



GUIDELINE

SUBJECT: ECG investigation in NICU

DOCUMENT NUMBER: JHCH_NICU_13.01

DATE DEVELOPED: June 2007

DATES REVISED: Feb 2013

DATE APPROVED: May 2013

REVIEW DATE: May 2017

DISTRIBUTION: Neonatal Intensive Care Unit John hunter Children’s Hospital

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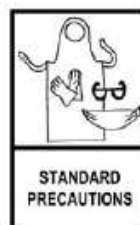
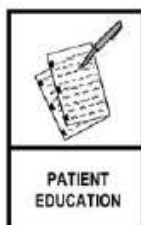
NICU Executive

KEYWORDS: artefacts, ECG (electro-cardiogram), electrodes, neonatal, precordial, trace

Disclaimer:

It should be noted that this document reflects what is currently regarded as a safe and appropriate approach to care. However, as in any clinical situation there may be factors that cannot be covered by a single set of guidelines, this document should be used as a guide, rather than as a complete authoritative statement of procedures to be followed in respect of each individual presentation. It does not replace the need for the application of clinical judgment to each individual presentation.

S.W.P.



Performing an ECG:- One Page summary and Checklist

(Ctrl+Click on [Coloured](#) words to jump to that section)

Staff

Performed by cardiology technician in work hours	<input type="checkbox"/>
Request form required	<input type="checkbox"/>
Performed by NICU staff out of hours	<input type="checkbox"/>
No request form required	<input type="checkbox"/>

Machine

Kept in Coronary Care JHH

[Procedure](#)

Leads	<input type="checkbox"/>
Attach chest leads V1, V2, V3, V5, V6 . Place V4 on the right as V4R	<input type="checkbox"/>
Attach limb leads correctly	<input type="checkbox"/>
Turn on machine	<input type="checkbox"/>
Enter patient details in machine	<input type="checkbox"/>
Wait till baby settles	<input type="checkbox"/>
Press enter and print ECG	<input type="checkbox"/>
Turn off machine	<input type="checkbox"/>
Remove leads	<input type="checkbox"/>
Return machine to CCU	<input type="checkbox"/>

Problems

See [Trouble shooting](#)

Rationale:

For clinical reasons such as arrhythmias a formal ECG is sometimes required on a neonate. It is preferable that the Cardiology technician carries out the ECG but in the absence of the technician the ECG can be performed by the medical staff or neonatal nurse caring for the baby.

Outcomes:

The aim is for the ECG to be carried out at a timeframe suitable for the neonate.

The request:

A request form is required when the formal ECG is to be performed by the Cardiology technician; however no request form is required when the neonatal nurse is carrying out the ECG tracing.

The paperwork:

See page 5. Instructions for the ECG machine (found with ECG machine). It is important that the correct details are recorded on the ECG machine in order for the trace to be reviewed by available Cardiologist.

