

Solano County Health & Social Services Department

Mental Health Services
Public Health Services
Substance Abuse Services
Older & Disabled Adult Services



Eligibility Services
Employment Services
Children's Services
Administrative Services

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POLICY MEMORANDUM 6609

DATE: September 1, 2013

REVIEWED/APPROVED BY:


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TED SELBY, EMS AGENCY ADMINISTRATOR

SUBJECT: ST – Segment Elevation Myocardial Infarction (STEMI)

AUTHORITY: CALIFORNIA HEALTH & SAFETY CODE, DIVISION 2.5, § 1797.220

PURPOSE/POLICY:

This policy is intended to provide paramedics guidance on the treatment and transport of patients suffering from a ST - Segment Elevation Myocardial Infarction (STEMI). The purpose of this policy is to decrease morbidity and mortality. This can be accomplished by patient education and early public recognition of cardiac problems, a systematic approach by EMS, and a coordinated effort by local hospitals to intervene with percutaneous coronary intervention (PCI). This policy establishes a system-wide policy for the care of patients with this life threatening cardiac illness.

I. DEFINITIONS

- **Acute Coronary Syndrome (ACS)** - This is an umbrella term used to cover any group of clinical symptoms compatible with acute myocardial ischemia.
- **Percutaneous Coronary Intervention (PCI)** - otherwise known as angioplasty is the use of a small flexible balloon catheter to open a blockage in a coronary artery.
- **Reperfusion** – Re-establishing blood flow to cardiac tissue after suffering from a coronary artery occlusion.
- **ST Segment Elevation Myocardial Infarction (STEMI)**.

- **STEMI Receiving Center (SRC)**— A hospital designated by the Local EMS Agency (LEMSA) that is capable of appropriately treating a patient having a STEMI with PCI and other interventional cardiology procedures to restore circulation to a blocked artery.
- **STEMI Referral Facility (SRF)** – A system hospital that refers patients' with a STEMI to a SRC for advanced therapeutic intervention such as, but not limited to, PCI.
- **Thrombolytic** – Medication used to dissolve blood clots in the body.

II. FIELD CARE

- A. Paramedics evaluate patients and provide treatment according to protocol.
- B. Paramedics (First Responder and/or Transport) will complete a 12 lead EKG as soon as possible.
- C. If the 12 Lead EKG reading shows ***Suspected Acute MI***, or Solano County authorized equivalent, the paramedic will follow Protocol C 14.
- D. For unstable patients, contact base hospital physician and consider transport to closest facility.
- E. ALS Providers will notify the EMS Agency in writing within seven (7) days of purchasing or updating 12-lead ECG software or a new 12 lead monitor.

III. DESTINATION

- A. If field 12 Lead EKG shows ***Suspected Acute MI***, or Solano County authorized equivalent, the paramedic will use protocol C14 to make a hospital destination decision.
 1. Patients in cardiac arrest with Return of Spontaneous Circulation (ROSC) will be transported to the nearest authorized SRC.
- B. Paramedics will leave the 12 Lead EKG electrodes in place on the patient's chest arms and legs so the hospital can quickly obtain their own 12 lead EKG.
- C. Based on geographic location the paramedic will transport patient to the designated Solano County SRC that can be reached in the shortest length of time.
- D. The LEMSA will identify in and out-of-county STEMI Receiving Centers authorized to receive transports from Solano County paramedics.

IV. PCI CENTERS/STEMI Receiving Centers (SRC)

- A. Any Hospital can become a PCI Center or STEMI Receiving Center providing they participate in a national data registry and meet the following criteria:
 1. Complete Solano County EMS Agency's SRC application and pay the appropriate annual fee of \$10,000.00 (Ten Thousand dollars);
 2. Sign the appropriate written agreement, agree to participate in Solano County data collection, and attend appropriate county meetings;
 3. Data must be entered in the following data registries: National Cardiac Data Registry (NCDR), CathPCI, and ACTION;

4. Must meet the current SRC criteria of the American College of Cardiology and the American Heart Association.
5. Must appoint co-medical directors for the SRC:
 - a. An emergency medicine physician and
 - b. An interventional cardiologist,
or
A physician who has completed a fellowship in interventional cardiology and preparing to take boards,
- A physician who meets the following criteria:
 - i. Completed post graduate cardiology training prior to July 1, 2002, and;
 - ii. Has at least seven to ten years of primary operator experience in therapeutic PCI, and
 - iii. Has current hospital staff privileges in at least one hospital for the past five years, and
 - iv. Has completed at least 150 therapeutic cardiac catheterizations in the past 2 years.
- c. The EMS Medical Director may consider granting a waiver to physicians who may not meet the criteria listed above on a case by case basis.
6. Must also appoint an SRC Program Manager or SRC Program Coordinator.
7. Must undergo a Pass/Fail SRC Site Survey by a committee, which may include, but is not limited to: Solano County EMS Agency Medical Director, Solano County EMS Agency Administrator, Local EMS Agency Quality Assurance Nurse, and a subject matter expert with experience in designation and oversight of STEMI Receiving Centers in California. The STEMI Receiving Center Site Visit and Evaluation Tool will be provided upon request, or upon receipt of the Application for Designation as a Solano County Approved STEMI Receiving Center. The cost of the site survey will be paid for by the applicant.
8. Must provide Solano County EMS Agency appropriately formatted data in a timely manner (see attachment A).
9. Must receive any patient designated as a “STEMI patient” from the field and provide the appropriate level of care based on the patient’s condition.
 - (a) Patient’s suffering from cardiac arrest with ROSC will be transported to the closest SRC for the appropriate clinical therapy (e.g. hypothermia, cardiac catheterization, etc.).

