 324 mg (4 chewable baby aspirin) p.o.

_____ Oxygen therapy to maintain saturation >90%

_____ IV access (two large bore- avoid wrist)

_____ Nitroglycerin sl every 5 min x 3 doses

(Hold if SBP <90, hx of erectile dysfunction meds within 36 hours of arrival, STE in leads II, III, and aVF- consider right ventricular involvement)

Other treatment:_____

Referring Hospital Checklist Hospital Name:_____

Step

_____ Door to 12-lead ECG performed and shown to provider (Goal <10 min)

Consider 15 lead ECG (posterior) if non diagnostic or right sided ECG if right ventricular involvement suspected (leads II, III, aVF)

_____ Activate STEMI Alert

_____ Request for transfer to Primary PCI Hospital

Note-for relative contraindications/questions related to thrombolytic therapy- contact transfer center for doc to doc with receiving STEMI cardiologist

_____ Door to 12-lead ECG performed and shown to provider (Goal <10 min)

_____ PCI Hospital Acceptance

_____ EMS Called for transport

_____ 12 lead ECG faxed to Primary PCI Facility

_____ Oxygen therapy to maintain saturation >90%

_____ Aspirin 324 mg (4 chewable baby aspirin) p.o.

_____ IV access (two large bore- avoid wrist)

_____ STAT lab: CBC, CMP, PT/PTT, Troponin I

_____ Nitroglycerin 0.4 mg sl every 5 min x 3 doses

(Hold if SBP <90, hx of erectile dysfunction meds within 36 hours of arrival, STE in leads II, III, and aVF- consider right ventricular involvement)

_____ Heparin Bolus 60 units/kg (max 4000 units) and Drip 12 units/kg/hr (max 1000 units/hr)

OR enoxaparin 30 mg IV then 1 mg/kg subq- max dose 100 mg for age <75; 0.75 mg/kg subq with no IV bolus- max dose 75 mg)

_____ Consider thrombolytic using inclusion/exclusion criteria if unable to achieve FMC2B <120 min (Goal Door to thrombolytic <30 min)

_____ Clopidogrel p.o. if thrombolytic given(300 mg for age ≤75 or 75 mg for age >75)

_____ High-intensity statin (rosuvastatin ≥ 20 mg) or moderate intensity statin for age >75

Notify Primary PCI Hospital when patient departs with ETA. Primary Nurse should call report to ED Charge Nurse or designee at Primary PCI Hospital

Transfer EMS Checklist Provider Name:_____

_____ Arrival at PCI Hospital

Notes for Handoff Report for PCI

Allergies (Contrast or other)

Symptoms with time of onset

Pertinent Hx - Coronary artery disease/high blood pressure/heart failure/cardiac stents/atrial fibrillation/CABG/Diabetes/Dialysis/Bleeding

Medications given/IV access/Emergency Treatment PTA

Home Medications

Anticoagulants (Coumadin, Lovenox, Xarelto, Pradaxa, Eliquis)

Last set of vital signs

Family/primary contact information

Utilize this STEMI checklist to guide documentation and handoff report

BCRAC Regional STEMI Checklist Form Instructions

BCRAC will maintain the STEMI Checklist form under the STEMI link on the BCRAC web page for each EMS agency and referring facility to print for their agency/site.

The BCRAC Regional STEMI Checklist Form will be used on any patient with a suspected STEMI or STEMI equivalent.

For the purposes of this program the 'STEMI patient' shall be defined as any patient presenting with symptoms of an acute myocardial infarction and a 12-lead ECG showing STEMI or STEMI equivalent changes as described on the Field STEMI Triage Decision Scheme.

The BCRAC Regional STEMI Checklist Form is intended to assist documentation of required information by EMS and referring facilities for the regional STEMI facilities as well as serve as the tool for the regional STEMI quality improvement process.

Initial EMS Provider

1) The EMS provider will initiate a STEMI Checklist form and complete the top portion of the form titled "EMS Checklist".
2) The EMS provider shall attach a copy of the initial 12 lead. The 12 lead shall be noted with the patient's name and date of birth.
3) If additional documentation is required, a copy of the run sheet may be attached to the EMS copy and forwarded to the Chest Pain Coordinator at the STEMI receiving facility.
4) A copy can be made by the EMS provider and maintained by the provider as part of their records for QI purposes.
5) Once the EMS copy is made, the form shall be given to the facility and follow the patient.