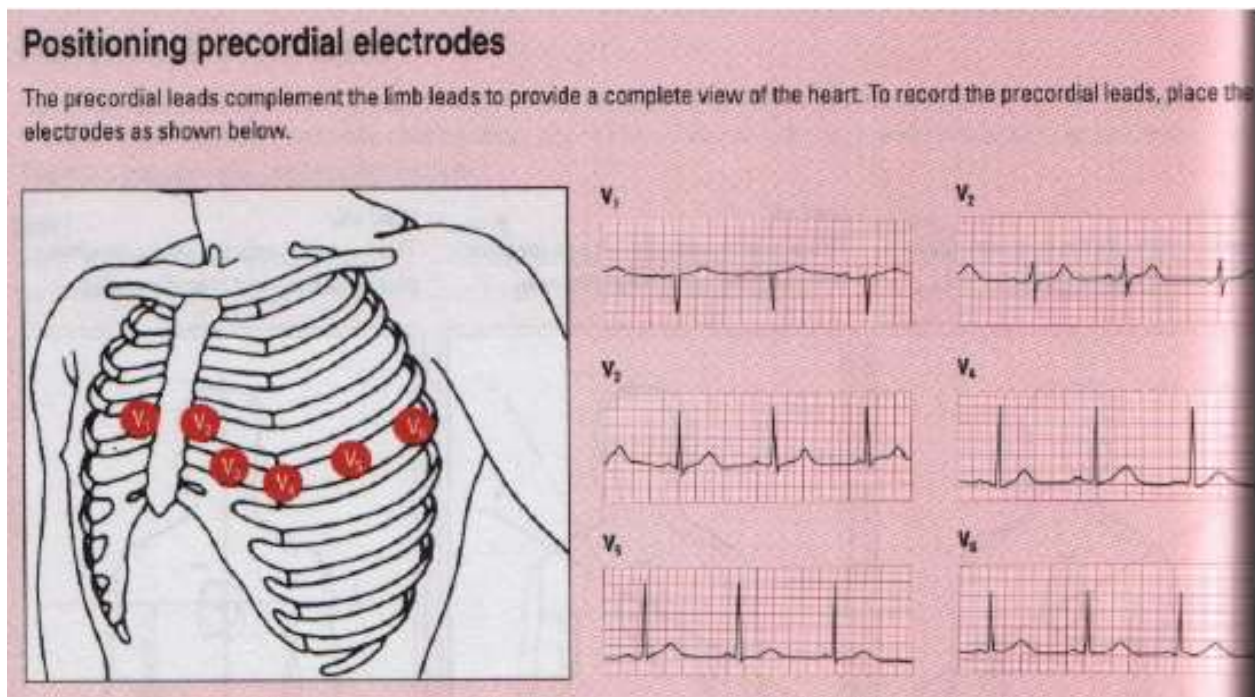
Location of ECG machine:

The machine is located in Coronary care on Level 3 John Hunter Hospital. Leads are with the ECG machine.

The procedure:

[Top](#)

Positioning of electrodes is demonstrated below for the adult. For neonates positioning is the same except for the V4 lead, which is placed on the right side. Electrode discs may need to be cut in half for the neonate.

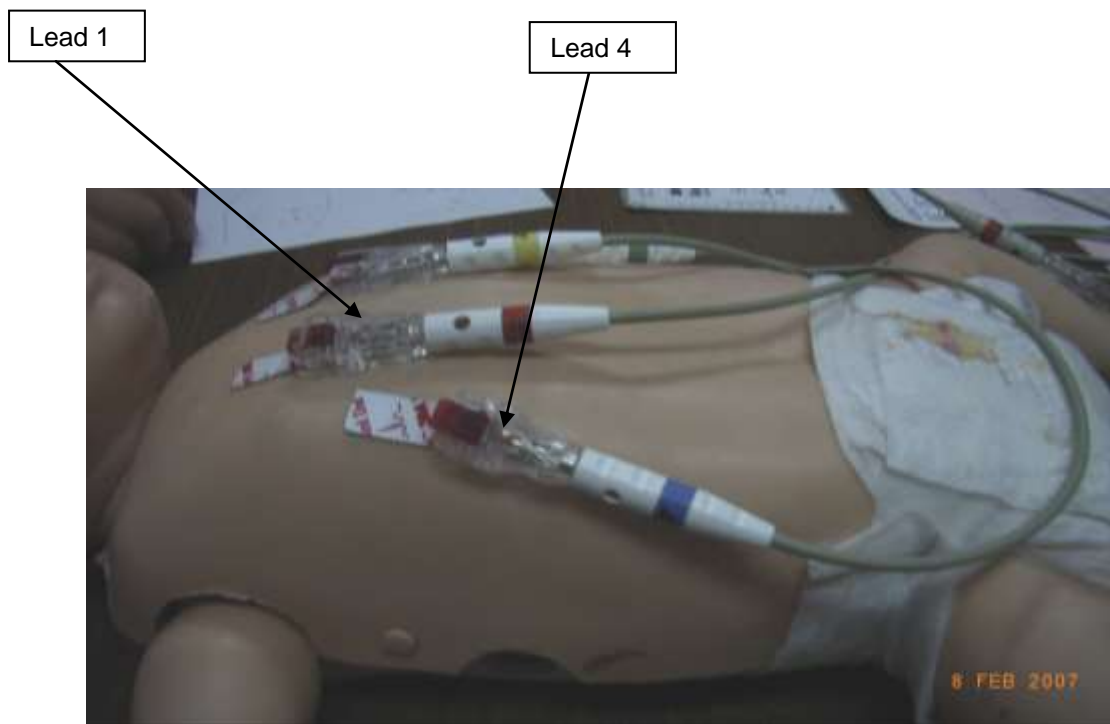


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This is demonstrated on the following page.

