



# Regional Cardiac Plan

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**TSA-B** serves the counties of Bailey, Borden, Castro, Cochran, Cottle, Crosby, Dawson, Dickens, Floyd, Gaines, Garza, Hale, Hockley, Kent, King, Lamb, Lubbock, Lynn, Motley, Scurry, Terry, Yoakum

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## DEFINITION OF TERMS

**ACS:**                    **Acute Coronary Syndrome**

(Includes STEMI, NSTEMI, USA)

**AMI:**                    **Acute Myocardial Infarction**

**STEMI:**                **ST Elevation Myocardial Infarction**

**NSTEMI:**              **Non-ST Elevation Myocardial Infarction**

**USA or UA:**        **Unstable Angina**

**PCI:**                    **Percutaneous Coronary Intervention**

(Angioplasty, stent placement or other intervention performed in the cath lab to open the target vessel)

**D2B:**                    **Door to Balloon time**

(Coronary lesion crossed with balloon within 90 minutes of arrival at facility)

**D2N:**                    **Door to Needle time**

(Thrombolytics to be started within 30 minutes of arrival at facility)

**CAD:**                    **Coronary Artery Disease**

**ECG:**                    **12 Lead Electrocardiogram (also known as EKG)**

## **Heightened Awareness for Patients with Possible Acute Coronary Syndrome (ACS)**

### **Symptoms**

- Chest Pain (arm, back, jaw)
- Short of Breath
- Nausea
- Diaphoresis
- Dizziness/Syncope
- Fatigue/Weakness
- Indigestion

### **Special Populations**

- Females
- Elderly
- Diabetics

**These patients may have atypical symptoms (i.e. only complain of nausea and diaphoresis)**

### **Risk Factors**

- Smoker
- Diabetes
- Hypertension
- Family history of Coronary Artery Disease
- Obesity
- Sedentary Lifestyle

## **INTRODUCTION**

Texas Trauma Service Area B (TSA-B) consists of 22 counties with a population of over 400,000 people. Lubbock is the largest of these counties and serves as the geographic “hub” for the area. Nineteen hospitals currently exist within TSA-B, and each hospital is represented in the Trauma Service Area – B Regional Advisory Council (BRAC). With a bed capacity greater than 100, University Medical Center (UMC), Covenant Health System (CHS), and Grace Medical Center provide medical care within the city of Lubbock. The city of Lubbock also has one specialty hospital, Lubbock Heart Hospital. University Medical Center is the only Level I trauma facility and Covenant Medical Center (CMC) and Covenant Children’s Hospital (CCH) are the only designated Level II trauma facilities within TSA-B. Fourteen other TSA-B hospitals have received Level IV trauma designation.

There are 53 Emergency Medical Service (EMS) providers within TSA-B, and each provider is also represented in the RAC. The majority of the above stated providers function under protocols and standards developed and implemented by the South Plains Emergency Medical Services (SPEMS) organization, while others act as independent licensed services. The services provided by EMS range from first responders to paramedic and are a mixture of paid and volunteer services. (See pg 15 for list of EMS services).

Referral patterns exist between the rural facilities and EMS providers to the tertiary care centers located in Lubbock. Patient flow is accomplished through ground or air medical services. The region has multiple air medical services. Patient referrals to tertiary care centers are through direct referrals and/or scene transports. The coordination of care and services is instrumental in the provision of safe and efficient trauma care. Rural facilities, EMS providers, tertiary care centers, SPEMS, and other interested agencies work in a coordinated effort to provide optimal care. Inter-state communication and care provisions are coordinated with New Mexico.

A network has been developed through the implementation of coordinated trauma care in TSA-B. The established network allows for beneficial idea sharing and improved patient care. The network enables tertiary care centers to provide assistance to regional facilities and trauma coordinators with issues regarding trauma care and the education and preparation necessary for seeking trauma designation. Additionally, resource assistance is provided to EMS services when needed. A Regional Advisory Council (RAC) executive director oversees daily operations, committees, documentation, financial aspects, and general duties for TSA-B. This director works with EMS services, the community, and hospitals in providing guidance and oversight for TSA-B.

## **MISSION**

The mission of TSA-B is to ensure coordinated cardiac care is provided in a fiscally responsible manner to improve the health of persons in the region and reduce cardiac related mortality and morbidity.

