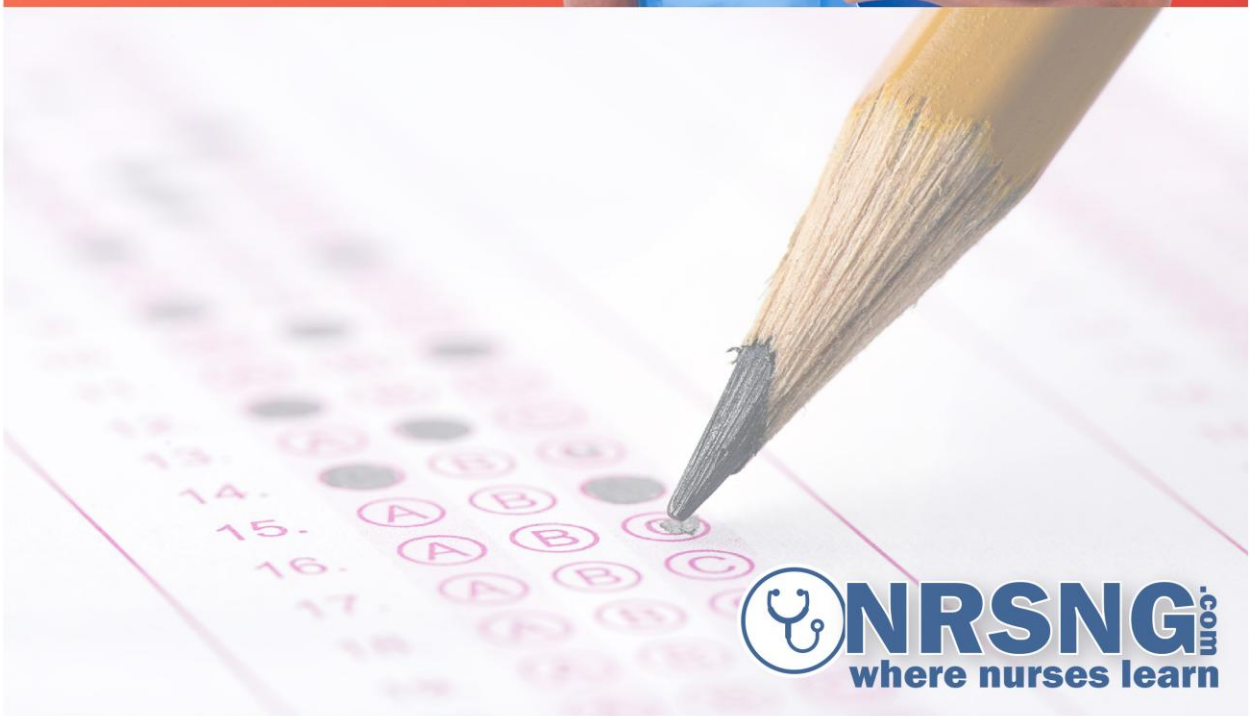
NCLEX® Essentials

MED SURG



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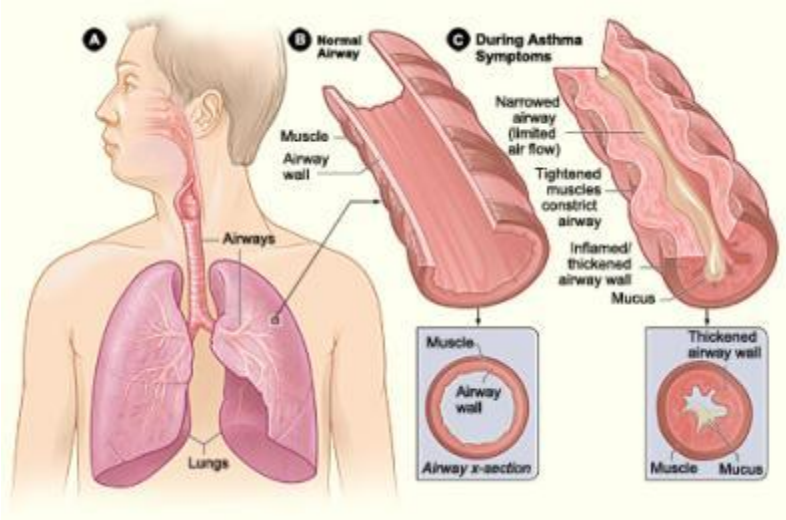
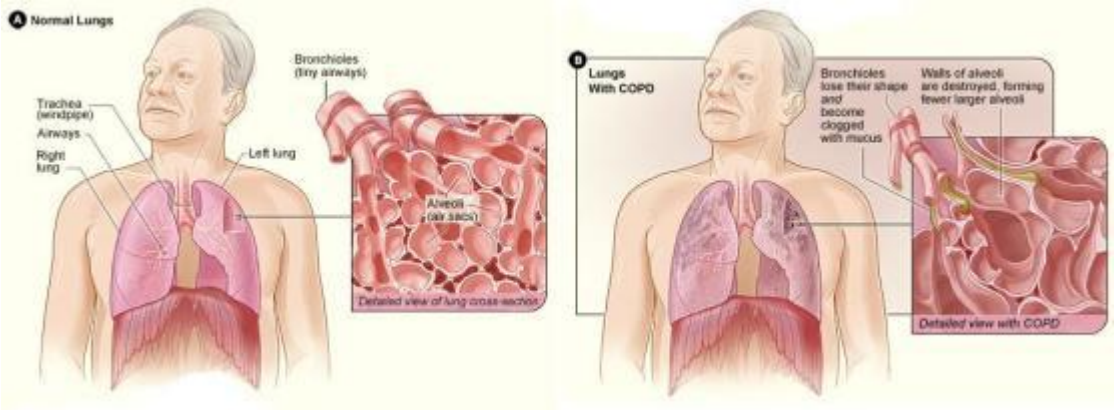
Respiratory Disorders

