

# Respiratory Exam

## Introduction

- **W**ash hands, **I**ntroduce self, ask **P**atients name & DOB & what they like to be called, **E**xplain 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<sub>2</sub> retention in type 2 respiratory failure)
- **Perfusion:** peripheral cyanosis, capillary refill (>2s in hypoperfusion), sweaty/warm/clammy (CO<sub>2</sub> retention), small muscle wasting (Pancoast tumour)
- **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<sub>2</sub> 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<sub>2</sub> 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 supraclavicular, 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 5<sup>th</sup> intercostal space
- **Auscultation**
  - Standard auscultation: patient breaths in and out deeply. Compare sides, starting in supraclavicular 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

	Pneumothorax	Pneumonia	Pleural effusion	Collapse
Trachea displacement	Away	None	Away if large	Towards collapse
Expansion	All reduced ipsilaterally			
Percussion resonance	Increased	Decreased	“Stony dull”	Decreased
Breath sounds	Reduced/absent	Bronchial breathing + Coarse crepitations	Reduced/absent	Reduced/absent