Main Symptoms

Dyspnoea

Cough/Haemoptysis

Chest pain
Dyspnoea

Dyspnoea: shortness of breath

Wheeze: audible musical sounds usually expiratory
Dyspnoea

Grading or Severity: mild, moderate, severe

Pattern: exertion, continuous/intermittent, rest/sleep

Time course: onset, duration, progression

Variability: diurnal, day to day, aggravating or relieving factors

Associated symptoms: cough, chest pain
Cough 1

Characteristics: type

Time course: onset & duration

Productive or non productive or dry

Sputum: what’s in it
Cough 2

Type of cough: barking, harsh, productive/non productive

Pattern: continuous or intermittent, day/night

Time course: onset, duration, progression

Sputum: colour: white, pink, green, frothy, rusty, bloody
amount: a lot/little, smell/taste: odourless or foul smelling

Associated symptoms: pain, dyspnoea
Haemoptysis

Definition: coughing up of blood

Type: frank or blood stained

Degree: how much

Frequency: how often

Duration: for how long
Chest Pain

Site: lateral part of chest

Character: pleuritic; worse on breathing and/or coughing, movement, sharp, stabbing

Other features:
Severity
Time Course
Aggravating & Relieving Factors
Associated factors
Previous History of pain
Past Medical History

TB/HIV: active on Rx or inactive

Chronic Resp Disease: Asthma/Wheezy/Bronchitis, Pneumonia/Pleurisy

Past history: Chest Injury/RTA, travel, childhood, chest infections
Family History

Allergies/Eczema: asthma

Respiratory Disease: TB/HIV, chronic bronchitis

Inherited risk: cystic fibrosis

Acquired risk: passive smoking
Social History

Cigs: 20 or 1 pack/day for 30 yrs = 30 pack years

Alcohol: type, quantity & duration

Occupational exposure:
Dust: mining & factories
Infections: farming, animals etc
Respiratory Examination

Undress patient: to level of the waist

Position: sitting @ angle of 45 degrees

Inspection: first from side & repeat from front
Examining position
General Inspection

Appearance: well or unwell: e.g. dyspnoeic, wasting

Breathing pattern: thoracic or abdominal

Respiratory distress: dyspnoeic, wheezing or stridor

Resp Rate: normal = 14-18/min

Cyanosis: peripheral and/or central
Signs of Respiratory Distress

Respiratory distress: dyspnoeic, wheezing or stridor

Intercostal recession and/or subcostal retraction

Using accessory muscles: ali nasi, sternomastoids, scalenes

Tachypnoea: Resp Rate: >18/min

Cyanosis: peripheral and/or central
The Hands

Clubbing: fingers

Cyanosis: examine nail beds for blue colour

Anaemia: check nails & palms for pallor

Asterixis: examine outstretched hands; tremor, flap
Inspection
Inspection for Flap
Clubbing

1) loss of normal nail bed angle \( (n=<170 \text{ degrees}) \)

2) increased nail bed fluctuancy

3) increased antero posterior curvature of nails & distal phalanx
The Pulse

Rate: Tachycardia

Volume: Pulsus paradoxus
The Head, Face & Neck

Eye lids/conjunctiva: anaemia & polycytaemia

Pupils: Horner’s Syndrome: (ptosis, miosis, enopthalmos, anhydrosis)

Tongue: cyanosis, anaemia, polycytaemia

Palate: Kaposi Sarcoma, monilia

Sinuses: tap frontal & maxillary for tenderness
Eyelids/conjunctiva
Tongue
Lymph Nodes

Supraclavicular Fossa: supraclavicular & deep cervical neck glands

Axilla: 4 walls (ant, post, med and lat) & apex
The Chest

- Inspection
- Palpation
- Percussion
- Auscultation
Important Landmarks

Oblique Fissure (OF): runs from lower border vertebra T2 posteriorly to junction 6th rib & sternum anteriorly

Oblique Fissure (OF): separates upper from middle & lower lobes on right & upper from lower lobe on left

A horizontal line from junction of 4th rib & sternum on right side: will join the OF in the mid-axillary line.

