

## Nasotracheal Suctioning

### Introduction

Nasotracheal suctioning (NTS) a.k.a deep suctioning is used to clear secretions that cannot be removed by a patient's own airway clearance techniques (spontaneous cough, blowing their nose) or less invasive procedures i.e nasal suctioning. By performing this task, its purpose is to help maintain a patent airway, improve ventilation and oxygenation, and reduce work of breathing. Nasotracheal suctioning is, however, an invasive procedure and adverse physiological effects can occur. These effects can be both immediate and long term; a sound knowledge of the procedure is therefore required.

### Indications

Evidence of retained secretions will be shown by one or more of the following:

- Visible, audible or palpable secretions
- Respiratory distress (i.e. increased work of breathing - nasal flaring, tachypnea, retractions)
- Poor/ineffective cough (unable to generate effective spontaneous cough)
- Increasing flow/FiO<sub>2</sub> requirement

*NTS is a potentially hazardous procedure and should only be performed when necessary (recommended frequency is PRN only).*

### Contraindications

- Epiglottitis and Croup (ABSOLUTE Contraindication)
- Bronchospasm
- Laryngospasm
- Acute head injury
- Elevated intracranial pressure
- Neck or spinal cord injury
- Bleeding disorders

*NTS should not be done if any of these contraindications listed above are present unless assessed on an individual basis AND with the agreement of the physician.*

### Equipment and Preparation

- An oxygen source, suction(vacuum) source with tubing and collection cannister, stethoscope, blanket (for infants and pediatrics), normal saline, water-soluble lubricant, and an appropriate-sized suction catheter with sterile gloves.

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\*Not all catheters come in a kit with sterile gloves. Make sure to grab sterile gloves if the catheter you are choosing does not come with one.

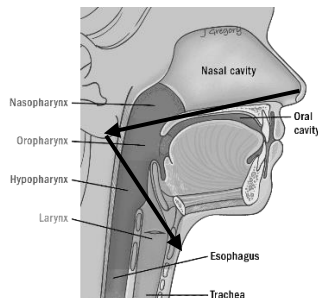
**Reminder:** Size of the suction catheter should not exceed half the diameter of the airway to prevent trauma to the nasal mucosa.

Age	Catheter Size
Premature Infant	5/6 fr
Term newborn	5/6 – 8 fr
Newborn – 6mo	8-10 fr
1-8 years	10 fr
>8 years	10-14 fr

Age	Suction Pressure
Neonates	60-80 mmHg
Infants	80-100 mm Hg
Children	100-120 mm Hg
Adult	100-150 mmHg

**IMPORTANT:** Use the lowest, safest suction pressure. Be sure to check your suction pressures by occluding the suction tubing **PRIOR TO** suctioning the patient.

### Measurement



Measure from the tip of the nose to the bottom of the earlobe then downward to the thyroid cartilage (Adams apple) of the neck.

Note on the catheter how many millimeters this is.

This is where the tip of the catheter will go when performing nasotracheal suctioning.

### Procedure

In most cases, it will be necessary for TWO people to perform this procedure to ensure optimal patient safety. This judgement must be made by the person(s) performing the procedure.

- Step 1.** Explain the procedure and its purpose with the patient's caregiver(s). Explain in age-appropriate terms to the child as needed. Let the caregiver(s) know that their child may scream and cry but that it is temporary.

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- Step 2.** Prepare the patient for the procedure. Appropriately position patient in a sniffing position (for infants) or slightly more hyper extended for older children. You may have to wrap the patient in a blanket or swaddle them to be able to contain them better as to protect them from harming themselves during the procedure. Don't ask for a parent to hold their child as it may be hard to watch their child in discomfort.
- Step 3.** Open suction catheter kit using sterile technique.
- Step 4.** Open lubricant and use the inside of the suction catheter kit as the sterile field.
- Step 5.** Put a sterile glove on one hand. Grasp catheter with the hand that will remain sterile. Connect catheter to suction tubing with the other clean hand.
- Step 6.** Dip the catheter tip into the lubricant for easier insertion.
- Step 7.** With non-sterile hand, move the cannula out of their nose if the patient is on an oxygen device.
- Step 8.** Normal saline should be used cautiously (for infants use 0.5-1ml NS, for children use 1-3ml NS) to loosen up thick secretions.
- Step 9.** Hold the catheter so that the natural curve is aligned with the patient's trachea. Without applying suction, gently insert the catheter into one of the patient's nares until desired measured depth is reached.
- Step 10.** If resistance is felt, do not force the suction catheter, pull back and gently reinsert the suction catheter. If you cannot pass the catheter on one side, try the other side.
- Step 11.** Intermittently apply suction only during withdrawal of the catheter. Suction catheter should be in airway no longer than 10 seconds with suction applied no longer than 5 seconds (*Applying suction for longer periods can cause an increase in secretions by means of irritating the airway and hypoxemia*).
- Step 12.** Re-lubricate the catheter and repeat suctioning as needed or as tolerated by the patient. The nares should be alternated, if possible, when repeated suctioning is required.
- Step 13.** Discard the suction catheter by wrapping it around the gloved hand disconnect from the suction tubing and pull the glove off, inside out.

*Monitor the patient's color, heart rate, respiratory rate, and hemodynamic values throughout the procedure. Patient's response to suctioning must be noted. If patient's response to suctioning is adverse, it may be necessary to discontinue and ventilate/oxygenate the patient.*

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**Documentation in EPIC**

<b>Nasal Suctioning/Secretions</b>	
<b>Suction Type</b>	Nasal or Nasopharyngeal
<b>Suction Device</b>	Bulb / Catheter / Nasal Aspirator / Other
<b>Secretion Amount</b>	Copious / Large / Moderate / Small / Scant / None / UTA / Other
<b>Secretion Color</b>	Clear / Green / Hemoptysis / Pink tinged / Tan / White / Yellow / UTA / Other
<b>Secretion Consistency</b>	Frothy / Mucous plugs / Purulent / Tenacious / Thick / Thin / UTA / Other
<b>Suction Tolerance</b>	Tolerated well / Tolerated fairly well / Tolerated poorly / Other
<b>Suctioning Adverse Effects</b>	None / Anxiety / Apnea / Bradycardia / Cyanosis(central) / Cyanosis(circumoral) / Desaturation / Dyspnea / Nausea / Tachycardia / Tachypnea / Other

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