—BELMATT—
HEALTHCARE TRAINING

Respiratory Examination

Learning outcomes:

- Review the anatomy of the respiratory system
- Observe a systematic respiratory examination in the context of a clinical scenario
- Recall the features to look for at each stage of the examination and why

General principles:

- Introduce yourself
- Wash your hands
- Respect for patient
  - Dignity and privacy
- Consent
- Explain and reassure
- Have the patient in the correct position for the examination –45 degrees
- Examine from the patient's right side

- **Don't just go through the motions of doing the examination**
- Think about – WHAT you're looking for
  – And WHAT it means
  at each stage of the examination
- Be methodical

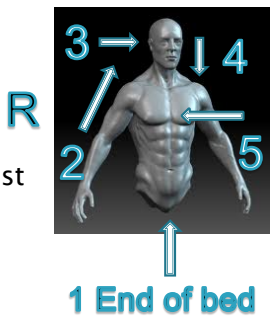
Four main stages for all examinations:

1. Inspection
2. Palpation
3. Percussion
4. Auscultation

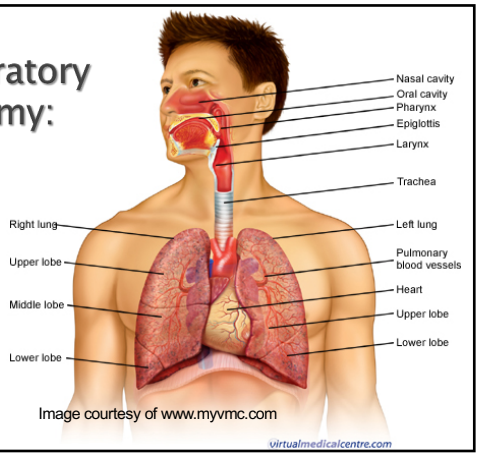
- Don't always need to progress in a linear way

General scheme for systems examination:

1. End of the bed
2. Hands
3. Face
4. Neck
5. System of interest



Respiratory anatomy:



1. Inspection

End of the bed:

- Around the bed
  - Cigarettes, inhalers, sputum pot, nebulisers
- General appearance of the patient
  - Cyanosed, cachectic, nicotine staining, conscious level, in pain?
- Respiratory noise
  - Wheeze, stridor, clicks, gurgling
- Respiratory rate, rhythm, depth and quality

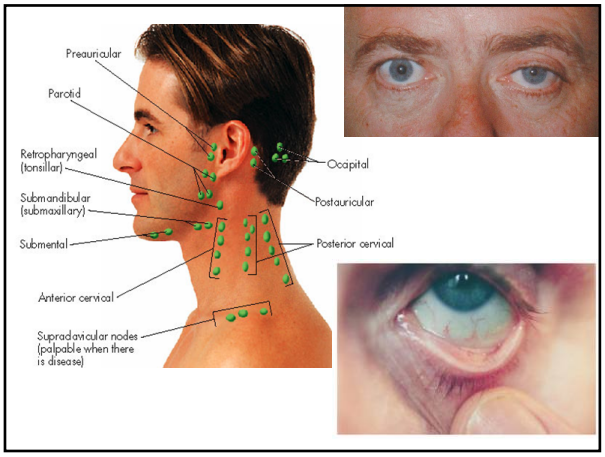
Find the signs!

Hands and nails:

- Nicotine stains
- Clubbing
- Peripheral cyanosis
- Muscle wasting
- Flapping tremor
- CRT
- Pulse rate, volume, rhythm, character

Face and neck:

- Pallor
- Central cyanosis
- Horner's syndrome
- Pursed lip breathing
- JVP
- Lymph nodes – palpate
- Trachea – palpate



Chest wall:

- Shape of the chest
- Scars
- Deformities
- Kyphosis and scoliosis
- Radiotherapy tattoos
- Prominent veins
- Movement of chest wall
- Accessory muscles and intercostal withdrawing

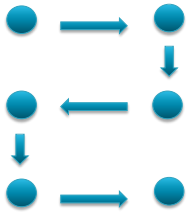
2. Palpation

- Palpate the lymph nodes and trachea at some stage in your examination
- Move on to the chest wall
- Can start at front or back of chest but more likely to find signs at the back
- Chest expansion
- Tactile vocal fremitus

Chest expansion:

3. Percussion

- Supraclavicular area, clavicles, chest on both sides



Percussion:

- Resonant = normal!

- Hyperresonant vs resonant
- Resonant vs dull
- Dull vs stony dull

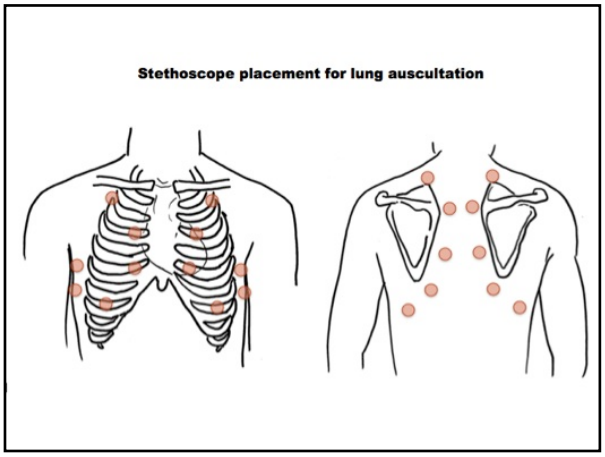
- Fluid
- Consolidation
- Collapse
- Pneumothorax

