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Tracheostomy Tubes: *Nursing Care & Priority Interventions*

A surgically created airway through the anterior neck into the trachea. The nurse owns airway patency, suction safety, cuff management, emergency response, and complication recognition. Airway always beats everything — this is the cluster where ABC literally is A.

SYSTEM: RESPIRATORY | PRIORITY: AIRWAY | NGN FOCUS: RECOGNIZE CUES / TAKE ACTION | SKILL: STERILE SUCTIONING

📚 **SOURCE DISCLOSURE:** This topic is not present in Diane's uploaded reference notes. Content compiled from Saunders Comprehensive Review for the NCLEX-RN Examination (2026 ed.), ATI RN Adult Medical-Surgical Nursing, Lippincott Manual of Nursing Practice (11th ed.), AACN Procedure Manual for High Acuity Care (7th ed.), and AARC Clinical Practice Guidelines for tracheostomy care and endotracheal suctioning.

1 SECTION ONE — Definition & Overview

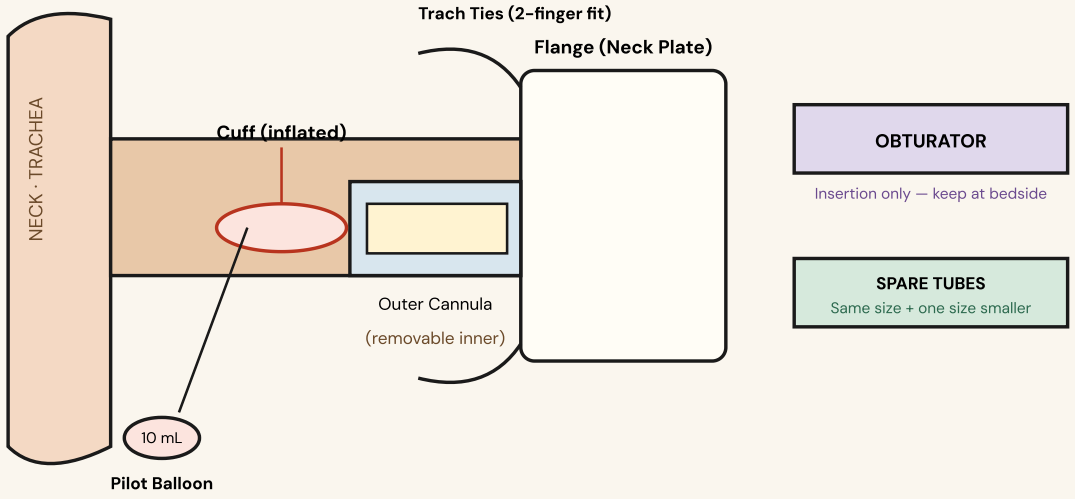
- ✓ **Tracheostomy** = surgical opening (stoma) made through the anterior neck into the trachea, usually between the 2nd and 4th tracheal rings, to create an artificial airway.
- ✓ **Tracheostomy tube** = the device inserted through the stoma to maintain patency and permit ventilation, suctioning, and secretion clearance.
- ✓ Can be *temporary* (weaning from ventilator, short-term airway protection) or *permanent* (laryngectomy, chronic ventilator dependence).
- ✓ Bypasses the upper airway → eliminates natural warming, humidification, and filtration of inspired air → **humidified O_2 is mandatory**.

🫁 KEY CLINICAL REALITY

Once a trach is in place, **airway patency is the nurse's responsibility every single moment**. A blocked or dislodged tube is an emergency, not a "call the doctor and wait" situation. This is the topic where prioritization isn't an academic exercise — it's the difference between life and death.

SECTION TWO

2 Tube Anatomy & Components



Standard cuffed tracheostomy tube assembly

FIG. 1 — TRACHEOSTOMY TUBE COMPONENTS AND BEDSIDE EMERGENCY EQUIPMENT

COMPONENT

Outer Cannula

The main body of the tube that stays in the stoma. **Never removed** by the nurse except for emergency reinsertion. Holds the airway open.

COMPONENT

Inner Cannula

Removable liner inside the outer cannula. Cleaned (disposable replaced) every 8 hr or PRN to remove secretions and prevent obstruction.

COMPONENT

Obturator

Rounded-tip stylet used **only** to insert the outer cannula. After insertion, immediately removed. **Tape it to the head of the bed** — needed for emergency reinsertion.

