

PROCEDURE FOR: EKG: 12-Lead

EQUIPMENT: EKG recorder  
EKG paper  
Electrode cable  
Ten disposable electrode pads  
Limb electrode plates and chest suction for single channel EKG  
EKG electrode gel for single channel

PROCEDURE:

ACTION

POINTS OF EMPHASIS

1. Prepare EKG recorder
  - a. Select single or 3 channel EKG recorder.
  - b. Plug in grounded EKG recorder.
  - c. Activate power on EKG machine.
2. Prepare Patient
  - a. Place patient in supine position in the center of the bed for adequate support of all limbs.
  - b. Expose the forearms, forelegs and chest.
3. Apply limb leads

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POINTS OF EMPHASIS

- a. Use the silver Fastrace electrode pads or EKG electrode plates on the extremities. Apply one to each extremity. Electrode may be applied anywhere along the exposed surface of the legs and arms. (Figure 1).
- b. Cleanse skin site with alcohol prep pad if needed.
- c. Apply alcohol prep pad under the EKG electrode plate to ensure good contact. If using electrodes the above is not necessary. It may be necessary to shave the electrode site.
- d. Secure EKG electrode plates with electrode straps, check tension being sure straps are not too tight or this may induce artifact.
- e. Attach limb lead cable to appropriate EKG electrodes. Each cable is color coded and marked with an abbreviation as to which electrode it should be attached to, i.e., white or RA (right arm). (Make sure white dots are up when cable is attached).
- f. Verify that each limb lead EKG electrode is positioned properly and secured on the correct extremity.

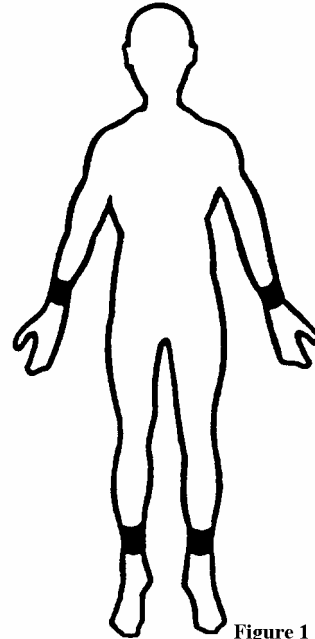


Figure 1

4. Apply chest leads (Figure 2).

4. Mark "X" on the chest under the appropriate leads for consistency of lead placement.

a. Single channel EKG recorder:

- 1) Place chest suction cup electrode or plate electrode on brown tip of patient cable marked "C".

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- 2) Cleanse site with alcohol prep pads.
- 3) Apply electrode gel to chest lead sites.
  - a) Use 4th intercostal space, right sternal border for V<sub>1</sub>
  - b) Use 4th intercostal space, left sternal border for V<sub>2</sub>
  - c) Use location midway between V<sub>2</sub> and V<sub>4</sub> for V<sub>3</sub>
  - d) Use 5th intercostal space, left of sternum, midclavicular line, for V<sub>4</sub>.
  - e) Use 5th intercostal space, left of sternum, anterior axillary line, for V<sub>5</sub>.
  - f) Use 5th intercostal space, left of sternum, midaxillary line for V<sub>6</sub>.
- 4) Secure suction cup to predetermined site to record individual chest leads.

b. Three channel EKG recorder:

- 1) Place all 6 silver electrodes on appropriate chest sites as described for single channel EKG.
- 2) Attach all six EKG cables (with white dots up) to appropriate chest electrode.

5. Record the EKG

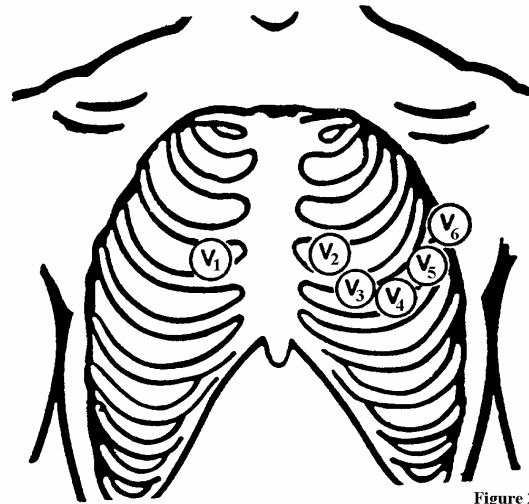


Figure 2

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ACTION

POINTS OF EMPHASIS

a. Single channel EKG recorder  
 (Figure 3).

- 1) Turn power switch to "run".  
 EKG recording paper should feed correctly.
- 2) Turn lead selector switch to "STD" (standard position).
- 3) Center the stylus on the EKG paper using position control.
- 4) Press the STD 1mV button.
- 5) Press marker button, note code on lower or upper edge of paper.
- 6) Return power switch to "on" to stop paper flow.
- 7) Place lead selector to Lead I.
- 8) Turn power switch to "run" and record approximately 10 beats.

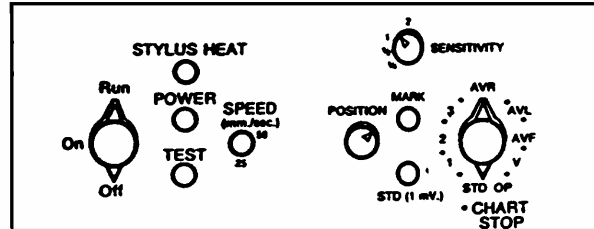


Figure 3

9) Mark Lead with appropriate code or write Lead on EKG paper. Suggested codes:

Lead I	___	AVR	___
Lead II	___	AVL	___
Lead III	___	AVF	___

V <sub>1</sub>	___	V <sub>4</sub>	___
V <sub>2</sub>	___	V <sub>5</sub>	___
V <sub>3</sub>	___	V <sub>6</sub>	___

- 10) Repeat steps 5-8 for each of the limb leads.
- 11) Return power to "on" and apply chest suction cups to

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POINTS OF EMPHASIS

brown chest electrode.

12) Place the suction cup on V<sub>1</sub> site.

13) Return Lead selector to V and record all chest leads.

14) Turn power switch to "run" and record.

15) Repeat process for each chest lead, moving the suction cup appropriately.

6. Three channel EKG

a. Position all leads including the six chest leads, before the recording process is started.

b. Check patient module display for indications that the connections are good. Verify paper speed to 25mm/second.

c. Be sure there is enough paper - check paper level.

d. Turn machine on.

1) Obtain ID information (i.e., patient's name, operator initials).

2) Depress auto button to obtain EKG recording.

3) Use manual mode as an option for further studies of select leads or for dysrhythmia recording.

e. Turn EKG recorder off.

f. Remove EKG cables leaving in place electrodes for subsequent serial EKG's.

b. Ideally the noise bar should remain in the green zone. If x appears it means the connection is not good.

2) LED screen will read auto 3x4, 1R, II.

APPROVALS: ICU Standards Committee

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Nursing Standards Committee  
AACN Procedure Manual for Critical Care

**EFFECTIVE**

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**REVISION**

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