Lungs and Thorax

Review A & P
- Suprasternal notch
- Maniubriosternal angle (angle of Louis)
- Reference lines pg 439
- Lobes of lungs
- Pleurae

Aging Adult
- Costal cartilage calcified-less mobile thorax
- Respiratory muscles low strength beginning with age 50
- Decreased elasticity, harder to inflate
- Decreased vital capacity
- Increased residual volume
- Decreased alveoli, less surface available for gas exchange
- Lung bases less ventilated
- Higher risk dyspnea with exertion beyond normal
- Higher risk of post op atelectasis and infection
  Due to: decreased ability to cough, loss of protective airway reflexes, increased secretions

Transcultural
- TB-higher in Asian Americans
- Size of thoracic cavity (vital capacity and forced expiratory volume)
  Whites>Blacks>Asian>Native Americans

Subjective Data
Cough
- Continuous or at different times throughout the day
- Continuous-acute illness, respiratory infection
- Afternoon/evening-irritants at work
- Night-post nasal drip, sinusitis
- Early morning-chronic bronchial inflammation of smokers
- Productive/bloody
- White or clear-colds, bronchitis, viral infections
- Yellow or green-bacterial
- Rust-TB, pneumococcyl pneumonia
- Pink, frothy-pulmonary edema

SOB
- Get objective information-how many blocks walking?
- Orthopnea-how many pillows used?
- Paroxysmal nocturnal dyspnea

Chest pain with breathing
Past history respiratory infections

Smoking history

Environmental Exposure
- Pollution
- Farmers- grains, pesticide inhalation
- Rural Midwest- histoplasmosis
- Southwest/Mexico-coccidioidomycosis
- Coal miners-pneumoconiosis
- Stone cutters, miners, potters-silicosis, misc. asbestos, beryllium

Objective

Inspection
- Shape and configuration-scoliosis, kyphosis
- Ratio anteroposterior to transverse-diameter 1:2 to 5:7
- Barrel chest-chronic emphysema due to hyperinflation of lungs
- Neck muscles-hypertrophied in COPD
- Position-COPD

Palpate posterior
- Symmetric chest expansion at T9 or T10
- Unequal-marked atelectasis or pneumothorax
- Tactile fremitus-use palmer base of fingers
- Ulnar edge of hands
- Ninety-nine or blue moon
- Symmetry most important
- Slightly stronger on right side because right side closer to bronchial bifurcation (between scapulae)
- Decreased fremitus-vibrations obstructed
  - Obstructed bronchus, pleural effusion, or thickening, pneumothorax, or emphysema (barriers between sound and hand)
- Increased fremitus-compression or consolidation of lung tissue
  - Bronchus patent and consolidation extends to lung surface
- Crepitus-subcutaneous emphysema, air escapes from lungs into subcutaneous tissue following thoracic injury or surgery

Percuss Posterior
- Resonance predominates
  - Hyperresonance-emphysema, pneumothorax
- Dull-pneumonia, pleural effusion, atelectasis, tumor
- Diaphragmatic excursion
  - Deep breath, exhale and hold
  - Percuss down scapular line until changes from resonant to dull and mark (higher on R 1-2 cm, liver)
Deep breath and hold
Percuss down from mark
3-5 cm- average adult, up to 7-8 cm in well-conditioned

Auscultate Posterior
- Sitting, lean forward, breathe through mouth-watch for hyperventilation!
- Hairy chest- press harder or wet hair
- Table 18-1 pg 455 normal breath sounds
- Decreased or absent breath sounds
  Bronchial tree obstructed by secretions, mucous plug, or foreign body
  Emphysema- loss of elasticity so decrease force of inspired air and lungs already hyperinflated
  Obstructed transmission of sound between lung and stethoscope- pleurisy, pleural thickening or air (pneumothorax) or fluid (pleural effusion) in the pleural space
- Increased breath sounds
  Bronchial sounds abnormal when heard over peripheral lung fields
  Consolidation (pneumonia) or compression (fluid in intrapleural space) yield dense lung enhancing transmission of sound from bronchi

Adventitious Sounds
- Crackles (rales) and wheeze (rhonchi)
- Atelectatic crackles- heard in periphery in dependent portion of lungs, disappear after first few breaths, not pathologic

Voice Sounds
- Should be muffled, indistinct
- Consolidation enhances
  Bronchophony
  Egophony
  Whispered pectoriloquy
- table 18-2, pg 458

Inspect Anterior Chest
- Pursed lips-COPD
  Fewer airways collapse
- LOC- cerebral hypoxia may result in drowsiness, anxiety, restlessness, and irritability
- Clubbing of distal phalynx
- Unequal chest expansion-lung obstructed, collapsed, guarding post-op incisional pain or pleurisy
- Retraction-increased respiratory effort
- Accessory muscles