

Endotracheal Tube (ETT) Suctioning - Closed Suction

Endotracheal tube (ETT) suctioning is an essential skill when caring for a child who is intubated. Suctioning removes secretions from the artificial airway, enabling airway patency. This skill sheets describes the traditional closed or in-line suction. See [Endotracheal Tube \(ETT\) Suctioning - Open Suction](#) for details on ETT open line suctioning.

Some common clinical indications for suctioning include:

- Visible, audible or auscultated ETT secretions
- Increasing ventilator peak pressures or decreased tidal volumes (depending on ventilator mode)
- Increasing CO₂ and/or decreasing SpO₂
- History of thick ETT secretions
- Concern that the ETT is blocked or no longer patent.

ALWAYS ensure there is working oxygen and suction at the bedside. If transferring a patient, working portable suction and oxygen should accompany the patient. ETT suctioning **ALWAYS** requires a minimum of TWO clinicians.

1 GATHER EQUIPMENT



The correct sized suction catheter is double the size of the ETT.

If that size is not available, choose the size below.

For example: Size 5.5 ETT x 2 = 11FR suction catheter. Since 11FR does not exist, use 10FR suction catheter.

Please ensure that hand hygiene is attended to throughout. Personal Protective Equipment (PPE) is used and appropriate for the patient's infection control risk.

2 PROCEDURE

Set suction unit to correct pressure for age of child.



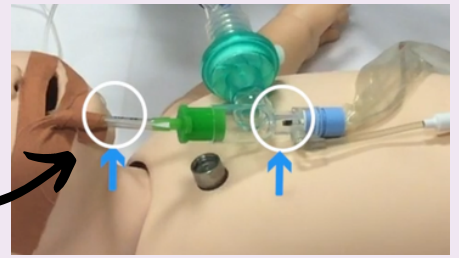
Suction Negative Pressure Settings	
Age	Pressure
Infants (<1 year)	60 to 80 mmHg
Children (1 to 8 years)	80 to 120mmHg
Children (>8 years)	120 to 150 mmHg

Table 1: Suction Negative Pressure Settings from the QCH PICU Intubation and Ventilation Guideline



Calculating the Suction Depth

1. Insert the suction catheter until it reaches the first number on the ETT
2. Note the number displayed in the viewing window adjacent to the suction port
3. Suction Depth = Last number on the ETT (cm) + the number at the suction measurement window (cm) + 0.5cm
4. Make a note of the depth in the patient chart to use in future suction



Perform suction using aseptic non-touch technique (ANTT®) in the appropriate PPE.

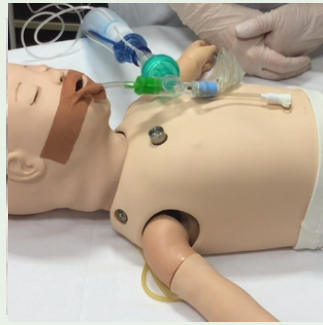
3

Pre-oxygenate patient prior to suction if clinically indicated to reduce hypoxia.



4

Observe patient's baseline observations and breathing pattern prior to commencing suctioning.



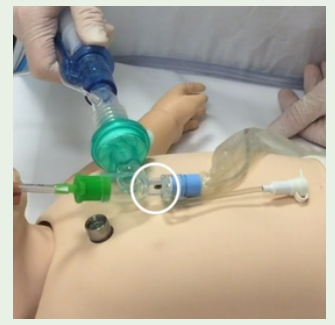
5

Turn on/off control button to unlocked position.



6

Insert the catheter until you sight the measurement calculated for suction depth in the viewing window.



7

At the correct measured length, apply constant suction by pressing on/off button, withdrawing catheter slowly.



8

Ensure the suction catheter is fully retracted back into the pre-suction position and not obstructing the ETT.



Key Points

- Suctioning should not take longer than 10 seconds.
- Always support the connection between the suction catheter and the ETT tube before withdrawing suction catheter.



ALERT

Allow pause of 1-2 minutes before passing the catheter again to avoid hypoxia. Continue ventilation during this pause. Recommence mechanical ventilation immediately after completion of suctioning.



Suctioning Tips

- Mild recruitment manoeuvres should be considered to reduce hypoxia, consisting of increase in PEEP by 2-5cm H₂O for a period, to allow alveolar re-recruitment (wait until SpO₂ increases and return to baseline settings).
- Increasing the FiO₂ prior to suction and immediately following suctioning will assist with oxygen recruitment and the prevention of suction related hypoxia.
- Closed suction catheter should be changed every 24 hours.

Flushing the Suction Catheter

- The suction catheter will need to be flushed to clear secretions
- Please see the STORK video "[Closed Circuit ETT Suction](#)" for more information on flushing the suction catheter



References:

Children's Health Queensland (2022). Intubation and Ventilation - Management in Paediatric Intensive Care Unit. https://qheps.health.qld.gov.au/_data/assets/pdf_file/0023/725252/gdl-01405.pdf/_nocache

STORK, Children's Health Queensland. (2024). Closed Circuit Endotracheal Tube Suction. Retrieved 4 September 2024, from <https://vimeo.com/908461381?share=copy>

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- Supporting consumer rights and informed decision making in partnership with healthcare practitioners including the right to decline intervention or ongoing management.

- Advising consumers of their choices in an environment that is culturally appropriate and which enables comfortable and confidential discussion. This includes the use of interpreter services where necessary.
- Ensuring informed consent is obtained prior to delivering care.
- Meeting all legislative requirements and professional standards.
- Applying standard precautions, and additional precautions as necessary, when delivering care.
- Documenting all care in accordance with mandatory and local requirements.

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