Right middle lobe (CC4 -6) lies anterior & below this line
The Lobes

Upper lobes lie anteriorly: are mostly accessible for examination from front or anteriorly

Lower lobes lie posteriorly: are accessible for examination from behind or posteriorly

Middle lobe lies anteriorly of the mid axillary line on the right ribs 4-6, accessible for examination only from front or anteriorly
The Chest

Inspection

Palpation

Percussion

Auscultation
Inspection

Inspect anterior chest: from side & front *(end of bed)*

Observe: chest shape & or lesions chest wall

Observe breathing pattern: any abnormal movements

Compare: expansion both sides, *look for asymmetry*

Inspect posterior chest: from behind; *patient sitting forward & with arms folded across chest*
Inspection from the front
Abnormalities Chest Wall

Shape:
- Kyphosis
- Scoliosis
- Pectus carinatum (pigeon chest deformity)
- Pectus excavatum

Lesions of chest wall: nodules, tumours, bruises
The Chest

Inspection

Palpation

Percussion

Auscultation
Palpation

Check: areas of local tenderness

Locate: trachea & the apex beat

Examine: chest expansion on both sides

Examine: tactile fremitus

Lymph nodes: in SCF & axillae
Examining the Trachea

Place tip index finger: in suprasternal notch midline

Press: gently against the trachea

If trachea deviated: finger tip will slip to one side of trachea i.e. side opposite tracheal displacement

Confirm: check tracheal displacement on other side
Chest Expansion 1

Method

Place both hands on the front of the chest wall

Fingers widely separated & covering as much of the chest wall as possible

Thumbs almost meeting in midline & slightly lifted off chest wall
Chest Expansion 2

Method

Ask the patient to take a deep breath in:

Thumbs should move apart: by 4-5 cms

Confirm by measuring with tape: at nipple line or 4th intercostal space

Repeat: in axilla for middle lobe & posteriorly for lower lobe
Expansion anterior
Expansion axillary
Expansion posterior
Measuring tape method
Measuring tape method

• Before inhalation

• After maximum inhalation
Tactile Fremitus

Detects transmitted vibrations from larynx through lungs & chest wall

Patient is asked to repeat: ninety nine or (in Swahili) nane nane

Palpating hand is placed: consecutively on chest wall in identical places; comparing right with left sides

Palm (or ulnar border) of hand: used as it is most sensitive

Any increase or decrease in tactile resonance: has same significance as for vocal resonance
# Tactile Fremitus

<table>
<thead>
<tr>
<th>Decreased</th>
<th>Increased</th>
<th>Normal on both sides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleural effusion</td>
<td>Consolidation</td>
<td>Normal lung</td>
</tr>
<tr>
<td>Fibrosis/pleural thickening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atelectasis</td>
<td></td>
<td></td>
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<tr>
<td>Mass/Tumour</td>
<td></td>
<td></td>
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<tr>
<td>Pneumothorax</td>
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</tbody>
</table>
Key Points

• Correct position of patient is sitting @ 45 degrees

• Inspection is more reliable than palpation for detecting asymmetrical expansion of chest

• Normal position of trachea & apex indicates normal alignment of mediastinum

• Above necessary for correct interpretation of findings
The Chest

Inspection

Palpation

Percussion

Auscultation
Percussion

Place left hand on chest wall: fingers separated but with middle finger in tight contact to skin

Strike second phalanx of middle finger: with tip of right middle finger

Compare notes from: the same sites on both sides

Map out any areas of abnormality: e.g. area of dullness

Percuss: in a resonant to dull direction
Percussion 1

Anterior chest wall: (2nd-6th ribs)

Clavicles: tap once each side; comparing right & left

Mid clavicular line: tap 2-3 times on each side; comparing right & left
Percussion clavicular
Percussion anterior
Percussion 2

