

PULSE OXIMETRY SCREENING OF NEWBORNS

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1. AIM

- Screening for oxygen saturation through the use of pulse oximetry monitoring to assess infant’s well-being

2. PATIENT

- Newborns

3. STAFF

- Medical and nursing staff

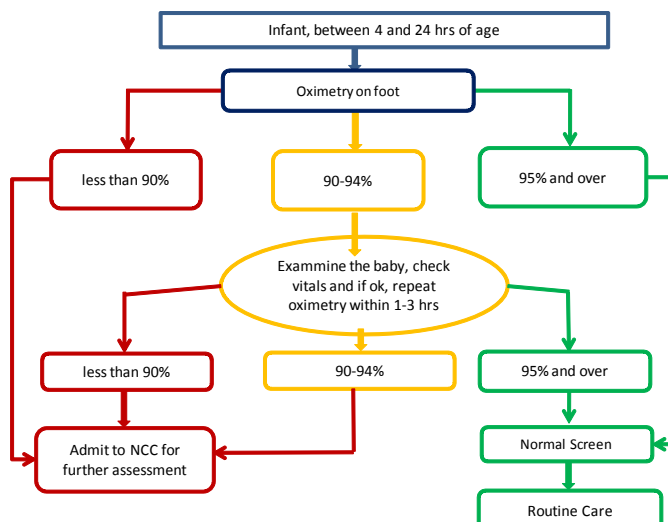
4. EQUIPMENT

- Pulse Oximeter – approved / sensitised for neonatal use
- Reusable probes
- Non-Adhesive or elasticised wraps

CLINICAL PRACTICE

Procedure:

1. Begin screening between 4 hours and 24 hours after birth
2. Screen as close to discharge as possible if discharge <24 hours of age planned
3. Measure the pulse oximetry on either foot as follows:
 - Ensure infant is alert and settled as it provides a more accurate reading
 - Clean probe head with alcohol wipe
 - Apply oximeter on infant prior to commencing other observation actions
 - Wrap oximeter sensor around foot with wrap
 - Switch oximeter on
 - Allow oximeter to equilibrate (about 30 seconds), and make sure the waveform on the oximeter is stable
 - Record reading on neonatal care plan, Personal Health record book (blue book - on newborn examination sheet next to cardiovascular row) and on eMaternity discharge summary
4. Follow the steps in the flow diagram below:



CLINICAL POLICIES, PROCEDURES & GUIDELINES

Approved by Quality & Patient Care Committee
17/5/18

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5. Normal Screen: Saturations 95% and over
6. Abnormal Screen:
 - Saturations <90%, - admit to Newborn Care Centre for ongoing monitoring
 - Saturations 90-94% - examine neonate and attend to vital signs (temperature, respiration and heart rate). Repeat saturations at next feed or within 1 to 3 hrs, whichever occurs earlier
 - Notify Paediatric team on duty
 - Paediatric team to evaluate the infant including physical examination, 4-limb blood pressure measurement, pre and post-ductal saturations reading, ie. right hand and foot, and any other tests suggested by neonatal fellow/consultant
 - If any obvious respiratory or other non-cardiac cause for hypoxia (e.g. sepsis) – treat the cause and reassess
 - If no obvious cause - consult the cardiology team for further advice and management

5. **DOCUMENTATION**
 - eMR nursing notes
 - Neonatal Care Plan
 - Personal Health Record (Blue Book) Newborn examination page
 - eMaternity discharge summary

6. **EDUCATIONAL NOTES**
 - It is now recommended that pulse oximetry screening is performed for all newborns to identify serious congenital cyanotic heart disease. These recommendations were based on large prospective screening studies involving 40,000 newborns in Sweden and a separate study of 40,000 newborns in Germany. The Swedish study found the sensitivity of pulse-oximetry monitoring to be 62.1% and the specificity to be 99.8%; the false-positive rate was 0.17%.
 - This screening is particularly targeted to identify those newborns with structural heart defects usually associated with hypoxia in the newborn period that could have significant morbidity or mortality early in life if not diagnosed early.
 - The seven specific cardiac lesions targeted for screening are: hypoplastic left heart syndrome, pulmonary atresia, tetralogy of Fallot, total anomalous pulmonary venous return, transposition of the great arteries, tricuspid atresia and truncus arteriosus. This subset of lesions excludes those not usually associated with hypoxia (eg, aortic valve stenosis).
 - With abnormal screening, in the absence of other findings to explain hypoxia, a cardiology review is recommended. Other evaluations such as chest x-ray, ECG and hyperoxia test can be inaccurate for diagnosing Congenital Heart Defects (CHD).

7. **RELATED POLICIES/PROCEDURES/CLINICAL PRACTICE LOP**
 - Nil

8. **RISK RATING**
 - Low

9. **NATIONAL STANDARD**
 - Standard 1 Governance for Safety and quality in Health Service Organisation
 - Standard 11 Service Delivery
 - Standard 12 Provision of Care

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10. ABBREVIATIONS AND DEFINITIONS OF TERMS

NCC	Newborn Care Centre	LOP	Local Operations Procedure
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11. REFERENCES

1. Thangaratinam S, Brown K, Zamora J, Khan KS, Ewer AK. Pulse oximetry screening for critical congenital heart defects in asymptomatic newborn babies: a systematic review and meta-analysis. Lancet 2012;379:2459-64.
2. Ewer AK, Furnston AT, Middleton LJ, Deeks JJ, Daniels JP, Pattison HM, et al. Pulse oximetry as a screening test for congenital heart defects in newborn infants: a test accuracy study with evaluation of acceptability and cost-effectiveness. Health Technol Assess 2012;16:1-184.

12. AUTHOR

Primary	16/5/2012	Endorsed Neonatal Services Management Committee
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REVISION & APPROVAL HISTORY

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FOR REVIEW :