

## **EXAMINATION OF THE RESPIRATORY SYSTEM**

These notes are mainly for guidance, they are not meant to be prescriptive.

For a basic student guide see

<http://www.mds.qmw.ac.uk/biomed/kb/stage1bdocs/cardiorespiratory/clinical1to3.htm>

### **AIMS OF THIS SESSION**

- 1 Show students a **basic** standard approach to the respiratory system
- 2 Demonstrate generic components of examination:
  - deciding what signs you need to look for (hypotheses from history)
  - explaining what you are going to do
  - avoiding pain
  - interpreting findings as you go along
  - ensuring adequate patient exposure
  - maintaining patient comfort and dignity
  - adequate lighting
- 3 Illustrate reasons why signs are sought. Why, for example, examination of the hands may reveal chest pathology. There will not be time to discuss the information content of every element of the examination – just use one or two examples.
- 4 Model professional attitude to patients in approach to student volunteer.
- 5 Allow students to ‘have a go’ under supervision. Remind them that this is only a taster and that they will go over everything again in detail in their skills firms. For this session the technique is the important thing, not the findings.

Please **do not** use this session to discuss all the abnormalities you might find. Those mentioned below are for the purposes of illustration only, they do not all have to be mentioned to the students.

### **PROCEDURE**

**Introduce yourself** and explain the procedure. Ensure the patient is comfortable and maintain the patient’s dignity.

**Look at the patient** from the end of the bed for:

- general appearance
- breathing rate
- pursed lip breathing
- non-specific signs of ‘illness’, interest and interaction with surroundings

Then start with the **hands**: look for (*for example*)

- clubbing (*Ca bronchus, mesothelioma, bronchiectasis, lung abscess, fibrosing alveolitis, cystic fibrosis, empyema/lung abscess*)
- peripheral cyanosis
- nicotine staining
- coarse tremor/flap of CO<sub>2</sub> retention (also causes bounding pulse)

Look at the **face** for

- central cyanosis (lips and tongue)

- eyes (eg *Horners' syndrome*)

**Inspect the chest:** position patient at 45 degrees, look for

- respiratory rate
- use of accessory muscles, wheezing
- pattern of respiration - Cheyne-Stokes (alternating hyperventilation and apnoea, which occurs in LVF, high altitude and raised intracranial pressure)
- shape of the chest and scars - asymmetry (*in collapse of fibrosis*), increased antero-posterior diameter (barrel chest) in COPD

### Palpation

- check position of mediastinum by feeling position of
  - a) trachea between heads of sternomastoid in suprasternal notch
  - b) apex beat - feel for the furthest point down and out where the pulsation can be felt
- lymph nodes in supraclavicular fossae

**Chest Expansion:** extend fingers, anchor fingertips laterally around the lower part of the chest so thumbs are 2-4 cm either side of midline but raised up over sternum. Assess extent and symmetry of movement of thumbs apart on inspiration.

**Percussion:** both sides of the chest at top middle and lower segments, including axillae. The finger which is struck should be parallel to the floor. Percuss in the intercostal spaces. Compare sides.

- **increased resonance:** means more air and less solid in chest than normal - found in pneumothorax, emphysema
- **decreased resonance:** means more solid and less air in chest than normal - found in effusion, solid lung-consolidation, collapse, abscess, neoplasm

**Auscultation:** Use the diaphragm (except above the clavicles, when you use the bell). Listen at the top, middle and bottom of the chest and then in the axillae (comparing like with like on opposite sides). Ask the patient to breathe through their open mouth quite deeply. Breath sounds may be

- vesicular
- bronchial (gap between inspiratory and expiratory phases with prolonged expiratory phase) - found in consolidation
- reduced - in effusion, pneumothorax, collapse, emphysema

Listen for added sounds and note if inspiratory or expiratory:

- **crackles:** fine – are caused by snapping open of tiny airways (*occur in heart failure*); medium and coarse - are caused by fluid in larger airways (*occur in pneumonia, bronchitis and bronchiectasis*)
- **wheezes:** mean constricted airways - the higher pitched the wheeze, the greater is the narrowing.
- **pleural rub:** pleurisy

**Vocal Resonance (VR) or Tactile Vocal Fremitus (TVF):** Ask the patient to say '99', whilst listening over the chest. Sounds are louder over areas of consolidation. Compare both sides.

At the end of the examination ask to see the sputum and measure the peak flow.