**Oxygen THERAPY & ADMINISTRATION**

A neonate in respiratory compromise with hypoxia will require oxygen for a given time and dose depending on the underlying condition which can be delivered by a variety of means (facial, ambient, nasal cannula with low flow or high flow or via ventilation strategies & devices as detailed below).

**METHODS OF OXYGEN ADMINISTRATION**

Supplementary oxygen in self-ventilating neonates can be delivered by various means depending on the oxygen requirement.

**SUMMARY**

**Facial :** For short term administration only

**Ambient oxygen into the incubator**

For up to 30% oxygen requirement.

No need to humidify if< 30%

If requirement increases > 30% consider head-box and humidify

**Head-box** For 30-50% oxygen – humidify gases

If oxygen requirement increases above 50-60%, consider CPAP (depending also on blood gases and other assessment criteria)

**Nasal cannula oxygen** For low-flow oxygen

Can be humidified if necessary (depending on

flow)

**High flow oxygen therapy** For higher flow rates (- e.g. Vapotherm)

**CPAP / Ventilator** Aim to keep oxygen below 60% if possible

depending on the baby’s condition and

always humidify gases

(Fallon, 2012)

**MONITORING OXYGEN ADEQUACY**

#### *Arterial* oxygen

Taken from blood gas analysis. Should be 6.5 – 10 kPa (Petty, 2013)

N.B. capillary oxygen readings are not reliable indicators of oxygenation

#### *Transcutaneous* (Tcp02) oxygen monitoring

This can be used for neonates <32-34 week gestation who are at risk of ROP

as it measures partial pressure of gases through the skin. Therefore the limits

should be set the same as for blood gas values – for example, limits for

oxygen 6.5 – 10 kPa and change site (on abdomen) every 2-4 hours following

calibration.

***Saturation* monitoring (Sa02) / pulse oximetry**

**Oxygen Saturation (Sa02) at birth**

**Acceptable pre-ductal SpO2**

2 min 60%

3 min 70%

4 min 80%

5 min 85%

10 min 90%

(Resuscitation Council, 2010)

**After 10 minutes of life:**

Recent research undertaken has recommended a target range of 91-95%

(Stenson et al, 2011) for preterm babies < 36 weeks gestational age requiring

oxygen before their eyes have vascularised fully. For neonates >36 weeks, the

target range can be higher at 94-98%.

In term babies and those that have persistent pulmonary hypertension of the

newborn, the target range can be 95-100%.

**OXYGENATION INDEX**

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| --- | --- |
| Oxygen Index (OI) = | FiO2 x MAP x 100 ---------------------           PaO2 |
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| --- |
| NB; Pa02 is in mmHg (to convert Kpa to mmHg, multiply by 7.5) |

<http://www.medcalc.com/oxygen.html>