BCRAC STEMI referral Facility

1) When the patient arrives at a non-PCI BCRAC facility, the facility shall complete the section titled "Referring Hospital Checklist".
2) If the patient presents directly at the facility by his/her own means, the facility shall initiate the BCRAC STEMI Checklist and mark "N/A" across the EMS Section.
3) A copy shall be made by the facility and maintained by the facility according to their policy.
4) Once the facility has made a copy, the form shall follow the patient to the STEMI receiving facility.

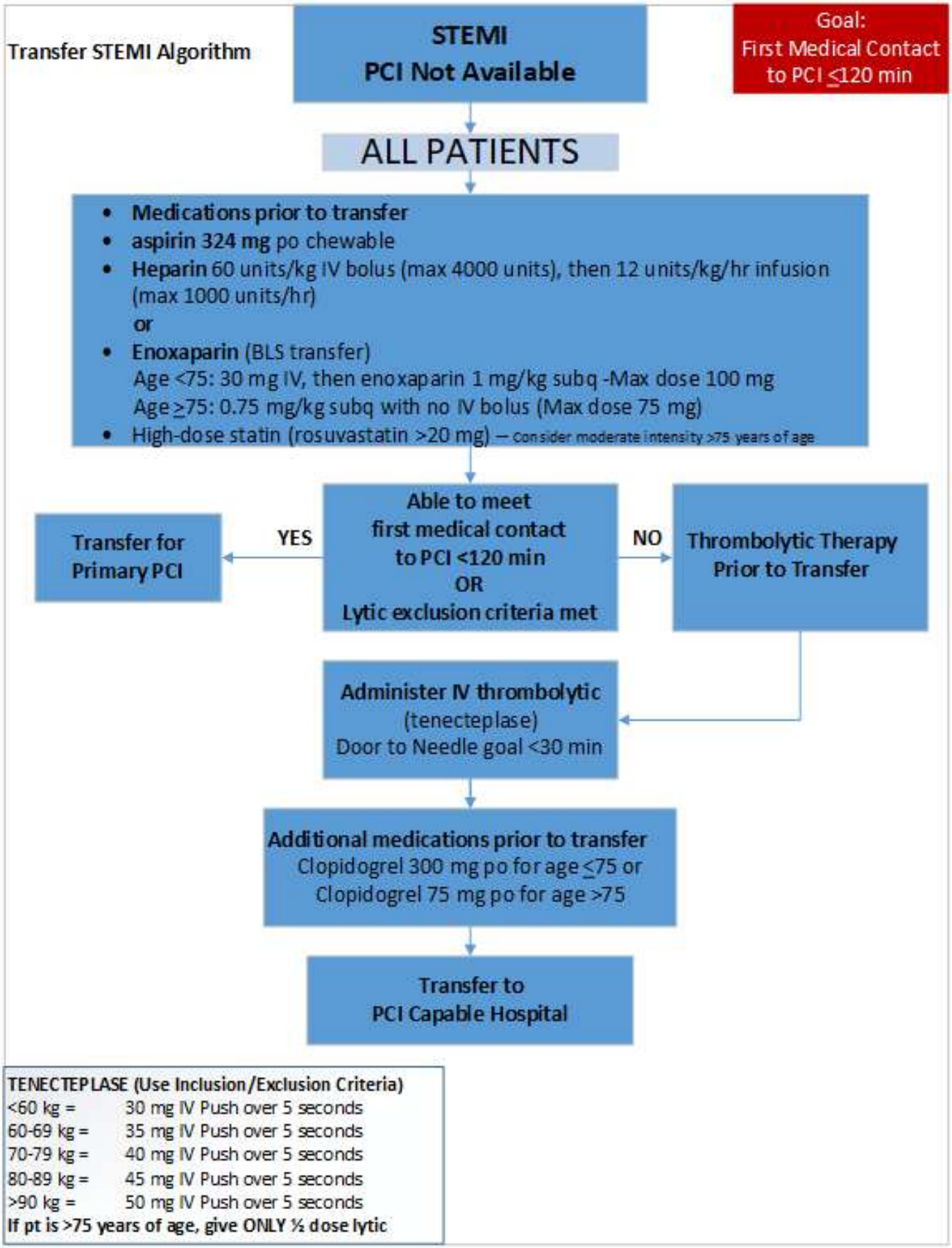
Transferring EMS Provider

1) When the patient is transferred from a non-PCI facility to a regional STEMI receiving Facility, the transferring EMS provider (ground or air medical) shall complete the section titled "Transfer EMS Checklist".
2) If additional documentation is required, a copy of the run sheet shall be attached to the EMS copy and forwarded to the Chest Pain Coordinator at the STEMI receiving facility.
3) A copy can be made by the EMS provider and maintained by the provider as part of their records for QI purposes.
4) Once the EMS copy is made, the form shall be given to the STEMI receiving facility and forwarded to the AMI Coordinator.

