



Clinical Practice Procedures: Cardiac/Cardiac monitoring

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Date	June, 2019
Purpose	To ensure a consistent procedural approach to cardiac monitoring.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
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Continuous **cardiac monitoring** records the electrical activity of the heart as an electrocardiogram (ECG) both on the monitor screen and on printed ECG paper.

Cardiac monitoring is indicated for the identification of potentially lethal dysrhythmias and to provide real time feedback to clinicians regarding the electrical activity of the myocardium.

ST segment analysis via the monitor screen is unreliable, and may be distorted. Therefore ST segment analysis for the purpose of determining AMI must be performed using a printed ECG that has been acquired at diagnostic frequencies. **Note:** *The VF/VT alarm should always be turned on.*

Indications

Cardiac monitoring is essential in the following patient groups, though not limited to:

- All unconscious patients or collapse patients
- Recently unconscious patients
- Poisoned patients
- Patients presenting with chest pain or dyspnoea
- Patients who are poorly perfused/shocked
- Patients with hypoxia or with abnormal vital signs
- When a medical officer requests the patient to be monitored
- Patients suffering a cardiac arrest (may be monitored through defibrillation pads)

Contraindications

- Nil in this setting

Complications

Be aware of potential artefacts in the ECG from:^[1]

- Detached electrodes due to diaphoresis, oily skin, or chest hair
- Patient movement, breathing, muscle tremor or lead movement
- AC electricity/50 hertz interference
- Broken cable tip, wire or machine malfunction
- Dry electrode conductive gel

Note: *If the patient's condition progresses into cardiac arrest, any electrodes impeding the proper application of the defibrillator pads must be removed.*

Procedure – Cardiac monitoring

1. Explain to the patient the procedure, obtain consent and ensure privacy where possible.
2. Clean the surface of the skin to ensure monitoring electrodes will adhere.
3. It may also be necessary to:
 - Shave the chest hair if necessary
 - Prepare the skin by removing oil or moisture where able.
4. Inspect the monitoring electrode pad to ensure that the surface is sufficiently adhesive.
5. Attach the electrodes to the monitoring leads.
6. Remove the backing of the electrode and apply to the patient's skin.
7. Smooth the electrode from one edge to the other to ensure a correct application.
8. The monitoring electrodes for the limb leads are generally placed distally on limbs (*distal placement*). Where reduction in motion artefact and electrical interference is required it is acceptable to place all the limb electrodes proximally (*proximal placement*), as follows:
 - **LA** (*black*) and **RA** (*white*) electrodes are placed proximally on the arms but not on the torso
 - **LL** (*red*) and **RL** (*green*) electrodes are placed proximally, but no higher than the iliac crest.

