

	RESPIRATORY SERVICES	DATE CREATED: June 2009 DATE REVIEWED/REVISED: January 2016
CLINICAL GUIDELINE	TITLE: <u>Neonatal</u> – Oxygen Therapy Neonates (Respiratory Therapy) NUMBER: B-00-12-12095	RELATED DOCUMENTS:

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SITE APPLICABILITY:

ST. PAUL'S HOSPITAL
MOUNT SAINT JOSEPH HOSPITAL

GENERAL INFORMATION:

Oxygen is a drug and may have detrimental effects on the neonate. It should be used only when specifically indicated and in a dose that achieves the oxygen saturation (SpO₂) goals appropriate for the gestational age of the neonate.

There are high risks of retinopathy of prematurity (ROP) and bronchopulmonary dysplasia (BPD) in neonates less than 36 weeks. These risks can be minimized by adhering to the following practices:

- Avoid periods of SpO₂ higher than recommended based upon gestational age.
- Avoid abrupt changes in FiO₂ in response to transient changes in vital signs, which may results in iatrogenic swings in SpO₂.
- Ensure SpO₂ alarms limits are set appropriately and clinician response to an alarm condition is consistent with oxygenation targets.

NOTE: Pulse oximetry should be used when supplemental oxygen is being administered to a neonate.

INDICATIONS:

Supplemental oxygen should be used for neonates if they meet one of the following conditions:

- Central cyanosis
- SpO₂ below levels recommended for gestational age
- Chest compressions are in progress – **100% oxygen is required**

REQUIRED SUPPLIES & EQUIPMENT:

- Newborn oxygen mask
- Neopuff
- Flow-inflating resuscitator with mask
- Oxygen connecting tubing held in a cupped hand over the neonate's face

SPECIAL CONSIDERATIONS:

Oxygenation (SpO₂) Targets and Alarm Limits:

GESTATIONAL AGE	SpO ₂ TARGET (%)	OXIMETER ALARM LIMITS	
		LOW	HIGH
< 36 weeks	88 – 92	86	94
> 36 weeks	90 – 94	88	95

PROCEDURE FOR DELIVERY OF FREE FLOW OXYGEN:

1. Attach oxygen tubing to an oxygen blender.
2. Hold mask lightly on neonate's face (**EXCEPT** with oxygen connecting tubing which should be held in a cupped hand over the neonate's face).
3. Neopuff – mask placed loosely on face and Aperture is occluded.
4. Titrate the oxygen concentration on blender to achieve SpO₂ appropriate for the neonate's gestational age.

NOTE: Free flow oxygen refers to directing the flow of oxygen over the neonate's mouth and nose to allow for the inspiration of oxygen enriched air.

REFERENCES:

1. Askie, Lisa M., David J. Henderson-Smart, and Henry Ko. "Restricted versus liberal oxygen exposure for preventing morbidity and mortality in preterm or low birth weight infants." *Cochrane Database Syst Rev* 1 (2009).
2. Weinberger, Barry, et al. "Oxygen toxicity in premature infants." *Toxicology and applied pharmacology* 181.1 (2002): 60-67.
3. Tin, W., and S. Gupta. "Optimum oxygen therapy in preterm babies." *Archives of Disease in Childhood-Fetal and Neonatal Edition* 92.2 (2007): F143-F147.

REVIEWED BY:

1. Respiratory Services, Providence Health Care