

EL DORADO COUNTY EMS AGENCY

FIELD PROCEDURES

Effective: July 1, 2013

Review: July 2013, 2017, 2019

Revised: July, 2024

Scope: ALS – Adult/Ped

(on file)

EMS Agency Medical Director

12-LEAD ECG

PURPOSE:

The 12-lead Electrocardiogram (ECG) is performed as part of a complete patient assessment when medical history and/or presenting complaints suggest a cardiac etiology. Acquiring a 12-lead ECG should not delay immediate treatment needs or transport.

INDICATIONS:

A 12-lead ECG will be considered on adult and pediatric patients with the following presentations:

- Chest, jaw, arm, shoulder or other pain/discomfort concerning for cardiac etiology
- Dysrhythmia
- Shortness of breath / dyspnea
- General weakness
- Nausea/Vomiting in high risk patients
- Syncope or near-syncope
- Suspected CVA/stroke
- 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 or cardiovascular collapse
- Any patient the paramedic feels would benefit from a 12-lead assessment

RELATIVE CONTRAINDICATIONS:

- Cardiac arrest (on-going)

PROCEDURE:

1. Enter the patient's age, sex/gender, first initial, and full last name into the monitor before the ECG is acquired. This will prevent ID patient errors.
2. Perform all indicated treatment and decision making concurrently with 12-lead acquisition.
3. ECGs must be transmitted to the respective base hospital for physician interpretation.

Acquiring 12-Lead:

4. Place patient in supine position whenever possible.
5. Explain and obtain access to the chest, with appropriate coverage, then prepare the patient's skin for electrode placement. Dry the skin if it is excessively moist.
6. For ECGs 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 with displacement, always use the back of your hand, not the palm.
7. 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.
8. Place the electrodes on the chest. The six precordial (chest) lead electrodes must be placed in specific locations. Locating the V1 position (fourth intercostal space) is the first step and it is the reference point.
 - V1: 4th intercostal space, just right of the sternum
 - V2: 4th intercostal space, just left of the sternum
 - V3: halfway between V2 and V4
 - V4: 5th intercostal space, left mid-clavicular line
 - V5: in-line between V4 and V6, anterior axillary line
 - V6: 5th intercostal space, left mid-axillary line
9. A copy will be included on the PCR.
10. A copy will be left with the emergency department via electronic transfer or hard copy if transfer was not complete.
11. Document both the paramedic's rhythm interpretation and the monitor's rhythm interpretation on the PCR.

Patient Treatment:

12. Perform as soon as possible during patient assessment.
13. 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".
14. 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".
15. If the patient asks what the ECG shows, tell them that a final reading will be completed by the emergency department physician.

16. 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:

