

Electrocardiogram (ECG) in Children

Presentations that may trigger the need for an ECG include syncope, chest pain, shortness of breath, abnormal heart rate or rhythm, diagnosis and management of Kawasaki disease, rheumatic fever, congenital heart disease and electrolyte abnormalities. ECGs may also be conducted where there is concern for congenital cardiac abnormalities.

1 GATHER EQUIPMENT

Gather ECG machine and ECG electrode stickers.



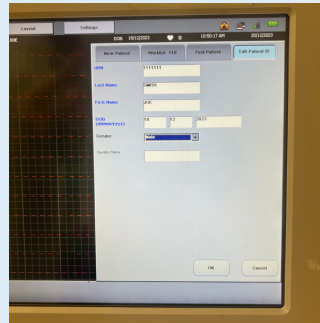
2 PREPARE

Explain the procedure and gain verbal consent.



3

Enter patient demographics into ECG machine.



4 PROCEDURE

Position the child supine or reclined with access to the chest and limbs. Provide a blanket and ask the child (or caregiver) to remove or lift their shirt.



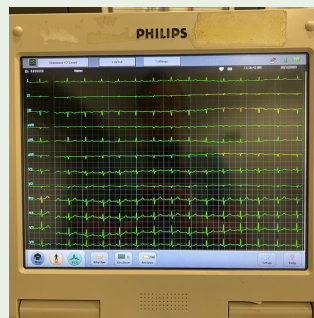
5

Attach cords to corresponding electrode. See diagram on page 2 for placement details.



6

Capture ECG when the child is lying quietly and there is a clear trace with minimal artefact.



7

Have ECG reviewed by medical officer. You may choose to leave electrodes in place.



8

Post review remove cords and electrodes. If the electrodes are particularly sticky, you may choose to use adhesive removal wipes to assist.

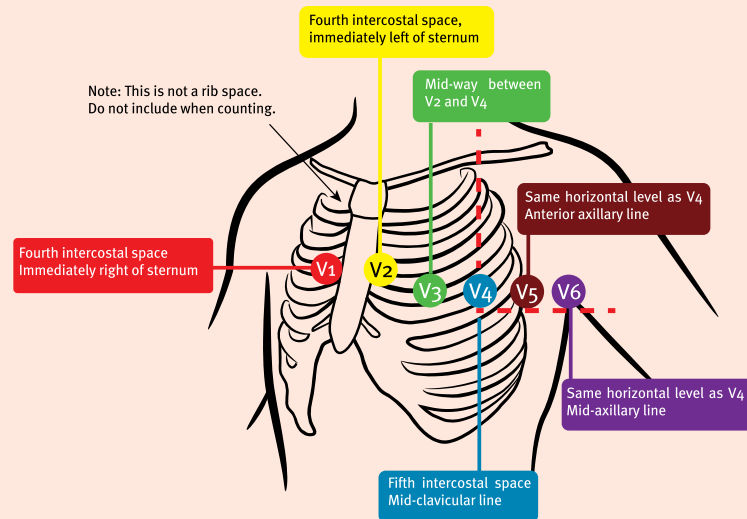


ALERT

Ensure the patient demographics are correct. Some ECG machine models retain patient data from a previous patient. Be sure to check the patient information screen for each new patient. Data assigned to the wrong patient can adversely affect diagnosis and treatment.



ECG Electrode Placement



Paediatric Tips

Involve caregivers of younger children by asking them to prepare for the procedure by making it fun. Examples of playing the game 'still like a statue' are helpful for younger children. Older children are often interested in the ECG being a 'picture drawn by their heart'. Strategies to keep the child still will minimise artefact, when you are capturing the ECG.

Younger children may prefer to sit with their caregiver during the process of obtaining the ECG.

Lead Placement Tips

- When counting the intercostal spaces down from the clavicle, ensure not to include the small space between the clavicle and the first rib. This small space is not the first intercostal space.
- When recording an ECG on older female children, leads V1–V3 should be placed in the standard positions, while it is recommended that leads V4–V6 chest electrodes are placed beneath the left breast where the breast tissue meets with the chest.

For further information:

[CHQ Paediatric ECG Checklist](#)

References:

Darling Downs Hospital and Health Service. (2021, July 7). 12 Lead electrocardiography (ECG). Accessed October 18, 2023 from https://qheps.health.qld.gov.au/__data/assets/pdf_file/0015/424122/3-02-008.pdf

Hockenberry, M.J. & Wilson, D. (2018). Wong's Nursing Care of Infants and Children (11th Ed.) Chapter 27: In The Child With Cardiovascular Dysfunction. pp962-963. Elsevier, St. Louis.

Queensland Health State-wide ED Nurse Educator Committee, Lucas, L., Opie, A., Ruff, C., Booker, C., Armit, L, QEDSAP, HIU. (Eds.) (2021). In Queensland Health: Transition Support Program - Emergency. Module 2 - Paediatric Care in the Emergency Department (5th ed.). State of Queensland (Queensland Health).

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- Providing care within the context of locally available resources, expertise, and scope of practice.
- Supporting consumer rights and informed decision making in partnership with healthcare practitioners including the right to decline intervention or ongoing management.

- Advising consumers of their choices in an environment that is culturally appropriate and which enables comfortable and confidential discussion. This includes the use of interpreter services where necessary.
- Ensuring informed consent is obtained prior to delivering care.
- Meeting all legislative requirements and professional standards.
- Applying standard precautions, and additional precautions as necessary, when delivering care.
- Documenting all care in accordance with mandatory and local requirements.

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