



# Respiratory presentations in Primary Care

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## Aims

Develop skills to assess and treat or manage common respiratory presentations in primary car

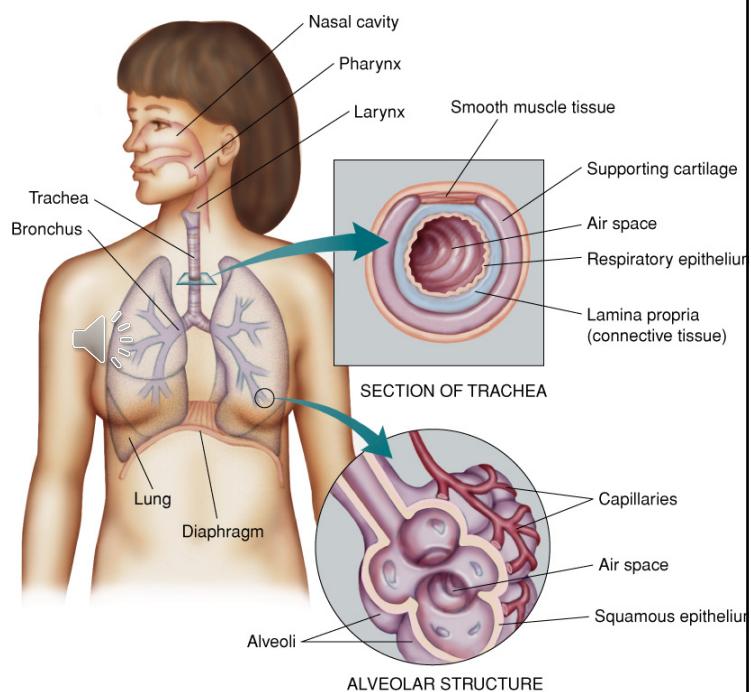
## Session Plan



1. Brief overview of anatomy of respiratory system
2. Overview of some common medications used in respiratory disorders
- 3.Understand the difference between viruses and bacteria in respiratory presentations in primary care.
4. Look and discuss some case studies of common respiratory complaints in this presentation and save your answers for later online discussion. There will be more scenarios in this session too

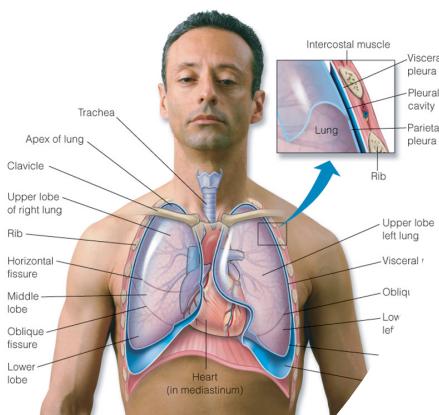
# Respiratory System

- Study the anatomy that you see in this diagram and consider what could go wrong.
- Think of normal and abnormal findings



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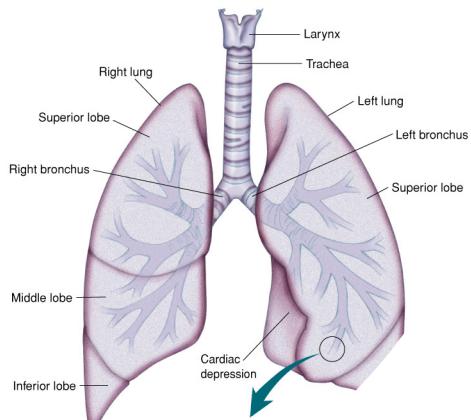


## Lungs & Surrounding Structures



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## The Lungs

## History Taking in a respiratory condition- consider these areas

- Presenting Complaint
- The history of Presenting Complaint
- Past Medical History, Surgical History and Gynae/sexual History ( if relevant)
- JAMITHREADSCMH 
- Allergies : Drugs, Food, Other. Consider latex
- Medication History
- Immunisations

## SAMOSADIE

- Consider this mnemonic for the detail...
- What other mnemonics might you use?
- S- social and sexual if relevant
- Allergies- medications foods environment
- Medications
- Occupation
- Smoking
- Alcohol
- Diet
- Immunisation history
- Exercise
- Travel



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## Auscultation- you can always call these 'added sounds' or think of these

### • Stridor

- High pitched, "crowing"
- Upper airway restriction

### Crackles (Rales)

- Fine, "crackling"
- Fluid in smaller airways, alveoli

### • Wheezing

- "Whistling"
- Usually more pronounced on exhalation
- Generalized: narrowing, spasm of the smaller airways
- Localized: foreign body aspiration



### Rhonchi

- Coarse, "rumbling"
- Fluid, mucus in larger airways



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## Circulatory assessment

Is the heart beating in sinus rhythm?