BCRAC STEMI Receiving Facility

1) When the patient arrives at a PCI - capable Facility, the STEMI ALERT form will be forwarded to the AMI Coordinator.

The STEMI receiving Facility shall maintain the original sheet as part of the facility's record. The contact information for each STEMI receiving facilities AMI Coordinator will be maintained on the BCRAC website.


Transfer STEMI Algorithm
STEMI
PCI Not Available
Goal:
First Medical Contact
to PCI ≤120 min
ALL PATIENTS
Medications prior to transfer
aspirin 324 mg po chewable
Heparin 60 units/kg IV bolus (max 4000 units), then 12 units/kg/hr infusion (max 1000 units/hr)
or
Enoxaparin (BLS transfer)
Age <75: 30 mg IV, then enoxaparin 1 mg/kg subq -Max dose 100 mg
Age ≥75: 0.75 mg/kg subq with no IV bolus (Max dose 75 mg)
High-dose statin (rosuvastatin >20 mg) – consider moderate intensity >75 years of age
Able to meet
first medical contact
to PCI <120 min
OR
Lytic exclusion criteria met
YES
Transfer for
Primary PCI
NO
Thrombolytic Therapy
Prior to Transfer
Administer IV thrombolytic
(tenecteplase)
Door to Needle goal <30 min
Additional medications prior to transfer
Clopidogrel 300 mg po for age ≤75 or
Clopidogrel 75 mg po for age >75
Transfer to
PCI Capable Hospital
TENECTEPLASE (Use Inclusion/Exclusion Criteria)
<60 kg = 30 mg IV Push over 5 seconds
60-69 kg = 35 mg IV Push over 5 seconds
70-79 kg = 40 mg IV Push over 5 seconds
80-89 kg = 45 mg IV Push over 5 seconds
>90 kg = 50 mg IV Push over 5 seconds
If pt is >75 years of age, give ONLY ½ dose lytic

STEMI Handoff Report Sheet

Weight Kg: _____ **Creatinine:** _____

Abnormal Results: _____

History

Allergies- Contrast or Other_____

Contrast Allergy Pretreated in ED ☐ Yes ☐ No

Chief Complaint/Onset _____

Pertinent Med HX ☐ Stents ☐ CABG ☐ DM ☐ Dialysis

Other _____

Oral Meds

Aspirin 324 mg Po/Rectal (PTA, EMS, ED) ☐ Yes ☐ No

Nitro 0.4 mg Sublingual Tabs x3 ☐ Yes ☐ No

Anti-Platelets ☐ clopidogrel ☐ tricagrelor ☐ prasugrel Dosage:_____

High Intensity Statin ☐ Yes ☐ No

Other _____

Anti-Coagulants ☐ Coumadin ☐ Xarelto ☐ Pradaxa ☐ Eliquis

Anti-Coagulant Dosage: _____Other _____

IV MEDS

IV NS – TKO (with extension tubing) ☐ Yes ☐ No

NITRO DRIP (rate on transport)_____ ☐ Yes ☐ No

Heparin Bolus- dose:_____ ☐ Yes ☐ No

Heparin Drip- units/hr: _____ ☐ Yes ☐ No

Enoxaparin IV Bolus- dose_____ ☐ Yes ☐ No

Enoxaparin subcutaneous- dose____ ☐ Yes ☐ No

TNKASE (dose and time)_____ ☐ Yes ☐ No

Other _____ ☐ Yes ☐ No

Recent Vitals

BP_____ **P** _____

R _____ **T**_____ **Rhythm** _____**O2**_____

Family

☐ **Family in route to hospital**

☐ **Family in waiting area**

☐ **No Family**

Primary Contact:

Name_____

Phone #_____

System Performance Improvement

Goal

The goals for system performance improvement in TSA-D are to establish a method for monitoring and evaluating system performance over time and to assess the impact of STEMI system development.

