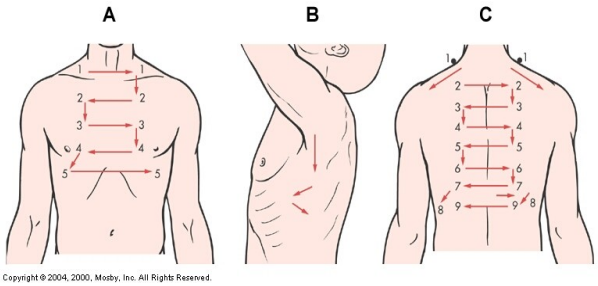
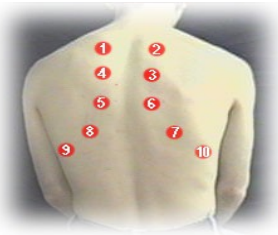
**Beebe Healthcare**
**Margaret H. Rollins School of Nursing**
**Nursing 101 - Foundations of Nursing**

# Pulmonary Assessment Guide *(save for respiratory unit)*

- **Auscultating lung sounds**
  - Wash hands. Explain procedure, provide for privacy & quiet (turn off TV)
  - **Avoid** listening through clothing, which may obscure or alter sounds.
  - Position patient in sitting position if possible or alternately on each side to check anterior/posterior if can't sit.
  - Observe patient for respiratory effort, general appearance, and color.
  - Warm stethoscope in hands prior to auscultation. Wet chest hair to prevent hearing false sounds.
  - Instruct to breathe slowly & deeply thru mouth, not to hyperventilate. Allow rest periods PRN
  - Listen with diaphragm. Place firmly on skin. Listen @ ICS, not on bones. Listen for one full breath cycle.
  - Auscultate in systematic fashion, apex to base, side to side for comparison.
  - Listen to anterior, posterior, and lateral. If an abnormal sound is heard, ask patient to cough & reassess.
  - Identify sounds as normal, vesicular, bronchial (clear), or as adventitious (crackles, wheezes, rhonchi, rub) & if heard on Inspiration or Expiration.
  - Making the order of the numbers in the images a ritual will ensure you **compare both sides every time!** (i.e., If you are listening to the left apex, you should follow thru by comparing what you hear @ the right apex.)
  - Chart according to findings & location.







- **Abnormal breath sounds**
  - A sound in an area other than where you expect to hear it.
    - I.E., bronchovesicular in an area you would normally hear vesicular. (Bronchioles & alveoli filled with fluid or exudate as occurs in pneumonia or atelectasis). You won't hear vesicular sounds because no air is moving thru the small airways.

- **Adventitious sounds** (troublemakers)
  - Abnormal no matter where you hear them. (See table below)

- **Keep in mind-** Solid tissue transmits better than air or fluid**.**
  - Breath sounds, spoken word, or whispered words will be louder over areas of consolidation.
  - Breath sounds will be quieter over pus, fluid, or air-filled pleural spaces.
  - If a foreign body or secretions obstruct a bronchus, breath sounds will be diminished or absent over lung tissue distal to the obstruction.

## Normal Breath Sounds

| Type | Description | Location | Characteristics |
|---|---|---|---|
| **Vesicular** | "Soft & breezy" Soft intensity, low pitched gentle sighing sounds created by air moving thru smaller airways (bronchioles & alveoli) | Peripheral lung best heard @ base. | Best on I (inspiration) which is 2.5 times longer than E (expiration). (5:2 ratio) |
| **Broncho-vesicular** | Moderate-intensity & pitched blowing sounds created by air moving thru larger airways (bronchi) | Between scapulae & lateral to sternum at first & second ICS. | Equal I & E phases (1:1 ratio) |
| **Bronchial** | High-pitched loud harsh sounds created by air moving thru the trachea. | Anteriorly over the trachea, not normally heard over lung tissue. | Louder than vesicular sounds, short I & long E phase (1:2 ratio) |
| | | | |

**Beebe Healthcare**
**Margaret H. Rollins School of Nursing**
**Nursing 101 - Foundations of Nursing**

Adventitious Breath Sounds

| Adventitious | Characteristics | Source | Conditions |
|---|---|---|---|
| **Discontinuous** | | | |
| Crackles (fine) | High-pitched discontinuous short popping sounds heard usually during I, not cleared by cough, simulated by rolling strand of hair between fingers near ear or Velcro pulling apart. | Inhaled air suddenly opens small deflated air passages that are coated & sticky with exudates | Crackles occurring late in I are associated with restrictive diseases (pneumonia, CHF, pulmonary fibrosis. Crackles early in I are associated with obstructive disorders (bronchitis, asthma, emphysema |
| Crackles (coarse) | Low-pitched, bubbling, gurgling, moist sounds that may persist from early I to early E. | Inhaled air passes thru narrowing airways intermittently occluded by mucus, unstable bronchial wall, or fold of mucosa | Can indicate pneumonia, pulmonary edema, COPD, pulmonary fibrosis & severely ill patients cannot cough (death rattle). |
| **Continuous** | | | |
| Wheezes (High-pitched) | High-pitched musical sounds heard primarily during E, but may be heard on I. | Air passing thru constricted passages caused by swelling, secretions, or tumor. | High-pitched (sibilant) wheezes often heard in acute asthma or chronic emphysema. (Poly-phonic or general obstruction) |
| Wheezes (Low-pitched) | Continuous Low-pitched snoring or moaning sounds heard primarily during E but may also occur throughout respiratory cycle. May clear with coughing. | Air passing thru constricted passages caused by swelling, secretions, or tumor. | Low-pitched (sonorous) wheezes often heard in cases of bronchitis or single-bronchus obstruction. (Monophonic-one airway obstruction) |
| Rhonchi | Continuous low-pitched musical sounds similar to wheezes on expiration (may also be heard on I). May change/disappear with coughing. | Air passing thru narrowed air passages. Imply obstruction of larger airways by fluid. Heard most lung areas, but mostly over trachea & bronchi. | |
| Pleural friction rub | Continuous low-pitched dry grating rubbing sound like crackles more superficial occurs during I & E. | Pleural inflammation causes two layers of pleura to rub together, may cause pain. | Pleural effusion or pneumothorax |

| | | | |
|---|---|---|---|
| Stridor | Loud high-pitched crowing sound heard without stethoscope during I & E | Upper airway obstruction (trachea or larynx)- medical emergency! | Often heard with edema post extubation. |