## **VISION**

TSA-B will provide leadership within our region and state regarding the care of cardiac patients to minimize mortality and morbidity associated with cardiovascular disease.

## **ORGANIZATION**

TSA-B strives to provide the infrastructure and leadership necessary to sustain a cardiac treatment and transfer system within the designated 22 county region and to improve the level of care provided to persons living or traveling through the region. TSA-B member organizations (hospitals, first responder organizations, EMS providers, air medical providers, emergency management, public health, etc.) work cooperatively to ensure that quality care is provided to cardiac patients by pre-hospital and hospital care professionals. TSA-B will provide cardiac awareness education to the public and cardiac education to health care providers for each of the 22 counties.

## **REGIONAL PLAN**

The regional plan has been developed in accordance with nationally accepted cardiac (specifically acute coronary syndrome) guidelines provided through the American Heart Association (AHA) and the American College of Cardiology. TSA-B is a unique organization representing members from a vast 22 counties. With this unique representation, the expansive rural areas must be considered by the medical team when making health care decisions. Patient centered care and safety must be the priority.

## **OBJECTIVES**

1. Provide pre-hospital and hospital providers within the region standardized procedures for the treatment of cardiac patients.
2. Outline the regulatory agencies related to administering cardiac care.
3. Describe educational requirements for health providers associated in cardiac care.
4. Provide cardiac awareness education to the public.

## **NEEDS ANALYSIS**

Coronary heart disease is the leading cause of death worldwide. Globally, the disease is responsible for more than 7.4 million deaths each year. In the United States alone, acute coronary syndrome (ACS), unstable angina, acute myocardial infarction (AMI) affects 1.3 million people, with 25% of men and 38% of women dying within 1 year of the onset of AMI. Fortunately, in the past 30 years, advances in cardiovascular medicine have resulted in a drastic decline in the mortality and morbidity associated with myocardial infarction. However, despite such

improvements, it is still estimated that a reduction in mortality as small as 1% worldwide would result in > 73,000 lives saved annually. In order to bring us closer to the aforementioned reduction, we need to continue to improve the time to the initial diagnosis of AMI and the implementation of appropriate medical therapy. Medical success will be quantified with improved short- and long-term outcomes and will equate to reduced morbidity and mortality in the millions of patients that suffer from AMI around the world.

## GOALS

1. Identify and integrate resources as a means to obtain commitment and cooperation.
2. Establish system coordination relating to access, protocols/procedures, and referrals.
3. Establish continuity and uniformity of care among the providers of cardiac care.
4. Promote internal communication as the mechanism for system coordination which will include the pre-hospital and hospital members of TSA-B Acute Care Committee.
5. Develop and support continuous quality improvement programs which will aid in the identification of patient needs, outcome data, and uniform standards.
6. Recognize facility's capability to treat cardiac patients within TSA-B guidelines in compliance with the regulatory agencies related to administering cardiac care.

## REGULATORY AGENCIES AND GUIDELINE RESOURCES FOR CARDIAC CARE

1. Joint Commission <http://www.jointcommission.org/>
2. Centers for Medicare/Medicaid Services (CMS)
  - a. Core Measure tracking
3. Society of Chest Pain Centers <http://www.scpcp.org>
  - a. Chest Pain Center accrediting
4. American Heart Association <http://www.americanheart.org>
  - a. Guidelines and education
5. American College of Cardiology <http://www.acc.org>
  - b. Guidelines and education

\*See TSA-B website ([www.b-rac.org](http://www.b-rac.org)) for current designated centers/facility capabilities and EMS services

## PRE-HOSPITAL TRIAGE

**GOAL:** Patients with ACS symptoms should receive expeditious EMS dispatch and response. EMS personnel should be knowledgeable in the assessment, management, and triage of suspected ACS patients. All personnel should be skilled in the recognition of ACS symptoms and advanced personnel should be skilled in performing 12-Lead ECGs. EMS personnel should communicate with the receiving facilities as soon as possible and transport the patient to the nearest appropriate facility. If capable, EMS should transmit the 12 Lead ECG to the ED as soon as possible.

**PURPOSE:** To ensure the prompt availability of medical resources needed for optimal patient care, each cardiac patient will be assessed for obvious cardiac symptoms and concurrent disease/predisposing factors.