Is there major external haemorrhage?

Is the Pt. Perfusing vital organs?

Effects of hypoxia:

Early in adults - Tachycardia

Late in adults - Bradycardia

Children – Bradycardia

## Extremities

Peripheral Cyanosis

Clubbing

Carpopedal spasm

Peripheral oedema

## Vital Signs

•Skin Colour, Temp & Moisture

•Respiratory Rate

–Not an accurate lone indicator of respiratory status unless very slow

ROTH score unreliable

•Respiratory Rhythm/Pattern

•Pulse

–Bradycardia vs Tachycardia

•Blood Pressure

•SATS – vital in children



## Chest

–Increased A-P Diameter

–Lung Sounds

•Abnormal: stridor, wheezing, rhonchi, rales, pleural rub or ADDED SOUNDS

–Chest expansion

–Symmetrical Findings

–Evidence of Trauma



## Common near patient tests



### Pulse oximetry

Why is this important. What factors can affect readings.  
Is it relevant in patient with smoke inhalation. Why?



### Peak Flow Meter

Why?  
When should it be done?  
How?  
Are paeds and adults the same?

### Spirometry-the Gold standard

What is the relevance of spirometry?  
How does it help in asthma and COPD?  
What is the relevance of FEV1,FVC,VC?



## Some symptoms of respiratory disease

Hypoxia : Decreased levels of oxygen in the tissues

Hypercapnia : Increased levels of CO<sub>2</sub> in the blood

Hypocapnia : Decreased levels of CO<sub>2</sub> in the blood

Dyspnoea : Difficulty breathing

Tachypnoea : Rapid rate of breathing

Cyanosis : Bluish discolouration of skin and mucous membranes due to poor oxygenation of the blood

Haemoptysis : Blood in the sputum

## Common presentations

Cough              Chest pain

Sputum

Shortness of Breath

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## Scenario

A 67yr old female presents complaining of a troublesome cough for past few weeks. Chest X ray is normal. She is apyrexial.

- What other history would you obtain from this patient?
- Which investigations would you consider?
- What is your differential diagnosis?
- What treatment would you consider?



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## Types of cough

- Acute
  - Sudden onset, brief episodes, self limiting
  - Viral infection
- Chronic
  - Prolonged period of more than 3 weeks
  - Asthma, chronic bronchitis, bronchiectasis ,heart failure, bronchogenic cancer, sarcoidosis & ACE inhibitors.
- Paroxysmal
  - Periodic, prolonged & forceful episodes



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Coughs can be described as:

- Productive                          Wheezy
- Dry                                    Hacking
- Barking
- Brassy
- Hoarse
- Croupy



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## Acute cough

- Acute cough is defined as one lasting less than 3 weeks.
- Acute cough is the commonest new presentation in primary care and is most commonly associated with viral upper respiratory tract infection.
-  In the absence of significant co-morbidity, an acute cough is normally benign and self-limiting.
- It is the commonest symptom associated with acute exacerbations and hospitalisations with asthma and COPD.
- The cost of acute cough to the UK economy in 2017 was considered to be £1 billion in lost productivity and healthcare costs!!



## Chronic cough

is defined as one lasting more than 8 weeks.

It is reported by 10–20% of adults, commoner in females and obese. 

Cough accounts for 10% of respiratory referrals to secondary care.

Most patients present with a dry or minimally productive cough.

The presence of significant sputum production usually indicates primary lung pathology eg COPD

In chronic cough a heightened cough reflex is the primary abnormality.



## Causes of Chronic Cough

Condition	History	Physical findings
Nasopharyngitis	Acute onset, low grade fever, rhinorrhoea, cough	Red swollen nasal mucosa, pharynx mildly red
COPD exacerbation	Worsening dyspnoea, increased wheeze and cough, smoker	Purulent sputum, fever, increased HR and resps
Pertussis	Persistent hacking cough, inspiratory whoop, vomiting	Fever absent, coryza
Pneumonia	Cough, dyspnoea, pleuritic chest pain, sputum prodn, fever	Fever, tachycardia, tachypnoea, insp crackles, percussion dull, , asynchronous breathing
Viral URTI	Cough, nasal congestion, sore throat, fever, myalgia	Fever, pharyngitis, enlarged anterior cervical nodes, normal TMs, normal chest
Bronchiolitis	Grunting, sneezing, cough, anoxia, exposure to passive smoke	Fever, wheeze, prolonged exp. Phase, tachypnoea



