



STEMI PLAN

Revised April 13, 2022

ORGANIZATION

The North East Texas Regional Advisory Council (NETRAC) is comprised of the North East Texas counties of Titus, Morris, Bowie, Hopkins, Cass, Delta, Lamar, Red River, Franklin(pending) and Miller County in Arkansas. The NETRAC is a 501 (c) (3) organization.

The NETRAC Mission Statement

Provide a comprehensive continuum of quality health care for all victims of trauma in TSA-F without regard to age, race, sex, color, national origin, disability, religion, or ability to pay. Provide trauma prevention activities and education to professionals and the public within TSA-F.

SUMMARY

The North East Texas Regional Advisory Council (NETRAC) 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 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. The ultimate goal of the NETRAC STEMI plan is to broaden initiatives between EMS and hospitals to reduce the total ischemic time for the STEMI patient.

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.

Furthermore, evidence from multiple randomized trials suggests that primary PCI is superior to fibrinolytic therapy in reducing the rates of death, re-infarction, intracranial bleeding, re-occlusion of the infarct artery, and recurrent ischemia (even when interhospital transport to a PCI-capable center is required) when performed in a timely fashion by experienced centers.

REGIONAL PLAN

This Plan has been developed in accordance with generally accepted STEMI guidelines and procedures for implementation of a comprehensive Emergency Medical Services (EMS) and STEMI System plan. This plan does not establish a legal standard of care, but rather is intended as an aid to decision-making in general patient care scenarios. It is not intended to supersede the physician’s prerogative to order treatment.

STEMI PATIENT

The classification of STEMI patients is based on a standard definition of “the STEMI patient” which is applied in a consistent manner in both the pre-hospital and hospital setting.

The STEMI Patient - In TSA-F, the STEMI patient is defined as any patient presenting with symptoms of an acute myocardial infarction and/or left bundle branch blockage and/or 1mm of ST-elevation in two contiguous EKG leads (STEMI).

TSA-F – EMS PROVIDERS (Ground)

Titus Regional Medical Center EMS

2011 N. Jefferson
Mt. Pleasant, TX 75455
903-577-6362
Level of Services – MICU, BLS

LifeNet EMS

6225 St. Michael Drive
Texarkana, TX 75503
903-832-8531
Level of Services – MICU, BLS

Atlanta Fire/EMS

P.O. Box 669
Atlanta, TX 75551
903-799-4062
Level of Services – MICU, BLS

City of Paris EMS

P.O. Box 9037
Paris, TX 75460
903-784-9228
Level of Services – MICU, BLS

Hopkins County HD EMS

115 Airport Road
Sulphur Springs, TX 75482
903-439-2851
Level of Services – MICU, AMBUS, BLS

System Participation

All NETRAC General Assembly meetings are open to any interested persons. Meeting notices and reminders are emailed to the membership well in advance of all meetings, and meeting notices are posted on the NETRAC website. Minutes of all meetings are available, along with a meeting agenda. Active Participation in the RAC is essential.

System Access

GOAL

The Goal for System Access within NETRAC is two-fold. First, rapid access to notification of the need for emergency and trauma care at any location within TSA-F 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 the NETRAC 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 F 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.

Communications

GOAL

The Goal for Communications within TSA-F 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-F must be available to all persons in the region.

OBJECTIVES

1. To facilitate regional communications, all EMS & First Responder Units will have a list of the communication devices & operating frequencies of the EMS and emergency care providers operating in the NETRAC region.
2. To ensure that all EMS providers, First Responders, and hospital facilities in the NETRAC region have functional communications equipment in order to communicate information related to the patient's condition, the need for medical, EMS, or helicopter backup, and to receive and communicate information related to patient care and disposition.
3. To ensure that emergency dispatch within the NETRAC 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.
4. To ensure that mass notification is available to all RAC and COG entities

DISCUSSION

Dispatch - Emergency dispatch in each of the NETRAC counties is accomplished through their local PSAP (Public Service Answering Point). Many rural providers utilize alpha pagers to notify emergency personnel of dispatch communications.

Pre-hospital Care Providers – Most of the EMS Providers utilize the UHF and VHF frequency.

Hospital Care Providers - All NETRAC hospital facilities maintain communications capability with pre-hospital care providers through the use of UHF emergency radios, cellular phones, or standard phone lines.

