



\*\*\* PARAMEDIC ALERT \*\*\*

No. 2011-07

Date: August 29, 2011

Topic: STEMI SYSTEM START-UP

Effective: September 1<sup>st</sup>, 2011

Attention: All **West Slope** EDC ALS EMS and Base Hospital Providers

Beginning Thursday September 1<sup>st</sup>, 2011 all applicable El Dorado County STEMI policies and protocols will go into effect. Please review the attached documents and be prepared to put those 12 lead EKGs to good use.

Thank you for your patience.

Sincerely,

A handwritten signature in black ink, appearing to read "David Brazzel", written in a cursive style.

David Brazzel, MD  
Medical Director, El Dorado County EMS Agency

# EL DORADO COUNTY EMS AGENCY

## FIELD POLICIES

Supersedes: N/A

Effective: July 1, 2011

Reviewed: N/A

Scope: ALS Personnel/Base Hospitals



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EMS Agency Medical Director

### STEMI DESTINATION

#### PURPOSE:

A Cardiovascular STEMI Receiving Center (SRC) will be the preferred destination for patients who access the 9-1-1 system meeting defined criteria and who show evidence of a ST-elevation myocardial infarction on a 12 Lead electrocardiogram.

#### DEFINITIONS:

Percutaneous Coronary Intervention (PCI) - A broad group of percutaneous techniques utilized for the diagnosis and treatment of patients with STEMI.

STEMI - An acute myocardial infarction that generates a specific type of ST-segment elevation on a 12-lead ECG.

STEMI Alert - A report from prehospital personnel or a SRH that notifies a STEMI Receiving Center as early as possible that a patient has a specific computer-interpreted prehospital 12-lead ECG indicating a STEMI, allowing the SRC to initiate the internal procedures to provide appropriate and rapid treatment interventions.

STEMI Receiving Centers (SRC) - EDCEMS designated facilities that have emergency PCI capabilities.

STEMI Referral Hospital (SRH) -An acute care hospital that is non-PCI capable, but may refer STEMI patients to an SRC.

#### POLICY:

The following factors should be considered with regards to choice of destination for STEMI patients:

1. An EDCEMSA designated SRC should be considered as the destination of choice if all of the following criteria are met:
  - a. Identified STEMI patients based on machine interpretation of field 12 Lead ECG, verified by paramedics and, via telemetry, by the base hospital physician(s).
  - b. Total time from **paramedic confirmation of STEMI** to the **arrival at the SRC** is **forty-five (45) minutes** or less (as estimated by the paramedics on scene with consideration given to traffic, weather, road conditions, and other possible travel time factors).
2. Selection of which SRC the patient is transported to will be based on a combination of factors and will depend heavily upon paramedic discretion. Proximity and travel time to the closest SRC will be the primary factor, however the patient's hospital preference may factor in if the 45 minute goal from STEMI confirmation to arrival at the SRC can still be achieved. The other factors listed in 1. b. must also be considered.
3. Paramedics shall notify the base hospital of a "STEMI ALERT" as soon as STEMI is confirmed:
  - a. Notification shall be by either direct contact with the base hospital by either phone, radio, or by relay via dispatch. This initial "STEMI ALERT" will serve to notify the base hospital that an EKG has been transmitted and will begin the interpretation process. A full base report can then be made