4. Auscultation

https://www.youtube.com/watch?v=nokZ5sNt3fA&list=PLLKSXV1ibO86qgE2y9cMqNFmh6LfOa8RM&index=8

- Supraclavicular areas
- Upper, middle and lower chest both sides
- Axillae
- Same 'ladder' approach as for percussion

- Listen for
  - Crackles – fine/coarse; early or late inspiratory
  - Wheeze
  - Rub
- Vocal resonance



Writing it down:

- To document in the notes, you need to make it clear what you examined and what you did or didn't find
  - Develop your own system, no hard and fast rules

- For example, a normal examination:
  - No pallor, clubbing, cyanosis or lymphadenopathy
  - Trachea central
  - Chest expansion normal
  - Percussion resonant throughout
  - Bivesicular breath sounds both lung fields
    - nil added

A patient with COPD:

- Cachectic, pursed lip breathing and central cyanosis
- Trachea central
- Chest hyper-expanded with reduced movement
- Percussion resonant
- Bilateral expiratory wheeze with scattered coarse crepitations which clear on coughing

A patient with an effusion:

- Breathless at rest
- No pallor, cyanosis or clubbing
- Trachea deviated to the left
- Chest expansion decreased right base
- Stony dull to percussion right base to mid-zone
- Decreased air entry right base to mid-zone
- Bivesicular breath sounds elsewhere with nil added

Try and put it all together…

Form a differential diagnosis

What was going on in our scenario?

- Young woman
- History of asthma
- Acute onset shortness of breath, some chest pain
- Rapid ABCDE assessment:
  - Airway – clear **but not able to talk in full sentences !!!**
  - Breathing– rapid respiratory rate, low oxygen saturations
  - Circulation– Pulse rapid, BP raised
  - Disability– alert but in distress (BM !!)
  - Exposure– cold & clammy

- On examination:

1. Inspection:
   - From the end of the bed:
     - Breathless; oxygen; inhaler
   - Bedside inspection:
     - Decreased movement of the left chest; looks hyper-expanded

2. Palpation:
   - Trachea deviated to the right
   - Decreased measured chest expansion on the left
3. Percussion:
   - Hyper-resonant percussion note on left
4. Ausculation:
   - Decreased air entry on the left
   - Vesicular breath sounds everywhere else

What's the diagnosis?

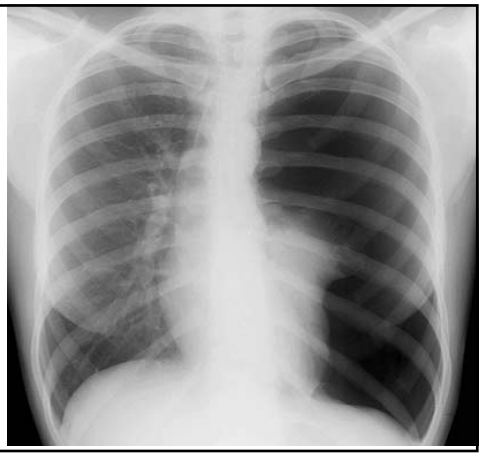
Differentials

- Pneumothorax
- Asthma
- Pulmonary embolism
- Pneumonia
- Acute MI
- CCF

Why isn't this just asthma?

- Findings not consistent with asthma as there are :-
  - Signs of collapsed lung (reduced air entry, hyper expanded left side chest)
  - No wheeze
  - Deviated trachea

Chest X-ray:

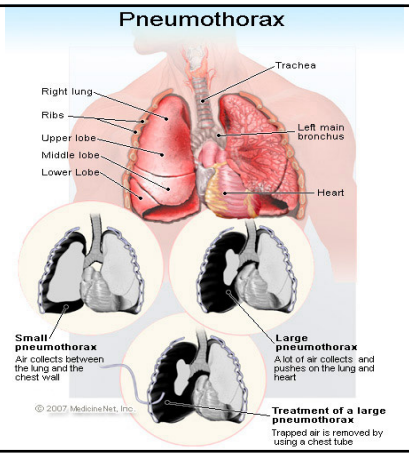


Structured approach

- **A – Airway** – trachea central, ET tube
- **B – Breathing** – lung fields, lung markings, masses
- **C – Cardiac** – Aortic arch, heart size, heart borders, pulmonary vessels
- **D – Diaphragm** – right higher than left, cardiophrenic & costophrenic angles ? Blunted.
- **E – Everything Else** – ? Pacemaker, electrodes, bones, breast shadows

"Pneumothorax"

Where air gets outside the lung and causes it to collapse



Management:

- ABCDE – supportive
- Small pneumothorax
  - Aspirate with a needle and syringe via a 3-way-tap
- Large pneumothorax:
  - Insert a chest drain with an underwater seal
- Assess and manage risk factors e.g. co-morbidities, lifestyle (smoking, diving)

Questions?

https://www.youtube.com/watch?v=_63yq8GIK_4
MacLeod's examination of the respiratory system