

# ENDOTRACHEAL TUBE (ETT) SUCTIONING • 1/3

## INTRODUCTION

- This guideline:
- relates only to a closed suction catheter system in ventilated babies, which is non-aerosol generating
- describes a standard safe approach, but it may be necessary for an adapted method to be employed (see **If ETT clearance proves difficult with standard approach**)
- Goal of ETT suctioning should be to maximise the amount of secretions removed with minimal adverse effects
- Should not be a routine procedure, but in response to indications

## INDICATIONS

- To maintain airway patency
- To remove respiratory secretions or aspirated fluid from within the ETT
- To optimise oxygenation and ventilation in an intubated baby
- To obtain secretions for culture analysis

## EQUIPMENT

- In line/closed circuit catheter
- catheter size <0.5 diameter of ETT
- PPE as per local guidelines for non-aerosol generating procedures
- Sodium chloride 0.9%
- 1 mL syringe

## PROCEDURE

- **Do not** attempt to carry out this procedure unless trained in the use of endotracheal closed suction catheter system

### Preparation

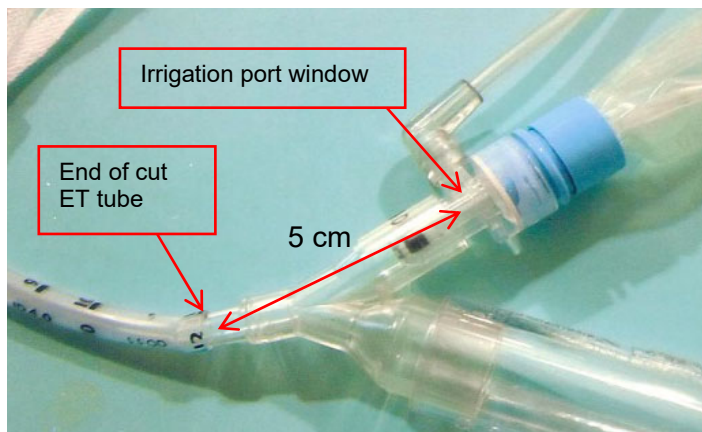
- Wash hands and put on PPE
- Auscultate chest before suctioning
- Ensure full monitoring of heart rate and SpO<sub>2</sub> in place
- Ensure baby is adequately oxygenated; consider increasing FiO<sub>2</sub> by up to 0.1 before procedure, e.g. if baby receiving FiO<sub>2</sub> of 0.3 (or 30% oxygen), increase oxygen delivery to up to FiO<sub>2</sub> 0.4 (or 40% oxygen)
- if possible, use dedicated suction procedure (e.g. special procedures on Draeger VN500) which automatically enriches oxygen during suction
- Ensure baby positioned appropriately for secretion clearance and stress reduction
- Ensure closed suction device is unlocked
- Check suction pressure – maximum 13 kPa. Use lowest pressure that effectively clears secretions
- Check ETT placement by confirming measurement at the lips is as documented

### Measuring catheter advancement

#### **Method 1 (compatible with Halyard Health brand of closed suction catheters)**

- Note the printed number on the cut ETT
- Add 5 cm to this to give the total distance of suction catheter advancement
- Stabilise the Y adaptor with one hand and advance catheter until calculated length is visible in irrigation port window. Catheter tip will be within 0.5–1 cm of the end of the ETT
- Note the nearest coloured band to the irrigation port window. Coloured bands allow for easy visualisation on subsequent suction procedures

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## Method 2

- Stabilise the Y adaptor with one hand
- Advance catheter until printed depth numbers on catheter align with the same numbers printed on the ETT
- Catheter tip will be within 0.5–1 cm of the end of the ETT

## Performing suctioning

Ensure suction catheter correctly advanced using either methods 1 or 2 (above)

- Depress thumb control valve and hold while withdrawing catheter slowly
- When tip of suction catheter reaches dome, release thumb control valve and stop withdrawing
- Procedure should take  $\leq 10$  sec and **the duration of negative pressure should be  $\leq 5$  sec**
- Repeat procedure if necessary
- Do not use sodium chloride 0.9% instillation routinely. Sodium chloride 0.9%  $\leq 0.5$  mL may be instilled before suctioning if secretions are thick and tenacious and cannot be extracted by suctioning alone
- After each suctioning episode ensure the closed circuit is flushed with sodium chloride 0.9% according to manufacturer's instructions

## If ETT clearance proves difficult with standard approach

- Advancement of the catheter to 0.5 cm below the ETT tip may be effective
- An experienced clinician should determine if this is appropriate
- See <https://vimeo.com/428618217/9cc5803f88> for demonstration of this technique

## DOCUMENTATION

- Record procedure in nursing documentation, noting distance tube was passed and colour of band on catheter tube closest to this measured distance

## AFTERCARE

### Equipment

- Leave thumb valve in locked position when not in use to prevent inadvertent activation
- Leave catheter tip in dome between use
- Device is single use only and replace every 24 hr as per manufacturer's guidance

### Monitoring

- Ensure monitoring of heart rate and SpO<sub>2</sub> continues after procedure
- Auscultate baby's chest after procedure and document any changes observed
- If FiO<sub>2</sub> was adjusted before procedure, return to original settings, or ensure baby's target FiO<sub>2</sub> is maintained

### Reporting adverse events

- Report adverse incidents using local risk management procedure

## COMPLICATIONS

- Hypoxaemia
- Atelectasis
- Bradycardia

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- Tachycardia
- Blood pressure fluctuations
- Decreased tidal volume
- Airway mucosal trauma
- Dislodgement of ETT
- Pneumothorax
- Pneumomediastinum
- Bacteraemia
- Pneumonia
- Fluctuations in intracranial pressure and cerebral blood flow velocity

### FURTHER INFORMATION

- Further details on ETT closed suction can be found in the manufacturer's guidance