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## Other Causes of Cough

Condition	History	Physical findings
Post Nasal Drainage	Cough, sore throat	Mucoid secretions, normal chest exam
Asthma	Dry hacking cough especially at night	End expiratory wheeze, prolonged expiratory phase
GORD	Worse at night, heart burn, Hx of oesophagitis, smoker, alcohol abuse, overweight, cough after lying down	Normal chest and abdo exam. Possible epigastric pain on palpation
Chronic bronchitis	Cough, mild dyspnoea, Hx COPD, smoker,	Rasping cough, normal breath sounds or rhonchi that clear with coughing, resonant to dull chest, possible wheeze



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## Managing acute cough

- Be aware that an [acute cough](#):
- is usually self-limiting and gets better within 3 to 4 weeks without antibiotics
- It is most commonly caused or preceded by a viral upper respiratory tract infection, such as a cold or flu
- And can also be caused by [acute bronchitis](#), a middle to lower respiratory tract infection, which is usually
  - a viral infection but can be bacterial
  - There can also have other infective or non-infective causes.
- Do not offer an antibiotic to treat an acute cough associated with an upper respiratory tract infection in
  - people who are not systemically very unwell or at higher risk of complications.
  - Give advice about why an antibiotic is not needed.



## General Advice for Acute Cough

- the usual course of acute cough (lasts up to 3 or 4 weeks)
- Tell patients how to manage their symptoms with self-care when to seek medical help,
- for example if symptoms worsen rapidly or significantly, do not improve after 3 to 4 weeks, or the person becomes systemically very unwell.

\*\* Do not offer the following treatments to people for an [acute cough](#) associated with an upper respiratory tract infection or acute bronchitis unless the person has an [underlying airways disease](#), such as asthma:

- an oral or inhaled bronchodilator (for example, salbutamol) **or**
- an oral or inhaled corticosteroid.
- Do not offer a mucolytic (for example acetylcysteine or carbocisteine) to treat an acute cough associated with an upper respiratory tract infection or acute bronchitis
- EXCEPTION – sometimes viral wheeze in children – but current evidence suggests low dose ICS in newer guidelines

Be aware that people with an acute cough may be at higher risk of complications if they:

- have a pre-existing comorbidity, such as significant heart, lung, renal, liver or neuromuscular disease, immunosuppression or cystic fibrosis
- are young children who were born prematurely
- are older than 65 years with 2 or more of the following criteria, or older than 80 years with 1 or more of the following criteria:
  - Have had a hospitalisation in previous year-especially asthma
  - type 1 or type 2 diabetes
  - history of congestive heart failure
  - current use of oral corticosteroids.



### Case scenario

Mrs James is a 26 year old lady who has telephoned you for some advice as her daughter 'Ella' 18mths old has a barking cough'

What key questions do you need to elicit?



## Further Information re Ella

- Cough has been there since the last week and is getting worse. She is making a high pitched sound following a fit of coughing and is also producing a plug of thick sputum
- followed by vomiting after the cough 
- She did have a runny nose prior to the cough starting
- She does not have a fever but mother has not actually taken the temperature.
- She is off her food but is tolerating small amount of drinks – wet nappies reduced
- She has not had all of her vaccines as her mother was not keen on her having some of these
- **Differentials ???**



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## Pertussis

Pertussis, also known as Whooping cough, is a respiratory infection caused by *Bordetella pertussis* bacteria.

Pertussis usually begins with mild, cold-like symptoms which develop over one to two weeks into coughing

fits which can be severe. The cough can often last for two to three months and because of this pertussis is known as the “100 day cough” in some countries.

• 14 deaths in infants in 2012 in the UK. Hence vaccination of women in week 20-38 weeks of pregnancy. Boostrix-IPV® is given.

• In the absence of a more likely diagnosis a cough illness lasting ≥2 weeks with one of the following symptoms:

- Paroxysms of coughing, OR
- Inspiratory "whoop," OR
- Post tussive vomiting, OR
- Apnoea (with or without cyanosis)

• Treatment with trimethoprim, erythromycin or clarithromycin –throat SWAB



Department of Health, Public Health England and NHS England Joint Letter (2013). Continuation of temporary programme for pertussis vaccination for pregnant women. [internet] accessed 15 May 2014  
4 <https://www.gov.uk/government/publications/whooping-cough-vaccination-programme-for-pregnant-women-extension-to-2014>

Department of Health (2013) Immunisation against infectious diseases: Pertussis Chapter, TSO Publishing, Crown Copyright. <http://immunisation.dh.gov.uk/green-book-chapters/>

NHS Choices (2014). Whooping cough in pregnancy programme [ internet] accessed 15 May 2014. <http://www.nhs.uk/conditions/pregnancy-and-baby/pages/whooping-cough-vaccination-pregnant.aspx>

