RESPIRATORY CARE IN GENERAL PRACTICE
Definitions of Asthma and COPD

- Asthma is due to inflammation of the air passages in the lungs and affects the sensitivity of the nerve endings in the airways so they become easily irritated. In an attack, the lining of the passages swell causing the airways to narrow and reducing the flow of air in and out of the lungs. (WHO 2014)

- Chronic obstructive pulmonary disease (COPD) is a lung disease characterized by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible. The more familiar terms 'chronic bronchitis' and 'emphysema' are no longer used, but are now included within the COPD diagnosis. COPD is not simply a "smoker's cough" but an under-diagnosed, life-threatening lung disease (WHO 2014)
Prevalence

• 5.4 million people in the UK receive treatment for asthma: 1 in 10 children and 1 in 12 adults.
• It is the most common chronic medical condition in children.
• There are 4.1 million GP consultations for asthma per year.
• The cost of asthma to the NHS runs at about a billion pounds per year

• Internationally, the UK is one of the highest-ranking countries in terms of asthma prevalence, hospital admissions and mortality.
• Peak prevalence occurs between the ages of 5 and 15, and falls thereafter until aged 55-64 years, when it starts to rise again.
• Gender differences - there is a male preponderance in childhood with a reversal in early adulthood (Asthma UK 2014)
Prevalence

• An estimated three million people are affected by COPD in the UK. COPD is underdiagnosed. 60-85% of patients, mainly with mild-to-moderate disease, are thought to remain undiagnosed.

• In the UK, it is estimated that more than 3 million people currently have COPD, and an estimated 2 million people have COPD which remains undiagnosed.

• Most patients are not diagnosed until they are in their fifties. COPD is closely associated with levels of deprivation - rates of COPD are higher in more deprived communities (British Lung Foundation 2014)
Signs and Symptoms of Asthma in Adults.

- coughing
- wheezing
- shortness of breath
- tightness in the chest

Not everyone will get all of these symptoms. Some people experience them from time to time but otherwise live normal lives doing everything they want to do with very few symptoms. With good asthma management, people with asthma shouldn't experience asthma symptoms, or only have them occasionally (asthma UK 2014)
Signs and Symptoms of Asthma in Children

- Episodes of wheezing, cough and difficulty breathing associated with viral upper respiratory tract infections (URTIs) with no persisting symptoms. Common in infants and preschool children (about 30% of children aged under 3 but most will have stopped having recurrent symptoms by school entry).

- Some children who wheezed early, will go on to develop wheezing with other triggers so that they develop interval symptoms, similar to older children with classical atopic asthma.

- Atopic asthma is more common in school-aged children; symptoms occur often with identifiable triggers and often alongside eczema or hay fever but, even in this age group, non-atopic asthma is as frequent as the atopic variant.
Childhood asthma

Diagnosis of asthma in children is difficult because of the complex nature of the disorder in the young. Accurate diagnosis in primary care remains an important challenge - recent guidelines (British Thoracic Society 2008) recommend recording the basis on which the diagnosis is suspected and managing or investigating children further according to the probability of asthma.

The UK has one of the highest prevalences for childhood asthma internationally, with about 15% children affected.

There were 1,167 deaths from asthma in the UK in 2011 (18 of these were children aged 14 and under) (Asthma UK 2013)
Signs and Symptoms of COPD

• wheezing, particularly on expiration
• breathlessness when resting or on exertion;
• tight chest;
• cough; and
• producing more mucus or phlegm than usual

Chronic obstructive pulmonary disease (COPD) is the name for a collection of lung diseases including chronic bronchitis, emphysema
Investigations – Asthma

**Diagnosis in adults**
Current guidelines emphasise that the diagnosis of asthma is a clinical one, based on typical symptoms and signs, and a measurement of airflow obstruction for which spirometry is the preferred initial test. Ascribe high, intermediate or low probability of asthma based on this assessment to determine the use of further investigations or treatment trial (BTS 2008)

Measurement of peak expiratory flow rate (PEFR) is the simplest and most basic test. Every GP peak flow meter with disposable mouthpieces, and a smaller, low reading one is often useful for children and for more severe obstruction. Caution should be used when diagnosing asthma based on peak flow readings but it has an important role in the management of established asthma.
Investigations - COPD

- **Spirometry** should be performed in patients who are aged over 35, are current or ex-smokers, and who have a chronic cough.
- Spirometry should be considered in patients with chronic bronchitis. A significant proportion of these will go on to develop airflow limitation.
- A true assessment of severity should include assessment of the degree of airflow obstruction and disability, the frequency of exacerbations and the following prognostic factors:
  - Health status, breathlessness (MRC scale), body mass index (BMI), exercise capacity.
  - Forced expiratory volume in one second (FEV1)
- **Peak expiratory flow rate (PEFR)**
- Measurement may significantly underestimate the severity of the airflow limitation.
- A normal PEFR does not exclude significant airflow obstruction.
Treatment Asthma in Adults

- Current British Thoracic Society Guidelines on the Management of Asthma provide the following recommendations for the management of asthma:

  - **General principles of management**
  - Step up/down treatment according to disease severity to maintain good control and minimise drug related side-effects.
  - Start at the step most fitting to the initial severity of the asthma.
  - Treatment plans and goals should be negotiated with the patient but usual aims would be to minimise impact of symptoms on life, reduce reliance on reliever medication and prevent severe exacerbations.
  - Self-management education including individualised written asthma action plans should be offered.
  - Always check concordance with medication/existing action plan, effective inhaler technique and the presence/absence of trigger factors before initiating new drug therapy.
Step 1: mild, intermittent asthma
Prescribe an inhaled short-acting beta$_2$ agonist as a short-term reliever for all patients with symptomatic asthma.

Step 2: introduction of regular preventer therapy
Inhaled steroids are the most effective preventer drugs for achieving overall treatment goals. They should be considered for any patient with:
A recent exacerbation (in the last 2 years).
Nocturnal asthma (waking with symptoms more than once a week).
Daytime symptoms or use of an inhaled short-acting beta$_2$ agonist more than 3 times per week.
Step Up Step down

- Regular use of bronchodilators alone may be linked with worsening asthma and asthma deaths and some patients may be noncompliant with their 'preventative' medication for varied reasons. Review medication use. Start treatment at a dose appropriate to symptoms between 200-800 micrograms/day beclometasone propionate or equivalent (400 micrograms/day is appropriate for many).

In the past, advice has been to double inhaled steroids early in an exacerbation. Evidence for being effective at lower dose (e.g. 200 to 400 micrograms/day) is lacking but there is some evidence of efficacy switching from low-dose to high-dose inhaled steroids (e.g. 200 to 1000 micrograms/day) early in an exacerbation. Current guidance advises commencing oral steroids early in an exacerbation.
Treatment Asthma in Children

- Management of chronic asthma in children aged under 5:

  **Step 1: mild intermittent asthma** - inhaled short-acting beta$_2$ agonists as needed. **Step 2: regular preventer therapy** - add inhaled steroid 200-400 micrograms/day (beclometasone dipropionate or equivalent) or leukotriene antagonist if inhaled steroid cannot be used. Start at the dose of inhaled steroid appropriate to the severity of the disease. **Step 3: add-on therapy** - for children aged over 2, consider the addition of a leukotriene antagonist or inhaled steroid 200-400 micrograms/day (dependent on what drug they received already as Step 2). **Step 4: persistent poor control** - refer to a respiratory paediatrician.
Treatment of Asthma in Children

• Management of chronic asthma in children aged 5-12 years:

  Step 1: mild intermittent asthma - inhaled short-acting beta₂ agonists as needed.

  Step 2: regular preventer therapy - add inhaled steroid 200-400 micrograms/day (beclometasone dipropionate or equivalent). 200 micrograms is an appropriate starting dose for most patients, but judge according to the severity of disease.

  Step 3: add-on therapies - add in a long-acting inhaled beta₂ agonist (LABA) but, if response is poor, stop. If the asthma is still not controlled, increase the dose of inhaled corticosteroid to 400 micrograms/day (beclometasone dipropionate or equivalent) and then add either a leukotriene receptor antagonist or slow release theophylline.

  Step 4: persistent poor control - increase inhaled steroid to 800 micrograms/day (beclometasone dipropionate or equivalent).

  Step 5: continuous or frequent use of oral steroids - use in the lowest dose to provide control whilst maintaining high-dose inhaled steroids and refer to respiratory paediatricians.
Safeguarding
Treatment of COPD

Promote effective inhaled therapy

- In people with stable COPD who remain breathless or have exacerbations despite use of short-acting bronchodilators as required, offer the following as maintenance therapy:
  - if FEV$_1$ $\geq$ 50% predicted: either long-acting beta$_2$ agonist (LABA) or long-acting muscarinic antagonist (LAMA)
  - if FEV$_1$ $<$ 50% predicted: either LABA with an inhaled corticosteroid (ICS) in a combination inhaler, or LAMA.
  - Offer LAMA in addition to LABA+ICS to people with COPD who remain breathless or have exacerbations despite taking LABA+ICS, irrespective of their FEV$_1$. 