Respiratory Exam

Introduction
- Wash hands, Introduce self, ask Patients name & DOB & what they like to be called, Explain examination and get consent
- Expose and sit patient at 45°

General Inspection
- Patient wellbeing: stable, alert, comfortable, breathless, cachexic (cancer, emphysema), Cushingoid (steroid use)
- General breathing: use of accessory muscles (COPD, pleural effusion, pneumothorax, severe asthma), puffing through pursed lips (prevents bronchial wall collapse by keeping lung pressure high in severe airway obstruction/emphysema)
- Noises: patients’ speech normal? (obstruction, recurrent laryngeal nerve palsy), stridor (large airway obstruction e.g. mediastinal masses, bronchial carcinoma, retrosternal thyroid), wheeze, cough (dry/bovine/productive), prolonged expiratory phase (asthma, COPD), clicks (bronchiectasis), gurgling (airway secretions)
- Around the bed: oxygen, medication (metered dose inhalers, nebulisers), sputum pots (look at sputum), cigarettes

Hands
- Fine tremor (Beta-2 agonists); flaming tremor (CO\textsubscript{2} retention in type 2 respiratory failure)
- Perfusion: peripheral cyanosis, capillary refill (>2s in hypoperfusion), sweaty/warm/clammy (CO\textsubscript{2} retention), small muscle wasting (Pancoast syndrome)
- Nails: clubbing (idiopathic pulmonary fibrosis, lung cancer, CF, bronchiectasis, sarcoidosis/TB), tar stains (smoker)

Pulse and Respiratory Rate
- Pulse: rate and rhythm (tachycardia may indicate: hypoxia in severe asthma or COPD; PE; infection), bounding pulse (CO\textsubscript{2} retention)
- Count respiratory rate (while patient still thinks you are feeling pulse): tachypnoea (fever; severe lung disease; hyperventilation), bradypnoea (sedation)

Head and Neck
- Face: Cushingoid (steroid use), plethoric (CO\textsubscript{2} retention), telangiectasia/microstomia (systemic sclerosis), butterfly rash (SLE), lupus pernio (sarcoid), lupus vulgaris (TB)
- Eyes: conjunctival pallor (anaemia or chronic disease), Horner’s syndrome (ptosis, miosis, anhidrosis)
- Mouth: central cyanosis under tongue (hypoxia)
- Neck: JVP height (↑ in cor pulmonale), tracheal tug, tracheal deviation (pneumothorax pushes to contralateral side; collapsed lung pulls to ipsilateral side; mass), notch-cricoid distance (<3 fingers = lungs hyperinflation)

Chest
Front first...
- Inspection
  - Chest wall: scars, skin changes, trauma, deformities (pectus carinatum e.g. in childhood asthma or rickets; pectus excavatum e.g. in Marfan’s syndrome; barrel chest in emphysema or COPD), kyphosis/scoliosis (restrict chest movements), radiotherapy tattoos
  - Chest wall movements: mainly upwards (emphysema), asymmetrical (fibrosis, collapsed lung, pneumonectomy, pleural effusion, pneumothorax)
  - Breathing: in-drawing of intercostal muscles (generalised is hyperinflation; localised is bronchial obstruction), powerful expirations (asthma; chronic bronchitis), hyperexpanded chest (COPD)
- Palpation: supramammary and inframammary chest wall expansion (grip very hard around rib cage with thumbs in air almost touching in expiration and watch thumbs move away from each other during inspiration); feel for RV heave and palpable P2 (pulmonary hypertension)
- Percussion: compare left with right (start supravclavicular, then on clavicles, then down to axilla) (normally resonant; dull = consolidation or collapse; stony dull = pleural effusion; hyperresonant = increased air space in emphysema, bronchitis, pneumothorax)
  N.B. Liver starts at 5th intercostal space
- Auscultation
  - Standard auscultation: patient breaths in and out deeply. Compare sides, starting in supravclavicular area and ending in axillae.
  - Decreased air entry = emphysema, pneumothorax, pleural effusion, collapse
  - Added sounds:
Pleural rub = pulmonary infarction, pneumonia, pleural malignancy
Wheeze = asthma, COPD
Crackles: coarse (bronchiectasis or consolidation); fine inspiratory at bases (pulmonary oedema); fine end-inspiratory (pulmonary fibrosis)
  - Whispering pectoriloquy: ask patient to whisper 99 (increased resonance = consolidation; decreased resonance = effusion/pneumothorax)
  - Listen for loud P2 i.e. loud second heart sound over pulmonary area (pulmonary hypertension)
- Now patient sit over bedside with crossed arms and percuss, auscultate and do vocal resonance again on back (you must do it on front and back)

Finally
- Cervical lymph nodes (infection, carcinoma, lymphoma, sarcoidosis) (while patient still sitting)
- Calves: oedema (cor pulmonale), feel calves (swollen/tender = DVT)

To Complete exam
- Thank patient and cover them
- “To complete my exam, I would like to see an observations chart and do a peak flow”
- Summarise and suggest further investigations you would do after a full history

<table>
<thead>
<tr>
<th>Condition</th>
<th>Pneumothorax</th>
<th>Pneumonia</th>
<th>Pleural effusion</th>
<th>Collapse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trachea displacement</td>
<td>Away</td>
<td>None</td>
<td>Away if large</td>
<td>Towards collapse</td>
</tr>
<tr>
<td>Expansion</td>
<td>All reduced ipsilaterally</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percussion resonance</td>
<td>Increased</td>
<td>Decreased</td>
<td>“Stony dull”</td>
<td>Decreased</td>
</tr>
<tr>
<td>Breath sounds</td>
<td>Reduced/absent</td>
<td>Bronchial breathing + Coarse crepitations</td>
<td>Reduced/absent</td>
<td>Reduced/absent</td>
</tr>
</tbody>
</table>