Providence HEALTH CARE	Department: **Respiratory Services**	Date Originated: June 2009 Date Reviewed/Revised: **April 2011**
PROCEDURE	Topic: Neonatal – Suction and Installation: NEONATES Using an Open Catheter (Respiratory Therapy) Number: B-00-12-12089	Related Links:

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APPLICABLE SITES:

St. Paul's Hospital

GENERAL INFORMATION:

Endotracheal suctioning will be performed on an as needed basis to maintain a patent airway. Although routine suctioning is not indicated, the suction catheter should be passed through the endotracheal tube every 12 hours to ensure patency of the endotracheal tube.

The neonate should always be pre-oxygenated using a flow-inflating resuscitator to deliver the same ventilating pressures and respiratory rate as set on the ventilator. An increase in FiO_2 of 10 – 15 % from that set on the ventilator should be used.

The infant should be allowed to rest between suction catheter passes, or if bradycardia and desaturations are noted. An appropriately sized suction catheter in relation to the endotracheal tube size should be used as per the following guide:

ENDOTRACHEAL TUBE SIZE (I.D.)	SUCTION CATHETER SIZE (Fr)
2.5	5 Fr
3.0	8 Fr

To prevent irritation and trauma to the airway mucosa, the suction catheter should be advanced to a pre-determined depth based on centimetre markings.

NOTE: AN ASSISTANT IS REQUIRED WHEN SUCTIONING NEONATES.

INSTILLATION CONSIDERATIONS:

Instillation in association with tracheal suctioning in the neonate is performed on an as needed basis. Indications for instillation include:

1. Known thick or tenacious secretions
2. Lubrication of the endotracheal tube and suction catheter

COMPLICATIONS:

- Tracheobronchial trauma
- Hypoxia
- Atelectasis
- Intracranial pressure changes
- Pneumothorax
- Infection
- Bradycardia due to vagal nerve stimulation

EQUIPMENT:

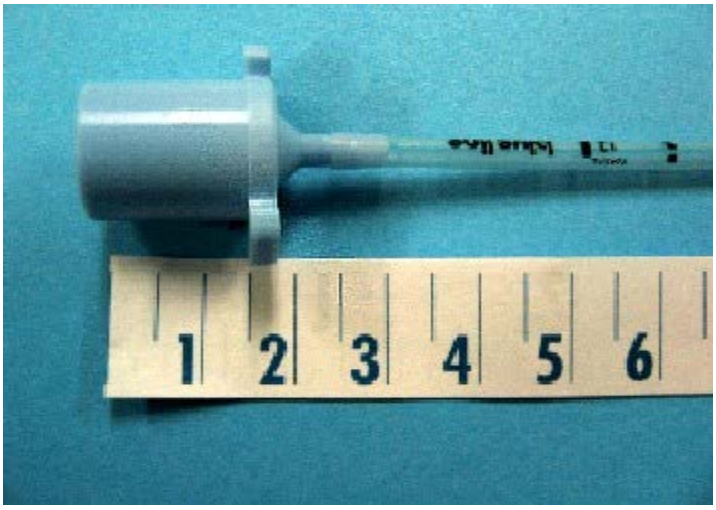
- Suction source with connecting tubing
- Appropriately sized suction catheter
- Normal saline for installation
- Paper measuring tape
- Clean gloves
- Sterile gloves
- Flow-inflating resuscitator attached to blender oxygen source
- Emergency intubation equipment available

PROCEDURE FOR DETERMINING CATHETER INSERTION DEPTH:

1. Note the last centimeter marking on the endotracheal tube.

2. Using the paper measuring tape, measure the distance between the last centimeter marking of the endotracheal tube to the distal end of the blue ETT adaptor.

3. Add the two values together, and then add an additional 0.5 cm to the total to obtain the maximum depth of catheter insertion.



EXAMPLE: 12 cm + 5.5 cm + 0.5 cm = 18 cm

PROCEDURE FOR SUCTIONING:

1. Assemble all related equipment.
    a. Open one end of the suction catheter package and attach to the connecting tubing.
    b. Set the occluded suction pressure to 60 – 80 mmHg.
    c. Set the FiO_2 on the blender 10 – 15% higher than the set ventilator FiO_2.

2. Auscultate for breath sounds and quality.

3. Don a clean glove on the hand that will be controlling the suction port of the catheter. Don a sterile glove on the hand that will be manipulating the catheter itself. The assistant should don clean gloves.

4. Lubricate the tip of the suction catheter with sterile 0.9% NaCl.

5. Have the assistant disconnect the ventilator tubing from the infant's endotracheal tube, and connect the flow-inflating resuscitator to the endotracheal tube.

    NOTE: If instillation is indicated, the assistant should instill 3 – 6 drops of 0.9% NaCl via the endotracheal tube **prior** to manual ventilations.

6. Have the assistant manually ventilate the infant as per the respiratory rate and ventilating pressures set on the ventilator.

7. After the pre-oxygenation period, have the assistant disconnect the flow-inflating resuscitator from the endotracheal tube.

8. Insert the suction catheter into the endotracheal tube and gently advance to the pre-determined depth.

    NOTE: Continuous monitoring of the infant's SpO_2, heart rate, skin colour, and respiratory pattern should be observed during the procedure.

9. Once the pre-determined depth had been reached, occlude the suction port while withdrawing the catheter. Note the colour and viscosity of the aspirate.

NOTE: The maximum duration of each attempt should be guided by the infant's clinical response, however should be limited to a maximum duration of 10 seconds.

10. Re-attach the endotracheal tube to the flow-inflating resuscitator and manually ventilate the infant for several breaths or until vital signs return to pre-suction values.

11. Clinically assess the need to repeat the suction procedure. If needed, repeat steps 7 – 10.

12. Have the assistant re-connect the ventilator to the endotracheal tube as per previous settings. Ensure the infant is ventilating appropriately and vital signs are stable.

    Dispose of soiled catheter and document procedure and response on the Respiratory Flowsheet.