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## Treatment

- Azithromycin usually used in treatment of pertussis. However, use with caution in patients with cardiac disease.
- Macrolides erythromycin, clarithromycin, and azithromycin are preferred for the treatment of pertussis in persons 1 month of age and older
- For infants younger than 1 month of age, azithromycin is preferred for post exposure prophylaxis and treatment because azithromycin has not been associated with infantile pyloric stenosis (IHPS)
- whereas erythromycin has.
- For infants younger than 1 month of age, the risk of developing severe pertussis and life-threatening complications outweighs the potential risk of IHPS that has been associated with macrolide use. Clinicians should monitor infants younger than 1 month of age who receive a macrolide for the development of IHPS and for other serious adverse events. For persons 2 months of age and older, an alternative to macrolides is trimethoprim-sulfamethoxazole

## Pertussis Infectious Period

- Infectious from start of cough until 5 days after start of antimicrobials.
- Administer a course of antibiotics to close contacts within 3 weeks of exposure, especially in high-risk settings.
- Use the same doses as in the treatment schedule.
- Be aware – the 100 day cough
- Notifiable disease- involve PHE as standard



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## Sputum

- Amount
  - Copious
- Colour
  - Black, brown, green, red, rusty yellow, greyish
- Consistency
  - Thin, thick, viscous, tenacious, frothy, mucoid, mucopurulent.
- Time of day
- Odour (foetid)
- Presence of matter e.g. blood



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## Sputum



- ↑ amount of sputum ⇒ infection or inflammation
- Thick green or brown ⇒ pneumonia or infection
- Yellow or gray ⇒ allergic or inflammatory response
- Haemoptysis ⇒ tuberculosis , carcinoma or TRAUMA
- Pink, frothy - severe often acute pulmonary oedema/MI



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## Green Sputum

- Nearly always a sign of infection
- Why is sputum green?
- White blood cells contain a protein, **myeloperoxidase**
- Only present in white blood cells
- As more white blood cells accumulate in sputum in response to bacteria
- Their green colour becomes more obvious



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## Sputum-colour

- Rusty can be a sign of pneumococcal Pneumonia
- Rusty sputum is defined as “a reddish-brown, blood-stained expectoration”
- Internal micro-bleedings
- Foamy and Pink tinged-pulmonary oedema



Coughing up brown sputum is a common sign of smoking. It's due to **resin** sticking to the viscous texture of the sputum and being ejected by body.

BROWN sputum nearly always sign of infection



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## Dyspnoea

Assessment tools:

- Modified Borg scale
    - Uses 0-10 grading scale
  - American Thoracic Society SOB Scale
    - uses descriptive terms as well as numeric grading scale
    - MRC scale useful in UK
  - UCSD SOB questionnaire
  - ROTH scale is unreliable
- Description**
- SOB during activities of daily living
  - Asthmatic – tightness in the chest
  - CHF – sensation of suffocating
  - COPD – complain of increased effort to breath



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<b>System</b>	<b>Cause of Dyspnoea</b>
Respiratory	Asthma, COPD, pulmonary fibrosis, pleural effusion
Cardiac	CHF, pericardial effusion
Haematological	Severe anaemia, carbon monoxide poisoning
Neurological	Space occupying lesion, increased intracranial pressure, stroke/cva
Metabolic	Uraemia, hepatic coma, thyrotoxicosis, myxoedema
Mechanical Factors	Chest wall deformities, diaphragmatic paralysis, hepatosplenomegaly

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<b>Common Presentations in Primary Care</b>	
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## Case Scenario

- Susan, a 21yr old university student complains of a runny nose and headache. No lymphadenopathy. No abnormal physical signs. Concerned as she has exams in one week in June.
- What is the likely diagnosis?
- What advice would you give her about the likely course of her problem.
- What possible complications could occur.
- Are any vaccinations advised?



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## Histamines

First chemical mediator to be released in immune and inflammatory response.

## Antihistamines

- Antihistamines block the effects of histamine at the H1 receptor.
- They do not block histamine release, antibody production or antigen-antibody reactions.
- Most antihistamines have anticholinergic properties and may cause constipation, dry eyes, dry mouth and blurred vision.
- In addition, many antihistamines cause sedation.



### Cetirizine

- Brand name: Zirtec
- Therapeutic: Allergy, cold and cough remedies, antihistamine
- Action: Antagonizes the effects of histamine at H1 receptor sites; does not bind to or inactivate histamine.
- Anticholinergic effects are minimal and sedation is dose related.
- Generally does not make client sleepy.



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## Other anti histamines

Brand name: Benadryl or Dphenhydramine  
Classification Pharmacologic: H1 antagonist  
Classification Therapeutic: allergy, cold and cough remedies, antihistamines, antitussive.  
Action: Antagonizes the effects of histamine at H1 receptor sites; does not bind to or inactivate histamine. Significant CNS depressant and anticholinergic properties.

