

# 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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## EMERGENCY MEDICAL SERVICES AGENCY

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## POLICY MEMORANDUM 6602

DATE: 31 March 2010

REVIEWED/APPROVED BY: *December 17, 2009*

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RONALD W. CHAPMAN, M.D., EMS AGENCY ADMINISTRATOR (ACTING)

AUTHORITY: California Health & Safety Code §1797.204 & §1797.220

### SUBJECT: 12-LEAD EKG

#### PURPOSE/POLICY:

In the prehospital evaluation of patients with chest pain, acquisition of a 12 lead EKG by field personnel provides information which is useful in answering a number of questions.

- A. Recognition of acute ST elevation myocardial infarction (STEMI) identifies a subgroup of patients who should benefit from the quickest possible transport to a hospital that can administer thrombolytic therapy or primary percutaneous coronary intervention. Pre-arrival notification of the receiving hospital is expected to significantly decrease delay in providing effective therapy.
- B. Chest pain patients without STEMI should be stable to be transported to the hospital where they typically receive their care, which is felt to be in the best interest of both patients and providers as long as it doesn't delay critical therapy.
- C. Transient 12 lead EKG findings of ischemia and arrhythmia which resolve in response to prehospital treatment can be very useful in arriving at an emergency department disposition.

- D. Patients with an acute STEMI MI will be transported to the nearest Solano County designated STEMI Receiving Center (SRC), see protocol C14 for SRCs.

## I. TRAINING

Paramedics who use the 12-lead EKG shall have an orientation to the equipment and an additional 4 hours of training on the lead placement, general troubleshooting and interpretation of acute MI patterns. This class will be submitted for approval to the EMS Agency and will be updated biannually.

## II. INDICATIONS

12 lead EKG is indicated for patients with chest pain/chest tightness or other symptoms which suggest Acute Coronary Syndrome (ACS); ischemic heart disease or acute myocardial infarction.

## III. PROCEDURE

- A. Those EMT-Ps with the additional training and equipment will complete an EKG on patients as indicated above.
  1. It is expected that non-transporting paramedics will immediately obtain or assist transporting paramedics to immediately obtain the 12 lead EKG
- B. The 12 lead EKG must be obtained in the field and will be used by the paramedic's to guide the patients' destination decision. If the 12 lead EKG reads \*\*\* Acute MI\*\*\* the paramedic will transport the patient to the closest SRC.
- C. In conjunction with current treatment, the EMT-P will place leads in the following positions:
  1. Limb: RIGHT arm, RIGHT leg, LEFT arm, LEFT leg
  2. CHEST LEADS:
    - a). V<sub>1</sub> – RIGHT of Sternum at 4<sup>th</sup> intercostal space;
    - b). V<sub>2</sub> – LEFT of sternum at 4<sup>th</sup> intercostal space;
    - c). V<sub>3</sub> – ½ way between V2 & V4.
    - d). V<sub>4</sub> – LEFT chest, 5<sup>th</sup> intercostal space, mid-clavicular line.
    - e). V<sub>5</sub> – LEFT chest, 5<sup>th</sup> intercostal space on the anterior axillary line.
    - f). V<sub>6</sub> - LEFT chest, 5<sup>th</sup> intercostal space, mid-axillary line.
- D. Obtain EKG and report the computer interpretation of the 12-lead to the receiving hospital. If requested by the Base Hospital physician, a fax copy of the EKG will be transmitted when possible.
- E. EKG will be attached to the PCR and be identified with patient name, date and PCR#. Adhesive skin electrodes will be left in place on the patient to facilitate confirmation and to track evolving EKG changes

- F. The field 12-lead EKG is NOT meant to be diagnostic; instead to be used as an additional tool for the receiving hospital.

#### **IV. CONTINOUS QUALITY IMPROVEMENT**

The CQI Coordinator for the ALS Departments and Medic Ambulance Service will, in conjunction with the CQI Committee, develop and enhance the current CQI policies for the use of 12-lead EKG.

- A. The ALS Departments CQI Coordinator's will evaluate the use of the 12 lead EKG on the patients.
- B. Each ALS provider will attach the original 12 Lead EKG to the patient's copy of the PCR and leave it at the receiving hospital, a copy of the 12 Lead EKG will be attached to original PCR and be kept as part of the medical records by the provider.
- C. Each agency using the 12-lead EKGs will complete annual update training of the paramedic using the machine. This information will be submitted to the EMS Agency by the end of the month of January of the new year.
- D. Each agency using the 12-lead EKGs will hold an annual initial training class for new employees and provide documentation to the EMS Agency when the training is completed and the paramedics who attended.
- E. The Base Coordinator will track cases where pre-hospital personnel used the 12 lead EKG for a patient with STEMI and report back to the CQI Committee if the patient received a thrombolytic agent and time "from door to drug" as a part of their monthly report.

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