

# NEONATAL GUIDELINES

Postnatal Cardiology Guidelines Version 2018.4.3

| Specialty:       |  |  |
|------------------|--|--|
| Revision date:   |  |  |
| Revised by:      |  |  |
| Edited by:       |  |  |
| Approved by:     |  |  |
| Date Approved:   |  |  |
| Date Implemented |  |  |
| Date for Review: |  |  |

Neonatal Medicine 26<sup>th</sup> May 2020 amended 7<sup>th</sup> Feb 2022 Dr. Jamie Evans Dr. Jamie Evans Perinatal Forum March 2020 March 2020 31<sup>st</sup> October 2022

# **Directorate of Child Health**

# Checklist for Clinical Guidelines being submitted for Approval by SBUHB Perinatal Forum

| Title of Guideline:  | Postnatal ward guidelines   |
|--|---|
| Name(s) of revising author(s):   | Dr Sujoy Banerjee, Dr. Geraint Morris, ANNP Gemma<br>Davies and Steph Cannell |
| Chair of Group or Committee supporting submission:                               | Perinatal Forum – Dr Sujoy Banerjee   |
| Issue / Version No:  | Postnatal ward guidelines v2018.4.3   |
| Next Review / Guideline Expiry:  | 31 <sup>st</sup> October 2022   |
| Details of persons included<br>in consultation process:                          | Neonatal Consultants, Neonatal junior doctors,<br>Nursing Managers, Midwives  |
| Brief outline giving reasons<br>for document being submitted<br>for ratification | Addition of the pathway for management of right sided<br>Aortic Arch          |
| Name of Pharmacist<br>(mandatory if drugs involved):                             | Katherine Wilson  |
| Please list any policies/guidelines this document will supercede:                | Postnatal ward guidelines 2018.4.2  |
| Keywords linked to document:   | Postnatal, Cardiology   |
| Date approved by ABMU<br>Perinatal Forum:  | October 2020  |

Changes made in this revision:

1. Changes made to the referral process for postnatal ward heart murmurs

## Contents

| Management of a Newborn with a Heart murmur                          | 4  |
|--|----|
| Pulse Oximetry screening in the postnatal period                     | 5  |
| Babies Presenting with Absent Femoral Pulses in the postnatal period | 9  |
| Siblings of children with complex congenital heart disease           | 10 |
| Ectopic beats in neonates  | 11 |
| Guideline for Management of Antenatal Finding of Right Aortic Arch   | 12 |

## Management of a Newborn with a Heart murmur

Heart murmurs are common in the first 48 hours of life. This is mostly due to physiological circulatory changes at birth i.e. closing PDA, transient TR. A small proportion of babies will have significant congenital heart disease that may or may not have a heart murmur. Therefore it is the associated symptoms and signs that dictate the course of management in these babies



## Pulse Oximetry screening in the postnatal period

- Use the portable saturation monitor.
- Clean the probe with a disinfectant wipe prior to use
- Explain to the mother that this is part of the routine 'baby check'.

### Saturation measurement

- Ensure that peripheries are warm, and well perfused before readings are taken.
- Both the pre-ductal (right hand) and the post-ductal saturations should be recorded.
- There is evolving evidence that measuring both the pre and post ductal saturations will pick up >70% congenital heart disease.
- Apply the saturation probe to the infants right hand and record the saturations
- Apply the saturation probe to either of the infant's feet, to measure the **postductal** saturation.
- Ensure probe applied adequately, and wait until flashing lights on both sides of the LED screen have reached the highest level they will go, before recording the saturation reading.
- If the pre and postductal measurements are greater than 95% and there is less than or equal to 3% difference between them then no further measurement is necessary – this is a NORMAL SCREEN

#### Normal saturation readings

Normal postductal saturation readings should be equal to or above 95%. The pre and postductal saturation difference when measured should not be greater than 3%.

## Abnormal readings

1. In a well baby, with an otherwise normal examination:

If any saturation measurement is less than 95% **OR** If the difference between the two sites is 3% or more

- Repeat both saturation measurements in 1 hour (the measurements can be repeated twice, 1 hour apart see algorithm)
- Explain to mother you will return to re assess baby & saturation reading. Normal readings should be equal to or above 95%, with a difference of no more than 3% between pre and postductal saturation. Once achieved, baby may be discharged.