## **SYSTEM TRIAGE**

**GOAL:** Unless immediate intervention (ABC's, cardiac arrest, etc.) is required, patients with an onset of cardiac symptoms should be taken to the closest accredited Chest Pain Center or closest appropriate acute care facility for evaluation and intervention. An acute care facility may be considered appropriate if all of the following standards of care can be met:

- A 12-Lead ECG can be performed and interpreted within 10 minutes.
- PCI may be performed within 90 minutes or a thrombolytic can be administered within 30 minutes.

This plan is based on accepted best practice guidelines but does allow for patient or physician preference.

## **HELICOPTER ACTIVATION**

**GOAL:** Air transport resources will be appropriately utilized in order to reduce delays in providing optimal cardiac care.

**DECISION CRITERIA TO ACTIVATE:**

1. If expected transport time is excessive (>25 minutes), activation of air transport resources should be considered.
2. Capability of closest appropriate facility (See System Triage section).

## **HOSPITAL TRIAGE CRITERIA**

**GOAL:** Facilities rapidly identify potential cardiac patients and deliver evidence-based care.

**OBJECTIVES:**

1. Ensure each cardiac patient is rapidly identified and accurately assessed based on the actual or suspected onset of symptoms. The patient will be treated appropriately or transferred to the nearest acute care facility for appropriate intervention.  
(See page 10 for Cardiac Triage/Transfer Decision Scheme - Hospital)
2. Ensure prompt availability of medical resources for optimal patient care.

## INTER-HOSPITAL TRANSFERS

**GOAL:** Inter-hospital transfer plans within TSA-B ensure cardiac patients requiring additional or specialized care and treatment beyond a facility's capability are rapidly identified and transferred to appropriate facilities.

**OBJECTIVES:**

1. Ensure all regional hospitals make transfer decisions based on the Triage/Transfer Decision Scheme – Hospital (See pg 10).
2. Identify cardiac treatment (see [www.b-rac.org](http://www.b-rac.org) for facility capabilities).
3. Ensure facilities follow established treatment and stabilization criteria and time guidelines for care of the cardiac patient through the Performance Improvement Patient Safety (PIPS) Committee.
4. Consider early air medical activation for inter-hospital transfers.

## TRANSFER DISCUSSION

1. Identification of Cardiac Patients & Cardiac Transfers – Treatment requirements for optimal cardiac care are identified in the Hospital Triage Criteria and Pre-Hospital Triage Criteria sections. When resources beyond a hospital's capability are needed, transfer to a higher-level acute care facility should be expedited.
2. Cardiac Patient Transport – Cardiac patients in TSA-B 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 the region.

## PERFORMANCE IMPROVEMENT PATIENT SAFETY (PIPS)

Pre-hospital and hospital organizations must have a process in place to review cardiac cases for performance improvement. Additionally, each organization must participate in the PIPS Committee.

**GOAL:** The goal for performance improvement in TSA-B is to establish a method for monitoring and evaluating system performance over time and to assess the impact of cardiac system development.

**OBJECTIVES:**

1. Identify regional cardiac data indicators which reflect the process and outcome of cardiac care in TSA-B.
2. Provide a multidisciplinary forum for cardiac care providers to evaluate cardiac patient outcomes from a system perspective and to assure the optimal delivery of cardiac care.
3. Facilitate the sharing of information, knowledge, and scientific data.
4. Provide a process for medical oversight of regional cardiac operations.

**DISCUSSION:**

1. Cardiac outcomes must be monitored and evaluated to determine the effectiveness of regional cardiac system performance.
2. The authority and responsibility for regional performance improvement rests with the Regional Advisory Council (RAC). This will be accomplished in a comprehensive, integrated manner through the work of the Acute Care (AC) committee and Performance Improvement Patient Safety (PIPS) committee.
3. The AC committee and PIPS committee oversee regional cardiac performance improvement. Follow-up and feedback ensure system-wide multidisciplinary performance improvement.
4. The AC committee will determine the type of cardiac data indicators (see page 12) 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 reflecting cardiac resources, patient care techniques, and system/process outcomes. The AC committee will submit performance improvement opportunity cases to the PIPS committee agenda to be discussed within the regularly scheduled meetings of the committee.
5. Data collected from individual hospitals will be presented at the AC Committee. Cardiac care will be evaluated from a system outcomes perspective. Case presentations or other appropriate mediums will be designed to address system and behavioral problems. Sentinel events will be evaluated, discussed at the AC Committee, and forwarded to the PIPS Committee as needed. The results from committee activities will be summarized for follow-up and loop closure. Activities and educational offerings will be presented to address knowledge deficits. All actions will focus on the opportunity to improve system wide patient care.

