



GUIDELINE

Low Flow Oxygen Therapy

Scope (Staff):	Nursing and Medical Staff
Scope (Area):	NICU KEMH, NICU PCH, NETS WA

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 ensure safe administration of supplemental oxygen using the low flow nasal cannula (LFNC) system to infants. Such infants usually have residual lung disease but no longer require humidified high flow oxygen (HHF) or continuous positive airway pressure (CPAP).

Risk

Not following the guideline can result in nasal septal injury, facial skin injury and adverse effects due to hyperoxia or hypoxia.

Key points

- Infants on LFNC oxygen therapy should have SpO₂ monitoring in place and require at least weekly monitoring of blood pressure.
- Due to the absence of accurate incremental markings, infants receiving <25 mLs/min is to be written as a measurement of “<25mLs.”
- Observe skin integrity to minimise the risk of pressure injury to nares, nasal septum and skin on cheeks. Record NSCS and GS scores as per the [Skin Care Guideline](#)
- Whilst there are various formulas to calculate FiO₂ while on LFNC oxygen therapy, each one gives a different result. Moreover, tidal volume and inhalation time are also important determinants of FiO₂, but it is not practicable to measure them.

Equipment

- Low flow oxygen meters are used without a heater device and are directly connected to a 100% oxygen gas source.
- Two different types of low flow meters are available at KEMH and PCH depending on the amount of flow they can deliver:
 - **KEMH**
 - 25-200 mL/min, or
 - 0-2.5 Litre/minute.
 - **PCH 3B**
 - 0-200mL/min, or
 - 0.1 to 1 Litre/minute
- Flows more than 1L/min should not be used to deliver LFNC oxygen because of the risk of variable and high pharyngeal pressures delivered. If infant's oxygen requirement reaches more than 250mL/min, consideration should be given to commencing humidified high flow (HHF) or CPAP. Refer to the [Continuous Positive Airway Pressure \(CPAP\)](#) and [Humidified High Flow \(HHF\) Nasal Cannula Therapy](#) guidelines.
- Use appropriate size nasal prongs – small, medium and large available.
- Change nasal cannula weekly or as required if becomes blocked with secretions.
- Ensure nasal cannula is secure at all times and change Fixomull™ as required.
- Ensure a self-inflating Bag-Valve-Mask (BVM) resuscitator or Neopuff™, correct sized mask and C size oxygen cylinder are readily available at the bedside for emergency use.

Procedure

Steps
1. Apply skin protection to face.
2. Connect nasal prongs to oxygen supply and dial up required flow on meter Blender must not be used when administering low flow oxygen
3. Place nasal cannula into nares ensuring the cannulas are pointing downward to follow the natural curve of the nostrils. Nasal prongs should not completely occlude the nares; there should be a leak around the prongs. Secure to face with Fixomull™ and ensure infant is not lying on the tubing to prevent pressure injury.

Steps
4. Maintain oxygen saturations ranges as per Monitoring and Observation Frequency guideline .
5. Check and document flow rate hourly on the Observation chart. Document increases or decreases in the flow rate using red pen

Recognising and Responding to Clinical Deterioration

- Notify medical staff and shift coordinator of any increase in oxygen requirement
 - Notify medical staff and shift coordinator with any increase in work of breathing
- Refer to [Recognising and Responding to Clinical Deterioration](#) guideline.

Discharge on home oxygen

For infants discharged on home oxygen therapy, the respiratory team will decide if ongoing pulse oximetry at home is essential. Refer to the [Safety in air test and home oxygen referral](#) guideline.


Related CAHS internal policies, procedures and guidelines
Monitoring and Observation Frequency guideline
Skin Care Guideline
Continuous Positive Airway Pressure (CPAP)
Humidified High Flow (HHF) Nasal Cannula Therapy
Recognising and Responding to Clinical Deterioration
Safety in air test and home oxygen referral

References and related external legislation, policies, and guidelines
González AJ, Quinteros A, Luco M, Salinas JA, Martínez A, Tapia JL. Hypopharyngeal oxygen concentration and pressures delivered by low flow nasal cannula in preterm infants: Relationship with flow, gas mixture, and infant's weight. <i>Pediatr Pulmonol</i> 2019;54(10):1596-601.
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Benaron DA, Benitz WE. Maximizing the stability of oxygen delivered via nasal cannula. <i>Arch Pediatr Adolesc Med</i> 1994;148(3):294-300.
Finer NN, Bates R, Tomat P. Low flow oxygen delivery via nasal cannula to neonates. <i>Pediatr Pulmonol</i> 1996;21(1):48-51.
Sung V, Massie J, Hochmann MA, Carlin JB, Jansen K, Robertson CF. Estimating inspired oxygen concentration delivered by nasal prongs in children with bronchiolitis. <i>Journal of paediatrics and child health</i> 2008;44(1-2):14-8.

Walsh M, Engle W, Laptook A, Kazzi SN, Buchter S, Rasmussen M, et al. Oxygen delivery through nasal cannulae to preterm infants: can practice be improved? *Pediatrics* 2005;116(4):857-61.

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This document can be made available in alternative formats on request.

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