



## GUIDELINE

# Cardiac Murmur

<b>Scope (Staff):</b>	Nursing, Midwifery and Medical Staff
<b>Scope (Area):</b>	KEMH Postnatal Wards

### Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this [disclaimer](#)

## Aim

To provide information to Neonatology staff members to manage a neonate detected to have a cardiac murmur.

## Risk

Increased risk of missing a serious congenital cardiac condition if managed inappropriately.

## Congenital Heart Disease (CHD)

Congenital Heart Disease (CHD) affects around 1% of newborns, but paradoxically the more serious lesions including duct dependent lesions do not always have physical signs on the first day of life, whereas small lesions such as a small VSD which will have no clinical significance may have abnormal signs. Antenatal ultrasound (US) will diagnose around 50% of cases of CHD, and physical examination diagnoses another 25%, leaving around 25% undiagnosed.<sup>1</sup>

Risk factors for congenital heart disease include:

- Maternal diabetes (increases risk 2-3 times)<sup>2</sup>.
- Other syndromes / dysmorphic features.
- Extra cardiac congenital anomalies esp. renal, GIT, orthopaedic.
- TORCH infection.
- Family history (first degree relatives).

## Cardiac Assessment of all Babies

Cardiac assessment is an important part of the newborn examination which includes:

- Assessment of colour for cyanosis or pallor.
- Assessment of peripheral pulses including femoral pulses (absent femoral pulses requires immediate senior review) including rate and regularity.
- Assessment of the precordial impulse for heave or thrill, displaced apex beat.
- Auscultation for normal heart sounds and murmur.
- Predictors of congenital heart disease - harsh murmur quality, and timing (diastolic or continuous)<sup>3</sup>.

### Innocent murmurs

Features associated with innocent murmurs include the following:

- Grade  $\leq 2$  intensity – Flow murmurs and innocent Still murmur are usually grade 1 or 2 in intensity.
- Softer intensity.
- Short systolic duration (not holosystolic, not diastolic).
- Minimal radiation – The murmur is in a limited region of the precordium.
- Musical or vibratory quality.

Review of the respiratory system and of liver size to assess for signs of cardiac failure (although rare in the newborn).

## Cardiac Murmurs Management

[See Quick Reference Guide](#)

Murmurs are common in neonates (2-4%), and often resolve over the first few days of life.<sup>1</sup> Approximately 50% of murmurs are pathological with the most common neonatal murmur being pulmonary branch stenosis which usually resolves during the first few months of life.<sup>4</sup>

- **Oximetry** should be applied immediately to any baby noted to have a murmur. The presence of central cyanosis or hypoxaemia ( $\text{SaO}_2 < 90\%$ ) require immediate review by a Paediatric consultant or senior registrar and admission to SCN for further management. Measuring oximetry in the upper limbs and lower limbs is essential as differential Sats ( $> 5\%$ ) may suggest ductal dependent lesions such as arch obstruction, even in the absence of typical signs (murmur, diminished or absent femoral pulses, acidosis).
- **ECG:** There is minimal benefit from performing an ECG's in the diagnosis of a murmur.<sup>5, 6, 7, 8, 9</sup> This may be done on a case by case basis at the request of a senior doctor. An ECG with rhythm strip should be performed in all cases where rhythm disturbance is suspected.

- **CXR:** Most studies show no benefit in diagnosis of murmur<sup>6, 7, 8, 9</sup> and as such, is not part of the routine assessment of a child with a murmur. A CXR can be useful in a symptomatic neonate to exclude respiratory disease and will be performed in such situations.
- **Echocardiogram:** An echocardiogram is the gold standard investigation for investigation of structural cardiac disease when performed by an expert in the field. At KEMH, all children presenting with a murmur with a suspicion of congenital heart defect should be referred to the Senior Registrar/Consultant Neonatologist at KEMH.
  - The Senior Registrar/Consultant Neonatologist can then discuss the infant with the On-call Paediatric Cardiologist at PCH regarding appropriate management.

Most murmurs, with normal oximetry ( $\text{SaO}_2 \geq 95\%$ ) and no abnormal clinical signs do not require urgent referral and echocardiography.

If the murmur is loud, oximetry is abnormal, or there are other signs (abnormal HS, thrill) then echocardiography may be performed prior to discharge from KEMH (at the discretion of the on-call Paediatric Cardiologist) or arrangements made for a Paediatric Cardiology outpatient clinic appointment within one month.

Any baby with cyanosis, shock, failure or absent femoral pulses should be transferred to SCN and urgent Paediatric Cardiology referral requested.

Cardiac Murmur – [Information and Follow-up Letter](#)

## References

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Document Owner:	Neonatology		
Reviewer / Team:	Neonatology Coordinating Group		
Date First Issued:	August 2011	Last Reviewed:	October 2022
Amendment Dates:		Next Review Date:	November 2025
Approved by:	Neonatology Coordinating Group	Date:	22 <sup>nd</sup> November 2022
Endorsed by:	Neonatology Coordinating Group	Date:	
Standards Applicable:	NSQHS Standards:  Child Safe Standards: 1,10		

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Appendix 1 - Cardiac Murmur – QRG