High incidence of drowsiness  
Well absorbed after oral administration  
Acts within 15 minutes and lasts for 8 to 12 hours  
Available in combination drugs  
Decongestants  
Analgesics  
Allergy  
Cold remedies



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## Additional Medication for coughs

### Anticholinergic

- E.g. Ipatropium
- Short acting
- Reduces excessive rhinorrhoea
- Need to be used 3-4 times a day

### Leukotriene Antagonist

- E.g montelucast
- Third line treatment in allergic rhinitis good for asthma add on also
- Antagonise leukotrienes produced by mast cells and stabilise them stopping release of histamine
- Once daily –new step up use in asthma guidelines instead of combo inhalers



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## Nasal Sprays eg Sinex

- Nose sprays: decongestant for direct application to nares
  - Has bounce back effect – do not use for more than 3-5 days



Rhinitis Medicamentosa

- Overstimulation of adrenoreceptors
- 'fatigue' of constrictor muscles and hypoxaemia of mucosa cells.
- Results in engorged and oedematous mucosa.



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## The Common Cold

- The most common viral pathogens for the “common cold” are rhinovirus, parainfluenza virus, respiratory syncytial virus, adenovirus and coronavirus.
- These viruses tend to have seasonal variations in their peak incidence.
- They gain entry to the body through the nasal mucosa and the surfaces of the eye. They are readily spread
  - from person to person via respiratory secretions.
- Manifestations of the common cold include:
  - Rhinitis: Inflammation of the nasal mucosa
  - Sinusitis :Inflammation of the sinus mucosa
  - Pharyngitis : Inflammation of the pharynx and throat
  - Headache
  - Nasal discharge and congestion



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## Influenza and other respiratory viruses

- Influenza is a viral infection that can affect the upper or lower respiratory tract.
- Three distinct forms of influenza virus have been identified: A, B( 2 types) and C with type A the most common and causes the most serious illness.
- The influenza virus is a highly transmissible respiratory pathogen.
- Because the organism has a high tendency for genetic mutation, new variants of the virus are constantly arising in different places around the world. Serious pandemics (spread of infection across a large region) of influenza are seen every 30-40 years as a result of this change eg swine flu H1N1.
- Consider atypical viruses eg SARS MERS and Covid 19



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First intensive care unit opened for men suffering from cold



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## Symptoms of influenza infection:



- Headache
  - Fever, chills
  - Muscle aches
  - Nasal discharge
  - Non productive cough
  - Sore throat
- Influenza infection can cause marked inflammation of the respiratory epithelium leading to acute tissue damage and a loss of ciliated cells that protect the respiratory passages from other organisms.
- As a result, influenza infection may lead to co-infection of the respiratory passages with bacteria eg secondary bacterial infection.
- It is also possible for the influenza virus to infect the tissues of the lung itself to cause a viral pneumonia
- eg primary influenza pneumonia



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## Treatment of influenza

Bed rest, fluids, warmth

Antiviral drugs

Influenza vaccine :

- ◆ Provides protection against certain A ,B (and sometimes C) influenza strains that are expected to be prevalent in a certain year.
- ◆ The vaccine must be updated and administered yearly to be effective but will not be effective against influenza strains not included in the vaccine.
- ◆ The influenza vaccine is particularly indicated in elderly people, in individuals weakened by other disease/risk factors and in health-care workers



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## Case Study

You receive a call from a patient's carer (Mrs Parsons 82yr. old) who has had a cough and is getting quite breathless

- The carer thinks Mrs Parsons should be seen in the hospital as she has a history of
- moderate COPD
- What further questions should you ask?



### Other Information Given

- BP 85/56
- Resps 34
- Temp 37.9
- No chest pain and is confused
- No blood in sputum
- Consider appropriate action



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## CURB criteria

Characteristic	Positive variable	Points
Confusion	Disoriented to person, place or time	1
Uremia	BUN > 20 mg / dL	1
Respiratory rate	> 30 breaths / min	1
Blood pressure	Systolic < 90 mm Hg or Diastolic < 60 mm Hg	1
Age	> 65 years	1



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## RED FLAGS in respiratory disease

- Cyanosis?
- Pallor
- Sweating?
- Level of consciousness
- Confused?
- Chest pain? radiation- jaw?
- Respiratory rate/BP, pulse
- Blood in sputum ??
- Oxygen saturation
- Unexplained weight loss
- Cough- productive?
- Orthopnoea
- Swollen ankles
- Persistent hoarseness
- Smoking history
- PMH eg. COPD
- Medication
- Allergy
- Social Hx.