Asthma



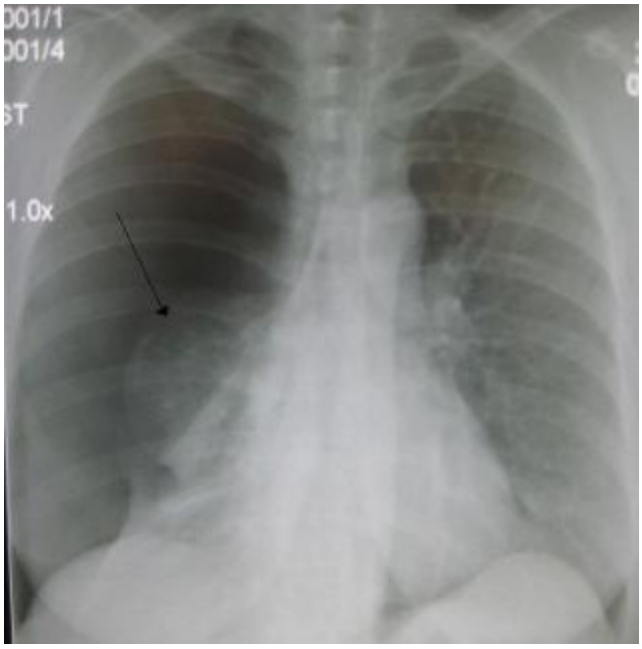
1. Overview
    a. Inflammatory disorder of the airways stimulated by triggers (infection, allergens, exercise, irritant)
    b. Status asthmaticus is a life-threatening condition unresponsive to treatment
2. NCLEX® Points
    a. Assessment
        i. wheezing/crackles
        ii. restlessness
        iii. diminished breath sounds
        iv. tachypnea
    b. Therapeutic Management
        i. High Fowler's position
        ii. Administer O2
        iii. Administer bronchodilators BEFORE corticosteroids

Chronic Obstructive Pulmonary Disease (COPD)



1. Overview
    a. Obstruction of airflow due to emphysema and chronic bronchitis
        i. emphysema
            1. destruction of alveoli due to chronic inflammation
            2. decreased surface area for gas exchange
        ii. chronic bronchitis
            1. chronic airway inflammation with productive cough
            2. excessive sputum production
2. NCLEX® Points
    a. Assessment
        i. Barrel chest
        ii. use of accessory muscles
        iii. congestion on chest Xray
        iv. ABG with ↑CO2 and ↓pH (respiratory acidosis)
    b. Therapeutic Management
        i. Do not administer O2 at greater than 2 L/min
            1. stimulus to breath is low Po2 not elevated Pco2 (as in healthy individuals)
            2. assess SpO2
            3. provide chest physiotherapy (CPT)
            4. teach pursed lip breathing
            5. avoid allergens and triggers (dust, infections, spicy foods, smoking)
            6. Increase fluid intake to 3000 mL/day to keep secretions thin
            7. small frequent meals to prevent hypoxia