COMPONENT

Cuff & Pilot Balloon

High-volume / low-pressure cuff inflates against tracheal wall to prevent aspiration and seal for ventilation. Pilot balloon indicates inflation status. **Target: 20–25 cm H_2O (14–20 mm Hg)**.

COMPONENT

Flange / Neck Plate

Flat plate that rests against the neck. Has slots for trach ties. Often labeled with tube size, type, and inner/outer diameter.

COMPONENT

Fenestrated Tube

Has a hole (fenestration) in the outer cannula. With inner cannula **removed**, cuff **deflated**, and cap on → client can speak. Used during weaning.

SECTION THREE

3 Indications & Pathophysiology

A tracheostomy is created when the upper airway is obstructed, ineffective, or expected to be unable to support ventilation for a prolonged period.

Common Indications

- → Prolonged mechanical ventilation (> 7–14 days)
- → Upper airway obstruction (tumor, trauma, edema, foreign body)
- → Inability to manage secretions (ALS, stroke, neuromuscular disease)
- → Severe sleep apnea unresponsive to CPAP
- → Laryngectomy (permanent — total separation of airway from upper aerodigestive tract)
- → Bilateral vocal cord paralysis
- → Facial trauma / burns

Physiologic Consequences

- → **Loss of upper airway functions** → cold, dry, unfiltered air enters lower airway
- → Impaired cough effectiveness (glottis bypassed)
- → Cannot phonate when cuff is inflated
- → Altered swallowing mechanics → aspiration risk
- → Increased mucus production initially as airway adapts
- → Loss of PEEP from closed glottis → atelectasis risk

WHY HUMIDIFICATION MATTERS

The nose and pharynx normally warm inspired air to body temperature and add ~100% relative humidity. A trach **bypasses all of that**. Dry, cold air thickens secretions, dries the tracheal mucosa, and creates mucus plugs — the #1 cause of trach tube obstruction. **Always provide humidified oxygen or a heat-moisture exchanger (HME / "artificial nose")**.

SECTION FOUR

4 Assessment Findings & Complications

Early Warning Signs (Recognize Cues)

- ✓ **Restlessness, anxiety, agitation** — earliest sign of hypoxia (just like every other respiratory topic)
- ✓ Tachycardia, tachypnea, increased work of breathing
- ✓ Audible gurgling, coarse rhonchi, or whistling at trach site
- ✓ Increased peak airway pressures (if ventilated)
- ✓ Dropping SpO_2, rising $EtCO_2$
- ✓ Cyanosis around lips and nail beds (late sign — don't wait for this)
- ✓ Diminished or absent breath sounds on one side (possible mucus plug or displacement)

Major Complications & Their Cues

COMPLICATION	HALLMARK FINDINGS	PRIORITY ACTION
Mucus plug / obstruction	Sudden ↑ work of breathing, ↓ SpO_2, alarm "high pressure" on vent, cannot pass suction catheter	Suction → remove inner cannula → if not relieved, call rapid response
Accidental decannulation (early, < 72 hr)	Tube out, stoma not yet matured, respiratory distress	🚨 MEDICAL EMERGENCY: Cover stoma, ventilate via face mask, call code
Accidental decannulation (late, > 72 hr / mature stoma)	Tube out, stoma well-formed	Reinsert with obturator → confirm placement → notify HCP
Subcutaneous emphysema	"Crackling" or "Rice Krispies" feel on palpation around neck/chest, facial swelling	Notify HCP — air is leaking into tissue; assess for tube displacement or pneumothorax
Tracheoinnominate artery fistula (TIF)	🚨 Pulsatile bleeding at stoma OR "sentinel bleed" (small herald bleed). Catastrophic.	🚨 MEDICAL EMERGENCY: Hyperinflate cuff, apply digital pressure into stoma toward sternum, surgery STAT. Mortality > 80%.