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Mrs Parsons



- Diagnosed with community acquired pneumonia
- Admitted to hospital
- IV antibiotics, fluids , rest

Local services: what is available  
Early discharge planning!



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## Pneumonia: what is it



- Pneumonia is inflammation and infection of the terminal bronchioles and alveoli causing consolidation.
- Consolidation- fluid and other inflammatory substances fill the alveolar and small airways instead of air.

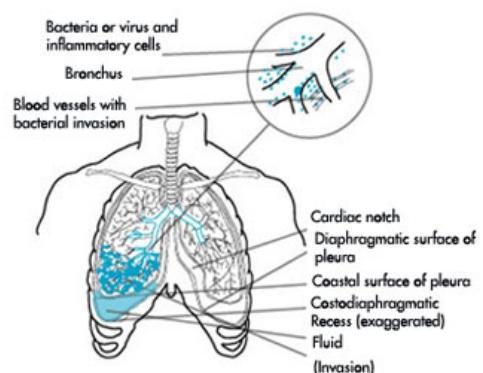


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## Pneumonia

- The alveoli become inflamed and fill with liquid/matter
- Gas exchange is impaired and the
- body becomes starved for oxygen



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## Pneumonia

- Pneumonia accounts for approximately 2.56 million deaths per year worldwide (2017 our.data).
- Those that are admitted for community- acquired pneumonia spend an average 11 days in hospital
- One in ten patients with pneumonia will be admitted to intensive care.
- The majority of patients can be successfully treated in the community



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## At Risk Patients

- Those with existing chest illness- cancer, asthma, COPD.
- Those with diabetes, renal impairment, liver disease, pregnant
- Those who are immuno-compromised, HIV, splenectomy
- Those over the age of 65
- History of alcohol, substance misuse, smoking
- Homeless
- In close communities or institutions eg. Nursing homes
- Prolonged bed rest
- malnutrition



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## Classification of Pneumonia

Anatomical

Lobar  
Bronchial

Organism

Bacterial  
Viral incl COVID  
Fungal

Where?

Hospital-Acquired  
Community acquired

Other

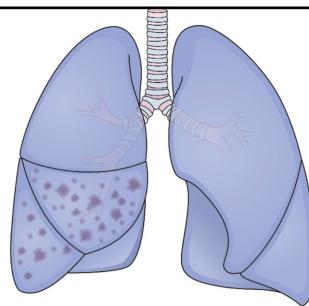
Legionnaires  
Aspiration  
Ventilator-associated  
SARS MERS



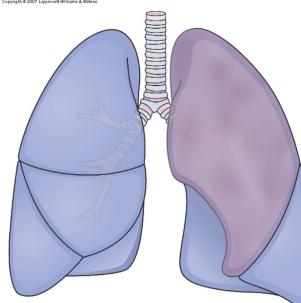
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- Bronchopneumonia
  - patchy inflammation
  - involves alveoli of more than 1 lobe
  - usually in basilar parts
- Lobar pneumonia
  - consolidation of an entire lobe
  - almost always caused by *S. pneumoniae*



A Bronchopneumonia



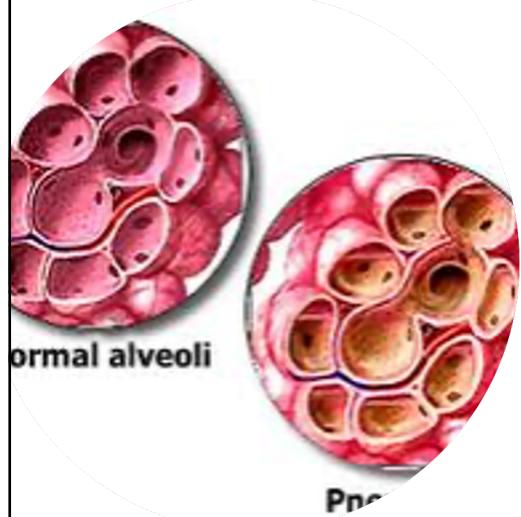
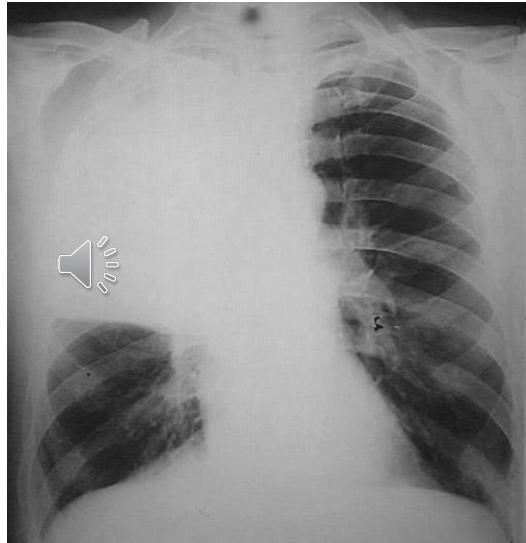
B Lobar pneumonia



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- Lobular pneumonia affects a lobe of the lungs (see x-ray), and bronchial pneumonia can affect patches throughout both lungs.



