12 LEAD EKG

Clinical Statement: The 12-lead ECG Analysis is useful in the diagnosis and treatment of patients with acute myocardial infarction (AMI).

INDICATIONS:

A 12 Lead EKG is ***required*** for all patients who meet the following indications:

- Non-traumatic chest pain in anyone greater than age 25. (NAEMSP definition)
- Patients who present with Signs/Symptoms consistent with cardiac related problems: i.e. Syncope, Weakness, Arrhythmias, Congestive Heart Failure, Shortness of Breath and Atypical AMI symptoms.

A12 Lead EKG is ***strongly recommended*** for all patients who meet the following indications:

- Diabetics with associated medical complaints over the age of 35.
- Chest Trauma
- Oxygen deprivation, smoke inhalation, carbon monoxide poisoning, or asphyxia

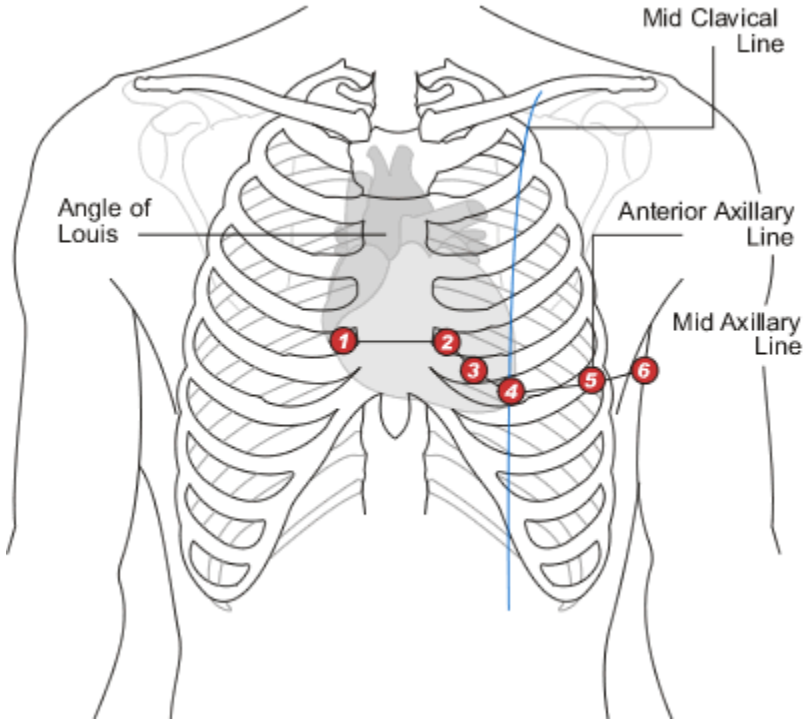
Classic 12 Lead Placement

Lead	Electrode Location
V1	4th intercostal space at the right border of the sternum
V2	4th intercostal space at the left border of the sternum
V3	Midway between location V2 & V4
V4	At the mid-clavicular line at the 5th intercostal space
V5	At the anterior axillary line on the same horizontal level as V4
V6	At the mid-axillary line on the same horizontal level at V4 & V5
Right Arm (RA) & Left Arm (LA)	Traditionally placed anywhere on the arm. Alternate placement to reduce muscle artifact is midway between the elbow and the shoulder, **but not on the torso**.
Right Leg (RL) and Left Leg (LL)	Traditionally placed a few inches above the ankle. Alternate placement to reduce muscle artifact is on the upper leg, **but not on the torso.**

See Figure 1.

12 LEAD EKG cont.

Figure 1



Contiguous Leads:

I Lateral Circumflex Artery	aVR	V1 Septal Left Anterior Descending Artery	V4 Anterior Right Coronary Artery
II Inferior Right Coronary Artery	aVL Lateral Circumflex Artery	V2 Septal Left Anterior Descending Artery	V5 Lateral Circumflex Artery
III Inferior Right Coronary Artery	AVF Inferior Right Coronary Artery	V3 Anterior Right Coronary Artery	V6 Lateral Circumflex Artery

12 LEAD EKG cont.

*Consider utilizing the mnemonic **PAILS** to detect reciprocal changes*:

P – **P**osterior wall MI, may have reciprocal changes in the **A**nterior leads.

A – **A**nterior wall MI, may have reciprocal changes in the **I**nferior leads.

I – **I**nferior wall MI, may have reciprocal changes in the **L**ateral leads.

L – **L**ateral wall MI, may have reciprocal changes in the **S**eptal leads.

S – **S**eptal wall MI, may have reciprocal changes in the **P**osterior leads.