COMPLICATION	HALLMARK FINDINGS	PRIORITY ACTION
Tracheoesophageal fistula (TEF)	Coughing/choking with eating or drinking, gastric contents in trach secretions, ↑ cuff pressure needed	NPO, notify HCP, prepare for diagnostic imaging
Tracheal stenosis / malacia	Stridor after decannulation, recurrent difficulty weaning	Late complication — notify HCP for bronchoscopy
Stomal infection	Redness, warmth, purulent drainage, fever, foul odor	Culture, stoma care, antibiotics per order
Aspiration	Secretions tinted with food/tube feed, ↑ pulmonary infiltrates, fever	Verify cuff inflation during/after meals, HOB ≥ 30°, swallow evaluation

THE SINGLE WORST BLEED IN THIS TOPIC

Tracheoinnominate artery fistula typically occurs 3 days–6 weeks after placement when the tube cuff or tip erodes into the innominate artery. A small "sentinel" bleed often precedes the catastrophic hemorrhage by hours to days. *Any pulsatile or bright-red bleeding at the stoma is an emergency, full stop.*

SECTION FIVE

5 Priority Nursing Interventions (ABC Framework)

A — Airway (top priority, every time)

- ✓ Keep **emergency equipment at bedside at all times** (see Section 7)
- ✓ Assess airway patency, respiratory rate, effort, SpO_2, and breath sounds **q2h minimum** (more frequently if unstable)
- ✓ Suction **PRN, never on a schedule** — based on assessment findings (audible secretions, ↓ SpO_2, ↑ vent pressures, visible secretions, request)
- ✓ Provide **humidified O_2** via trach collar, T-piece, or HME at all times
- ✓ Inner cannula care: inspect and clean / replace q8h and PRN
- ✓ Keep HOB elevated 30–45° to reduce aspiration and atelectasis

B — Breathing

- ✓ Monitor SpO_2 continuously in acute phase; ABGs as ordered
- ✓ Assess lung sounds q4h — listen for adventitious sounds, asymmetry
- ✓ Encourage deep breathing, incentive spirometry as condition allows
- ✓ Reposition q2h; ambulate when stable
- ✓ Monitor cuff pressure q8h (20–25 cm H_2O / 14–20 mm Hg)

C — Circulation, Communication, Comfort

- ✓ Continuous cardiac monitoring during acute phase (suctioning can trigger vagal response → bradycardia)
- ✓ Provide **alternative communication**: writing board, picture board, eye-blink system, electronic device, lip-reading
- ✓ Call bell **within reach at all times** — client cannot call out audibly
- ✓ Stoma site care q8h–q24h: clean with sterile saline (not hydrogen peroxide on mature stomas — drying); change drain sponge when soiled
- ✓ Trach tie changes require **two people** — one holds the tube, one changes the ties; allow **1–2 finger widths** of slack
- ✓ Mouth care q2–4h (mouth-breathing dries oral mucosa)
- ✓ Address psychological response: body image, fear of choking, loss of voice

✓ TWO-NURSE RULE FOR TRACH TIE CHANGES

One nurse holds the trach tube firmly against the neck while the second cuts and replaces the ties. **Never** remove old ties before new ties are secured — a single cough can dislodge an unsecured tube.