Regional Pre-hospital Medical Oversight & Control

GOAL

The goal for Regional Medical Control in TSA-F is multifaceted:

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

OBJECTIVES

1. To evaluate regional cardiac care from a systems perspective, under the direction of representatives of NETRAC medical staff throughout the region.
2. To involve NETRAC 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.

DISCUSSION

The NETRAC 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 EMS providers. The NETRAC has a Medical Director that helps to oversee the development of regional transport plans.

Medical Direction of Pre-hospital Care Providers - In accordance with DSHS guidelines, all NETRAC pre-hospital care providers function under medical control. Regional EMS treatment guidelines 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 treatment guidelines serve as a baseline and individual Medical Directors may adapt for their local community.

Regional Quality Improvement - The Acute Care Committee meets quarterly to conduct its usual business and to carry out regional quality improvement activities. Representatives from all NETRAC hospitals are encouraged to attend those meetings and they are posted on the NETRAC website. Members of this committee review PI opportunities for the region in regards to Stroke and STEMI care and form goals. The committee works with the NETRAC Executive Director to bring those improvements to the EMS provider.

Pre-hospital Triage

GOAL

Patients will be identified, rapidly and accurately assessed, and based on identification of their actual or suspected onset of symptoms, will be transported to the nearest appropriate TSA-F facility.

PURPOSE

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; concurrent disease/predisposing factors; and abnormal EKG or 12-lead if available.

SYSTEM TRIAGE

- If a provider is unable to complete an EKG or 12-lead, a suspected cardiac patient should be taken to the nearest acute care facility within TSA-F.

- If a provider suspects a STEMI (confirmed by 12-lead), the patient should be taken directly to an Interventional Cardiac Facility within TSA-F.
- 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.
- If transport by ground to the nearest appropriate facility is more than 30 minutes, helicopter activation should be utilized if possible.
- In the absence of contraindications, fibrinolytic therapy should be administered to patients with STEMI at non-PCI-capable hospitals when the anticipated FMC-to-device time at a PCI capable hospital exceeds 120 minutes because of unavoidable delays (81,87,88). (Level of Evidence: B)
- When fibrinolytic therapy is indicated or chosen as the primary reperfusion strategy, it should be administered within 30 minutes of hospital arrival* (89–93). (Level of Evidence: B)

Air Medical Activation

GOAL

TSA-F regional air medical resources will be appropriately utilized in order to reduce delays in providing optimal cardiac care.

DECISION CRITERIA

- Helicopter activation/scene response should be considered when it can reduce transportation time for patients when an Interventional Cardiac Facility is more than 30 minutes away by ground.
- Should there be any question whether or not to activate TSA-F regional air transport resources, on-line medical control should be consulted for the final decision.
- Patients transported via helicopter should be taken to the nearest Interventional Cardiac Facility within TSA-F.

Facility Diversion

GOAL

TSA-F facilities will communicate Resource Alert and or diversion status promptly and clearly to regional EMS and other facilities through EM System in order to ensure that STEMI patients are transported to the nearest appropriate facility.

SYSTEM OBJECTIVES

1. To ensure that STEMI patients will be transported to the nearest appropriate TSA-F facility.
2. To develop system treatment guidelines for regional facility and STEMI diversion status (see EM System guidelines and protocols):
 - Situations which would require the facility to go on resource alert and or diversion
 - Notification/activation of facility resource alert/diversion status
 - Procedure for termination of resource alert/diversion status
3. Regional cardiac care problems associated with facility diversion will be assessed by the NETRAC Regional Medical Director 4. All facilities and pre-hospital providers will use EMS systems to notify and track diversion status.

Facility Bypass

GOAL

Suspected STEMI patients will be safely and rapidly transported to the nearest appropriate facility within TSA-F.

DECISION CRITERIA

Regional transport treatment guidelines ensure that patients who meet the triage criteria for activation of the TSA-F Regional STEMI Plan will be transported directly to the nearest appropriate Interventional Cardiac Facility 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 nearest acute care facility 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.
3. If expected transport time to the nearest appropriate Interventional Cardiac Facility is excessive, greater than 30 minutes), medical control or the EMS crew on scene should consider activating air transportation resources.
4. Should there be any question regarding whether or not to bypass a facility, the receiving facility should be consulted.

