# Auscultation of the Lungs



## Auscultation

- = listening for sounds produced in the body
- ID normal vs. abnormal lung sounds
- Aids in Dx & evaluation of RX
- Use stethoscope, quiet room



## Stethoscope

- 4 parts
  - bell
    - low-pitched heart sounds
  - diaphragm
    - high-pitched lung sounds
    - press firmly
  - tubing
    - not too long or too short
  - earpieces
    - point away



## Technique

- patient upright, relaxed
- instruct patient to breathe a little deeper than normal with mouth open
- diaphragm placed against bare skin, if possible
- tubing should not touch anything
- systematic approach
- listen for 1 full breath cycle

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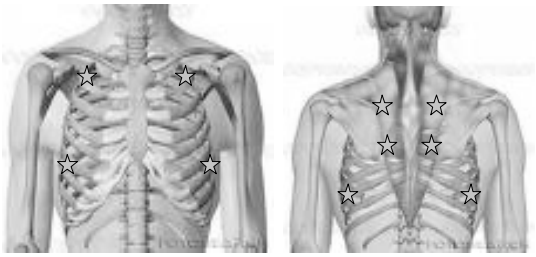
## Diaphragm Positions



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## Examination

- remember, physical exam of patient consists of 4 parts:
  - inspection
  - palpation
  - percussion
  - **auscultation**
- what are we listening for?
  - characteristics of breath sounds

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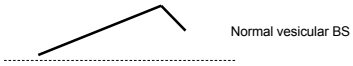
## Characteristics

1. pitch
   - vibration frequency
2. amplitude
   - intensity (loudness)
3. duration of inspiration vs. expiration



Normal vesicular BS

4. distinctive characteristics
   - normal vs abnormal

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## Normal Breath Sounds

- tracheal
  - heard over trachea
  - tubular quality
  - length: insp = exp

Normal tracheal BS

- bronchovesicular
  - heard over upper half of sternum/between scapulae
  - softer than tracheal, lower in pitch

Normal bronchovesicular BS

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## Normal BS

- vesicular
  - heard over normal lung tissue
  - soft, muffled
  - insp heard longer than exp

Normal vesicular BS

- diminished or decreased BS
  - decreased in intensity
  - may be absent
  - due to
    - shallow breathing
    - obstructed airways
    - hyperinflated lungs
    - air or fluid in pleural space

Diminished BS

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## Adventitious BS

- abnormal
  - continuous (wheeze)
  - discontinuous (crackle)
- note
  - pitch (ex. high, low)
  - location
  - intensity (ex. loud, soft)
  - when (ex. insp, exp)
  - timing (ex. late insp, end-exp)

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## Wheezes

- continuous, musical
- produced by vibration of wall of narrowed or compressed airway
  - bronchospasm
  - mucosal edema
  - foreign bodies

Mild wheeze

- higher pitch as airway narrows
- note
  - pitch
  - intensity
  - where in resp cycle

Severe expiratory wheeze

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## Crackles

- discontinuous
- high-to-low pitch
- “snap-krackle-pop” ™

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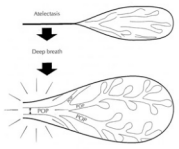
## Crackles (Rales)

- high pitched
- heard during inspiration
- due to
  - small airways & alveoli "popping" open
    - atelectasis
    - fibrosis
    - pneumonia
  - fluid in alveoli
    - pulmonary edema
    - CHF
- do not clear with cough or suctioning




Fine inspiratory crackles 

Medium inspiratory crackles 

Chest hair crackles 

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## Crackles (Rhonchi)

- low pitched
- heard during inspiration &/or expiration
- due to
  - secretions in larger airways
- may clear with cough or suctioning

coarse crackles or rhonchi 

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## Stridor

- produced by rapid airflow through narrowed ***upper*** airway
  - infection
  - inflammation/swelling
  - tumors
  - foreign body
- place stethoscope on neck
- may hear without stethoscope
- life-threatening - ventilation may be compromised, esp. if accompanied by cyanosis

Stridor 

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## Pleural Friction Rub

- creaking or grating
- pleural surfaces are inflamed and rough edges rub together
- insp &/or exp
- not very common

Pleural friction rub 

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## Subcutaneous Emphysema

- air leaks from lungs into subcutaneous tissues
- fine beads of air produce a crackling sound and sensation when palpated

Subcutaneous emphysema