EQUIPMENT

Electrocardiogram (ECG) Preventative Maintenance

Preventative Maintenance

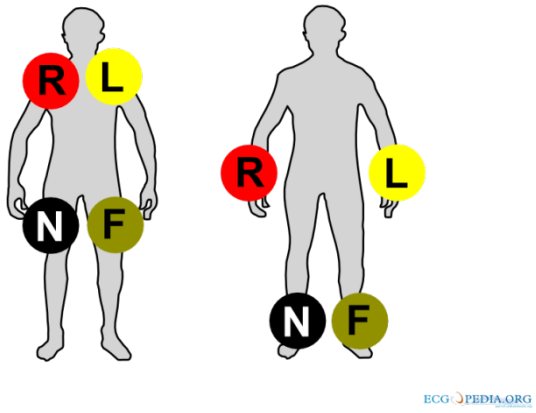
- Clean casing
- Clean electrodes and inspect for corrosion or adhered debris after each use
- Inspect insulation for defects and debris
- Inspect cables for defects, replace if necessary
- If battery-powered, regularly check batteries to prevent corrosion
- Re-stock and refill ink and paper as needed

Electrode Guide

Proper Placement of 12 Lead ECG

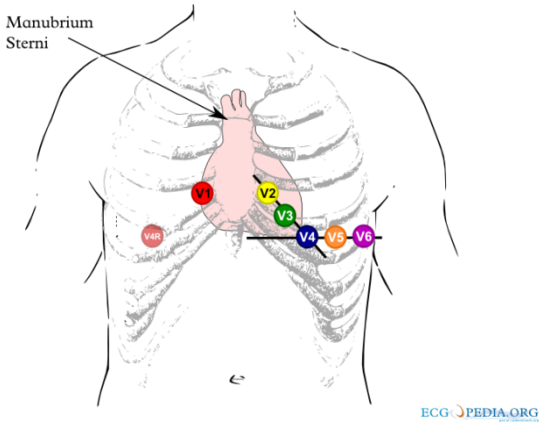
For the 4 extremity electrodes placement:

- L or LA is placed on the left arm
- R or RA is placed on the right arm
- N - neutral, on the right leg (= electrical earth, or point zero, to which the electrical current is measured)
- F - foot, on the left leg
- It does not matter whether the electrodes are placed on the bottoms or tops of extremities, but be consistent. Place electrodes in similar spots on extremities. (eg. do not attach an electrode on the left shoulder and one on the right wrist). Also, avoid bony parts such as elbows or knees.



For the 6 chest electrodes placement:

- V1 is placed to the right of the sternum in the 4th intercostal space.
- V2 is placed to the left of the sternum in the 4th intercostal space



- V3 is placed between V2 and V4
- V4 is placed in the 5th intercostal space on the nipple line. Place V4 beneath the breast in women.
- V5 is placed between V4 and V6
- V6 is placed in the midaxillary line on the same height as V4 on the horizontal line from V4 (not necessarily in the 5th intercostal space)

Common lead misplacements:

- Right and left arm electrode reversal
- Right leg and right arm electrode reversal
- Left arm and left leg electrode reversal
- Right arm and left leg electrode reversal
- Left arm and right leg electrode reversal

To make replacement ECG pads:

Materials
1. Bottle caps
2. Nickel-plated brass sewing snap buttons, size 3
3. Flathead screwdriver
4. Utility knife (boxcutter, X-Acto or another sharp-bladed, small knife)
5. Pot, water and a stove
6. Optional: tweezers/forceps

Steps
1. Boil the bottle caps in water for 30 minutes.
2. Peel off the lining. Start the peel by prying an edge off with the screwdriver, then carefully pull the rest out with your fingers or with tweezers or forceps. Take care not to rip the lining during this process. If the lining is too hard to remove, heat the cap in the water again.
3. Make an "X" in the center of the lining, about 1cm big.
4. Insert a size-3 nickel-plated brass sewing snap into it.
5. Trim the tiny corners of plastic from the edge of the button nub.

To make ECG conductive gel:

Materials
1. Water, one cup
2. Salt, two tablespoons
3. Flour, one cup
4. Bleach

Steps
1. Mix the water and salt.
2. Slowly pour in the flour. The mixture will become gelatinous. Mix it until it the consistency is the same.
3. Add a drop of bleach (to make the gel sterile).

Proper skin preparation:

1. Shave body hair before application, if in excess.
2. Avoid placing electrodes on any burn or scar tissue.
3. Make sure electrodes have some sort of conductive gel between skin and metal contact.
4. Make sure electrode is firmly attached to skin. Apply tape, if necessary.
5. If steps 1-4 struggle, use a light skin abrasive such as sand paper.
6. Reapply conducting gel every couple of hours to avoid skin irritation and loss of signal.