Vision and Mission of the Dallas Caruth Initiative

The vision of the Dallas Caruth Initiative is the implementation of a coordinated healthcare system in Dallas County. This system will provide the most efficient care of STEMI and Non-STEMI patients from symptom recognition to reperfusion in a cardiac catheterization lab.

The mission of the Dallas Caruth Initiative is to provide effective education in support of a community wide healthcare delivery system in Dallas County aiming at reducing morbidity and mortality for people who experience a STEMI or Non-STEMI.

Dallas Caruth - EMS Educational Objectives

Upon completion of the Dallas Caruth EMS STEMI Guide the following objectives should be met:

1. The provider should be able to name three typical and atypical signs and symptoms of acute coronary syndrome.
2. The provider should be able to identify patients who should be selected for 12-Lead ECG analysis.
3. The provider should be able to describe the importance in properly accomplishing a rapid ECG early in the treatment of a patient with ACS.
4. The provider should be able to identify patients whom are at greater risk for having a myocardial infarction.
5. The provider will be able to list the criteria for activation of a Code STEMI.
6. The provider will be able to identify means to reduce time from patient contact through transport to the receiving hospital.
7. The provider will be able to describe the importance for early activation of the hospital through phone call and ECG transmission.
8. The provider will be able to identify the closest appropriate receiving facility for patients suffering STEMI or Non-STEMI myocardial infarctions.
9. The provider will be able to describe the importance of their role upon arrival at the receiving hospital including continued use of the EMS ECG monitor and use of the EMS stretcher.

You are the secret to success in Dallas County...

As the EMT or Paramedic who makes initial contact with patients each shift, you are the secret behind the success of a coordinated pre-hospital STEMI program. Our goal is that each provider may use the information included in this workbook to modify and improve the care that you provide by establishing coordinated practices between EMS and hospital cardiac care programs. The staff of the Dallas Caruth Initiative encourage you to return to your station or office and discuss with your colleagues how you may continue to develop and improve cardiac care in Dallas County.

Dallas Caruth Initiative
American Heart Association
Dallas Office
8200 Brookriver Drive, N-100
Dallas, Texas 75247
Welcome to the education manual for EMS providers offered through the Dallas Caruth Grant and the American Heart Association. Starting in 2010, a coordinated effort between the American Heart Association and healthcare providers across Dallas County began. During this time the Dallas Caruth Initiative has assisted in establishing a detailed and coordinated system of care for heart attack patients across Dallas County. Currently 24 EMS agencies and 15 hospitals are streamlining protocols, processes and training to ensure that acute myocardial infarction patients receive appropriate triage, rapid transport and early intervention in a cardiac catheterization lab. Specific guidelines have been established for EMS agencies and hospitals to improve patient outcomes for patients suffering ST segment elevation myocardial infarctions (STEMI). The information provided in this manual is designed to assist you in understanding your role in caring for heart attack patients in Dallas County. EMS is essential to the development and activation of the STEMI process from the moment you make contact with your patient through transport to the appropriate receiving hospital. In this manual we will discuss the importance of the early ECG, proper interpretation, early notification of the receiving hospital, and rapid transport. You are participating in an exciting opportunity to have an amazing impact in the treatment and outcomes of heart attack victims every day.

- The importance of the Early ECG -

The initial step of STEMI treatment is achieving the early ECG in patients who have symptoms of acute coronary syndrome, or patients whom you believe are at risk for ACS. When responding to medical emergencies or known chest discomfort calls, ensure you have your ECG monitor with you upon initial patient contact. Once you have confirmed the patient is suffering from chest discomfort, have your partner or first responder assist you in immediately applying the ECG electrodes to capture the 12-Lead ECG as soon as possible. The 12-Lead ECG should not be delayed because of patient treatments and completed where you find your patient. A high quality diagnostic ECG is produced by ensuring proper lead placement. EMS crews should prepare the skin for lead placement by shaving the chest or using alcohol pads if necessary. Ensure pads are secured in the proper anatomic locations and ask your patient to remain as still as possible during the capture of the 12-Lead ECG. Discuss with your EMS crew how you can achieve early ECG’s during initial patient contact; the early ECG will provide clear recognition of STEMI patients.
- Transmit the ECG - Activate “Code STEMI” -

Once you or the ECG monitor recognizes the presence of a STEMI, early transmission and activation of a Code STEMI at the receiving hospital is essential. Do you know the location of the closest appropriate receiving hospital for rapid treatment of your STEMI patient? Similar to trauma care EMS crews must ensure the patient is transported to the nearest appropriate receiving hospital capable of providing rapid treatment in a cardiac cath lab. If your ECG device is capable, transmit the ECG as soon as possible to the receiving hospital. Follow up transmission of the ECG with phone or radio contact to ensure the hospital is aware of your ECG transmission and request to have a “Code STEMI” activated. Early ECG’s accomplished by EMS personnel, and early activation of the cardiac cath lab at the receiving facility starts a process that allows for hospital staff and equipment to be properly prepared to ensure your patient will receive the most appropriate and rapid treatment possible. Allowing the hospital to begin the STEMI process as early as possible is paramount in minimizing damage to heart muscle and improving patient outcomes.

