Providence HEALTH CARE	**RESPIRATORY SERVICES**	DATE CREATED: June 2009 DATE REVIEWED/REVISED: **February 2016**
PROCEDURE	TITLE: Neonatal – Neonatal Intermittent Positive Pressure Ventilation (IPPV) using a flow-Inflating Rescusitator (Respiratory Therapy) NUMBER: B-00-12-12096	RELATED DOCUMENTS: NEOPUFF Oxygen Therapy

SITE APPLICABILITY:

ST. PAUL'S HOSPITAL
MOUNT SAINT JOSEPH HOSPITAL

GENERAL INFORMATION:

Providing effective manual ventilation to the neonate is the most important component in cardiopulmonary resuscitation of the compromised neonate. At PHC, the primary and preferred method for providing manual ventilation is with the NEOPUFF

INDICATIONS:

1. Apnea or gasping respirations.
2. Heart rate less than 100 bpm (despite the presence of spontaneous respirations).
3. Persistent moderate to severe work of breathing despite appropriate CPAP therapy.
4. Increased work of breathing despite appropriate CPAP therapy.

REQUIRED SUPPLIES & EQUIPMENT:

- Face mask – preterm or term
- Flow-inflating resuscitator
- Pressure manometer
- Pulse oximeter

PROCEDURE FOR IPPV USING A FLOW-INFLATING RESUSCITATOR:

1. Select the appropriate size mask and attach it to the flow-inflating resuscitator.

   NOTE: The appropriate size mask will cover the mouth, nose and tip of the chin only.

Attach oxygen connecting tubing to an oxygen blender, adjust the flowmeter to 6-8L/min, and set the FiO_2 as per Oxygen Therapy.

2. Assess the function of the flow-inflating resuscitator and ensure there are no obvious leaks in the reservoir bag and that the pressure manometer is attached and functional.

3. Verify that the neonate's airway is clear and position the head into the "sniffing" position.

4. Obtain a tight seal over the infant's mouth and nose and begin to provide manual ventilation using the following parameters.

   a. **PIP:** 20 cm H_2O
   b. **PEEP:** 5 cm H_2O
   c. **RR:** 40 – 60 bpm

ASSESSING EFFECTIVENESS OF MANUAL VENTILATION:

Improvement of the neonate's condition is indicated by the following:

a. Increased heart rate
b. Improved SpO_2
c. Improved skin color
d. Spontaneous respirations
e. Improved muscle tone

If there is no evidence of an improvement in the neonate's condition, consider the following:

a. Auscultate for equal and bilateral breath sounds.
b. Follow MR SOPA to improve bag mask technique.

1. MR – Mask seal and reposition airway

Ensure that the mask is the appropriate size and that there are no obvious leaks around the mouth and nose. Reposition the neonate into the sniffing position.

2. SO - Suction mouth and nose and open mouth

Ensure there is no obvious obstruction in mouth and nose and suction the oropharynx if appropriate. Open neonate's mouth.

3. P – Increase pressure

Increase the bagging pressure to 25 cm H_2O and give ten breaths. Assess for improvement in ventilation. If none, increase pressure to 30 cmH_2O. Assess for improvement in ventilation.

4. A – Alternate airway

If there is no improvement in ventilation using these techniques, consider endotracheal intubation as per B-00-12-12090

REFERENCES:

1. Wood, F.E., Morley, C.J., Dawson, J.A., Kamlin, C.O.F., Owen, L.S., Donath, S. and Davis, P.G., 2008. Improved techniques reduce face mask leak during simulated neonatal resuscitation: study 2. *Archives of Disease in Childhood-Fetal and Neonatal Edition*, *93*(3), pp.F230-F234.

2. Schilleman, Kim, et al. "Leak and obstruction with mask ventilation during simulated neonatal resuscitation." *Archives of Disease in Childhood-Fetal and Neonatal Edition* (2010): fetalneonatal182162.

3. Stenson, Benjamin J., David W. Boyle, and Edgardo G. Szyld. "Initial ventilation strategies during newborn resuscitation." *Clinics in perinatology*33.1 (2006): 65-82.

REVIEWED BY:

1. Respiratory Services, Providence Health Care, January 2016