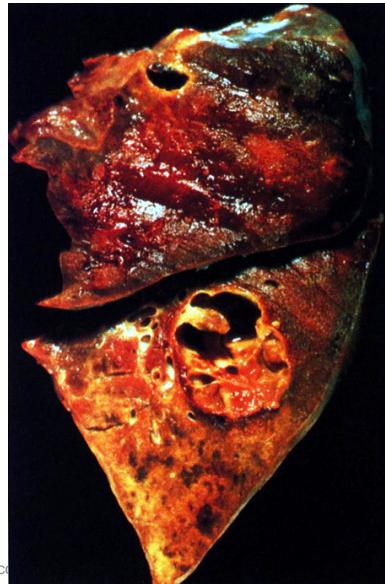
## Potential complication:



- Lung abscess
- Pleurisy
- Empyema
- Septicaemia or IPD
- Death-especially if pt has co-morbidities

## Lung Abscess

- Purulent inflammation with tissue necrosis & liquefaction
- There can be several types of bacteria with anaerobic and aerobic presentations
- Most commonly due to aspiration of gastric contents
- Foul-smelling sputum

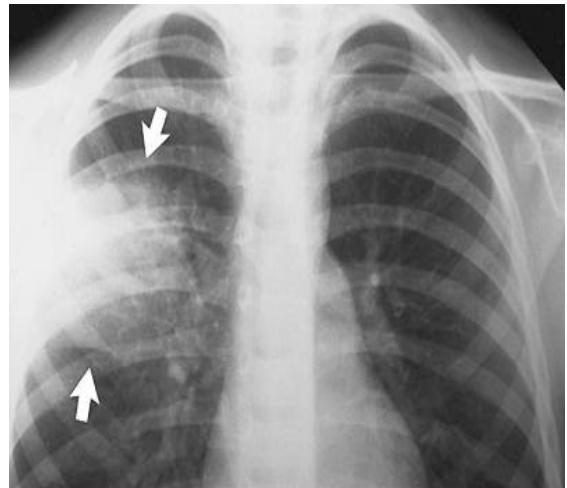


## Physical examination:Findings

- Fever
- Increased Respiration : Note rate, depth, rhythm
- tachycardia
- Increased Fremitus
- Rales, crackles- or added sounds
- Bronchial sounds rather than vesicular sounds
- Pleuritic chest pain and/or pleurisy
- Hypoxia
- Oxygen Saturation level changed
- Confusion/rigors
- Rusty coloured sputum

## Investigations

- Patient has pneumonia in the right lung (note – white mass = fluid)
- Lungs should appear black on an  x-ray
- Which lobe??



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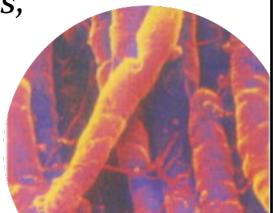
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## Community Acquired Pneumonia



- Causative pathogens:  
**Bacterial-** *Streptococcus pneumoniae*, *Haemophilus Influenzae*, *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, *Legionella pneumophilia*
- **Viral-** *Respiratory Syncytial Virus (RSV)*, *Cytomegalovirus*, *Influenzae Virus*, *COVID*



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## Hospital Acquired Pneumonia

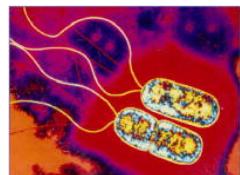
- Occurs > 48 hrs following admission
- Reason: aspiration, cross infection
- Compromised immune system
- Prolonged user of ventilatory support
- Poor oral hygiene
- Elderly and those with existing lung disease



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## Causative Organism



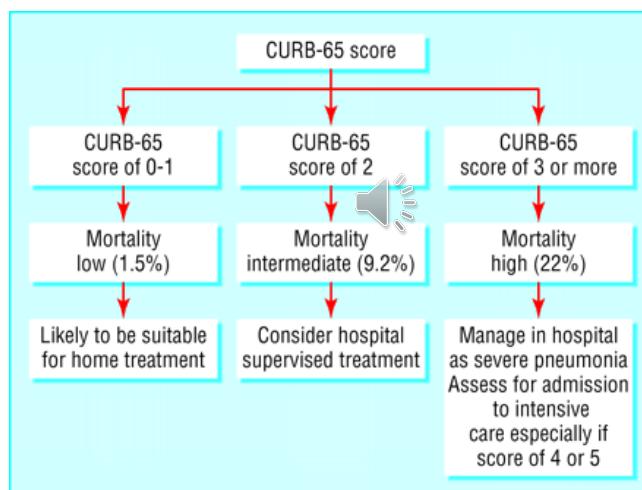
- Gram-negative Enterobacteria, *Pseudomonas Aeruginosa*, *Acinetobacter species*,
- *Methicillin –resistant Staphylococcus Aureus (MRSA)*