Objectives

1) To provide a multidisciplinary forum for STEMI care providers to evaluate STEMI patient outcomes from a system perspective and to assure the optimal delivery of cardiac care.
2) To facilitate the sharing of data, feedback, metrics and goals.
3) To provide a process for medical oversight of regional STEMI and EMS operations.

Discussion

In order to assess the impact of regional STEMI development, system performance must be monitored and evaluated from an outcomes perspective. A plan for the evaluation of operations is needed to determine if system development is meeting its stated goals.

Authority - The authority and responsibility for regional quality improvement rests with the Regional Advisory Council. This will be accomplished in a comprehensive, integrated manner through the work of the STEMI and Pre-hospital committees.

Scope & Process - The STEMI Committee will determine the type of data and manner of collection, set the agenda for the PI 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, high volume, and problem prone parameters. Indicators will be objective, measurable markers that reflect STEMI resources, procedural/patient care techniques, and or systems/process outcomes. Indicator identification may be deferred to Primary PCI hospitals.

Occurrences will be evaluated from a system, outcomes prospective and sentinel events will be evaluated on a case by case basis. Activities and educational offerings will be presented to address knowledge deficits and case presentations or other appropriate mediums will be designed to address systems and behavioral problems. All actions will focus on the opportunity to improve patient care and systems operation. The results from committee activities will be summarized and communicated to the RAC membership. Problems identified that require further action will be shared with the persons and entities involved, for follow-up and loop closure. Committee follow-up and outcome reports will be communicated on a standard format (please see attached).

The functions and effectiveness of BCRAC performance improvement process will be evaluated on an annual basis in conjunction with the annual evaluation of the BCRAC bylaws. All PI activities and committee proceedings are strictly confidential. Individuals involved in performance management activities will not be asked to review cases in which they are professionally involved, but will be given the opportunity to participate in the review process.

Data Collection - PI data will be collected by the PCI capable hospitals. Non-PCI capable hospitals and EMS will not be responsible for reporting directly to the BCRAC, but will be responsible for providing the PCI capable hospitals with information that they are in need of or that is lacking from patient charts. Sentinel events will be used to focus attention on specific situations/occurrences of major significance to patient care outcomes.

Confidentiality - All information and materials provided and/or presented during PI meetings are strictly confidential. See attached form.

BCRAC facility and EMS provider data related to the following PI indicators are reviewed during the quarterly ST EMI Committee meetings. The STEMI Alert Form is reviewed and will be updated as needed annually.

STEMI Plan Maintenance--The medical field is ever changing for a multitude of reasons. Due to this, there may be need for both minor and major changes. The STEMI Committee will conduct ongoing and annual reviews of the STEMI Plan. The STEMI Committee will make minor corrections and revisions as needed and agreed upon by the STEMI Committee. Major changes will be brought before the general assembly. The General Assembly will be advised of minor changes or corrections and the website will be updated with the most up-to-date plan.

Reporting Quarters
BCRAC regional PI data-reporting will be done biannually and in accordance with the Primary PCI hospitals quarters to ensure that all information is up-to-date and accurate.

Statement of Confidentiality

Medical Performance Improvement provides an objective mechanism to evaluate trauma and emergency care, facilitates the sharing of information, knowledge, and scientific data, and provides a forum for medical directors and other physicians to review the performance of the regional systems to assure the optimal delivery of trauma and emergency care. The direction of the committee comes from the Texas EMS Rules: Section 157.124 Regional EMS Trauma Systems: (3) (k) of the EMS Rules (effective 2/17/92) requires the development of a "performance management program that evaluates outcome from a system perspective"

Committee members engaged in medical care review have protection from disclosure of proceedings, under Section 773.095 RECORDS OF PROCEEDINGS CONFIDENTIAL of the Texas Health and Safety Code as follows:

1) The proceedings and records of organized committees of hospitals, medical societies, emergency medical service providers, or first responder organizations relating to the review, evaluation, or improvement of an emergency medical services provider, a first responder organization, or emergency medical services personnel are confidential and not subject to disclosure by court subpoena or otherwise.
2) The records and proceedings may be used by the committee only in exercise of proper committee functions.
3) This section does not apply to records made or maintained in the regular course of business by an emergency medical services provider, a first responder organization, or emergency medical services personnel.

Section 773.096 IMMUNITY FOR COMMITTEE MEMBERS

"A member of an organized committee under Section 773.095 is not liable for damages to a person for an action taken or recommendation made within the scope of the functions of the committee if the committee member acts without malice and in the reasonable belief that the action or recommendation is warranted by the facts known to the committee member."