1-05 CONTINUOUS ECG/ 12-LEAD ECG	**EMT/AEMT**: 12 Lead EKGs may be **acquired** by any provider that has completed service-specific training.	First Responder EMT AEMT Paramedic

Continuous ECG Indications:

Continuous ECG Monitoring will be mandatory under the following conditions:

- Chest Pain or any clinical situation where symptoms are potentially consistent with an anginal equivalent and not explainable by another obvious cause.
- Cardiac Arrest
- Dysrhythmias or Palpitations (i.e. “heart racing”, “palpitations”, or “heart too slow”)
- Difficulty Breathing (with no obvious respiratory cause, i.e. asthma)
- Stroke
- Syncope
- Altered Mental Status not explained by a simple cause (e.g. hypoglycemia)
- Overdose

12-Lead ECG Indications:

12 Lead ECG’s should be performed as part of a complete assessment on patients with the following complaints:

- Chest Pain (or any clinical situation where symptoms are potentially consistent with an anginal equivalent):
  - Chest discomfort (e.g. “pressure”, “tightness” or “heartburn/reflux”)
  - Anginal equivalents: weakness, near syncope/dizziness, shortness of breath, etc.
  - Abdominal Pain above the naval (>40yo)
- **Post Cardiac Arrest - Obtain Prior to Transport**
- Palpitations (i.e. “heart racing”, “palpitations”, or “heart too slow”)
- Dysrhythmias (including post-cardioversion)
- Difficulty Breathing (with no obvious respiratory cause, i.e. asthma)
- Syncope
- Stroke
- Altered Mental Status
- Overdose
- Electrocution

STOP: Treatment decisions based on a 12-lead ECG or rhythm strip may only be made by a paramedic or online medical control.

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Transmission Procedure:

Make sure to include a name or other patient identifier on the transmission so that the 12 lead can be paired with the patient on arrival at the facility.

1. Transmit 12-lead if:
   a. Any questionable 12 leads (STEMI, dysrhythmias, etc.) should be transmitted to the receiving facility as soon as possible.
   b. Any 12 lead run by an EMT or AEMT.
2. Contact the receiving facility as soon as possible to:
   a. Verify receipt, and
   b. Receive any further instructions (e.g. EMT/AEMT verify STEMI).
3. Then, if EMT/AEMT attending and STEMI confirmed by online medical control:
   a. Notify dispatch and/or supervisor.
   b. Arrange ALS intercept if possible.
   c. Transport as quickly as possible to nearest appropriate facility capable of cardiac intervention (cath lab with PCI capabilities).
   d. Utilize helicopter transport if appropriate per **Air Transport Guideline [Z-06]**.

Documentation:

- Any patient placed on the cardiac monitor should have a rhythm strip printed and included in the Patient Care Report.
- 12-Leads and ECG strips will have the following information printed on the recording:
  - Name (or report number)
  - Age (if possible)
  - Unit number
  - Date
- The ECG strip should be reprinted (and recorded) for:
  - Any change in patient condition
  - Any change in cardiac rhythm
  - After any sort of cardiac intervention (i.e. medication or cardioversion)

