



Edwin and Anusha's Technique of Neonatal Reintubation

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Endotracheal intubation is an essential procedure in critical care, allowing life supporting assisted ventilation and providing a conduit through which drugs and devices can reach the lower airways, but it has significant risks whether attempts fail or succeed. Intubation success, generally defined as placing the endotracheal tube (ETT) within the trachea requires specialized training and the experience of approximately 40 intubations to achieve proficiency. Failed intubation attempts are common particularly in neonatal care where difficult airways are frequent. Patient safety can be compromised during tracheal intubation through failed or prolonged attempts that cause physiologic destabilization, but also through physical trauma, procedure-induced pain and stress, and malposition of the ETT within the tracheal airway, as is the case with deep tracheal or endobronchial intubation.

Inadvertent right mainstem intubation or similar deep malposition of ETT was reported in earlier studies in up to 58% of neonates. In a more recent prospective study on complication of neonatal intubation, the near4neos collaborative reported that mainstem intubations was diagnosed by Xray in 2% of NICU intubations, which is a lower rate than other reports. Using similar methods, the near4kids collaborative, reported mainstem intubation in 13% of inpatients, in our setting. ETT tip beyond the T4 vertebral level was observed in 10.5% of newborns.

Procedure of Re Intubation in Neonate

All essential equipment is listed and should be available and checked prior commencing the procedure, with individual adap-

tations appropriate for each baby and clinical setting. Equipment should be set out in a clean and sterile environment where possible in order to minimize contamination.

The patient is fully prepared, monitored and stability maintained while preparations are completed.

Optimise ventilation with high flow, CPAP, Neo puff or bag and mask. Aim to maintain saturations as appropriate for gestation and take care not to hyper oxygenate the preterm infant.

Fentanyl	
5 micrograms / kg OR 0.5ml/kg if using pre-filled syringes	Given slowly over 3-4 minutes Followed by 0.5 - 1ml flush over 30-60 seconds

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Atropine	
15 micrograms / kg	Give as short infusion over 10-20 seconds Followed by 0.5 - 1ml flush over 10-20 seconds

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Suxamethonium	
2 mg / kg OR 0.5ml/kg if using pre-filled syringes	Bolus over 10-20 seconds Followed by 0.5 - 1ml flush over 10-20 seconds

- Holding laryngoscope in the left hand, use right hand to open the mouth wide
- Gently insert the blade over the tongue
- Use the uvula to help maintain position in the midline
- Advance the blade forward gently
- Lift laryngoscope handle in a forward and upward motion.

Re intubation procedure

- As the epiglottis and vocal cords are visualized the tip of the new endotracheal tube which will be ideal for re intubation is placed near the epiglottis.
- When the old tube is removed the new tube with the stylet or without the stylet is immediately inserted into the opening of the vocal cords and placed as the below mentioned steps. The re intubation procedure will be completed within few micro-seconds.
- Insert the tube in from the side to allow visualization of it passing through the cords.
- Use the black marker near the tip of the tube as a guide to depth of insertion initially.
- Secure the ETT tube against the roof of palate or firmly at the lips.
- Connect ETCO₂ detector and ventilation circuit to confirm correct ETT position!
- Secure ET with an appropriate fixation device, ensuring a good seal to the skin and avoiding traction on the ETT.
- Provide IPPV once ET position confirmed and throughout securing process.
- Attach ETT to ventilator and adjust settings as required
- End-tidal CO₂ monitoring is recommended to allow immediate confirmation of a correctly positioned ET tube. This can be achieved with a colorimetric device or a side stream CO₂ monitor.
- Chest x-ray is gold standard in confirming correct ETT position, the ET tip should be visible 1cm above carina (T2-T3) [1].

Bibliography

1. Neonatal intubation.