Facility Triage Criteria

GOAL

The goal of establishing and implementing facility triage criteria in TSA-F 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.

DEFINITIONS PCI CAPABLE FACILITY:

1. 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. Although PCI is the preferred means of treating STEMI patients, only 25% of hospitals in the U.S. are equipped to do so. These PCI-capable hospitals are called STEMI-receiving hospitals because they are well equipped to receive and treat STEMI patients.
2. 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-F:

- Wadley Regional Medical Center, Texarkana, Texas
- Christus St. Michael Health System, Texarkana, Texas
- Paris Regional Medical Center, Paris, Texas
- Titus Regional Medical Center, Mt. Pleasant, Texas

OBJECTIVES

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

3. To implement a system of care whereby the definition of a STEMI is:
 - o In TSA-F, the STEMI patient is defined as any patient presenting with symptoms of an acute myocardial infarction and/or left bundle branch blockage and/or 1mm of ST-elevation in two contiguous EKG leads (STEMI).

DISCUSSION

- After confirmed STEMI, patient should be transferred immediately to the nearest Interventional Cardiac Facility within TSA-F.
- If Interventional Cardiac Facility confirms a 12-lead indicated STEMI, they should activate the facility's STEMI protocol.

Inter-Hospital Transfers

GOAL

The goal for establishing and implementing inter-hospital transfer criteria in TSA-F is to ensure that those STEMI patients requiring additional or specialized care and treatment beyond a facility's capability are identified and transferred to an Interventional Cardiac Facility as soon as possible.

OBJECTIVES

1. To ensure that all regional hospitals make transfer decisions based on standard definitions which classify STEMI patients according to TSA-F pre hospital triage criteria.
2. To identify cardiac treatment and specialty facilities within and adjacent to TSA-F.
3. To establish treatment and stabilization criteria and time guidelines for TSA-F patient care facilities.
4. To ensure EMS transport availability, ground or air, for STEMI patients being transferred from a non-PCI facility to a PCI facility to decrease the door in to door out time of 30 minutes or less.

DISCUSSION

The level of cardiac care resources required for STEMI patients is outlined in the TSA-F facility triage criteria and pre-hospital triage criteria. When a suspected STEMI patient is identified activation of a Code STEMI should be initiated. A transferring facility should state that the patient is a "Code STEMI" when calling EMS and the accepting Interventional Cardiac Facility within TSA-F.

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-F facility triage criteria and pre-hospital triage criteria. Written transfer agreements are available between all TSA-F hospital facilities, and hospital facilities in adjacent regions. STEMI patients with special needs may be initially transferred to an Interventional Cardiac Facility for assessment and treatment. When resources beyond its capability are needed, transfer to another facility outside TSA F should be expedited. The TSA-F initial-receiving hospitals may also choose to transfer patients with special needs directly to these facilities, bypassing the TSA F facilities when appropriate.

STEMI Patient Transport - STEMI patients in TSA-F 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 is also available in this Region.

System Performance Improvement

GOAL

The goals for system performance improvement in TSA-F 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 information, knowledge, and scientific data.
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 Acute Care Committee, Executive Committee, Medical Director and RAC Medical Chair.

Guidelines for the oversight of the NETRAC Committee performance improvement process will be determined by the Executive Committee. Goals for the committee are a collaborative effort of the Acute Care Committee. They are submitted to the Executive Committee and reviewed on an annual basis.

References

Keeley, E., Boura, J., Grines, C. (2003, January 4). Primary angioplasty versus intravenous thrombolytic therapy for acute myocardial infarctions: a quantitative review of 23 randomized trials. Retrieved from: <https://www.ncbi.nlm.nih.gov/pubmed/12517460>

Zijlsra, F. (2003). Angioplasty vs thrombolysis for acute myocardial infarction: a quantitative overview of the effects of interhospital transportation.

Garga, P., Kushner, F., Ascheim, D., Casey, D., Chung, M., de Lemos, J., Zhao, D. (2012, December 17). 2013 ACCF/AHA guideline for the management of st-elevation myocardial infarction. Retrieved from: <https://www.ahajournals.org/doi/full/10.1161/CIR.0b013e3182742cf6>