

Oxygen Therapy & Venous Thromboembolism (VTE) Prophylaxis 🧠🩸

Proper **oxygen therapy** and **VTE prevention** are essential for **patient safety** and **improved outcomes**. The NCLEX frequently tests **oxygen delivery methods**, **safety measures**, and **VTE prevention strategies**.

1 Oxygen Therapy 🧠

Oxygen therapy is used for **hypoxia**, **respiratory distress**, or **chronic lung diseases**. However, too much oxygen can be dangerous, especially in COPD patients.

Types of Oxygen Delivery Devices & NCLEX Considerations

✓ Nasal Cannula (1-6 L/min, 24-44% FiO₂)

- Used for **stable, non-emergency patients** needing low-flow oxygen.
- **Humidify oxygen** if >4 L/min to prevent nasal dryness.

✓ Simple Face Mask (6-10 L/min, 40-60% FiO₂)

- Used for **short-term oxygen therapy** (e.g., post-op patients).
- **Do not use** for CO₂-retaining patients (COPD)—it can cause CO₂ buildup.

✓ Non-Rebreather Mask (10-15 L/min, 60-100% FiO₂)

- Used for **critically ill patients** (e.g., shock, trauma, severe hypoxia).
- Ensure the reservoir bag stays 2/3 full at all times.
- This is the highest O₂ concentration available without intubation.

✓ Venturi Mask (4-10 L/min, 24-50% FiO₂)

- **Best for COPD patients** needing precise oxygen delivery.
- Delivers exact O₂ concentrations based on color-coded valves.

✓ High-Flow Nasal Cannula (Up to 60 L/min, Heated & Humidified O₂)

- Used for patients with high oxygen demand who cannot tolerate masks.
- Provides **positive airway pressure** (similar to CPAP).

✓ CPAP/BiPAP (Continuous/ Bilevel Positive Airway Pressure)

- Used for sleep apnea, COPD, or to prevent intubation in respiratory distress.
- Contraindicated in patients with vomiting or decreased consciousness (aspiration risk!).

⚠ NCLEX KEY POINT: For COPD patients, keep O₂ at 88-92% to avoid CO₂ retention (oxygen toxicity). 🚒

Oxygen Therapy Safety Considerations

- ✓ No smoking or open flames near oxygen (fire hazard!).
- ✓ Use water-based moisturizers (not petroleum-based products like Vaseline).
- ✓ Secure tubing to prevent falls.
- ✓ Monitor for signs of oxygen toxicity: Restlessness, confusion, respiratory depression.

⚠ NCLEX KEY POINT: If a patient's O₂ drops, always try repositioning first (e.g., high Fowler's) before increasing oxygen. 🚒

② Venous Thromboembolism (VTE) Prophylaxis 🩸

VTE includes **deep vein thrombosis (DVT)** and **pulmonary embolism (PE)**. Prevention is key, especially for **immobile, surgical, or high-risk patients**.

Risk Factors for VTE (Virchow's Triad)

- ① **Venous stasis:** Bedrest, immobility, pregnancy, obesity.
- ② **Hypercoagulability:** Cancer, dehydration, estrogen therapy, clotting disorders.
- ③ **Endothelial injury:** Surgery, trauma, IV catheters, smoking.

⚠ NCLEX KEY POINT: Immobility is the biggest modifiable risk factor for DVT—encourage early ambulation! 🚒

VTE Prevention Strategies

✓ Early Ambulation (Best Prevention!)

- Encourage patients to **walk as soon as possible after surgery**.
- If bedridden, perform **active/passive leg exercises every 2 hours**.

✓ Leg Compression Devices (SCDs, TED Stockings)

- **Sequential Compression Devices (SCDs)**: Inflate and deflate to promote circulation.
- **Compression (TED) Stockings**: Prevent pooling of blood in the legs.
- **DO NOT** use on a patient with an existing **DVT**—it can dislodge the clot!

✓ Anticoagulants (Heparin, Enoxaparin, Warfarin)

- **Low-molecular-weight heparin (Enoxaparin)** is the preferred choice for DVT prevention post-surgery.
- **Monitor PTT for Heparin, INR/PT for Warfarin**.
- **Bleeding precautions** (soft toothbrush, no contact sports, avoid NSAIDs).

✓ Hydration & Leg Positioning

- Encourage **adequate fluid intake to prevent blood thickening**.
- Avoid **crossing legs or prolonged sitting**.
- **Elevate legs** but do **NOT** place pillows directly under the knees (can obstruct blood flow).

⚠ **NCLEX KEY POINT:** If a patient develops a DVT, do **NOT** massage the leg or apply SCDs—this can dislodge the clot and cause a pulmonary embolism! 🚨

NCLEX Quick Review:

- **Nasal cannula (1-6 L/min)** is best for stable patients; **Non-rebreather (10-15 L/min)** is for emergencies.
- **Venturi mask** provides the most precise oxygen delivery (ideal for COPD).
- **Keep COPD patients' O₂ between 88-92%**—high O₂ can cause CO₂ retention.
- **Early ambulation** is the best way to prevent DVTs.
- **Never apply SCDs or massage the leg** if a DVT is suspected!