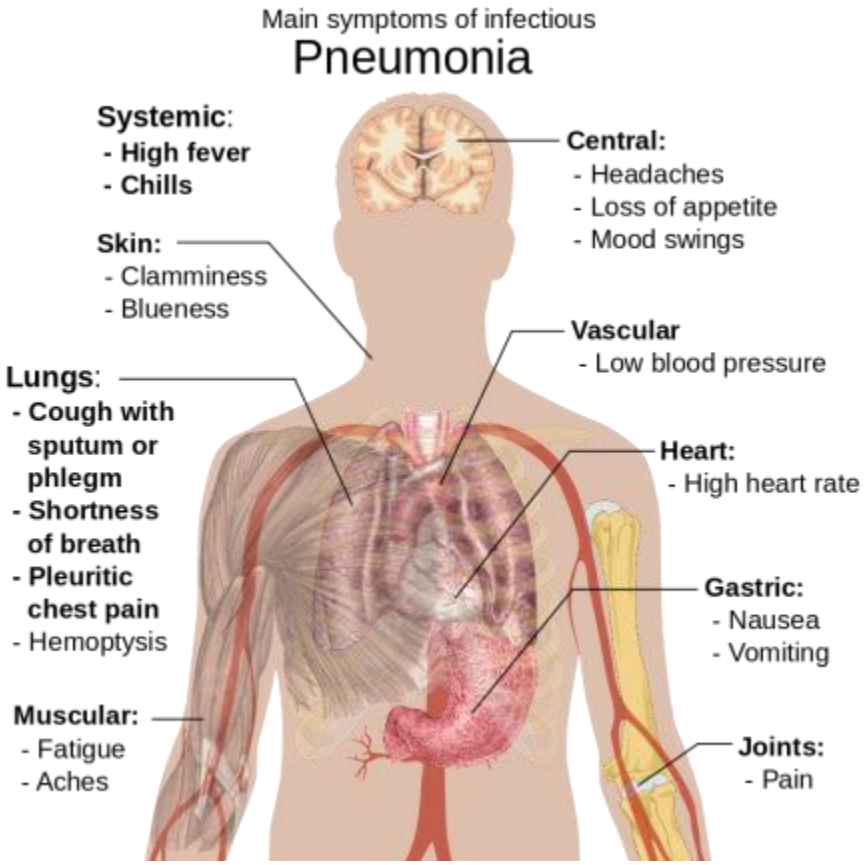
Pneumothorax and Hemothorax



1. Overview
    a. Pneumothorax
        i. Spontaneous: ruptured bleb on lung surface fills pleural space compressing lung (collapsed lung)
            1. primary: rupture of bleb in otherwise healthy individual
            2. secondary: rupture of distended alveoli may occur with COPD
        ii. Tension: injury to chest wall leading to shift in mediastinum to unaffected side and disruption of venous return to the heart. This is a medical emergency due to severely compromised cardiac output and building pressure in chest cavity.
    b. Hemothorax
        i. Blood accumulation in pleural space
2. NCLEX® Points
    a. Assessment
        i. Decreased or absent breath sounds on affected side
        ii. decreased chest expansion on affected side
        iii. tracheal deviation to unaffected side (tension pneumothorax)
        iv. Dullness (hemothorax)
        v. dyspnea
        vi. hyperresonance (pneumothorax)
    b. Therapeutic Management
        i. chest tube insertion
        ii. thoracentesis
        iii. high Fowler's position
        iv. Open pneumothorax

1. if the pneumothorax is due to an open (sucking) chest wound the hole should be covered immediately with a nonporous (occlusive) dressing sealed on three sides. This prevents air from entering during inhalation while allowing it to escape during expiration.

Pneumonia



1. Overview
    a. Inflammatory condition of the lungs primarily affecting the alveoli which may fill with fluid or pus.
    b. Infectious vs Noninfectious
        i. infectious
            1. bacterial vs viral
        ii. non infectious
            1. aspiration
    c. Community acquired vs Hospital acquired vs Opportunistic
    d. Chest Xray and Sputum culture necessary
    e. sputum culture identifies organism
2. NCLEX® Points
    a. Assessment
        i. Viral

1. low grade fever
2. non productive cough
3. WBCs normal to low elevation
4. Chest X-ray shows minimal changes
5. less severe than bacterial

ii. Bacterial

1. high fever
2. productive cough
3. WBCs elevated
4. Chest X-ray shows infiltrates
5. more severe

b. NCLEX® Points

i. Assessment

1. As above
2. chills
3. rhonchi and wheezes
4. sputum production

ii. Therapeutic Management

1. antibiotics, analgesics, antipyretics
2. supplemental O2
3. maintain airway and assess respiratory status
4. encourage activity as soon as possible
5. instruct on chest expansion exercises, coughing and deep breathing
6. obtain vaccinations for influenza and pneumococcal pneumonia
7. proper hand hygiene
8. encourage 3 L/day of fluids unless contraindicated

