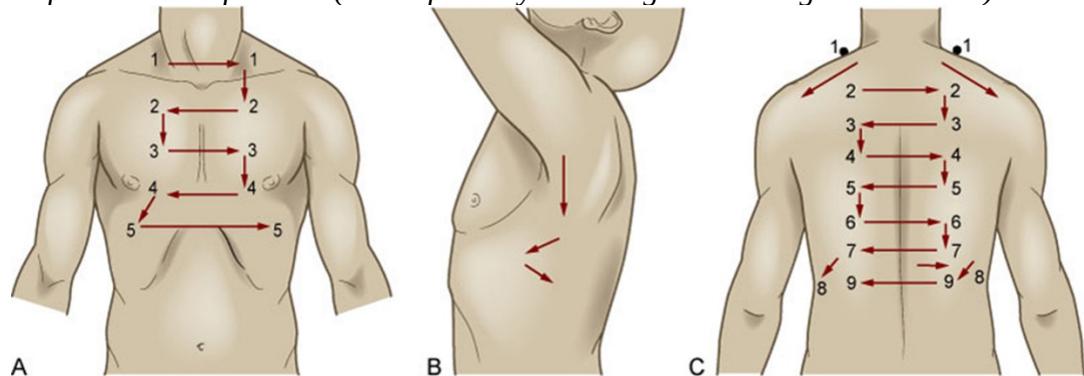
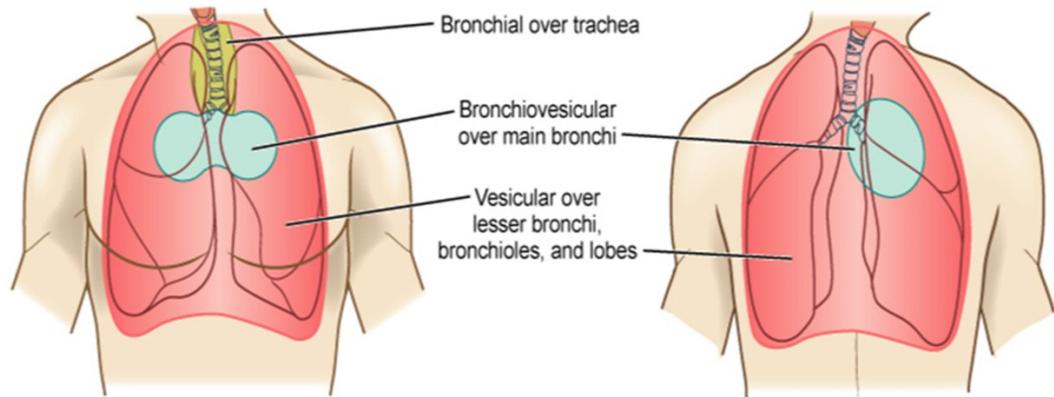


# □ Pulmonary Assessment Guide □

## Auscultating Lung Sounds:

- Preparation & Positioning:
  - Perform hand hygiene, explain the procedure, provide privacy & a quiet environment
  - Avoid auscultating over clothing, as it can distort sounds
  - Ideally place client in sitting position – if unable to sit, alternate side-lying positions for anterior & posterior lung fields
- Technique:
  - Inspect respiratory effort, accessory muscle use, skin color, etc.
  - Instruct client to breathe slowly and deeply through mouth – provide rest to avoid hyperventilation
  - Use diaphragm of stethoscope – placing over intercostal spaces (not bones)
  - Listen to one full inspiration and expiration at each site
  - Follow the ladder technique – compare side-to-side, top-to-bottom anteriorly and posteriorly
  - Identify lung sounds as normal (clear) or adventitious (crackles, wheezes, rhonchi, etc) – *be sure to note location of adventitious sounds and if heard on inspiration or expiration (ex: inspiratory wheezing noted in right lower lobe)*





Redrawn from Beare PG, Myers JL: Adult health nursing, ed 3, St Louis, 1998, Mosby.

### Normal Breath Sounds:

Type:	Description:	Location:	Characteristics:
<b>Vesicular</b>	Documented as “clear” – described as “soft & breezy”  Soft, low-pitched sound created by air moving through smaller airways (bronchioles & alveoli)	Peripheral lung fields – heard best @ bases	Heard best on inspiration (5:2 ratio)
<b>Bronchovesicular</b>	Moderate intensity & pitch sound created by air moving through larger airways (bronchi)	Between scapula & lateral to sternum (1 <sup>st</sup> & 2 <sup>nd</sup> ICS)	Equal I&E phases (1:1 ratio)
<b>Bronchial</b>	High-pitched, loud/harsh sounds created by air moving through trachea	Anteriorly over trachea, not normally heard over lung tissue	Louder than vesicular (1:2 ratio)

### Adventitious (Abnormal) Breath Sounds:

- Adventitious sounds are always abnormal (regardless of where you hear them) & must be described by type, location, and phase (inspiratory vs. expiratory)

Type:	Description:	Mechanism:	Possible Causes:
<b>Discontinuous</b>			
<b>Fine Crackles</b>	High-pitched, short popping sounds – most often heard during inspiration  Is not cleared with cough	Inhaled air suddenly opens small, deflated air passages that are coated & sticky with exudates,	Pneumonia, CHF, Late restrictive diseases (pulmonary fibrosis)

<b>Course Crackles</b>	Low-pitched, bubbling moist sounds that may persist from inspiration to expiration	Inhaled air passes through unstable airways or airways occluded by secretions/mucous	Pneumonia, pulmonary edema, COPD, pulmonary fibrosis, terminally ill
<b>Continuous</b>			
<b>Wheezes</b>	High-pitched, musical sounds – heard mostly on expiration, but also can be on inspiration	Inhaled air passes through narrow/constricted passages	Asthma, emphysema
<b>Rhonchi</b>	Low-pitched, rubbing/rattling sound heard most often on expiration  May clear with coughing	Inhaled air passes through narrow/constricted passages – related to secretions in large airways	Pneumonia, COPD
<b>Pleural Friction Rub</b>	Low-pitched, dry, grating sound heard during inspiration & expiration	Pleural inflammation causes two layers of pleural to rub together	Pleuritis
<b>Stridor</b>	Loud, high-pitched crowing sound heard without stethoscope on inspiration & expiration	Upper airway obstruction – medical emergency!	Anaphylaxis, edema post extubation