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SECTION SIX

Suctioning: Procedure & Parameters

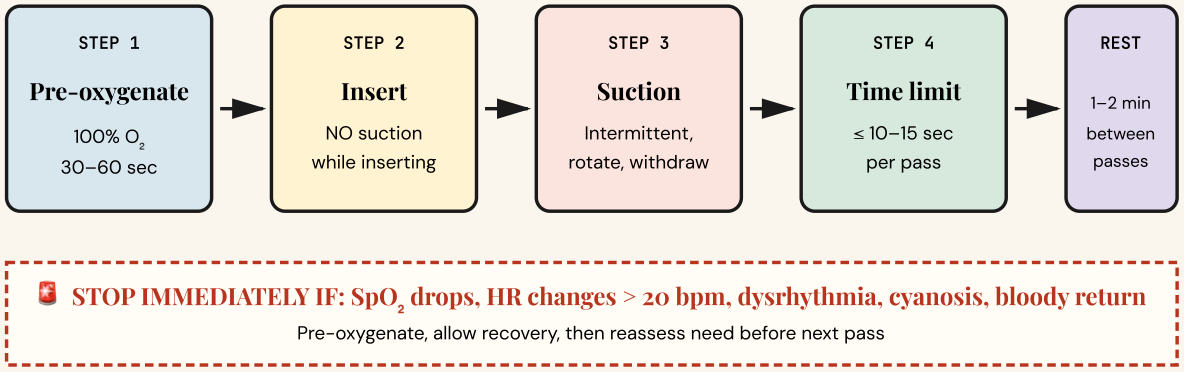

FIG. 2 — STERILE TRACHEAL SUCTIONING SEQUENCE

PARAMETER	ADULT	PEDIATRIC / INFANT
Suction pressure	80–120 mm Hg (max 150)	Infant: 60–80 · Child: 80–100
Catheter size	≤ ½ the inner diameter of the trach tube	Same rule — never larger than ½ ID
Pre-oxygenation	100% FiO_2 × 30–60 sec	100% FiO_2 × 30 sec (caution in premies)
Suction duration	≤ 10–15 sec per pass	≤ 5–10 sec per pass
Between passes	Allow 1–2 min recovery + re-oxygenate	Same; monitor SpO_2 closely
Technique	Sterile (in-hospital). Apply suction *only on withdrawal*, rotate catheter. Insert without suction.	
Frequency	**PRN, not scheduled** — based on assessment, not clock	

DO NOT

✗ Apply suction **while inserting** the catheter — damages mucosa, removes oxygen

✗ Routine instillation of saline before suctioning — **not recommended** (evidence does not support; may push secretions deeper, ↓ SpO_2)

✗ Suction on a fixed schedule (q2h, q4h) — suction **only when assessment indicates**

✗ Suction without pre-oxygenating in the acutely ill

✗ Force the catheter if resistance is met

SECTION SEVEN

7 Emergency Bedside Equipment (Always)

If it isn't at the bedside, it doesn't exist when the crisis happens. Verify at the start of every shift.

MUST-HAVE

Spare Trach Tubes (×2)

One **same size**, one **size smaller** (in case stoma narrows during emergency reinsertion).

MUST-HAVE

Obturator

Taped to head of bed. The obturator *from the current tube* stays at bedside for emergency reinsertion.

MUST-HAVE

Bag-Valve-Mask (Ambu)

For ventilation via face (early decannulation) or via trach adapter. Connected to O_2.

EQUIPMENT

Functioning Suction Setup

Wall canister tested, catheters in sterile packaging, gloves, goggles, sterile saline.

EQUIPMENT

Tracheal Dilator / Hemostat

Used to hold the stoma open if the tube is dislodged in a fresh stoma while awaiting reinsertion.

EQUIPMENT

Sterile Saline & Gauze

Stoma care, suction flushing. *Not* for routine instillation into the trach.

COMMUNICATION

Call Light + Writing Board

Within reach. Confirm client can summon help silently every shift.

COMMUNICATION

Oxygen Source

Trach collar/T-piece **humidified**. Backup O_2 tank tested.

DOCUMENTATION

Tube Specs at Bedside

Tube size, type, cuff status, insertion date. Posted clearly so any responder knows what's in the airway.

SECTION EIGHT

8 Cuff Management & Communication

Cuff Pressure Targets

- ✓ **Target: 20–25 cm H_2O** (≈ 14–20 mm Hg)
- ✓ Check pressure with manometer **q8h minimum**
- ✓ **> 25 cm H_2O** → ↓ tracheal capillary perfusion → ischemia, necrosis, stenosis, fistula
- ✓ **< 20 cm H_2O** → air leak, ineffective ventilation, ↑ aspiration risk
- ✓ Cuff **inflated** during: mechanical ventilation, meals (most clients), procedures with sedation
- ✓ Cuff **deflated** for: weaning trials, speaking valve use, when client tolerates without aspiration

Minimal Leak / Occluding Volume

- ✓ **Minimal Leak Technique (MLT)**: inflate cuff until small leak heard at peak inspiration; ensures capillary perfusion not compromised
- ✓ **Minimal Occluding Volume (MOV)**: inflate just until no leak heard at peak inspiration
- ✓ Both are acceptable; MOV preferred when aspiration risk is high

🗣 PASSY-MUIR / ONE-WAY SPEAKING VALVE

The single most-tested rule: Before placing a Passy-Muir valve, the **cuff MUST be fully deflated**. Air enters through the valve on inhalation, but on exhalation the valve closes — air must escape *around* the tube and up through the vocal cords (for speech) and the upper airway. **If cuff is inflated, the client cannot exhale → respiratory arrest.** Suction before deflating the cuff.