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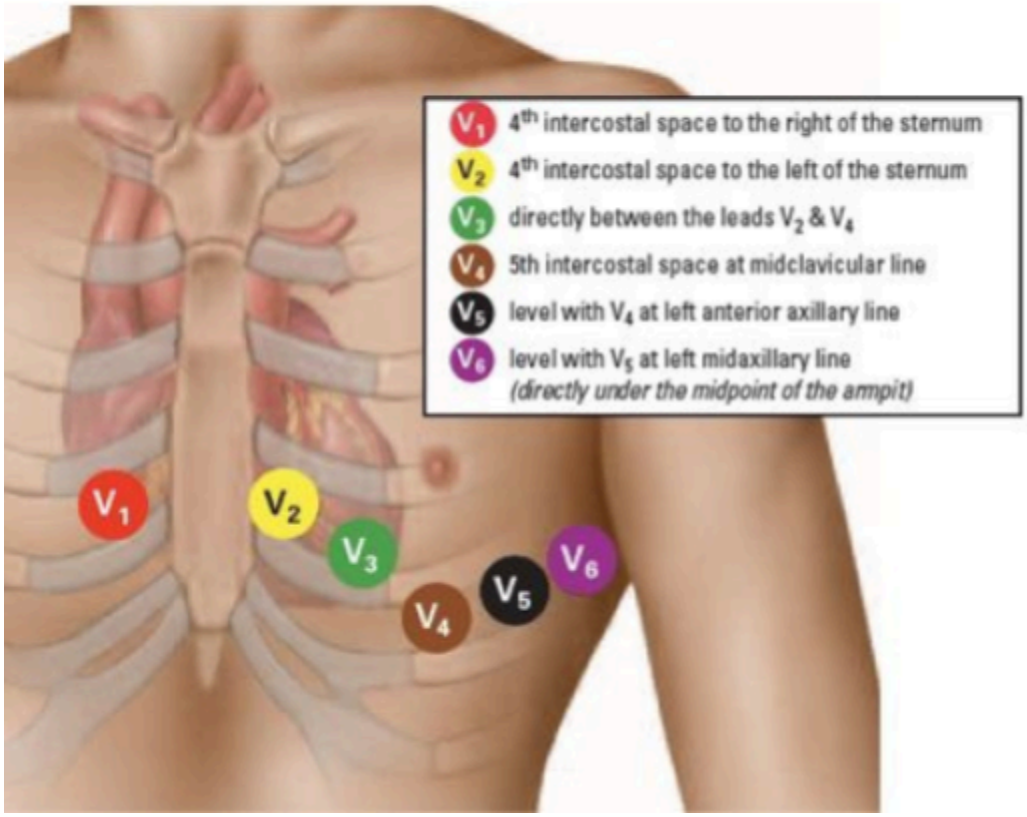
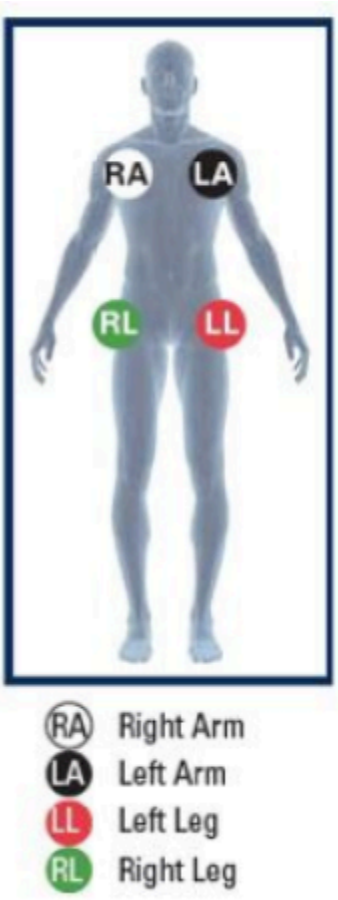
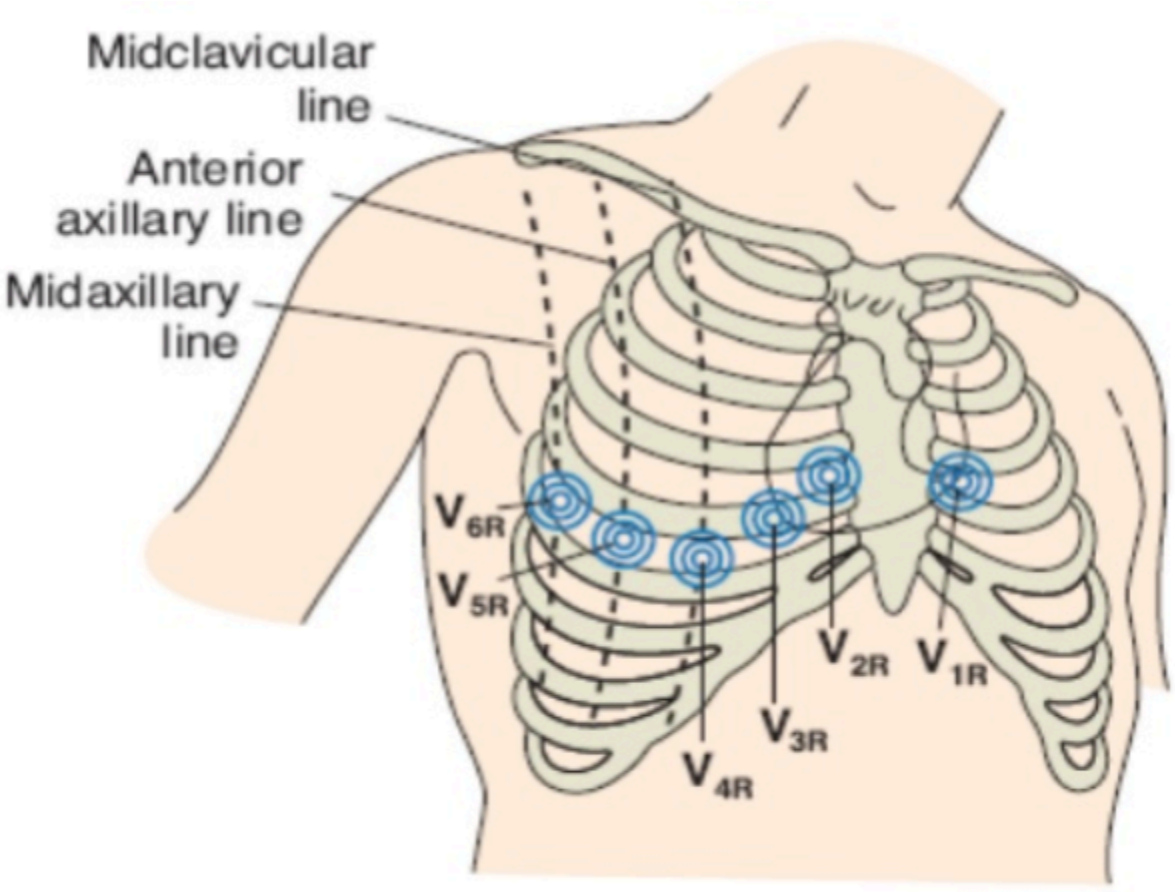
12-LEAD ECG LEAD PLACEMENT





