

STOMA / TRACHEOSTOMY SUCTION MANAGEMENT

The majority of adults and children with tracheostomies are dependent on the tube as their primary airway. Cardio-respiratory arrest most commonly results from tracheostomy obstructions. Obstruction may be due to thick secretions, mucous plug, blood clot, foreign body, or kinking or dislodgement of the tube. Work expeditiously and deliberately to reestablish airway patency and support oxygenation/ventilation.

Early warning signs of obstruction include tachypnea, tachycardia, and desaturation. Cyanosis, bradycardia, and apnea are late signs. **DO NOT** wait for these to develop before intervening.

A. Complications

- Airway obstruction
- Aspiration
- Blocked tube
- Bleeding
- Tracheal trauma
- Pneumothorax
- Subcutaneous and mediastinal emphysema
- Respiratory and cardiovascular collapse
- Dislodged tube
- Tracheo-esophageal fistula
- Infection

B. Endotracheal Suctioning

1. Endotracheal suctioning is necessary to remove mucus, maintain a patent airway, and avoid tracheostomy tube blockages. Indications for suctioning include:
 - a. Audible or visual signs of secretions in the tube.
 - b. Signs of respiratory distress.
 - c. Suspicion of blocked or partially blocked tube.
 - d. Inability to clear the tube by coughing out the secretions.
 - e. Increases in required ventilation pressures (in ventilated patients).
 - f. Request by patient.
2. Tracheal suctioning should be carried out regularly for patients with a tracheostomy. The frequency varies between patients and is based on

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individual assessment.

3. Tracheal damage may be caused by suctioning. This can be minimized by using the appropriate sized suction catheter and only suctioning within the tracheostomy tube.

| Tracheostomy tube size (in mm) | 3.0 mm | 3.5 mm | 4.0 mm | 4.5 mm | 5.0 mm | 6.0mm | 7.0mm | 7.5mm | 8.0mm | 9.0mm – 10mm |
|--|--------|--------|--------|--------|--------|-------|-------|-------|-------|--------------|
| Recommended suction catheter size (Fr) | 7 | 8 | 8 | 10 | 10 | 10-12 | 14 | 14-16 | 14-16 | 16 |

4. The suction depth is determined by the estimated length of the tracheostomy tube.
5. The depth of insertion of the suction catheter needs to be determined prior to suctioning to avoid trauma.
6. Using the patient’s spare tracheostomy tube of the same size (if available) to estimate needed depth of suctioning.
7. The pressure setting for tracheal suctioning (suction machine pressure for small children is 50 - 100 mm/Hg, for older children/adults is 100 - 120 mm/Hg) to avoid tracheal damage.
8. In most circumstances, it is best to limit the duration of suctioning (including passing the catheter and suctioning the tracheostomy tube) to 5 - 10 seconds.
9. Routine use of normal saline is not necessary although there is anecdotal evidence it may thin secretions. In situations where this may be of benefit, only 1 - 2 mL is usually needed.

C. Tracheal Suctioning Procedure:

1. Inform patient of intended action.
2. Maintain appropriate PPE throughout procedure.
3. Assemble needed suction equipment and power on suction device.
4. Instill small volume of sterile normal saline into the tracheostomy tube, if needed, for thick or dry secretions. Excessive use of saline is not recommended. Use saline only if the mucus is very thick, hard to cough up, or difficult to suction.

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5. Gently insert catheter into the tracheal tube without applying suction, passing to the previously estimated needed depth.
6. Put thumb over opening in catheter to create suction and use a circular motion (twirl catheter between thumb and index finger) while withdrawing the catheter so that the mucus is removed well from all areas. Avoid suctioning longer than 10 seconds because of oxygen loss. Suction normal saline from a container if needed to clear catheter.
7. For tracheostomy tubes with cuffs, it may be necessary to deflate the cuff periodically for suctioning to prevent pooling of secretions above tracheal cuff.
8. Let patient rest and breathe, then repeat suction, if needed, until clear (trying to allow about 30 seconds between suctioning).
9. Oxygenate/ventilate, as needed.