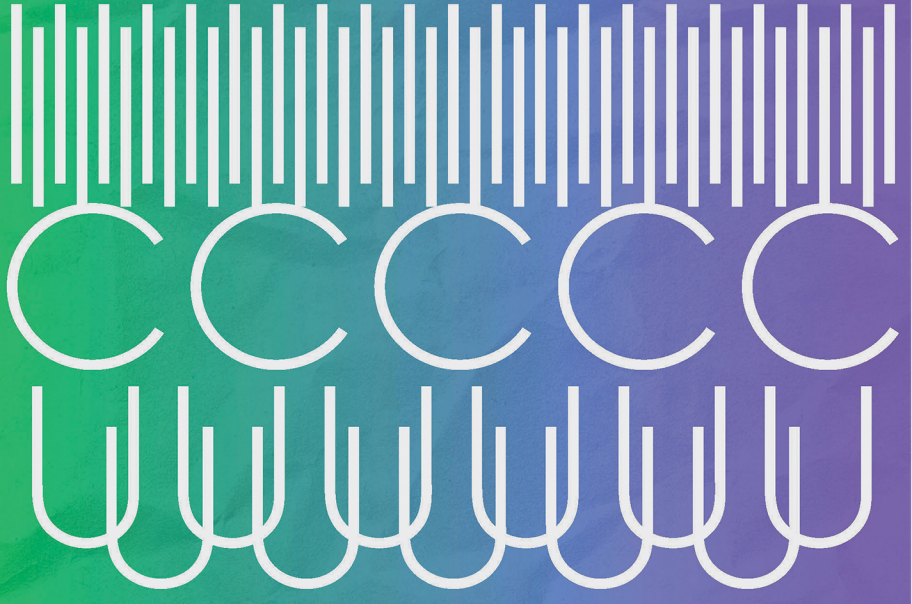
Handbook of ICU Protocols



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Foreword
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CHAPTER 10

Protocol for Endotracheal Suctioning

CLINICAL INDICATIONS FOR ENDOTRACHEAL TUBE SUCTION

- Desaturation
- Bradycardia
- Tachycardia
- Absent or decreased chest movement
- Visible secretions in endotracheal tube (ETT)
- Increased end-tidal carbon dioxide ($EtCO_2$)
- Irritability
- Coarse or decreased breath sounds
- Increased work of breathing
- Blood pressure fluctuations
- Recent history of large amounts of thick/tenacious secretions

EQUIPMENT

Functioning wall suction unit with suction tubing connected

Suction catheter for open suction (see Table below for appropriate sizes for adult patients)

Endotracheal tube size	Size of suction catheter (Fr)
6 – 7	10
7.5 – 8	12
8 – 8.5	14
9 – 10	16

Diameter of the catheter should be approximately **one third** the diameter of the ETT and should be of length to **extend 5 cm beyond the distal** end of the ETT.

Nonsterile gloves

Normal saline ampoule and syringe (if normal saline lavage required)

TECHNIQUE

- Strict asepsis
- Amount of negative pressure in suction should be adjusted to **100–150 mm Hg**
- Preoxygenate with 100% O_2. Fraction of inspired oxygen (FiO_2) should be decreased as soon as possible after suction is complete. **Oxygenation** and **hyperventilation** pre-/postsuction may **NOT** be routine but, may reduce the incidence of suction related hypoxemia and bradycardia.

- Insert the catheter gently until resistance is met and then withdraw the catheter **1 cm before** applying suction.
- **No suction** should be applied during insertion of the catheter.
- Suction application should be limited to **10–15 seconds**.
- While the catheter is being removed, it should be **twirled** between the thumb and index finger so that the catheter is exposed to larger surface areas.
- Perform **hyperoxygenation** and **hyperinflation** between suctioning.
- After the endotracheal suctioning is over, the catheter is **rinsed** in **sterile water** and used for oropharyngeal suctioning.
- Two persons should be involved during the endotracheal suctioning procedure.
- **Monitor** SpO_2, hemodynamic, and intracranial pressure (ICP).

RELATIVE CONTRAINDICATIONS

- Pulmonary edema.

COMPLICATIONS OF ETT SUCTION

- Hypoxemia
- Atelectasis
- Bradycardia
- Tachycardia
- Increased ETT CO_2 and transcutaneous CO_2

- Blood pressure fluctuations
- Decreased tidal volume
- Airway mucosal trauma
- ETT dislodgement
- Pneumothorax
- Pneumomediastinum
- Bacteremia
- Pneumonia
- Fluctuations in intracranial pressure and cerebral blood flow velocity

Lavage by instillation of normal saline into the ETT immediately prior to ETT suction:

- May aid in the removal of thick, tenacious secretions by thinning, loosening, and dislodging these secretions
- Makes the patient cough, which may loosen and dislodge secretions
- May lubricate the ETT
- May have detrimental effects on the patient, damages airway mucosa, and contributes to lower airway colonization

Normal saline **should not** be routinely instilled prior to ETT suction. It should only be instilled in patients who have thick, tenacious secretions. The amount of normal saline to use is **0.1–0.2 mL/kg**.

Document clearly:

- ETT suctioned
- Airway secretion amount and color
- Suction tolerance and significant events

Effectiveness of ETT suction should be assessed after the procedure by observing:

- Improvement in breath sounds on auscultation
- Removal of secretions
- Improved oxygen saturation, $EtCO_2$, heart rate, blood pressure, and respiratory rate
- Decreased work of breathing and improved chest rise

Handbook of ICU Protocols

Salient Features

- **Concise, simple** and **handy** companion providing **evidence-based information**, beneficial for **intensivists, ICU doctors, trainees** and **postgraduate students** and **nurses** working in an intensive care setup to provide guidance in managing critically ill patients right from the **time of admission,** directs in conducting daily rounds for **patient assessment,** and serves as a **quick reference** manual
- Not only clinical, but also topics related to **documentation** and **administration** of the critical care unit are **highlighted**
- **Reader-friendly,** having point-wise summarized information with **numerous tables.**

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