



Best Practice Tips for 12 –Lead ECG

Recline patient in a resting position such as semi-reclined (semi-fowlers) position, ask them to lie still, remain quiet and breath normally.

Acquire the initial 12-lead ECG prior to treatment with nitrates.

Whenever possible undress patients from the waist up. This will make electrode placement easier and more accurate and will minimize artifact from wires rubbing on clothing. For female patients, this can include undergarments. Always protect the patients privacy and dignity by draping with a sheet to minimize exposure.

12-L ECG Acquisition Guide

Obtain 12 L ECG with Initial Vital Signs:

Goal: First Medical contact to ECG \leq 10 min, Scene time: \leq 15 minutes
provide early identification and pre-hospital arrival notification for suspected ST segment acute myocardial infarction (STEMI) to optimize time to reperfusion by fibrinolysis or percutaneous coronary intervention (PCI)

- Chest pain, pressure, tightness or persistent discomfort above the waist in pts. > 35 yrs. of age
- "Heartburn" or epigastric pain
- Complaints of "heart racing" (HR >150 or irregular and >120) or "heart too slow" (HR < 50 and symptomatic)
- A syncopal episode, severe weakness, or unexplained fatigue
- New onset stroke symptoms (< 24 hours)
- Difficulty breathing or shortness of breath (with no obvious cardiac cause)
- Recent Cocaine, stimulant and/or other Illicit drug use (pts. of any age)
- Return of Spontaneous Circulation (ROSC) post cardiac arrest
- Recent cocaine or illicit drug use

When?

- With the first set of vital signs and preferably before oxygen and nitroglycerine administration (unless the patient is in respiratory distress or saturations on room air $spO_2 < 92\%$)
- Ideally, the 12– Lead ECG should be captured within 10 minutes of making first medical contact ("at patient" time)
- However, transport should NEVER be delayed to obtain a 12-lead ECG

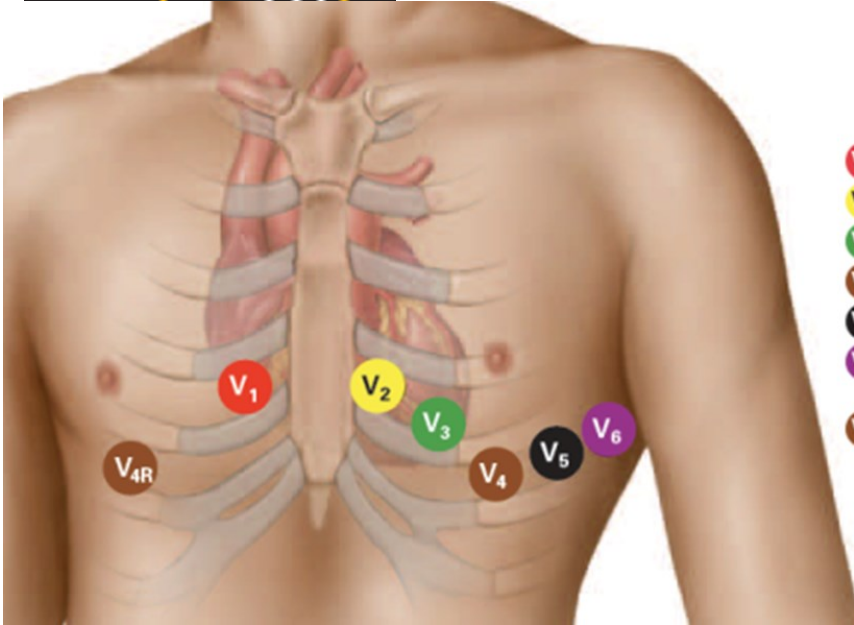
STEMI Alert Activation Criteria:

Activate STEMI Alert when any one of the following criteria met & signs & symptoms suspect of (AMI) acute myocardial infarction as described above are demonstrated with a duration of >15 minutes <24 hours

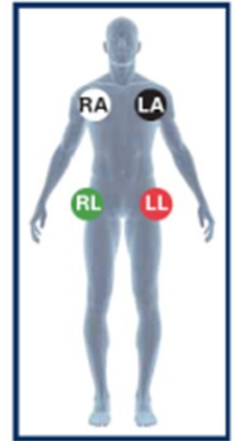
- Paramedics trained in 12 lead interpretation are able to activate a STEMI alert based upon recognition of ECG characteristics suspect of STEMI including 1 mm of ST elevation in 2 contiguous leads.
- Transmission of the 12-lead ECG to the receiving facility for provider interpretation. Remember to add a patient identifier, and your phone number to the ECG. Always follow up with phone call to confirm the ECG transmission receipt, and obtain further medical direction.
- ECG monitor's diagnostic interpretation indicates Acute MI is suspected.



12-Lead ECG Placement



- V₁** 4th intercostal space to the right of the sternum
- V₂** 4th intercostal space to the left of the sternum
- V₃** directly between the leads V₂ & V₄
- V₄** 5th intercostal space at midclavicular line
- V₅** level with V₄ at left anterior axillary line
- V₆** level with V₅ at left midaxillary line (directly under the midpoint of the armpit)
- V_{4R}** 5th intercostal space, right midclavicular line



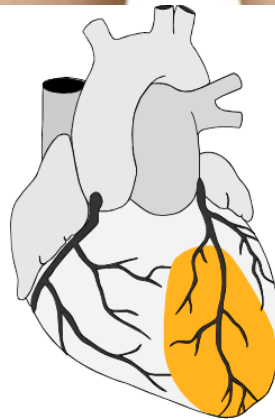
- RA** Right Arm
- LA** Left Arm
- LL** Left Leg
- RL** Right Leg

Best Practices Female Patients:

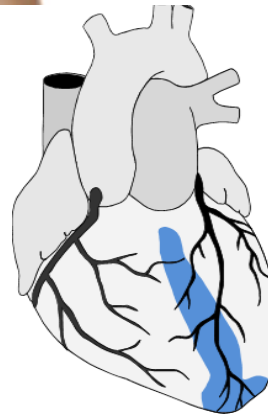
Alert and Cooperative patients can be asked to remove their own undergarments (privacy should be provided for them).

To move a patients breast aside using the back of a gloved hand, or when possible ask the patient to move their own breast.

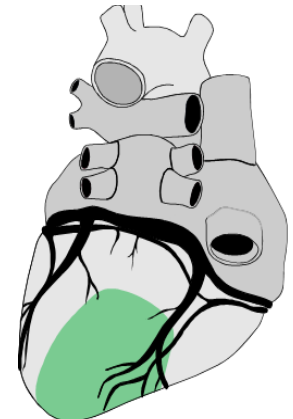
Consider stocking gowns to drape and protect the patient's modesty.



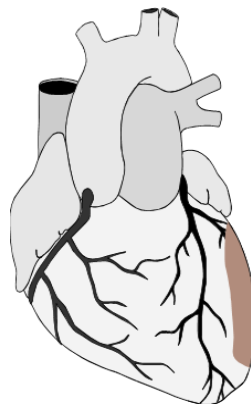
Anterior V3 , V4



Septal: V1,V2



Inferior: II, III, AVF



Lateral: I, AVL, V5, V6

I	aVR	V1	V4
II	aVL	V2	V5
III	aVF	V3	V6