- while en route towards the SRC. The base hospital should confirm they have received the correct EKG by verifying the time, date, and medic unit ID number on the EKG strip/email.
- b. As soon as it is determined that the patient will be transported directly to an SRC, the SRH base hospital shall notify the SRC emergency department of the patient's pending arrival by advising them of a "STEMI ALERT" to allow timely activation of the Cardiac Catheterization Lab team. The minimum patient information that should be relayed includes: Patient name, age, sex, history, **critical medications\***, allergies, vital signs, and treatment already performed.
  - c. Transmission of the 12-Lead should precede base contact whenever possible to allow for base physician interpretation in the most time efficient manner.
  - d. For STEMI's that are clearly within the 45 minute SRC catchment area it is advisable to begin transporting towards the most appropriate SRC as soon as possible. Communications with the base hospital should be conducted while en route.
4. These situations may alter the normal transport disposition of STEMI patients:
    - a. Patients who are in extremis should be transported to the closest hospital.
    - b. Patients with a history of **high risk indicators\*\*** who are outside the 45 minute SRC transport window may be considered for transport directly to the SRC despite being outside the 45 minute transport window. **Contact the base hospital for consultation in this situation.**
  5. If **communication failure** occurs in the course of treating a STEMI patient (and you are within the 45 minute transport window), the following shall apply:
    - a. The patient should be transported directly to the most appropriate facility as per the paramedic's discretion.
    - b. The receiving emergency department shall be notified of a "STEMI ALERT" as soon as possible and all pertinent information (see 3. b.) be relayed. Transmission of the 12 lead will be sent directly to the receiving facility.
    - c. The paramedic's base hospital shall be notified as soon as possible after the call and a communication failure incident report must be completed and forwarded to the EDCEMSA Medical Director within 24 hours.
  6. Air ambulance/rescue helicopter transport may be considered for remote areas if the time window of 45 minutes from STEMI confirmation to arrival at the SRC can be maintained. The base hospital should be included in the decision to fly a STEMI patient to a SRC.

**\*Critical medications:**

- Anticoagulants
- Insulin
- Erectile dysfunction meds

**\*\*High risk indicators:**

- Active internal bleeding
- Surgery within the last 14 days
- Pregnancy
- History of cerebrovascular accident (CVA) within the last three(3) months
- Intracranial or intraspinal surgery or trauma within the past two (2) months
- Known intracranial neoplasm, arteriovenous malformation, or aneurysm
- Known bleeding disorder
- Severe uncontrolled hypertension

**Approved SRC List:**

Carson Tahoe	Kaiser Roseville	Mercy San Juan	Mercy General
Sutter Memorial	Sutter Roseville	Renown	UC Davis

# EL DORADO COUNTY EMS AGENCY

## FIELD PROCEDURES

Supersedes: N/A

Effective: July 1, 2011

Reviewed: N/A

Scope: ALS – Adult



EMS Agency Medical Director

### 12 LEAD EKG

#### PURPOSE:

The 12-lead EKG should be performed as part of a complete patient assessment when medical history and/or presenting complaints consistent with acute coronary syndrome are present. The acquiring of a 12-lead EKG should not delay immediate treatment needs or delay transport.

#### INDICATIONS:

A 12-lead EKG will be considered on patients with the following presentations:

- Chest, jaw, arm or shoulder pain/discomfort
- Dysrhythmia
- Shortness of breath / dyspnea
- General weakness
- Syncope or near-syncope
- Epigastric discomfort
- Diaphoresis inconsistent with environment
- Diabetic patients with unusual complaints
- Patients with a history of CHF, coronary artery disease, or cardiac transplant
- Resuscitated cardiac arrest patient
- Other signs or symptoms suggestive of acute coronary syndrome
- Any patient the paramedic feels would benefit from a 12-lead assessment

#### CONTRAINDICATIONS:

- Patients who have been subjected to trauma prior to initiating transport
- Cardiac arrest (on-going)

#### PROCEDURE:

1. All 12 Lead EKG's performed shall include a patient's initials/name or other unique patient identifier that is input into the monitor and printed on the EKG strip. The patient identification information shall be entered prior to EKG transmission.
2. The patient's age and full **first and last** name must be programmed into the monitor before the EKG is acquired. This will prevent ID patient errors.
3. Treatment / 12 Lead EKG / transport destination decision should occur concurrently.
4. EKGs must be transmitted to the respective base hospital for physician interpretation.

#### Acquiring 12-lead:

1. Place patient in supine position whenever possible.
2. Bare the chest and prepare the patient's skin for electrode placement. Dry the skin if it is excessively moist.
3. For EKGs on female patients please be sensitive when exposing or touching the breast. If possible, the bra should be left on. Always place V3 - V6 under the breast, rather than on the breast. If needed, encourage the female patient to assist you in displacing her left breast. If you must assist the female patient with displacement of her breast, always use the back of your hand and never the palm.

