

# Paediatric Intensive Care Unit

## Atrial ECG UHL Paediatric Intensive Care Guideline

Staff relevant to:	Staff working within UHL PICU
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### 1. Introduction

Postoperative arrhythmias, especially those of supraventricular origin, are a common complication after cardiac surgery. However, in tachycardic or broad QRS complex arrhythmias, the p wave on the standard 12-lead ECG may be obscured, making evaluation of atrial activity difficult.

Atrial ECGs record cardiac activity directly from the surface of the atrium via temporary pacing wires, providing a distinct spike representing atrial depolarisation. In conjunction with conventional surface ECGs, atrial ECGs offer a quick method of clarifying ambiguous rhythms, allowing for appropriate diagnosis and management.

## **2. Indications**

An atrial ECG should be considered in any post-operative patient who develops a tachycardia in which there are concerns about atrial activity, particularly those in which:

- ✓ Atrial depolarisation is not clearly visible on a standard surface ECG
- ✓ The relationship between atrial and ventricular electrical activity is unclear
- ✓ Wide QRS complex rhythms need to be defined (e.g., distinguishing ventricular tachycardia from supraventricular tachycardia with a bundle branch block or aberrant conduction)
- ✓ Clarification of tachyarrhythmia's with a narrow QRS complex is needed when the arrhythmia mechanism is unclear

Note: Pacing wires should not be disconnected from an unstable patient who is reliant on temporary pacing. If unsure, discuss with the intensivist on call.

## **3. Methods**

Attach the 4 limb leads to a standard 12-lead ECG machine as normal

Attach any one of the atrial pacing wires to the V2 lead

Select a 3-lead mode, choosing leads I, aVF and V2

Start a manual print-out, pressing stop when desired length is reached

Lead V2 will show the atrial ECG, with I and aVF available for comparison

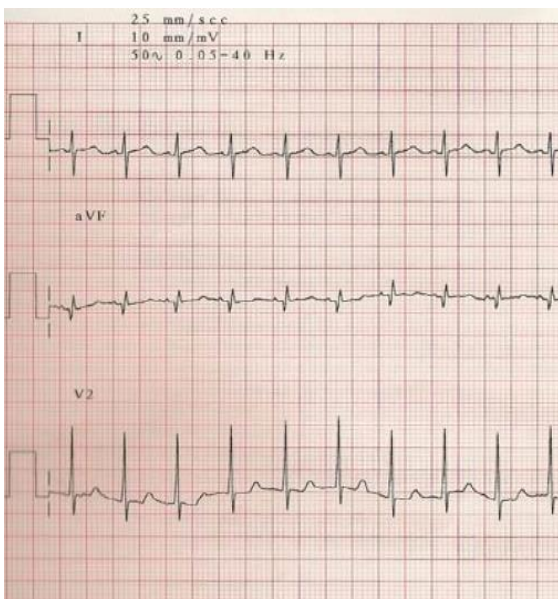
## **4. Safety**

Principles of general electrical safety apply with the use of temporary invasive pacing.

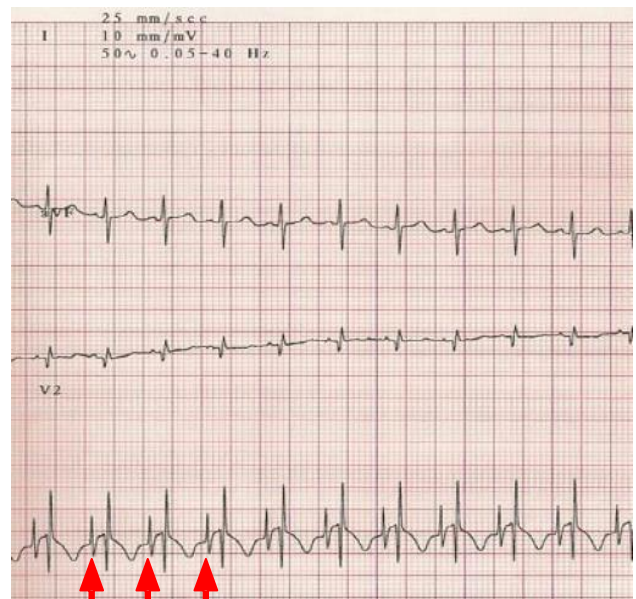
Gloves should always be worn when handling pacing electrodes to prevent micro-shock because even small amount of electrical current can cause serious dysrhythmias if transmitted to the heart.

