

ECG

I. KNOWLEDGE

1. States purpose and indications of ECG.

Purpose:

- is to record heart's electrical activity, revealing its rate, rhythm and overall health to diagnose heart problems like heart attacks, arrhythmias.
- Cardiac clearance for surgery.

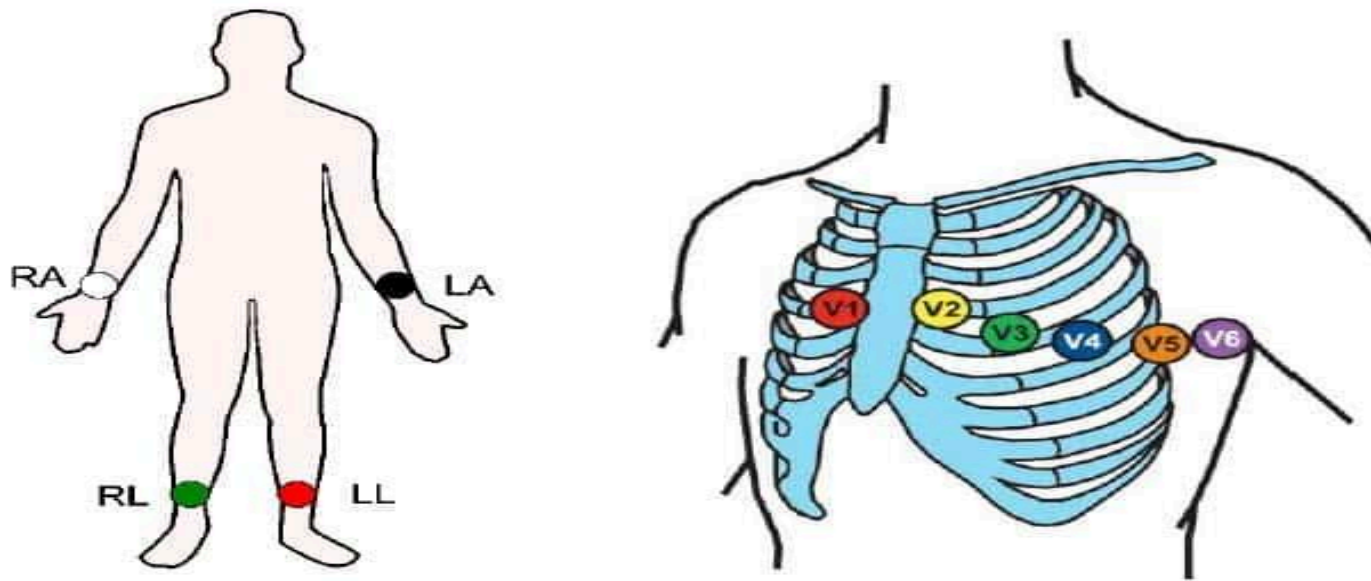
Indication:

- chestpain
- dizziness
- fainting
- palpitations
- shortness of breath
- abdominal pain

2. Identifies parts and functions of ECG machine.

- **Electrodes:** small sensors placed on the skin (chest, limbs) to detect the heart's electrical impulses.
- **Lead wires/Cables:** connect electrodes to the machine, transmitting signals
- **Amplifier:** boost the very faint electrical signals from the heart for clearer recording
- **Processor/CPU:** analyzes the digital data, calculates heart rate and identifies patterns.
- **Display Unit and Printer:**
 - produces a hard copy (tracing)
 - (monitor/Screen: shows the waveforms (P, QRS, T) in real-time

3. Explains correct lead placement and rationale.



RA – right forearm or wrist

LA – left forearm or wrist

LL – left lower leg, proximal to ankle

RL – right lower leg, proximal to ankle

V1 – 4-th intercostal space, right sternal edge

V2 – 4-th intercostal space, left sternal edge

V3 – midway between V2 and V4

V4 – 5-th intercostal space, mid-clavicular line

V5 – anterior axillary line in straight line with V4

V6 – mid-axillary line in straight line with V4 and V5

Figure 23: 12 leads resting ECG electrode placement

4. Identifies safety precautions and infection control.

- Reusable use of ecg (touching cable wires, bulbs) may carry bacteria such as MRSA (Methicillin Resistant Staphylococcus Aureus) from patient to patient, posing risks especially near surgical sites like sternums after heart surgery.

- **INFECTION CONTROL (EQUIPMENT & HYGIENE)**

- Hand Hygiene
- Use single-use electrodes leads if possible
- Clean reusable equipment
- Avoid fluid immersion
- Inspect equipment
- Segregation
- Consider airborne/Contact precaution

II. SKILL

1. Introduces self and role to patient. Builds trust and rapport. “Good morning, I’m [Name], a student nurse, and I’ll be performing your ECG today.”
2. Performs proper hand hygiene. Prevents infection transmission.
3. Identifies patient correctly. Ensures safety and accuracy. “May I confirm your full name and birthday please?”
4. Explains procedure clearly. Reduces anxiety, promotes cooperation. “This test records your heart’s electrical activity. It’s painless and will only take a few minutes.”
5. Provide privacy and ensure comfort. Maintains dignity and relaxation.

- 6.** Prepares ECG machine and supplies. Ensures readiness and efficiency.
- 7.** Checks paper, leads, and electrodes. Prevents technical errors.
- 8.** Ensures electrical and patient safety. Prevents hazards
- 9.** Position patient correctly (supine). Standard position for accurate tracing. “Please lie flat on your back and relax your arms and legs.”
- 10.** Performs proper skin preparation. Improves electrode contact.
- 11.** Correct limb lead placement. Ensures accurate recording.
- 12.** Correct chest lead placement (V1-V6). Captures heart’s electrical activity from different angles.

13. Obtains clear, artifact-free ECG tracing. Provides reliable results. “Please stay still and breathe normally while the recording is taken.”

14. Remove ECG leads gently & properly. Prevents discomfort

15. Cleans patient's skin and provides comfort. Maintains hygiene and comfort.

16. Labels ECG strip accurately (name, date, time). Ensures correct patient record.

17. Documents procedure appropriately. Provides legal and clinical record.