**HEALTH CARE PROVIDER EDUCATION**

Pre-hospital and hospital organizations must comply with the educational requirements set in place by the organization’s designating agency. All health care providers will have basic cardiac education. Pre-hospital and hospital organizations must participate in PIPS committee meetings to ensure high quality system-wide cardiac care is delivered.

**PUBLIC AWARENESS/EDUCATION**

Pre-hospital and hospital organizations must participate in regional cardiac awareness campaigns and other public education activities regarding cardiac care.

# CARDIAC TRIAGE/TRANSFER DECISION SCHEME PRE-HOSPITAL

## SUSPECTED CARDIAC SYMPTOMS

### Assessment Guidelines:

#### Acute Coronary Syndrome (ACS)

Symptoms to consider for ACS:

- Chest Pain (arm, back, jaw)
- Short of Breath
- Nausea
- Diaphoresis
- Dizziness/Syncope
- Fatigue/Weakness
- Indigestion

Special Populations

- Females
- Elderly
- Diabetics

Risk Factors

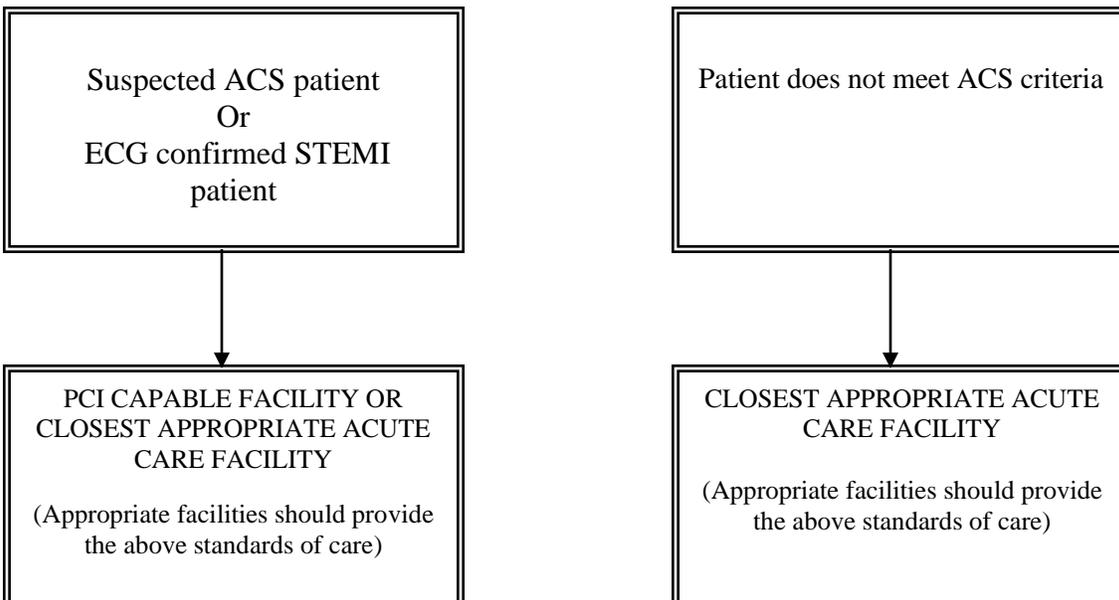
- Smoker
- Diabetes
- Hypertension
- Family history of CAD
- Obesity