## **5. Example ECGs**

Standard (3-lead) ECG

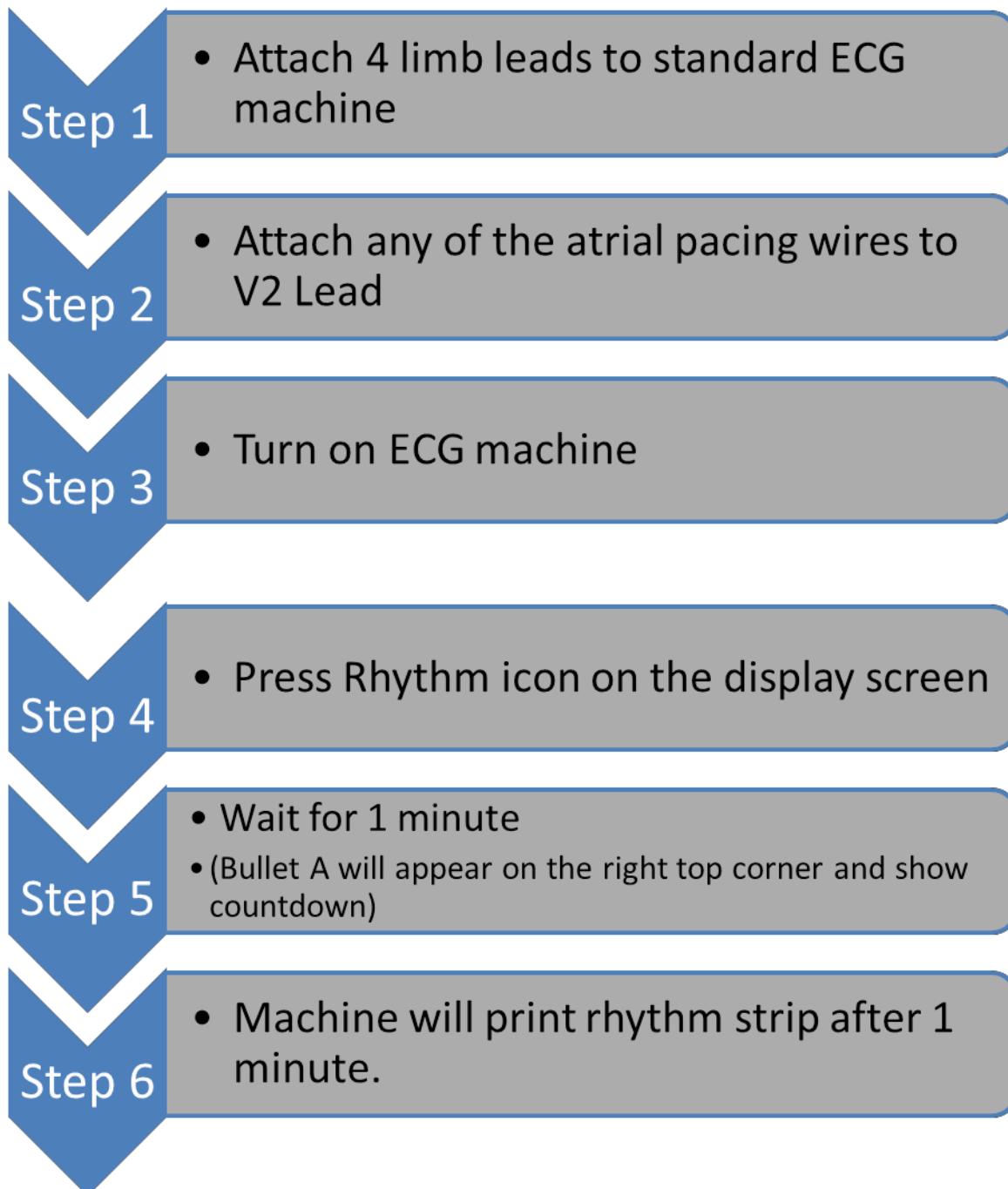


Atrial ECG (V2 = atrial)



