



Rancho Los Amigos National Rehabilitation Center

DEPARTMENT OF NURSING

CLINICAL

POLICY AND PROCEDURE

SUBJECT: SUCTIONING TECHNIQUES:
TRACHEOSTOMY AND ENDOTRACHEAL
TUBES

Policy No.: C142
Effective Date: 04/1999
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Purpose: To maintain a patent airway, promote the optimal exchange of oxygen and carbon dioxide into and out of the lungs, and to prevent pneumonia and atelectasis.

Physician's Order Required: No

Performed By:

RNs, LVNs, Affiliating Nursing/ Students- under the supervision of an Affiliating Instructor or Staff Nurse.

Equipment:

Suction catheter, suction source, connecting tubing, normal saline, clean cup, clean gloves, and trash bag. Determine the need for Personal Protective Equipment.

Policy Statements:

1. Normal saline solution is for single patient use and unused portion should be discarded.
2. Change suction canister and tubing every 24 hours and as needed (e.g., when $\frac{3}{4}$ full, visibly broken, etc.)
Key Point: Suction canisters are sealed and disposed of appropriately.
3. Prior to suctioning (if appropriate), try suctioning alternatives such as Respiratory Hygiene and Manual Cough Techniques (See Policy C137.12 – *Respiratory Care Management: Assisted Cough*)

PROCEDURAL STEPS FOR OPEN-SUCTIONING:

(IMPORTANT: Ensure appropriate personal protective equipment is donned prior to entering patient's room in accordance with DHS and local Infection control expected practices; suctioning is considered to be an aerosol generating procedure)

1. Select sterile suction catheter package containing appropriate size catheter and additional catheters that may be needed to complete suctioning.
Key Point: As a general rule, it is recommended that the catheter diameter should not be greater than $\frac{1}{2}$ of the internal diameter of an artificial airway so airway is not completely occluded during suctioning.

The size of the catheter has been determined according to the size of a tracheostomy tube or endotracheal tube.

<u>Age</u>	<u>Trach Tube mm. (Inner Cannula)</u>	<u>Endotracheal Tube Size</u>	<u>Catheter Size (French)</u>
Child 2 – 5 Yrs.	3.5 – 4.5	4.0 – 5.0	6 – 8
Child 6 – 12 Yrs.	4.5 – 5.0	5.0 – 6.0	8 – 10
Adolescence – Adult	5.0 – 9.0	7.0 – 9.0	10 – 16

2. Ensure spare tracheostomy tubes and an obturator are readily available in case the tracheostomy tube becomes dislodged.
3. Explain procedure to patient and family.
4. Elevate the head of bed at 30-45 degrees, unless contraindicated.
5. Perform hand hygiene.
6. Pour normal saline into clean cup.
7. Open sterile catheter.
8. Turn on suction source and check negative pressure by pinching/occluding the connecting tubing.
Key Point: It is necessary to check the vacuum each time the patient is suctioned. Regulate the pressure as follows:

PORTABLE SUCTION MACHINES

Infants.....2-3 inches mercury
Children.....3-4 inches mercury
Adults.....3-5 inches mercury

WALL SUCTION UNITS

Infants.....60-80 millimeters mercury
Children.....80-100 millimeters mercury
Adults.....80-120 millimeters mercury

A physician's order is needed to use negative pressure higher than values listed.

Key Point: Tracheal damage could occur if higher pressures are used.

9. Don clean gloves and other appropriate personal protective equipment, if needed.
Key Point: Handle gloves as little as possible to maintain cleanliness of catheter and equipment.
10. With dominant hand, grasp catheter.
11. Connect catheter to connecting tubing.
Key Point: Manipulate connecting tubing with non-dominant hand. The part of the catheter inserted into the airway will **only** be touched with the dominant hand. The non-dominant hand will handle all other equipment and be used to occlude the suction port during suctioning.
12. Moisten catheter and connecting tubing by suctioning normal saline.
Key Point: To ease insertion of the catheter into tracheostomy tube and to lubricate inside of catheter to facilitate passage of secretions through it
13. Pre-oxygenate patient, if indicated. Pre-oxygenate with 100% oxygen for 30-60 secs using bag-valve device if necessary. Alternatively, ask patient to take two or three deep breaths if able.
Key Point: Limits the decrease in arterial O₂ levels during suction.
14. Detach any devices blocking the trach opening to gain access to the patient's airway.
15. Advance catheter gently into the patient's airway. **DO NOT APPLY SUCTION WHILE INSERTING THE CATHETER.**
Key Point: Applying suction while inserting catheter could cause damage to mucosal lining and additional oxygen to be removed.
16. If the patient has a functional cough, insert the catheter one inch past the end of the tracheostomy tube. If the patient does not have a functional cough, insert the catheter until you meet resistance, then withdraw the catheter 1 inch before applying suction.
Key Point: Slight withdrawal of catheter removes tip from mucus membrane and reduces trauma.