- Rapid Transport - Do Not Delay -

Following rapid recognition and activation of the receiving hospital, rapid transport of the patient from the scene to the ambulance and rapid safe transport to the receiving hospital is required to ensure the best possible outcome. Similar to trauma victims EMS crews should focus on accomplishing treatments en-route and should not delay transport for IV attempts or medication administration. While these treatments are important and should be accomplished during transport, the necessary intervention for your patients is arterial reperfusion in a cardiac cath lab. Minimizing scene time and providing safe rapid transport helps to minimize heart muscle damage from the acute MI. How can you work with your EMS crew to reduce scene time?

E.M.S. in the ED - Your role continues...

Upon arrival at the receiving hospital there are several steps that may occur depending on your patients condition and the ability of the receiving hospital to rapidly transport the patient to the cardiac cath lab. EMS crews should keep your patient connected to all 10 leads on your ECG monitor during all phases of transport and upon arrival to the ED. If the ED physician is immediately available, they will review your ECG and will provide a rapid exam of your patient to assess their respiratory and perfusion status. EMS crews should be prepared to transport the patient to the cardiac cath lab on the EMS stretcher if the cath lab is immediately available to receive the patient. On occasion transport to the cath lab may be delayed due to your patient’s condition or final preparation of the cath lab to properly receive the patient. EMS crews should make the hospital staff aware if they need to immediately return to service.
24 Hour - STEMI Receiving Hospitals in Dallas County

- Baylor Heart and Vascular
- Baylor Medical Center Garland
- Baylor Medical Center Irving
- Dallas Medical Center
- Dallas Regional Medical Center
- Doctors Hospital of Dallas
- Las Colinas Medical Center
- Medical City Dallas Hospital
- Methodist Dallas Medical Center
- Methodist Richardson Medical Center
- Parkland Hospital
- Texas Health Presbyterian Dallas
- Texas Regional Medical Center
- Sunnyvale
- UT Southwestern Medical Center

12 Lead ECG?

- Any patient 20 years old or greater who experiences any signs or symptoms of ACS.

Who is at risk for ACS?

History of:
- Cardiac Disease
- Hypertension
- Smoking
- Diabetes
- High Cholesterol
- Severe Obesity
- Previous history of heart attack or cardiac stents.

Essential items to document in your patient care record

- Time of initial patient contact
- Time of symptom onset
  (Time of Symptom Onset = when symptoms started that led the patient to calling 911)
- Time of ECG Transmission
- Time you requested the “Code STEMI”
- Did the receiving hospital activate the cath lab?

Signs and Symptoms of Acute Coronary Syndrome

Typical
- Chest Pressure, Discomfort, Tightness
- Shortness of Breath
- Bradycardia, Syncope, Weakness

Atypical
- Nausea, physical symptoms of being ill, palpitations

Will the hospital transport my patient to the cath lab on our EMS stretcher?

It is preferred practice for the ED staff to transport your patient directly to the cath lab while remaining on the EMS stretcher. The patient may be transferred to the ED stretcher if the cath lab is still preparing to receive the patient, or if the patient requires further stabilization prior to intervention.

Essentials of the 12 Lead ECG and STEMI

[Diagram of ECG waves and leads]

[Table of ECG leads and their respective locations]
911 call originates for a patient suffering ACS related symptoms.

EMS arrives on scene. Patient Contact Occurs. 12 Lead ECG occurs < 10 min from patient contact.

12 Lead - Acute MI? ST segment elevation ≥ 1mm in 2 contiguous leads?

Contact ED Immediately Activate “Code STEMI” Transmit ECG Initiate Transport ASAP

YES

NO

treat per protocol

NO

12 Lead - Acute MI? ST segment elevation ≥ 1mm in 2 contiguous leads?

YES

12 Lead ECG occurs < 10 min from patient contact.

Triage Nurse initiates patient contact.

Activate “Code STEMI” Immediately

YES

YES

NO

Transport to Cath Lab Immediately, continue to use EMS monitor and EMS stretcher if applicable. Goal: E2B < 90 min

YES

Consider the use of Fibrinolytic Therapy Goal: Door to Needle < 30 min.

YES

NO

NO

Continue to stabilize in ED

Continue to stabilize in ED Be prepared for rapid transport to cath lab when available.
# EMS STEMI Workbook Review and Exam

**Name:** ______________________  **Agency Name:** ______________________

**EMS Certification (circle one):** EMT-B, EMT-I, EMT-P, Licensed Paramedic

**Date of Completion:** ______________________

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1. List four signs and symptoms of acute coronary syndrome:

________________________________________________________________________________________

2. List four items if found in a patient’s history that would increase their risk of having acute coronary syndrome:

________________________________________________________________________________________

3. The 12-Lead ECG should be accomplished within ___________ minutes of initial patient contact.

4. What is the criteria to activate “Code STEMI” when ST segment elevation is found on a 12-Lead ECG?

________________________________________________________________________________________

5. Describe two ways in which EMS crews may reduce on-scene times of STEMI patients to the closest most appropriate PCI capable hospital:

________________________________________________________________________________________

________________________________________________________________________________________

6. List three essential items to be included in your patient care record for STEMI patients:

________________________________________________________________________________________

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**EMS STEMI Workbook Evaluation**

How were you administered this education workbook? (circle one) Supervisor - Educator  Other____________

Did you find this workbook useful, and will you be able to integrate the information included into your treatment of patients with acute coronary syndrome?

________________________________________________________________________________________

Please provide suggestions for topics you would like to see presented at our upcoming AHA Dallas Caruth 2012 Conference: ______________________

Please include any additional comments on how we may continue to improve treatment of heart attack victims in Dallas County:

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