

7.10 12-LEAD ELECTROCARDIOGRAM (ECG) PROCEDURE

EMSAC JUNE 2026

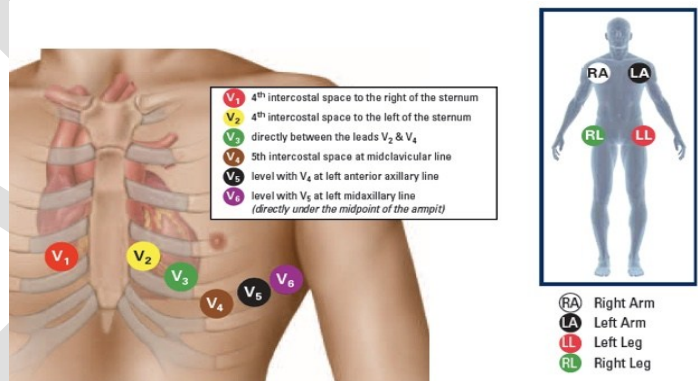
ALS

INDICATIONS

Any patient with one or more of the following: ~~known or suspected Acute Coronary Syndrome (ACS)~~. Examples:

- Signs/symptoms suggestive of acute coronary symptom (e.g. ~~non-traumatic~~ chest pain, upper abdominal pain, dyspnea, acute generalized weakness, nausea or other “suspicious” symptoms) ~~syncope/near-syncope~~
 - Cardiac dysrhythmias on 4-lead ECG
 - Post-cardiac arrest or ROSC ~~following cardiac arrest~~
 - Electrical injury or burns
 - Poisonings, overdoses and electrolyte derangements as clinically warranted
- ~~Chest pain~~
 - ~~Upper abdominal pain~~
 - ~~Discomfort or tightness radiating to the jaw, left shoulder or arm~~
 - ~~Nausea~~
 - ~~Diaphoresis~~
 - ~~Dyspnea~~
 - ~~Anxiety~~
 - ~~Syncope/dizziness~~
 - ~~Other “suspicious symptoms”~~
 - ~~Known treatment for ACS~~

Figure 1: ECG lead placement



PROCEDURE TECHNIQUE

1. Prepare ECG monitor and connect 12-lead cables
2. Apply chest leads using the landmarks indicated on **Figure 1**
3. Interpret ECG findings (see Appendix A for STEMI Territory Reference)
4. If isoelectric line has significant artifact or machine reads “poor data quality” (or equivalent), attempt to reacquire a clean 12-lead ECG if patient condition allows
5. If a patient meets the criteria for an **EMS STEMI ALERT**:
 - a) Transport to an approved STAR Cardiac Receiving Center (**#Policy 5000 Destination**)
 - b) Provide early notification to the STAR facility per (**#3020 Field to Hospital Communications**)
 - c) Transmit the ECG (~~if capable~~) to the receiving facility.
6. For inconclusive ECG’s, suspected false negatives, transmit the ECG to Base Hospital and contact for consultation. ~~contact Base Hospital with ECG transmission may be utilized for physician consultation~~
7. For patients with suspected ACS, serial 12-lead ECGs should be obtained if the patients

Table 1: Definition of EMS STEMI Alert:
at least one of the following

New or presumed new ST-segment elevation of **>1mm** (one small box) in at least two contiguous leads

ECG machine interpretation *****ACUTE STEMI***** or similar wording

7.10 12-LEAD ELECTROCARDIOGRAM (ECG) PROCEDURE EMSAC JUNE 2026

clinical status changes or if the ECG changes are noted on the cardiac monitor, and every 15 minutes if transport time allows

~~Serial 12-Lead EKGs en-route are encouraged.~~

~~8.~~

~~9. Attach EKG leads to the patient (limb leads to the upper arms, ankles and six chest leads) and perform EKG.~~

- ~~• V1: right 4th intercostal space~~
- ~~• V2: left 4th intercostal space~~
- ~~• V3: halfway between V2 and V4~~
- ~~• V4: left 5th intercostal space, mid-clavicular line~~
- ~~• V5: horizontal to V4, anterior axillary line~~
- ~~• V6: horizontal to V5, mid-axillary line~~

POST-PROCEDURE STEMI EKG CRITERIA

- ~~• EMS STEMI Definitions: at least one of the following~~
 - ~~○ New or presumed new ST segment elevation of >0.1mm (one small box) in at least two contiguous leads~~
 - ~~○ ECG machine interpretation *****ACUTE STEMI***** or similar wording~~
- ~~• If there is an EMS STEMI:~~
 - ~~○ Transport to an approved STAR Cardiac Receiving Center (**#Policy 5000 Destination**)~~
 - ~~○ Provide early notification to the STAR facility per (**#3020 Field to Hospital Communications**)~~
 - ~~○ Transmit the EKG (if capable) to the receiving facility.~~
- ~~• If the EKG indicates an ST elevation MI by either of the methods below,~~
- ~~• according to~~
 - ~~○ Convex or flat ST segment elevation of more than 1 mm (one small box) in two or more contiguous leads.~~

