Aims / Objectives:
Introduction to the pathophysiology, assessment and management of breathlessness for palliative patients with advanced disease.

Definition of Breathlessness:
‘An uncomfortable awareness of breathing’
Occurs very commonly in:
- Advanced cancer
- Cardiorespiratory diseases
- Neurological diseases

Pathophysiology of Breathlessness:
• Breathlessness occurs due to a fall in the levels of O₂ in the blood, increased levels of CO₂ or just difficulty expanding the lungs.
• Detection of low O₂ and high CO₂ levels means nerve impulses are sent to respiratory muscles and breathing rate is increased.

Causes of Breathlessness:
• Cancer
  - Direct effect i.e. airway obstruction, pleural tumour.
  - Indirect effect i.e. pleural effusion, pulmonary embolism, anaemia.
• Non – Malignant
  - Lung Conditions – COPD, Pulmonary fibrosis, Pneumonia
  - Cardiac Conditions – Heart Failure.
  - Anxiety

Anxiety / Breathlessness Cycle:

Something triggers your anxiety, for example you might get breathless or have a worrying thought.

You feel breathless

You experience physical changes, for example your muscles tighten or your breathing slow.

You have worrying thoughts, for example ‘I’m going to die’ or ‘I don’t want people to see me like this.’

You feel vicious panic, and overreacted.

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Breathlessness: Is it reversible?

**Sudden Onset:**
- Possible Cause -
  - Asthma
  - Pulmonary oedema
  - Pneumonia
  - Pulmonary embolism
  - Pneumothorax

**Management:**
- Consider –
  - Bronchodilators, Steroids, Physiotherapy
  - Diuretics, Morphine
  - Antibiotics, Morphine
  - Anticoagulants, Morphine
  - Chest drainage

**Breathlessness: Is it reversible?**

**Arising over several days:**
- Possible Cause -
  - Exacerbation of COPD
  - Pneumonia
  - Bronchial obstruction by tumour
  - Superior Vena Cava Obstruction (SVCO)

**Management:**
- Consider –
  - Antibiotics, Steroids, Bronchodilators
  - Antibiotics, Physio
  - Dexamethasone 16mg o.d., Radiotherapy, Laser, Stents
  - Dexamethasone 16mg o.d., Urgent stenting

**Gradual Onset:**
- Possible Cause -
  - CCF
  - Anaemia
  - Pleural effusion
  - Ascites
  - Progression of malignancy
  - Carcinomatous lymphangitis

**Management:**
- Consider -
  - Diuretics, Digoxin, ACE inhibitors
  - Transfusion if Hb >80g/l
  - Pleural aspiration
  - Paracentesis
  - Radiotherapy, Chemotherapy
  - Dexamethasone 8-12mg o.d., Bronchodilators.

**Assessment of Breathlessness:**
**Features of the breathlessness:**
- Severity score (e.g. Borg scale 0-10)
- Timing
- Onset
- Precipitating and exacerbating factors.
- Associated physical symptoms e.g. cough, sputum, haemoptysis, wheeze, stridor, pleuritic pain, fatigue, and panic.
- Associated psychological symptoms e.g. anxiety
- Drug history e.g. nonsteroidal anti-inflammatory drugs, beta-blockers, chemotherapy.
- Progression of breathlessness over time.

**Impact of Breathlessness on Quality of Life:**
- Physical symptoms: fatigue, loss of appetite, pain, sweating, insomnia.
- Reduced functioning: difficulties with eating, bathing, problems with communication and reduced mobility.
- Psychological / Emotional impact: anxiety, depression, anger, helplessness, loneliness, intimacy issues.
- Social / Spiritual implications: social isolation, change of ‘role’ in the family, employment, financial.

**Palliative Management of Breathlessness:**
- Adopt a stepwise approach – depending on the underlying cause of breathlessness and the stage of illness.
- Non-pharmacological management
- Pharmacological management
Non-Pharmacological management of Breathlessness:
- Better Breathers at St Andrews Hospice.
- Pulmonary Rehab – Hope Street
- Breathing techniques.
- Pacing strategies
- CBT / Mindfulness / Relaxation / Distraction therapy.
- Hand held fans over the trigeminal nerve to relieve the symptoms of breathlessness.
- Sitting up / Positioning
- Sufficient air flow.

Pharmacological Management of Breathlessness: Oxygen Therapy
- Do not routinely start oxygen to manage breathlessness.
- Offer oxygen therapy to people known or clinically suspected to have symptomatic hypoxia (Sp02 ≤92%).
- Caution in hypercapnia respiratory failure
- Optimise Inhalers, nebulisers, antibiotics, steroids where appropriate.

Pharmacological management of Breathlessness: Opioids
- Continue with non-pharmacological strategies when initiating an opioid.
- Consider using a strong opioid in people who need symptomatic management of breathlessness; especially those with shortness of breath who are near the end of life.
- Opioids can influence a person’s perception of breathlessness; central mediation of breathing occurs in the brainstem respiratory centre, an area rich with opioid receptors.

Pharmacological management of Breathlessness: Benzodiazepines
Consider short-term use of a benzodiazepine:
- If dyspnoea is associated with acute anxiety
- Benefit from non-pharmacological measures and an opioid has been insufficient
- At the end of life
Benzodiazepine selection depends on the stage of palliative disease, the severity of anxiety and the desired onset of action – e.g.
- Lorazepam 500mg – 1mg PO/SL b.d. and PRN
- Anxiolytic anti-depressant e.g. Mirtazapine 15-30mg nocte
- Midazolam 2.5mg SC PRN or 5-10mg/24hrs via syringe driver.

Pharmacological management of Breathlessness: EOL patients
- In people at the end of life or those with severe anxiety, combining a SC opioid and benzodiazepine may be beneficial.
  - e.g. Morphine / Diamorphine +/- Midazolam
  - Morphine/Diamorphine 1-2.5mg SC + Midazolam 2.5mg SC PRN
  - Morphine/Diamorphine 5-10mg/24hrs + Midazolam 5-10mg / 24hrs via syringe driver.
Any questions?