Tuberculosis

1. Overview
   a. Lung infection causing pneumonitis and granulomas in the lungs
   b. Noncompliance with treatment may lead to drug resistance (MDR-TB)
   c. Transmission caused by airborn route via droplets
2. NCLEX® Points
   a. When contact with an infected individual occurs chest x-ray and skin test are completed
   b. Risk of transmission is reduced after 2-3 weeks of medication regimen
   c. Assessment
      i. Night sweets
      ii. Chills
      iii. Fatigue
      iv. Weight loss
      v. Persistent cough
   d. Client history

i. Foreign travel
ii. Living in tight quarters
iii. Past exposure
iv. Sputum cultures

e. Therapeutic Management
i. Place in a negative pressure room
ii. Skin test should be measured in size
iii. Particulate respirator must be worn
iv. Isoniazide, pyrazinamide and rifampin
v. Treatment should continue for 6-12 months

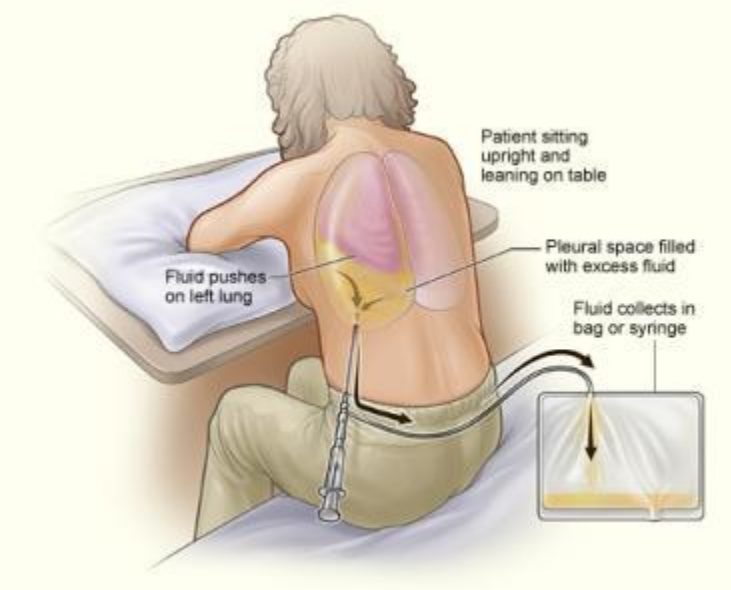
Pulmonary Embolism (PE)

1. Overview
   a. Emboli in pulmonary circulation block blood flow to pulmonary capillaries
   b. Common causes
      i. immobilization
      ii. long bone fractures
      iii. hypercoagulabiity
      iv. DVT in large veins
   c. Gas exchange is impaired leading to pulmonary infarction
2. NCLEX® Points
   a. Assessment
      i. VQ scan (ventilation perfusion scan) used to diagnose
      ii. Low PaO2
      iii. restlessness, anxiety
      iv. Tachycardia, tachypnea, hypotension, fever
      v. Altered LOC
      vi. diaphoresis and cyanosis
   b. Therapeutic Management
      i. O2 therapy

ii. prepare for ventilation
iii. Anticoagulant
iv. Analgesics
v. Vena cava filter insertion

NCLEX® Cram - Respiratory

1. Sputum culture
    a. obtain sample prior to beginning antibiotic therapy
2. Keep client NPO post bronchoscopy until gag reflex returns
3. Thoracentesis



    a. position the client sitting upright leaning forward onto a bedside table with arms supporting weight
    b. monitor for pneumothorax and PE
4. Lung Biopsy - Post Procedure
    a. monitor sight for drainage and bleeding
    b. monitor respiratory status and assess for signs of pneumothorax
5. Normal ABG Values
    a. pH: 7.35 - 7.45
    b. PCO2: 35-45 mmHg
    c. HCO3: 22-26 mEq/L
    d. PO2: 80-100 mmHg
    e. SpO2: 96%-100%
    f. Acedemia = pH <7.35
    g. Alkalemia = pH>7.45
6. SpO2: % of O2 bound to hemoglobin compared to total HgB capable of binding)
    a. remove nail polish
    b. poor circulation will diminish accuracy
7. Hierarchy of O2 Delivery