Postnatal Cardiology Guidelines

- 2. If on the repeat assessment, the saturation readings are still abnormal
  - Inform your senior colleague
  - Reassess baby
  - Look for respiratory distress
  - Repeat full cardiovascular examination
  - General exam looking for signs of sepsis
  - Are there any risk factors for PPHN
  - If on re-assessment baby is unwell, arrange admission or transfer to NICU.
  - If all other findings are normal, arrange echo within the next 24 hours. Baby must have an echo before discharge from hospital, unless in the meantime the saturations normalise on a 3rdreading.
  - On weekends, the consultant on call must be informed and a decision made about discussion with the on call Cardiologist at UHW.
- Any baby, whose saturation readings are below 90% .AT ANY POINT should be urgently admitted to the neonatal unit for further assessment & management. Ensure the senior staff nurse on NICU is made aware of the imminent admission, and ensure safe transfer procedures are followed



#### <u>References</u>

- Impact of pulse oximetry screening on the detection of duct dependent congenital heart disease: a Swedish prospective screening study in 39 821 newborns. De-Wahl Granelli, A, et al. BMJ 2009;338:145 – 149
- Routine pulse oximetry in the asymptomatic newborn. Richmond, S, et al. Arch Dis Child Fetal Neonatal Ed 2002;87:F83 – F88
- Lessons Learned From Newborn Screening for Critical Congenital Heart Defects. Oster ME et al. <u>Pediatrics.</u> 2016 May;137(5).

# Babies Presenting with Absent Femoral Pulses in the postnatal period

- a. Symptomatic babies should be admitted to the Neonatal Unit for urgent management.
- b. Asymptomatic babies should have their upper limb pulses palpated and 4 limb blood pressures measured along with pre and post ductal saturations and be urgently reviewed by the neonatal middle grade or consultant. If absent pulse is confirmed, they should have <u>urgent</u> investigations including echocardiogram arranged. If in doubt, the infant should be admitted to the neonatal unit until all investigations are completed. <u>Under no circumstances</u>, such infants should be discharged home until a definitive diagnosis is reached or structural defects ruled out following investigations.

### Blue babies:

If ever in doubt check pre and post ductal saturations. If cyanosis is confirmed admit to NNU to ascertain underlying cause –respiratory/ cardiac

#### Slow Heart Rate:

A few well term babies will have HR below 100/min, particularly when they are in deep sleep. Most of these babies will spontaneously increase their HR >100/min when they are awake and stimulated. HR below 90/min is outside 2SD (Task Force of the European Society of Cardiology). Therefore, a persistent HR <90/minute in a well baby should be investigated with a 12 lead ECG to rule out heart block.

If heart block is present -

- Inform consultant
- Seek cardiology opinion
- Check mother's blood for anti-Ro and anti-La antibodies

## Siblings of children with complex congenital heart disease

If one sibling in a family is affected the risks of another child in a family being affected is in the order of 1-3% (the risk to offspring of a parent with congenital heart disease is greater than the risk to the siblings of an affected child).

## If there is a family history of congenital heart disease in previous sibling

- All babies should have thorough clinical examination and & pre/post ductal saturation measurements as normal. Check maternal notes for result of antenatal scan.
- b) If examination & saturations are normal, and antenatal ultrasound scan was normal, **no need for any follow-up reassure parents**
- c) If the clinical examination is **abnormal**, request for an urgent senior review and consider arranging for an inpatient echocardiogram

## **Ectopic beats in neonates**

In most cases the finding of "extra beats" in newborn babies is not significant. They are usually detected antenatally but can be picked up on routine examination of the newborn infant. They represent a developmental phenomenon and the vast majority disappear without any consequence in early infancy. A small proportion (<1- 2%) may go on to develop significant arrhythmias such as SVT. In general these extra beats are premature atrial complexes (PACs) but in a small number they are premature ventricular complexes (PVCs).

In a small proportion of cases, there is an underlying problem such as

- 1. Hypoxia
- 2. Metabolic disturbance acidosis / K+, Ca++ and glucose levels
- 3. Renal failure
- 4. Infection
- 5. Structural heart problem

A careful assessment of the baby needs to be undertaken:

- 1. History including maternal drug history
- 2. Examination any evidence of CVS abnormalities
- 3. Perform ECG prior to discharge, with calculation of QTc.

4. If baby is well and ECG normal, no further action is required.

If presence of PACs or PVCs is confirmed, check blood electrolytes, renal function, and glucose. The neonatal/midwifery team should observe for symptoms for 24 hours following birth (use NEWTTS observation chart). If the baby remains well and a repeat ECG on Day 2 or 3 of life shows only occasional PACs or PVCs, the baby can be discharged, with arrangements in place for early cardiac clinic review (3 to 4 weeks).

Rarely these babies may develop SVT; advise the mother that if the baby becomes unwell at any point, to seek medical attention.

# **Guideline for Management of Antenatal Finding of Right Aortic Arch**

The finding of a right sided aortic arch on antenatal ultrasound scans is a normal variant in most cases, but in a small proportion of cases, this can be associated with aberrant vessels, which may cause swallowing and/or breathing difficulties due to compression on the oesophagus or intrathoracic airways. There is also a slight association of isolated right aortic arch with chromosome 22q11 microdeletion (<10% risk) but this risk increases if there are other cardiac abnormalities (>20%).

