Respiratory System
History and Examination of the Respiratory System

Instruction
Introduce yourself to the patient.

Salient Features

HISTORY

- Cough
- Sputum
- Haemoptysis (acute infection, including in chronic obstructive pulmonary disease (COPD), pulmonary infarction, bronchogenic carcinoma, bronchiectasis, tuberculosis, Goodpasture's syndrome, pulmonary haemosiderosis, mitral stenosis)
- Degree of dyspnoea: what the patient can do without becoming breathless:
  - Normal
  - Walk normally on the level but not on stairs or hills
  - Walk on the level for 1.5 km (1 mile) but cannot keep up with people of a similar age
  - Walk about 1.5 km (1 mile) on the level
  - Breathless at rest or on minimal effort.
- Onset of dyspnoea:
  - Intermittent: asthma, recurrent pulmonary oedema, exacerbations of COPD
  - Over days: pleural fluid, carcinoma of bronchus, heart failure
  - Over months to years: COPD, fibrosing alveolitis, anaemia, fibrotic lung disease
  - Over a few hours: pulmonary oedema, bronchial asthma, pneumonia
  - Acute or sudden: pneumothorax, pulmonary oedema, inhaled foreign body.
- Wheezing: airways limitation including asthma, COPD
- Chest pain: pleurisy, tracheitis
- Smoking
- Family history

EXAMINATION

- Place the patient in a sitting position and ask whether he or she is comfortable.
- Examine the sputum cup and comment on the sputum.
- Examine the patient from the foot end of the bed and comment as follows:
  - Whether the patient is breathless at rest
  - On wasting, if any, in the infraclavicular region
  - On diminished movement on the right or left side
- Count the respiratory rate
- Comment on pattern of breathing (Fig. 1.1).
- Examine the hands:
  - Clubbing
  - Cyanosis
  - Tar staining (the yellow ‘nicotine’ staining is actually tar).
- Examine the pulse for bounding pulse and asterixis: signs of carbon monoxide narcosis.
- Examine the face:
  - Comment on the tongue, looking for central cyanosis

![Graphs showing different patterns of breathing: Healthy, Tachypnoea, Kussmaul breathing, Cheyne–Stoke breathing, Biot breathing.](image)

Fig. 1.1  Different patterns of breathing. FRC, functional residual capacity.
Comment on the eyes, looking for pallor and evidence of Horner’s syndrome (see p. 176).

Examine the neck:
- Comment on neck veins
- Check for cervical lymphadenopathy
- Comment on the trachea: any deviation, distance between the cricoid cartilage and suprasternal notch.

Palpate:
- Apex beat
- Movements on both sides with the fingers symmetrically placed in the intercostal spaces on both sides
- Vocal fremitus (tell the examiner that you would prefer to do vocal resonance because it gives the same information and is more reliable).

Percussion: percuss over supraclavicular areas, clavicles, upper, middle and lower chest on both sides.

Auscultation:
- Over the supraclavicular areas, upper, middle, and lower chest on both sides: comment on breath sounds (whether vesicular or bronchial) and on adventitious sounds (wheeze, crackles, or pleural rub)
- If crackles are heard, ask the patient to cough and then repeat auscultation. It is important to time the crackles to ascertain whether they occur in early, mid, or late inspiration
- While auscultating the front of the chest, seize the opportunity to listen to the second pulmonary sound
- Check for vocal resonance by asking the patient to repeat ‘one, one, one’
- Check for forced expiratory time (FET) if your diagnosis is COPD by asking the patient to exhale forcefully after full inspiration while you are listening over the trachea: if the patient takes more than 6 s, airway disease is indicated (be prepared to discuss spirometry findings; Fig. 1.2).

![Typical spirometry](Fig. 1.2)
- Ask the patient to sit forward:
  - Palpate: assess expansion posteriorly
  - Percuss: on both sides including axillae
  - Auscultate: posteriorly including the axillae.
- Remember to look for signs of middle lobe disease in the right axilla and correlate your findings with common clinical conditions.
- Tell the examiner you would like to do a chest X-ray or chest computed tomography (and be prepared to comment on the findings):
  - Normal: airways disease, neuromuscular disease, pulmonary emboli, anaemia
  - Abnormal lung fields: pleural thickening, effusion, tumour, lobar collapse, diffuse infiltration
  - Abnormal mediastinum: lymphadenopathy, large pulmonary vessels
  - Cardiomegaly with upper lobe blood diversion: pericardial effusion, left ventricular failure.