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Department/Section:	Neonatal Intensive Care Unit
Document Title:	**ASSISTING IN ENDOTRACHEAL INTUBATION OF NEONATES**

PURPOSE:

1. To allow air to pass freely to and from the lungs in order to ventilate the lungs.
2. To provide an artificial airway that will allow the lungs to be ventilated through a mechanical ventilator.
3. To outline the responsibilities of each person during the process of endotracheal intubation of neonates

SCOPE:

Applies to all Neonatal Intensive Care Unit staffs of Dr. Pablo O. Torre Memorial Hospital

PERSON RESPONSIBLE:

Pediatric Consultants, Resident Physicians, Registered Nurses, Registered Midwife, Respiratory Therapy Services Personnel

PROCEDURE:

1. The Attending Physician or Resident explains the procedure to the parents or significant others after thorough assessment for the need for intubation.
2. The Attending Physician or Resident secures a signed consent from the parents or significant others before the procedure is done.
3. The Nurse prepares the following equipment and materials needed for the procedure:
    a) Laryngoscope
    b) Laryngoscope blade (Curved or Straight Size 00 or 0, or 1)
    c) Endotracheal tube (size 2.5, 3.0, 3.5)
    d) Sterile Intubation Stylet / Guide Wire
    e) KY Jelly (optional)
    f) Suction Apparatus
    g) Connecting Tube fr. 24/25
    h) Suction Catheter (fr. 5.40 cm or 8.40 cm)
    i) Endotracheal tube-securing equipment (tape or device)
    j) Neonatal Stethoscope
    k) Pulse Oximeter
    l) Disposable Pulse Oximeter Probe
    m) Humidifier Kit
    n) Oxygen Connecting Tube plain
    o) Neonatal Ambubag
    p) Oxygen
    q) Sterile gloves
    r) Sterile suction bottles
    s) Sodium chloride for irrigation for suctioning
4. The Respiratory Therapy Services Personnel is informed prior to the intubation to provide ample time to prepare the mechanical ventilator and set-up the equipment.
5. The Attending Physician or Resident and the Assisting Nurse performs hand washing before the procedure.

6. The Attending Physician or Resident wears mask and sterile gloves.
7. The Attending Physician or Resident measures the length of the endotracheal tube to be introduced to the trachea, taking note of the size of the ET tube and the type and size of blade to be used.
8. The Assisting Nurse attaches the patient to a pulse oximeter, placing the probe at the palm of the hand or at the foot part.
9. The Assisting Nurse prepares the suction apparatus, connecting tube and suction catheter ensuring that it is functioning well.
10. The Assisting Nurse prepares the bag valve mask, connecting tube and source of oxygen.
11. The Attending Physician or Resident performs the head tilt chin lift maneuver and inserts the laryngoscope into the mouth of the patient. At the tonsilar pilars, the doctor sweeps the tongue to midline.
12. The Assisting Nurse prepares the endotracheal tube, inserting the stylet or guide wire into the tube, ensuring that it does not go beyond the tip of the tube. The ET tube must then be lubricated with KY jelly from the tip up to one-thirds of the ET tube.
13. The Doctor extends the blade over the base of the tongue and observe the structures seen during intubation.
    - 13.1 curved blade: tip into vallecula
    - 13.2 straight blade: tip over the epiglottis
    - 13.3 avoid entering the esophagus first as this is a risk of laryngeal trauma
14. The Doctor exerts the traction upward along the axis of the handle.
    - 14.1 Ensure that the gums are not used as fulcrum as this results in significant oral trauma.
15. Once the larynx is free of obstruction and the tip of the trachea is visible, the Doctor inserts the ET tube from the right corner of the mouth as this avoids obstructing the view and the cricoid pressure facilitates the view of the glottis.
16. Once the ET tube is in place, the Doctor pulls out the stylet or guide wire and suctions all the respiratory secretions from the ET tube until clear.

17. After suctioning, the Doctor places the bag valve mask at the hub tip of the ET tube and introduce air into the lungs observing the rising and falling of the chest indicating that the ET tube is in place, and there is symmetrical lung expansion.
18. Using the stethoscope, the Nurse or another Resident Doctor auscultates breath sounds on all lung fields, indicating that the ET tube is within the trachea and is patent.
19. The ET tube is secured with an endotracheal tube-securing equipment (tape or device) and is anchored to the cheek of the patient, noting the distance marker at the lips.
20. The Doctor orders the ventilator set-up and is carried out by the respiratory therapist. If there is no available mechanical ventilator or the folks refuses attaching the patient to a ventilator, the Nurse or the Doctor performs continuous ambubagging, ensuring that only one-third of the bag valve mask is deflated making sure that the pressure is not greater than the lung capacity reducing the risk of atelectasis.
21. The Doctor fills out the procedural technique for endotracheal intubation.
22. The Nurse documents the procedure including the date, time, ET size, level, and the present ventilator set-up.

REFERENCE:

Underwood, C. (2018, September 17). *Endotracheal Intubation*. Healthline. https://www.healthline.com/health/endotracheal-intubation

Endotracheal Tube Definition, Purpose, and Procedure. (n.d.). Verywell Health. Retrieved August 24, 2021, from https://www.verywellhealth.com/endotracheal-tube-information-2249093

[1]*Recommended uncuffed ETT size*. (n.d.). [Table]. https://www.rch.org.au/rchcpg/hospital_clinical_guideline_index/Assisting_with_elective_intubation_of_the_neonate_on_the_Butterfly_Ward/#equipment-for-intubation

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ANNEX:

Table 1 Recommended uncuffed ETT size (if cuffed ETT is desired, reduce size by 0.5mm):

Tube size (internal diameter mm)	Weight (g)	Gestational age (weeks)
2.5	< 1000	< 28 weeks
3.0	1000 - 2000	28 - 36 weeks
3.5	2000 - 3500	> 38 weeks
4.0	> 3500	> 38 weeks

Table 2 Recommended ETT length:

Weight (kg)	ETT Length (cm)	
	Lips	Nares
< 1	6.5 - 7	6.5 - 7.5
1 - 2	7 - 8	7.5 - 9
2 - 3	8 - 9	9 - 10.5
3 - 4	9 - 10	10.5 - 12

Oral length = weight (kg) + 6cm

Nasal length = 1.5 x weight (kg) + 6cm

Information from The Royal Children's Hospital Melbourne's *Assisting with elective intubation of the neonate on the Butterfly Ward*[1]