17. While withdrawing the catheter, apply suction and rotate the catheter between your fingertips to clear secretions from the sides of the tracheostomy tube.
Key Point: Amount of time catheter remains in trachea is to be limited to five (5) seconds for infants, 5-10 seconds for children until the age of 13, and 10-15 seconds for adults. Prolonging the time may cause arrhythmias and possible cardiac arrest due to hypoxia and/or stimulation of the vagal reflex.
Key Point: Suction passes should be limited to three.
18. If patient is ventilator dependent, re-connect patient to ventilator after each pass of the suction catheter. If the patient does not have a ventilator, allow 20-30 seconds between passes.
19. Suction enough normal saline to clear mucus from catheter and tubing after each insertion/ removal of suction catheter.
20. Check patient's tolerance of the procedure after each insertion/removal of the suction catheter.
21. Repeat above steps as necessary to clear the airway.
22. As indicated, suction oropharynx and/or nasopharynx to remove all secretions including those above an inflated tracheostomy tube cuff.
Key Point: You may insert a catheter used for tracheal suctioning into the oropharynx or nasopharynx but NEVER use the same catheter in the tracheostomy or endotracheal tube after suctioning the- oropharynx or nasopharynx.
23. Suction remaining normal saline through catheter.
24. Hold the catheter tip in palm of one gloved hand.
Key Point: Ensures catheter tip will stay within glove when being disposed of.
25. Wrap catheter loosely around hand. Disconnect suction catheter from connecting tubing.
26. Pull glove off over catheter.
27. Pull second glove over previously removed glove and catheter.
Key Point: This assures catheter is completely contained in two gloves and cannot contaminate other equipment.
28. Turn off suction equipment.
29. Dispose gloves, catheter, rinsing cup, unused normal saline, wrappings, and any PPE equipment used appropriately.
30. Perform hand hygiene.

PROCEDURAL STEPS FOR CLOSED-SUCTIONING (Inline suctioning)

1. Select appropriate size catheter.
Key Point: Catheters must be changed according to manufacturer's recommendations.
2. Perform Hand hygiene and don appropriate personal protective equipment.
3. Attach suction control valve to suction tubing and set suction pressure to desired level.
4. Insert the T-piece between the endotracheal/tracheostomy tube and the ventilator circuit.

5. Grasp the T-piece with one hand and advance the catheter using the thumb and forefinger of the opposite hand.
6. Advance catheter to desired depth. There are different inline suction kits for endotracheal tubes and trach tubes. The main difference is the length of the catheter.
Key Point: For endotracheal catheters with numerical markings, align numbers and advance or withdraw according to manufacturer's recommendations prior to applying suction.
Key Point: For inline- trach suctioning, advance the whole length of the catheter.
7. Withdraw the catheter slowly while depressing the suction control valve. Do not remove the catheter until the valve is fully depressed. Stabilize the T-piece with your non-dominant hand while withdrawing the catheter.
8. Withdraw the catheter to its full extent (black marking is visible inside sleeve).
9. Open cap on irrigation port and slowly instill normal saline into the port while applying continuous suction to clean the catheter. Do not allow secretions to remain in the catheter or suction line after suctioning.
10. Cap the lavage port after removing the normal saline vials. Discard the empty vial
11. Rotate and lock the suction control valve.

DOCUMENTATION: Document significant findings in the medical record.

Inspect secretions:

1. Normal sputum tends to be watery and white or translucent
2. Tenacious or thick secretions may indicate dehydration
3. Yellow, tan, or green-colored secretions may indicate infection
4. Brown-colored sputum may indicate prior bleeding
5. Red-colored sputum indicates active bleeding

PATIENT EDUCATION

1. Explain need for suctioning to the patient.
2. Instruct patient to make staff aware in the event they need to be suctioned.
3. Explain the need to maintain hydration.
4. Ensure the patient knows how to "click" in the event they are not able to verbalize the need to be suctioned.
5. Ensure the patient can explain the suctioning procedure to a caregiver.

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References:

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Lippincott Procedures (2022). Tracheal suctioning, intubated patient. Retrieved from <https://procedures.lww.com/lnp/view.do?pld=6607451&hits=suctioning,suction&a=true&ad=false&q=suctioning>

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