Neonatal positioning of leads on chest

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Neonatal positioning of leads on limbs



The limb leads are placed as above with the lower limb leads heading up the way as demonstrated.

V1 (Red lead) fourth intercostal space at the right sternal border	Limb leads- wrist and ankle inner aspect preferred These are longer than the other leads.
V2 (Yellow) fourth intercostal space at the left sternal border	Right arm- (White) Right deltoid or wrist
V3 (Green) mid-way between V2-V4	Right leg – (Green) Right thigh or ankle
V4 (Blue) fifth intercostal space at right midclavicular line	Left arm - (Black) Left deltoid or wrist
V5 (Orange) Anterior axillary line on same horizontal level as V4	Left leg - (Red) Left thigh or ankle.
V6 (Maroon) Mid –axillary line on same horizontal level as V4 + V5	

The picture below should be used as a guide.



To use the ECG machine, once you have placed the leads follow instructions below:

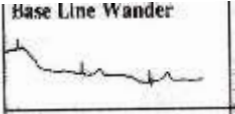
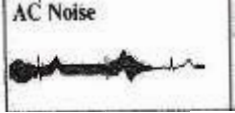
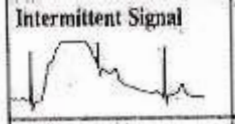
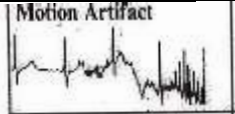
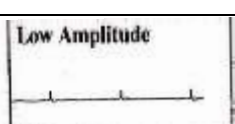
- 1) Turn on
- 2) Enter ID (arrow across top)
- 3) Enter details and complete comment section
- 4) ECG – wait until settled
- 5) Press Enter
- 6) Print ECG. This will store data for review and reporting.
- 7) Turn machine off
- 8) Return machine to Coronary care unit

Trouble shooting:

Unsettled baby- can be wrapped up to settle

If difficult to obtain trace move leg leads to the abdomen/ arm to shoulder.

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Artefacts	Skin impedance	Muscle movement	Electrical continuity	Electrodes	Cabling	Interference	Equipment
<u>No base line</u>			Check all connections perform continuity check	Check for dry out	Check for probe cable		Check lead switch and ECG machine set up
	Abrade skin	Stop patient movement	Check ground connection	Use same type of electrodes all sites	Check for probe cable	Check for static build up	
	Abrade skin	May be untreatable/ involuntary muscle tremor	Check ground connection	Check for dry out	May need fully shielded cable and lead wires	Keep cable away from AC cord	Turn of fluoro lights/and/or other equipment
			Check for loose connections	Check for loose electrode Check for dry out	Perform continuity check	Check for static build up	
	Abrade skin	Move electrodes off muscle mass	Check for loose connections	Check for loose electrode Check for dry out	Perform continuity check	Turn of fluoro lights/ and/or other equipment	Check set up
	Abrade skin		Ensure electrodes are parallel to electrical axis	Check for dry out		Turn off radio/TV	Check gain setting

REFERENCES;

ECG interpretation made incredibly easy (1997) M.L.Ambrose., E. Mauro., J. Nash., & D. Sinovic –Editors. Library of Congress-in-publication data. ISBN 0-87434-887.

RELATED LEGISLATION:

DEPARTMENT OF HEALTH CIRCULARS:

AREA POLICIES: GNAH 0059: Chest pain management >18 years 2010

ACKNOWLEDGEMENTS:

APPENDIXES:

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APPROVED BY: NICU Management Executive Committee April 2013