1-05 CONTINUOUS ECG/ 12-LEAD ECG	**EMT/AEMT**: 12 Lead EKGs may be **acquired** by any provider that has completed service-specific training.	First Responder EMT AEMT Paramedic

RIGHT-SIDED 12-LEAD ECG LEAD PLACEMENT



STEMI Notes

- Young, unexplained sudden unresponsive with STEMI → must rule out Brain bleed
- What causes ischemia
- Hypoxia
- Women & diabetics have atypical symptoms
-
-
-
-

- Atypical Sxs
- Right arm pain
- jaw/tooth pain
- Indigestion
- nausea/vomiting
- .
- Location
- Inferior (RCA)
    - IVF
    - Frank-Starling law - give IVF to increase stretch/pump
- Anterior
- Lateral
- Sepatal
-
- Elevation
- 2mm ST elev precord
- 1 mm inf
-
- Timing changes of STEMI
- Peak Ts
-
- Right side = rhythm issues (SA AV node)
- Anterior = left side failure, pump issue
- Pic of electrical overlaid with arteries
-
-
- Probably a STEMI
- “Cove down”

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-
-
-
-
- Atrial Flutter: rate 300 with 2:1 av conduction =
  - rate of almost 150 and consistent
  - Can look like stemi
  - Upright P's in V1
- Bundle Branch Block (BBB)
  - Caused by a block in certain branches of the normal cardiac electrical system, leads to delayed depolarization of certain areas of the myocardium → wide QRS
  - Turn signal method (V1)
    - V1 Up = right hand turn = RBBB (rSR')
    - V1 Down = left hand turn = LBBB
- >1mm concordant ST ekevatib
-
- Early repolarization
- Smiley face ST = good
- Frowny face = bad
-
- Pericarditis
  - No regional STE
  - No reciprocal change
  - PR elevation in aVR
  - Recent viral illness/fever
  -
-
- LVH
- Deep S + Tall R >35mm (7blocks)
-
- Hyperkalemia
- PeakT's
- Wide QRS → Sine
-
-
- Discordance = normal
-
- Mimics = put whole pic together
- Do sxs seem worrisome/typical

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- ECGs change over time
-
- Dr. Smith's ECG Blog
-
-
- REPEAT/Serial ECGs
- Phone a friend
-
-
-
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