### Treatment Guidelines:

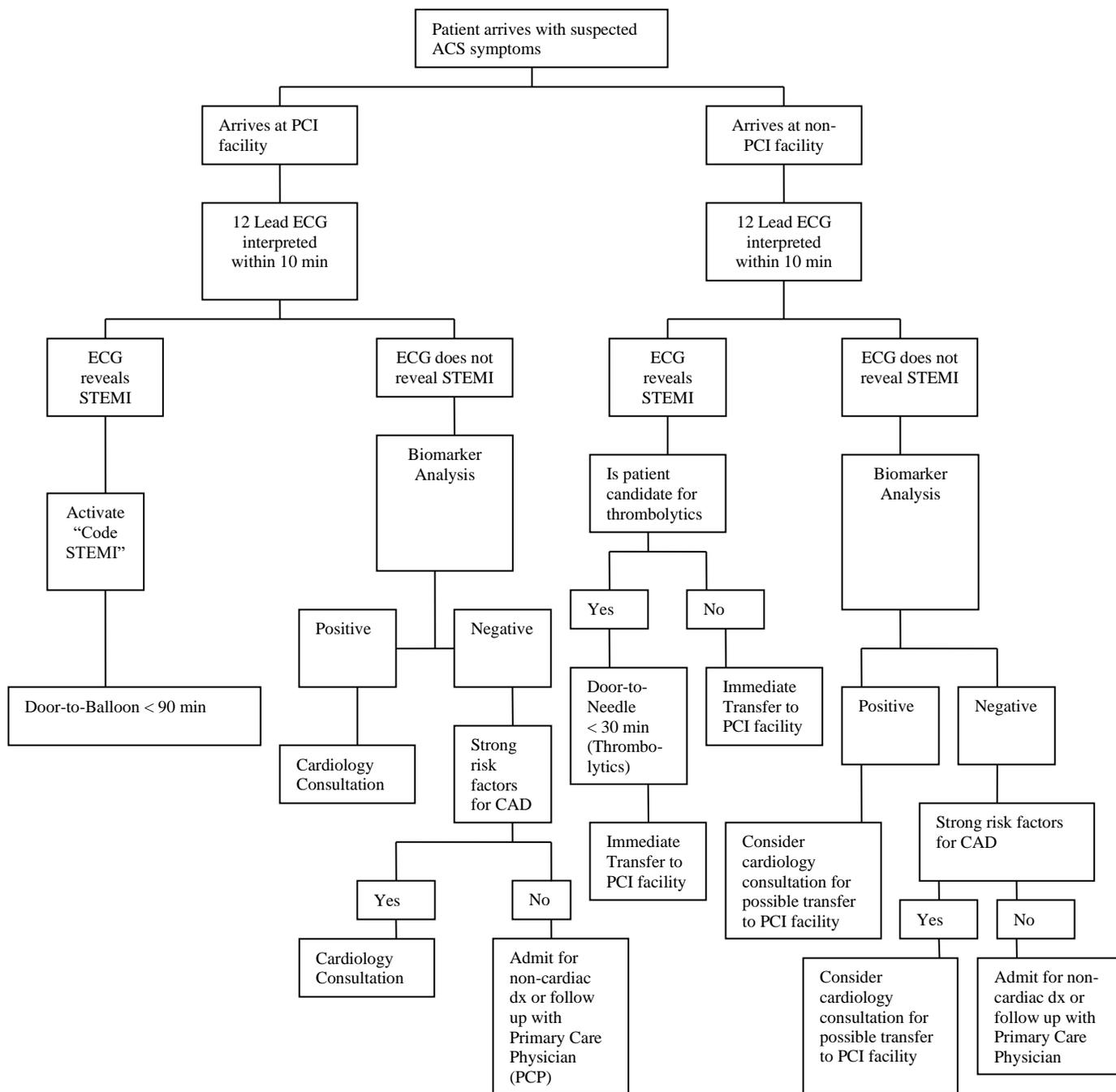
Follow "Chest Pain" Algorithm

- Notify receiving ED as soon as possible for possible STEMI
- If capable, transmit ECG to receiving facility as soon as possible
- See TSA-B website at [www.b-rac.org](http://www.b-rac.org) for a current list of facility capabilities

- An acute care facility may be considered appropriate if all of the following standards of care can be provided:
  - A 12-Lead ECG can be performed and interpreted by a physician within 10 minutes and
  - PCI may be performed within 90 minutes or thrombolytics can be administered within 30 minutes
- PCI is the preferred method of reperfusion if possible
- Consider Air Medical transport to decrease transport time
- Consider transport to nearest facility if immediate intervention is needed (ABCs, cardiac arrest, etc.)



# CARDIAC TRIAGE/TRANSFER DECISION SCHEME HOSPITAL



**\* Consider early air medical activation for inter-hospital transfers**

## **CARDIAC DATA INDICATORS**

1. EMS transmits 12 Lead ECG if capable.
2. Pre-hospital activation of air medical services when ground transport (to the nearest acute care facility) is > 25 minutes.
3. Door-to Balloon is performed within 90 minutes in a PCI facility.
4. Door-to-Needle is performed within 30 minutes in a non-PCI facility.