



DEPARTMENT OF PUBLIC HEALTH  
Emergency Medical Services Agency

EMS

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This policy supersedes any other existing policy on this subject.

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SUBJECT: ST Elevation Myocardial Infarction (STEMI)

AUTHORITY: Health & Safety Code, Division 2.5, Sections, 1798

DEFINITIONS: **ST Elevation Myocardial Infarction (STEMI):** An acute MI that generates ST-segment elevation on the prehospital 12-lead electrocardiogram (EKG).

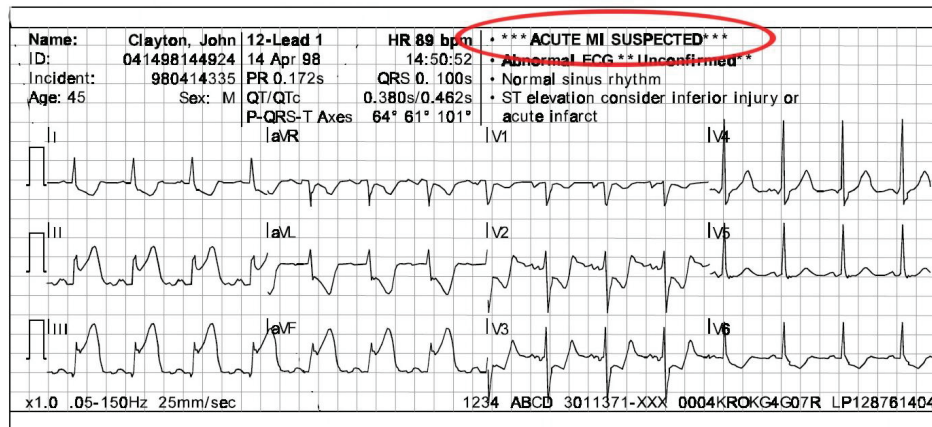
**STEMI Receiving Center or SRC:** A facility licensed for an interventional cardiac catheterization laboratory by the Department of Health Services License and Certification Division and recognized by the Merced County EMS Agency as a SRC.

PURPOSE: To ensure that 9-1-1 patients with ST-elevation myocardial infarction are transported to a facility with interventional cardiac catheterization capabilities.

POLICY:

1. Responsibility of the Ambulance Provider:

- A. The 12-lead EKG shall be acquired on patients who complain of chest pain/discomfort of suspected cardiac etiology and/or patients who the paramedics suspect are experiencing an acute cardiac event, e.g. age > 50, syncope, hypotension, unexplained acute onset of CHF/PE, unexplained SOB, etc.
- B. Contact the EMS Dispatch Center for destination for all patients whose 12-lead EKG demonstrates "\*\*\*\*ACUTE MI SUSPECTED\*\*\*\*" or the manufacturer's equivalent reading of an acute STEMI.



APPROVED:

**ON FILE**

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- C. Label each pre-hospital 12-lead EKG performed with the corresponding:
    - 1) Patient Care Report Number
    - 2) Patient name
    - 3) Date and time
  - D. The prehospital 12 lead EKG shall be left with the SRC staff prior to departure.
2. Transportation of STEMI Patients to a SRC:
- A. All STEMI patients shall be transported to the most appropriate SRC if ground transport is 60 minutes or less. Unless the patient expresses a preference between Emanuel Medical Center, Doctor's Medical Center or Memorial Medical Center, the patient shall be transported to the closest SRC. Dispatch is to notify transporting unit if there is a diversion status at receiving facility.  
  
**Note: This includes hypotensive patients with signs and symptoms consistent with cardiogenic shock.**
  - B. If ground transport time to a SRC is greater than the maximum allowable time of 60 minutes, the patient shall be transported to the most accessible receiving facility.
  - C. Patient will be diverted to the closest appropriate facility if CPR is in progress or if the paramedic is unable to intubate or establish a patent BLS airway.
3. Diversion of STEMI Patients from a SRC
- The SRC may request diversion of 9-1-1 ALS units only when:
- A. The hospital is unable to perform emergent PCI because the cardiac cath staff is already fully committed to caring for STEMI patients in the catheterization laboratory; or
  - B. The facility is on internal disaster.
  - C. Equipment failure
- Note: ED diversion does not prohibit a STEMI patient's transport to an open SRC.**
4. General SRC Requirements
- A. Personnel
    - 1) Medical Director - The SRC shall designate a medical director for the cardiovascular program who shall be certified through the American Board of Internal Medicine with a subspecialty in Cardiovascular Disease and privileges in Interventional Cardiology. The Medical Director shall ensure compliance with current practice standards and perform on-going quality improvement as part of the hospital QI program.
    - 2) Clinical Manager - The SRC shall maintain a clinical manager that will serve as a liaison to the EMS Agency and will ensure data extractions are completed in a timely manner.
    - 3) Interventional cardiologists shall meet ACC/AHA criteria for competence. Interventional cardiologists shall perform at least 11 primary PCI procedures per year and 75 total PCI procedures per year.

B. Center Standards

- 1) The SRC shall meet ACC/AHA criteria for volume and perform a minimum of 36 primary PCI procedures and 200 total PCI procedures annually.
- 2) The SRC must meet all licensing requirements by the California Department of Health Services regarding STEMI operations including the availability of immediate cardiac surgery 24 hours a day, 365 days a year.

C. Policies - Internal policies shall be developed for the following:

- 1) Criteria for patients to receive emergent angiography or emergent fibrinolysis, based on physician decisions for individual patients.
- 2) Rapid administration of fibrinolytic therapy.
- 3) Goal to primary PCI (medical contact-to-dilation time).

D. Data Collection

The following data shall be collected on an on-going basis and submitted to the EMS Agency on a quarterly basis:

- 1) Number of Merced County patients identified in the field with a STEMI and transported for emergent care.
- 2) Number of above patients who receive a primary PCI.
- 3) Number of 9-1-1 transported patients with acute myocardial infarction, door-to-infusion time for fibrinolysis, and door to balloon time for primary PCI.
- 4) Number of myocardial infarction admissions per year (all patients including 9-1-1 transports).
- 5) Number of percutaneous coronary procedures, both diagnostic and interventional, per year on all STEMI patients.
- 6) Other specific data elements identified on Attachment I

E. Quality Improvement

- 1) A hospital quality improvement program shall be established to review and collect outcome data for 9-1-1 transported patients on the following:
  - a) In-hospital mortality.
  - b) Emergency coronary artery bypass graft rate.
  - c) Vascular complications (PCI access site complication, hematoma large enough to require transfusion, or operative intervention required).
  - d) Cerebrovascular accident rate (peri-procedure).

- 2) A summary of quality improvement activities shall be submitted to the EMS Agency on an annual basis.

**ATTACHMENT I**

PCI DATA ELEMENTS

**PREHOSPITAL DATA ELEMENTS**

Patient care report number  
Estimated time of chest pain onset  
ALS Arrival Time  
Date and time of EKG  
Interventions provided (e.g. ASA, Morphine, Nitro, etc.)  
Defibrillated in Field

**HOSPITAL-BASED DATA ELEMENTS**

Patient Age  
Patient Gender  
Patient Race  
Date and Time of Confirmation of ST elevation MI  
Date and Time of ED Arrival  
Cath Lab Arrival Time  
Cardiologist call back time  
Cardiologist arrival time  
Cardiac Cath Team arrival time  
Date of CABG  
Date and Time Cardiac Catheterization/balloon  
Door to Balloon time  
Date and time of Emergency Department admit and hospital discharge  
Discharge Status

(Data elements are subject to change as the program progresses)