Lateral chest wall: (3rd-7th ribs)

Mid axillary line: tap 2-3 times on each side; comparing right & left
Percussion axillary
Percussion 3
Posterior chest wall (apex to 11th rib)

Percuss in a: C shaped direction

Start at apex, move downwards medial to borders of scapulae & then: fanning outwards inferiorly (see video)

Tap once at apex & then repeat 5 times on each side: comparing right & left
Percussion posterior
## Percussion Note

### Interpretation

<table>
<thead>
<tr>
<th>Description</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dull</td>
<td>Consolidation</td>
</tr>
<tr>
<td></td>
<td>Fibrosis</td>
</tr>
<tr>
<td></td>
<td>Atelectasis</td>
</tr>
<tr>
<td>Stony Dull</td>
<td>Pleural effusion</td>
</tr>
<tr>
<td>Hyperresonant</td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>Resonance</td>
<td>Emphysema</td>
</tr>
<tr>
<td></td>
<td>Normal lung</td>
</tr>
</tbody>
</table>
Key Points

• Always compare the same sites on both sides of chest

• Main causes dullness: effusion, consolidation & fibrosis

• Increased resonance on one side may indicate a pneumothorax

• Increased resonance both sides usually non diagnostic

• Map out any suspected area of dullness or abnormality
The Chest

Inspection

Palpation

Percussion

Auscultation
Auscultation of lungs 1

Use **Diaphragm** i.e flat part of stethoscope to listen to the lungs

Use **Bell** for suspected low frequency sounds: BB, fibrosis & thin persons

Ask patient open mouth & breathe *in/out*: deeply & rapidly
Stethoscope diaphragm
Auscultation of lungs 2

Auscultate sides alternatively comparing: loudness & quality

Auscultate in both: inspiration & expiration

Auscultate at same sites: as you percussed

Auscultatory breath sounds: are either normal or abnormal
Auscultation anterior
Auscultation axillary
Auscultation posterior
Normal Breath Sounds

Normal: bronchial breathing (BB) & vesicular breathing (VB)

BB is continuous blowing tubular sound: with a gap between inspiration & expiration & both are same length

BB normally heard: over larynx & trachea & bifurcation anteriorly @ sternal angle

VB is continuous sound: without any gap between insp & exp & exp is shorter than inspiration

VB heard normally: throughout normal lung fields
Abnormal Breath Sounds

Absence of BB or VB from a place: normally heard

Finding BB or VB in a place: not normally heard

Presence of: additional breath sounds (ABS)

ABS: crepitations, rhonchi, wheeze & pleural rub
Additional Breath Sounds

Crepitations (crackles): are interrupted small airways sounds: classified as: fine, medium & coarse

Rhonchi: continuous high pitched musical sounds from narrowed bronchi e.g asthma: heard with stethoscope

Wheeze: is high pitched musical sound: heard with ear

Pleural rub: is a superficial creaking, scratchy, pleural based sound heard during insp & exp or both
Bronchial Breathing

Characteristics

Insp & exp sounds are: hollow, blowing or tubular in character

Exp phase is same length as insp phase: but with a short gap between them

Tactile & vocal fremitus: increased in consolidation

Main causes: consolidation, fibrosis, cavity
Abnormal Breath Sounds

Crepitations
- Pneumonia/bronchiectasis
- Pulmonary oedema
- Fibrosis

Rhonchi
- Asthma
- Obstructive airways disease

Pleural Rub
- Pneumonia, infarction

Bronchial breathing
- Consolidation, cavity, (fibrosis)
Key Points

- **VB** sounds diminished if air flow is decreased or there is a block between lung & chest wall

- **BB** occurs when bronchi open but the surrounding lung tissue is solid *e.g.* consolidation, fibrosis

- **Crepitations:** caused by reopening of peripheral small airways/alveoli & are most noticeable in the lower lung fields

- **Crepitations** of bronchial origin may disappear on coughing

- **Compare** both sides & avoid auscultation *at or near* midline