Communication Strategies

- → Writing board / dry-erase board / pen and paper
- → Picture / communication board with common needs
- → Electronic devices, tablets, text-to-speech apps
- → Speaking valve (when cuff deflated and client tolerates)
- → Established eye-blink or hand-squeeze yes/no signals
- → Anticipate needs — establish a routine, ask yes/no questions
- → Speech-language pathology consult early

SECTION NINE

9 Pharmacology Considerations

DRUG / CLASS	USE IN TRACH CARE	NURSING CONSIDERATIONS
Humidified Oxygen *(not a drug, but treated as one)*	Replaces lost natural humidification; thins secretions; prevents mucus plugs	Trach collar or T-piece with heated humidifier. Monitor water level. Avoid pooling in tubing (infection risk).
Bronchodilators Albuterol, ipratropium	Reduce airway resistance; treat bronchospasm during weaning	Deliver via nebulizer attached to trach collar or in-line with vent. Monitor HR (tachycardia).
Mucolytics Acetylcysteine (Mucomyst), dornase alfa	Thin tenacious secretions when humidification alone insufficient	Smells like rotten eggs (sulfur). May trigger bronchospasm — pretreat with bronchodilator. Suction will be needed after.
Topical Antibiotic Ointment Bacitracin, mupirocin	Localized stomal infection per HCP order	Do not apply near the inner stoma opening (could be aspirated). Clean site first.
Systemic Antibiotics Per culture and sensitivity	Tracheitis, ventilator-associated pneumonia (VAP), stomal cellulitis	Obtain cultures before first dose. Monitor renal function, allergies, peak/trough as indicated.
Lidocaine 2% (topical / nebulized)	Pre-procedure (bronchoscopy, tube change) — suppresses cough reflex	Monitor for systemic toxicity (CNS, cardiac). Confirm gag/cough returns before resuming oral intake.
Sedation Propofol, dexmedetomidine, midazolam	Mechanically ventilated clients; daily sedation interruption per protocol	Assess RASS / Riker scale. Propofol: ↑ triglycerides, ↑ pancreatic enzymes, PRIS. Daily wake-up trials.
Analgesics Opioids, acetaminophen	Stomal pain post-op, suction discomfort	Monitor for respiratory depression (especially in spontaneously breathing trach client). Naloxone available.
VTE prophylaxis Heparin, enoxaparin, SCDs	Standard for any immobilized / ventilated client	Monitor for bleeding. Especially relevant near stoma — observe site for unusual bleeding.

💊 INHALATION ROUTE REMINDER

Nebulized medications can be delivered through the trach via in-line nebulizer or trach collar attachment. **Do not use a metered-dose inhaler (MDI) directly into a trach** — use a spacer / aerosol chamber designed for trach use.

SECTION TEN

10 NCLEX Test Traps ⚠

✗ THE TRAP	✓ THE RIGHT ANSWER
Suction the client routinely q2h to "keep the airway clear."	Suction **PRN based on assessment** — audible secretions, ↓ SpO_2, ↑ vent pressures, visible secretions, or client request. Routine suctioning causes mucosal damage and hypoxia.
Apply suction while inserting and withdrawing the catheter to be efficient.	**Apply suction only on withdrawal**. Insert with NO suction. Suctioning on insertion damages mucosa and removes precious oxygen the entire time.
The client's trach is dislodged on post-op day 1 — call the surgeon and wait at the bedside.	Fresh stoma (< 72 hr) decannulation = **medical emergency**. Cover stoma, ventilate with bag-valve-mask over the face, call rapid response. Stoma has not matured — blind reinsertion can create a false tract.
Inflate the Passy-Muir speaking valve cuff to seal the airway so the client can talk.	**Cuff MUST be deflated** before placing a speaking valve. Otherwise the client cannot exhale around the tube → respiratory arrest. This is a "kills the patient" wrong answer.
Instill 5 mL of normal saline before every suction pass to "loosen secretions."	Routine saline instillation is **not evidence-based**. It may push secretions deeper, drop SpO_2, and contaminate the lower airway. **Use humidification** instead.
Cut the old trach ties first so they're out of the way, then thread the new ones.	**Two nurses, new ties secured BEFORE old ties are cut**. One nurse holds the tube; the other secures new ties, then cuts the old. Single cough can dislodge an unsecured tube.
Bright red pulsatile blood at the stoma — apply a pressure dressing and continue monitoring.	**Tracheoinnominate artery fistula = surgical emergency**. Hyperinflate the cuff to tamponade, apply digital pressure into the stoma pulling toward the sternum, call for emergency surgery. Mortality > 80%.
✗ THE TRAP	✓ THE RIGHT ANSWER

Choose a suction catheter the same size as the inner diameter of the trach tube.	Catheter must be **no larger than ½ the inner diameter** of the trach tube. Larger catheters occlude the airway during suction → hypoxia, atelectasis.