~~EKG machine interpretation *****ACUTE STEMI***** or similar wording.~~

DOCUMENTATION

- **12-lead ECG** should include the following information included prior to acquisition:
 - Patient Last Name + First Initial
 - Gender
 - Age
 - Under **patient ID field**, list ambulance unit number (e.g. list as "SFFD **574**," etc).
This is to to avoid confusion between ambulance unit number and patient age)
- **PCR documentation** should include:
 - Computer and paramedic interpretation of the 12-lead ECG. If applicable, ST

7.10 12-LEAD ELECTROCARDIOGRAM (ECG) PROCEDURE EMSAC JUNE 2026

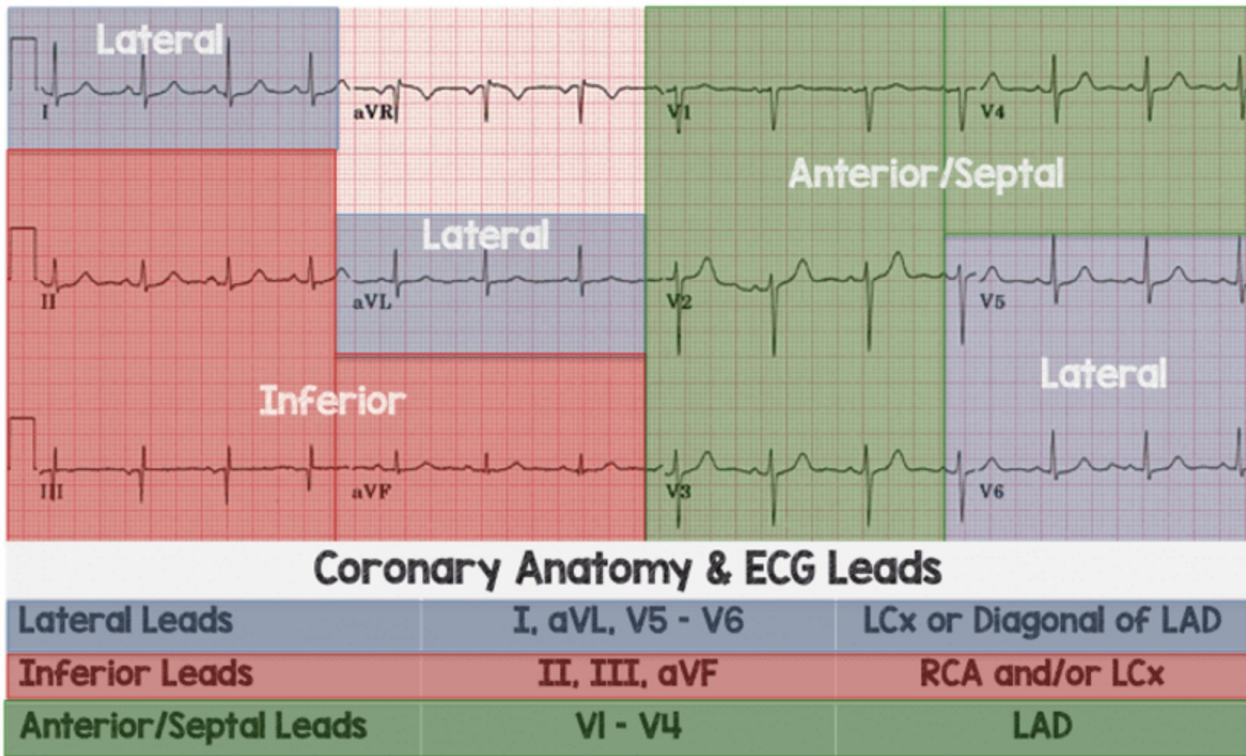
elevation in millimeters and location of reciprocal changes

- EMS Personnel responsible for procedure (eprocedures.09 and eprocedures.10)
- Time of symptom onset (in HH:MM format)
- Time of hospital notification for STEMI Alert
- ~~○ Significant vital signs and physical findings~~
- ~~○ Complete PCR field indicating a pre-arrival hospital notification for STEMI.~~
- Copies of 12-lead ECG ~~should~~ shall be provided to the receiving hospital physician upon EMS arrival, left at the receiving hospital at time of patient delivery, and attached to the EMS patient care report (ePCR)

DRAFT

7.10 12-LEAD ELECTROCARDIOGRAM (ECG) PROCEDURE EMSAC JUNE 2026

APPENDIX A: STEMI Territories



Reference: Sekohn, N. STEMI. Clerkship Directors in Emergency Medicine. Published 2023. Accessed March 13, 2026. <https://www.saem.org/about-saem/academies-interest-groups-affiliates2/cdem/for-students/online-education/m3-curriculum/group-electrocardiogram-%28ecg%29-rhythm-recognition/stemi>

Appendix B:

STAR Center	Prehospital ECG transmission contact