V. QUALITY IMPROVEMENT

A. ALS FIELD PROVIDERS

1. Monthly (by the 10th of the month, i.e. March data due April 10th) provide the EMS Agency PCRs and 12 lead EKGs of those patients who had STEMI activation.
2. Monthly (by the 10th of the month, i.e. March data due April 10th) provide a list of all patients treated with the C-14 protocol.
3. Quality Improvement (QI) representative will attend the Solano County STEMI Review Meeting.
4. Comply with any policy or protocol concerning STEMI.
5. Provide system paramedics with four hours of annual training on Acute Coronary Syndrome care, 12-lead EKG and associated protocols and policies. (This will be verified at the time of each paramedic's Solano County reaccreditation cycle.)

B. STEMI Referral Facilities

1. Provide data to the EMS Agency on the number of patients treated in their ED for STEMI, the mode of arrival, and whether the patient was treated with thrombolytics or transferred for primary PCI.
2. Send representative to the Solano County STEMI QI Meetings.
3. Adopt a plan to treat STEMI patients with either thrombolytics or transfer for primary PCI.

C. SOLANO COUNTY DESIGNATED STEMI RECEIVING CENTERS - SRCs

1. Within 10 days of patient arrival complete the Solano County EMS STEMI report and forward to the EMS Agency. Data elements include, but are not limited to:
 - a. Time STEMI Alert called by EMS;
 - b. ED EKG STEMI;
 - c. ED Arrival Time and date;
 - d. Intervention done;
 - e. Intervention date and time;
 - f. Summary of cardiac cath findings.
2. Provide properly formatted data quarterly to the EMS Agency. STEMI Data elements include:
 - a. Number of STEMI Alerts;
 - b. Number of confirmed STEMIs (of those with alert);
 - c. Number of Interventions and Type (PCI or thrombolysis);
 - d. Door-to-Intervention (median) by type (in minutes);

- e. Percentile of Door-to-Intervention 90 minutes or less (PCI), 30 minutes or less (thrombolytics).
 3. Provide properly formatted data annually to the EMS Agency. STEMI Data elements include, but are not limited to:
 - a. EMS Data Report;
 - b. NCDR Data Elements and reports from CathPCI and ACTION registries;
 - c. Primary and total PCI volume/year for each cardiologist treating EMS transported STEMI patients;
 - d. Total time and number of Cardiac Catheterizations and episodes per year that the catheterization lab was unable to perform.
 4. Must attend Solano County STEMI Review Meetings

Participation in American College of Cardiology National Cardiovascular Data Registry (NCDR®)	<p>NCDR® Aggregate Data to be reported: Quarterly (raw) with adjusted data from NCDR® when available to include all primary PCI interventions (EMS and non-EMS)</p> <ul style="list-style-type: none"> • Number of patients with primary PCI intervention • Median door-to-intervention interval (minutes) <p>Percentage and numerator/denominator of patient counts for the following:</p> <ul style="list-style-type: none"> • STEMI Mortality • PCI Mortality • Procedural Success • Vascular Complications • ASA upon arrival within 24 hours • Beta-blockers upon arrival within 24 hours • ASA on discharge • Beta-Blockers on discharge • ACE Inhibitors or ARM in patients with Ejection Fraction <40% on discharge. 	<p>Data shall be submitted within 3 months of completion of calendar quarter. (Data elements may evolve over time.)</p>
Participation in Solano County EMS Data Collection	<p>EMS Data Elements:</p> <ul style="list-style-type: none"> • STEMI Alert called by EMS (Yes/No/Unknown) • ED ECG STEMI (Yes/No/Unknown) • ED Arrival Time and Date • Intervention Done (PCI, thrombolysis, or no intervention) • Intervention Time and Date • STEMI patient transfers to another STEMI Receiving Center and reason for transfer 	<p>Data shall be submitted within 10 days of date of patient arrival. (Data elements may evolve over time.)</p>
Quarterly STEMI QI Committee Data Reports	<p>EMS Data Report to include:</p> <ul style="list-style-type: none"> • Number of STEMI Alerts • Number of confirmed STEMIs (of those with alert) • Number of Interventions and Type (PCI or thrombolysis) • Door-to-Intervention Interval (median) by type (in minutes) • Percentile of Door-to-Intervention 90 minutes or less (PCI), 30 minutes or less (thrombolysis) – (numerator and denominator of both categories) • Number of times and reason cath lab was unavailable, (e.g. another patient on table, cardiologist unavailably, cath lab staff unavailable, or equipment failure.) • Number of times a STEMI Patient had to be transferred from one STEMI Receiving Facility to another 	<p>Data shall be submitted within 3 months of completion of calendar quarter. (Reports may evolve based on QI findings and data element change.)</p>
Annual STEMI QI Report	<p>Annual STEMI QI Report</p> <ul style="list-style-type: none"> • EMS Data Report • NCDR Data Elements • Cardiologist Primary and Total PCI volume/year for those treating EMS-transported patients • Total time and number of episodes per year that catheterization lab not able to function. 	<p>Data shall be submitted within 3 months of completion of calendar year.</p>