SECTION ELEVEN

11 Patient & Family Education

Home Care Skills

- ✓ **Stoma care** daily: clean with sterile saline (or normal saline at home), pat dry, observe for redness/drainage/odor
- ✓ **Inner cannula**: clean / replace daily (or per HCP)
- ✓ **Suction technique** taught using clean (not sterile) technique at home; same time limits and pre-oxygenation principles
- ✓ **Humidification**: use heat-moisture exchanger ("artificial nose") or bedside humidifier
- ✓ Trach tie change with a second person present
- ✓ Drink extra fluids (2–3 L/day if not contraindicated) — thins secretions

Lifestyle & Safety

- ✓ **No swimming, no submerging** in water — water enters lungs directly through stoma
- ✓ Shower with stoma **covered** (handheld shower aimed below stoma; use shower cover)
- ✓ Cover stoma with a **foam filter / scarf** in cold, dusty, or windy conditions
- ✓ Wear a **medical alert** bracelet identifying tracheostomy
- ✓ Avoid aerosolized irritants: powders, sprays, smoke
- ✓ Carry a portable suction unit and an emergency kit (spare tube, obturator, ties) when traveling
- ✓ Use CPR pocket mask **over the stoma** (not the mouth) in laryngectomy clients

When to Call the HCP / Go to ER

- → Difficulty breathing not relieved by suctioning
- → Bleeding from stoma (any bright-red or pulsatile bleeding = 911)
- → Fever, increased / discolored / foul-smelling secretions, redness or pus at stoma
- → Inability to pass suction catheter or insert inner cannula
- → Tube falls out and cannot be reinserted
- → Crackling under the skin (subcutaneous emphysema)
- → Chest pain, persistent cough, change in voice (cuff or fistula concerns)

SECTION TWELVE

12 Memory Boosters & Mnemonics

"S-U-C-T-I-O-N" — HOW TO SUCTION A TRACH

- **S** **Sterile** technique (in-hospital), clean at home
- **U** **Up the O_2** — pre-oxygenate 100% × 30–60 sec
- **C** **Catheter** no bigger than ½ tube ID
- **T** **Ten** seconds max per pass (10–15 sec)
- **I** **Insert** without suction, then apply intermittently
- **O** **Only on withdrawal** — never on insertion
- **N** **Notice** SpO_2, HR, rhythm — stop and re-oxygenate if changes

"T-R-A-C-H" — BEDSIDE EMERGENCY KIT

- **T** **Two** spare tubes (same size + one smaller)
- **R** **Resuscitation** bag (BVM with O_2)
- **A** **Airway** obturator taped to head of bed
- **C** **Catheter** + suction setup tested and ready
- **H** **Hemostat** / tracheal dilator for fresh stoma decannulation

QUICK ASSOCIATIONS

- ✓ **Restlessness** = earliest sign of hypoxia (always)
- ✓ **20–25 cm H_2O** = cuff pressure target (think "two zips to two fives")
- ✓ **72 hours** = stoma maturation threshold (before = emergency if decannulation; after = reinsertion with obturator)

- ✓ **Passy-Muir valve** = "Pass on the cuff" (deflate the cuff to pass air around)
- ✓ **Pulsatile bleed** = innominate artery (the worst-case complication)
- ✓ **1–2 finger widths** = trach tie tightness
- ✓ **½ the ID** = max suction catheter size

🧠 ORDER OF TRACH PLACEMENT VERIFICATION

1. Auscultate bilateral breath sounds
2. Capnography ($EtCO_2$ waveform confirms tracheal placement)
3. Chest X-ray (gold standard for post-procedure verification)
4. Symmetric chest rise, SpO_2 stable, no subcutaneous emphysema

SECTION THIRTEEN

13 NCJMM Clinical Judgment Scenario

CASE

A 58-year-old client is post-op day 2 from a tracheostomy placement for laryngeal cancer. The PCT calls the nurse to the room — the client is sitting up in bed pointing at the trach, eyes wide, with audible high-pitched whistling around the tube. The client appears anxious and is pulling at the ties. SpO_2 is 86%, HR 124, RR 32 with accessory muscle use. The trach collar is in place at 40% humidified O_2.