Method
Nasal Cannula **1 lpm = 24%** **2 lpm = 28%** **3 lpm = 32%** **4 lpm = 36%** **5 lpm = 40%** **6 lpm = 44%**
Simple Face Mask **5 lpm = 40%** **6 lpm = 45-50%** **7 lpm = 50-55%** **8 lpm = 55-60%**
Non-rebreather Mask **6 lpm = 60%** **7 lpm = 70%** **8 lpm = 80%** **9 lpm = 90%** **10 lpm = close to 100%**
Venturi Mask **4 lpm = 24-28%** **8 lpm = 35-40%** **12 lpm = 50%**
Trach Collar **21-70% at 10L**
T-Piece **21-100% with flow rate at 2.5 times minute ventilation**
CPAP **Positive airway pressure during spontaneous breaths**
Bi-PAP **Positive pressure during spontaneous breaths (IPAP) and preset pressure to be maintained during expiration (EPAP/PEEP)**
SIMV **Preset Vt and f. Circuit remains open between mandatory breaths so pt can take additional breaths.** **Ventilator doesn't cycle during spontaneous breaths so Vt varies.** **Mandatory breaths synchronized so they do not occur during spontaneous breaths.**
Assist Control **Preset Vt and f and inspiratory effort required to assist spontaneous breaths.** **Delivers control breaths. Cycles additionally if pt inspiratory effort is adequate.** **Same Vt delivered for spontaneous breaths.**

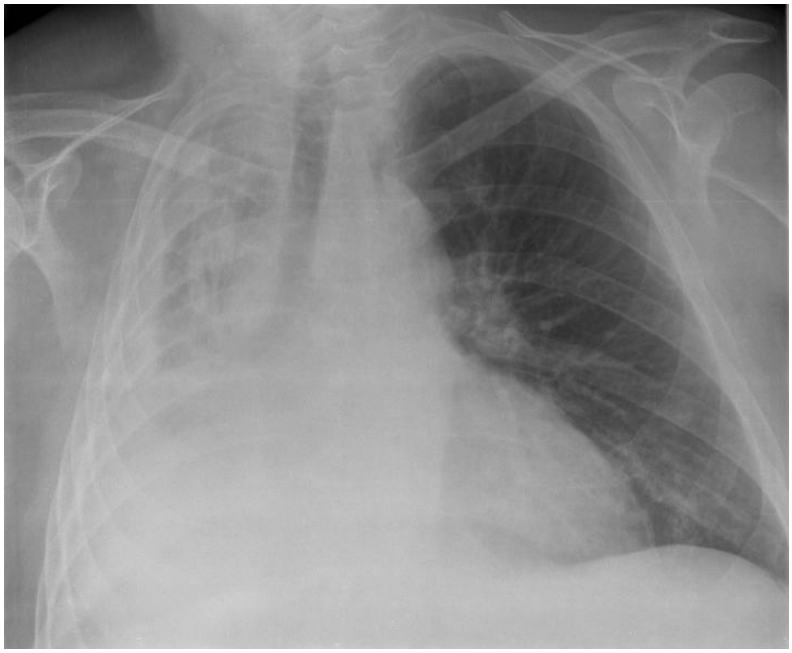
7. Ventilator Alarms
    a. High Pressure
        i. Kink in tubing
        ii. cough, gag, or biting tube

iii. increased secretions

b. Low Pressure

i. ET tube disconnection

8. Rib fractures will cause pain during inspiration
9. Flail chest causes paradoxical respirations
10. Acute Respiratory Distress Syndrome (ARDS)
    a. ABG: respiratory acidosis (pH<7.35 CO2>45 PaO2 <80)
11. Tripod position and pursed lipped breathing helpful to COPD patients
12. Influenza
    a. vaccination recommended yearly for
        i. health care workers
        ii. elderly
        iii. children
        iv. immunocompromised
13. If a patient has an injured neck use chin thrust rather than head tilt to open airway
14. Limit airway suctioning to 10 seconds
15. Rotate catheter and use intermittent suction
16. Lung injury - Good Lung Down positioning
17. High fowlers (>45 degrees) positioning for respiratory failure patients
18. Mask should be worn at all times with droplet isolation
19. Pink Puffer vs Blue Bloater
    a. Pink Puffer: emphysema
        i. barrel-shaped chest, hyperinflated chest, pursed lipped breathing
    b. Blue Bloater: bronchitis
        i. hypoxia, obese, water retention, dependent on hypoxia for respiratory drive
20. Atelectisis: incomplete expansion or collapse of lung



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