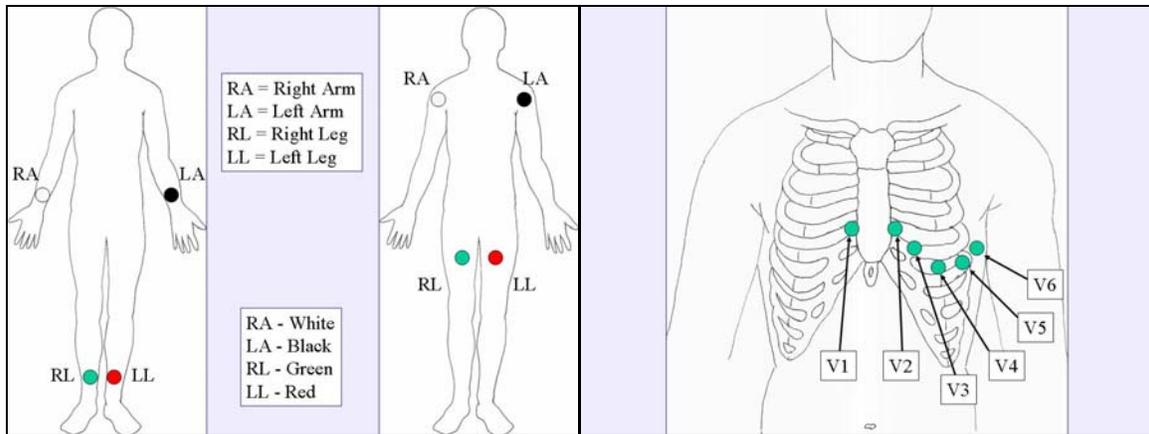
4. Place the electrodes on the limbs. The limb leads can be placed anywhere from the shoulders to the wrists and the thighs to the ankles – not the torso.
5. Place the electrodes on the chest. The six precordial (chest) lead electrodes must be placed in specific locations. Locating the V1 position (fourth intercostals space) is the first step and it is the reference point.
6. A copy will be included on the PCR.
7. A copy will be given to the Emergency Department on the hospital copy of the PCR.
8. Document both the paramedic’s rhythm interpretation and the monitor’s rhythm interpretation on the PCR.

Patient Treatment:

1. If not detrimental to the patient’s condition, the initial 12 Lead should be performed prior to medication administration.
2. Patient Communication: If the ECG interpretation is “Acute MI Suspected”, the patient should be told that “according to the ECG you may be having a heart attack”.
3. If the ECG interpretation is anything else, the patient should NOT be told the ECG is normal or “you are not having a heart attack”.
4. If the patient asks what the ECG shows, tell him/her that a final reading will be completed by the emergency department MD.
5. Interpretation should be relayed to receiving hospital during patient report. Document “Obtained 12-lead ECG.” on PCR and attach a copy.

For destination decision information refer to the STEMI Destination policy.

12 lead electrode placement diagrams:



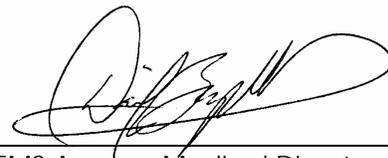
# EL DORADO COUNTY EMS AGENCY PREHOSPITAL PROTOCOLS

Supersedes: Chest Pain protocol dated July 1, 2009

Effective: July 1, 2011

Reviewed: April 2011

Scope: BLS/ALS - Adult



EMS Agency Medical Director

## CHEST PAIN/ACUTE CORONARY SYNDROME (ACS)

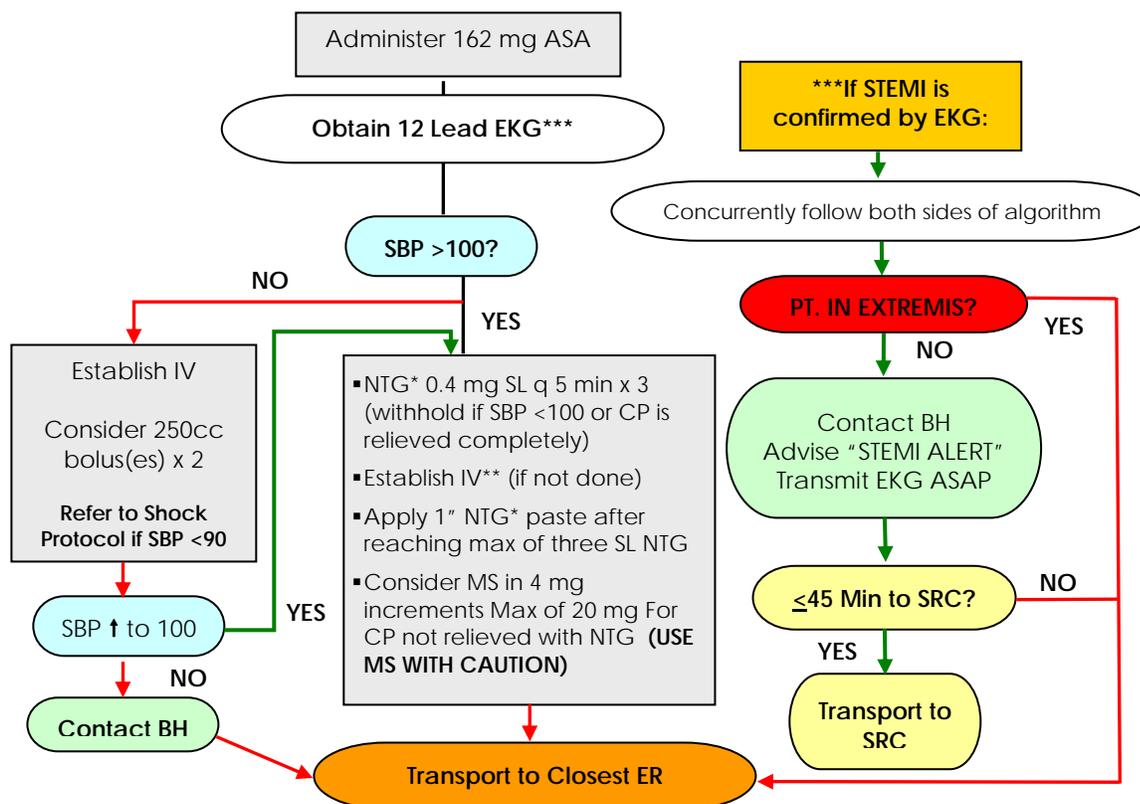
### BLS TREATMENT

**ROUTINE MEDICAL CARE** - administer oxygen at appropriate flow rate. Keep patient in position of comfort and don't allow patient to walk.

BLS providers may assist patient with own medications (NTG and ASA), see **Field Policy: BLS Medication Administration**.

**PROTOCOL PROCEDURE:** Flow of protocol presumes condition is continuing. Possible thrombolytic/STEMI candidates should be identified and transported immediately with treatment performed en route. **Follow BOTH algorithms for STEMI patients.** Not all AMI/ACS patients present with chest pain; other signs or symptoms may be present that could also indicate an ACS/AMI. Contact the base station for all STEMI patients and for orders in all suspected AMI/ACS cases not presenting with chest discomfort, pain, or pressure. Consider air transport for STEMI patients in remote areas or for long ground transport times.

### ALS TREATMENT



\*If patient has taken any erectile dysfunction medication in the last 48 hours do not give NTG or apply NTG paste. Go directly to MS if SBP is >100 and patient has taken any erectile dysfunction medication in the last 48 hours.

\*NTG paste should be applied after reaching maximum dose of SL NTG and should only be removed if SBP <100.

\*\* Consider second IV and/or Twin Cath with saline lock for suspected STEMI/thrombolytic candidates.