1 RECOGNIZE CUES

What data stands out?

Sudden onset respiratory distress in a fresh (< 72 hr) trach client. Audible whistling = air leak (possible partial dislodgment or cuff issue). SpO_2 86% (hypoxia), HR 124 (tachycardia), RR 32 with accessory muscle use (work of breathing). Client is anxious and reaching for the tube. Restlessness + tachycardia = early hypoxia. Fresh stoma = emergency risk if dislodged.

2 ANALYZE CUES

What's likely happening?

Differential: **partial tube dislodgment** (whistling air leak, anxious pulling), mucus plug (but air leak is louder cue), cuff deflation (sudden leak), pneumothorax (less likely without unilateral findings). Highest-probability and highest-acuity = displacement in a fresh stoma. This is an airway emergency.

3 PRIORITIZE HYPOTHESES

Rank by threat

#1 Partial / complete tube displacement in a fresh stoma (life-threatening, time-critical) → **#2 Cuff failure / leak** (impaired ventilation) → **#3 Mucus plug / obstruction** (also airway, but less consistent with the leak sound). Treat the airway threat first; do not delay for diagnostics.

4 GENERATE SOLUTIONS

What are the options?

Call for help (rapid response / surgical team). Stay with the client. Do *not* blindly attempt to reinsert in a fresh stoma. Have BVM, obturator, spare tubes ready. Prepare to cover the stoma and ventilate via face mask if the tube comes out completely. Increase FiO_2. Position upright. Reassure the client.

5 TAKE ACTION

Execute in priority order

1. **Stay with the client; call for help immediately** (rapid response, surgical team)
2. Apply 100% O_2 via the trach if tube still in place, or via face mask + cover stoma if dislodged
3. Position upright (HOB up)

4. Bring BVM, obturator, same-size and smaller spare tubes to the bedside
5. **Do NOT blindly reinsert** — fresh stoma → call surgeon for direct reinsertion under visualization
6. If complete obstruction or arrest → cover stoma, bag-mask ventilate via face, prepare for emergency airway
7. Document time of onset, findings, interventions, response

6

EVALUATE OUTCOMES

Expected response

SpO_2 should rise to ≥ 92% within 1–2 min of correct intervention. HR should trend down toward baseline as oxygenation improves. RR and work of breathing should decrease. Client anxiety should resolve. Tube position confirmed by surgeon at bedside; cuff pressure verified; chest X-ray obtained. **Reassess every 5 min until stable**; document and hand off with explicit "fresh trach — surgical airway precautions" note.

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SECTION FOURTEEN

Quick Reference Cheat Sheet

PARAMETER	VALUE / RULE
Cuff pressure target	20–25 cm H_2O (14–20 mm Hg)
Suction pressure (adult)	80–120 mm Hg (max 150)
Suction pressure (child)	80–100 mm Hg
Suction pressure (infant)	60–80 mm Hg
Suction catheter size	≤ ½ the trach tube inner diameter
Suction duration per pass	≤ 10–15 sec (adult); ≤ 5–10 sec (peds)
Pre-oxygenation	100% FiO_2 × 30–60 sec before suctioning
Between suction passes	1–2 min recovery + re-oxygenate
Stoma maturation	~72 hours
Trach tie tightness	1–2 finger widths under the tie
Inner cannula care	q8h and PRN
Stoma care	q8h–q24h with sterile saline
HOB position	≥ 30° (aspiration prevention)
Speaking valve	Cuff DEFLATED — always
Saline instillation routine	NOT recommended (use humidification)
Suctioning frequency	PRN based on assessment, never scheduled
Trach tie change	TWO nurses; new ties on before old ties off
Bedside emergencies	Spare tubes (×2), obturator, BVM, suction, dilator
Pulsatile bleed	🚨 Tracheoinnominate fistula — surgical emergency
Earliest hypoxia sign	Restlessness

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