Atrial spikes

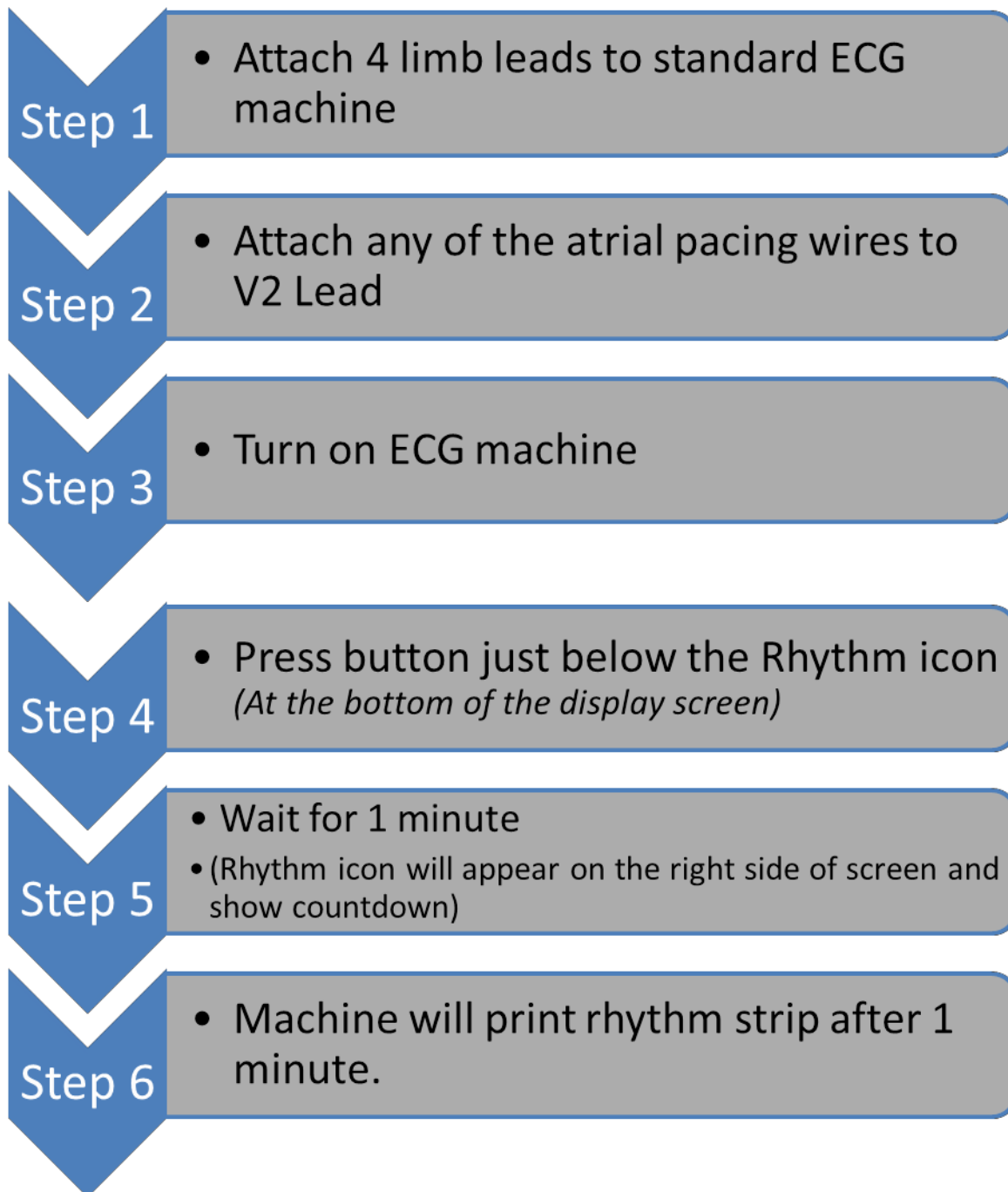
# A GUIDE TO ATRIAL ECG (WARD 1)



Conventionally wires coming out from right side of sternum are Atrial Pacing wires. Always put on gloves while performing atrial ECG. Never touch pacing wires without wearing gloves.

If child is reliant on temporary pacing Discuss with Intensivist.

# A GUIDE TO ATRIAL ECG (PICU)



Conventionally wires coming out from right side of sternum are Atrial Pacing wires. Always put on gloves while performing atrial ECG. Never touch pacing wires without wearing gloves.  
If child is reliant on temporary pacing Discuss with Intensivist.

## **6. Education and Training**

Training and raising awareness are on-going processes. On-going awareness is promoted through the induction and continuous bedside teaching. Training is provided for medical staff during lunchtime teaching (Wednesdays) and other sessions, and at junior doctors' induction training. Nursing education is supported by the Practice Development teams, and nursing educators.

## **7. Monitoring Compliance**

None currently identified

## **8. Supporting References**

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## **9. Key Words**

Arrhythmias, Atrial, Electrogram, ECG, Epicardial Pacing

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**The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs. As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.**

<b>CONTACT AND REVIEW DETAILS</b>	
<b>Guideline Lead (Name and Title)</b> Atika Iqbal – Higher Specialty Doctor	<b>Executive Lead</b> <b>Chief Medical</b>
<b>Details of Changes made during review:</b>  Ward 30 changed to ward 1	