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## Assessing Risk



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## CURB

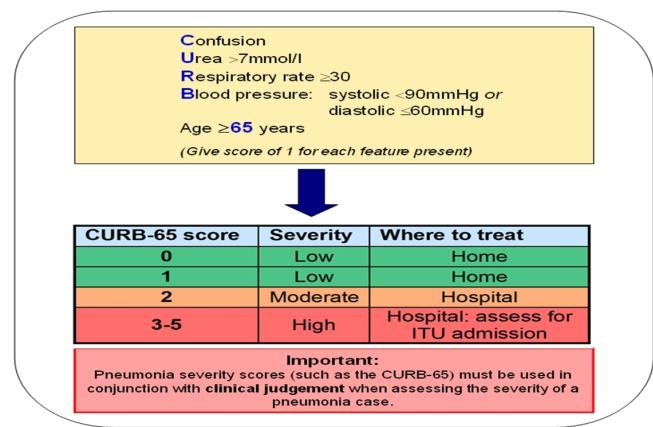


Figure 4: CURB-65 score.

fastbleep))



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## Treatment

- Determine severity; Pneumonia severity index tool
- Chest X-ray
- Check for leukopenia, leukocytosis
- Sputum cultures
- Antibiotic therapy
- Monitor SpO<sub>2</sub> levels
- Hydration
- Anti-pyretics
- Breathing exercises



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## Vaccinate

- In risk groups eg those with LTC such those with diabetes, COPD, CHD etc ensure pneumovax and annual 'flu' vaccine ( to prevent secondary bacterial pneumonia)
- Also eligible if over 65
- Once in a lifetime



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## CASE STUDY

25YR OLD female presents with shortness of breath in past week. States she often has to catch her breath and pain when turning neck. There is no history of recent flights, no sputum but does have a dry cough, no pyrexia, no temperature. Complaining of pain in groin and in shoulders as well.

Pmh- Nil Allergies Nil Medication : Contraceptive pill Yasmin.

Social History : Secretary Travel Hx: No flights. 6 hr drive to Scotland last weekend. Quite sporty. Eats healthily. Lives with boyfriend.

FH – Nil

What further questions will you ask?

What is the likely diagnosis?

How would you treat?



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## Pulmonary Embolism (PE)

- A disorder of perfusion
- Combination of factors increase probability of occurrence
  - Hypercoagulability
  - Platelet aggregation
  - Deep vein stasis
- Embolus usually originates in lower extremities or pelvis



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## Background

- Thrombus (blood clot) forms in a vein
- Deep vein thrombosis - in deep veins of leg or pelvis
- Pulmonary embolism - thrombus dislodges and travels to pulmonary arteries
- Term 'venous thromboembolism' includes DVT and PE
- Risk factors include: thrombophilia, history of DVT, surgery, obesity, acute illness,
- cancer and immobility
- Incidence is 7-8 per 10,000 people in the UK (lifetime).
- In Europe 544,000 VTE related deaths annually (NICE)



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## VTE risk 2017 eIFH

- Incidence of VTE - The incidence of VTE is 1-2 per 1,000 of the population and the risk increases with age. One in 20 people will have a VTE at some time in their life.
- Approximately half of patients presenting with VTE have been hospitalised in the previous eight weeks
- Given that 10% of hospital deaths are due to PE then even with an optimistic hospital
- inpatient mortality rate of 1%, the risk of dying from PE due to hospitalisation is at least 1,000 times greater than dying from PE as a consequence of air travel



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## History

- Acute onset of dyspnoea
- Cough
- Mild to severe chest pain
- Haemoptysis
- History of DVT
- Recent surgery
- Oral contraceptive use
- Smoker
- Risk eg malignancy

## Physical Findings

Restlessness/agitation  
Fever  
Tachycardia  
 Tachypnoea  
Diminished breath sounds  
Crackles/Wheeze/Rub



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## Diagnostic investigations



In patients presenting with signs or symptoms of PE, carry out the following to exclude other causes:

an assessment of their general medical history  
a physical examination and  
a chest X-ray  
Check for anti trypsin deficiency



If PE suspected use the two-level PE Wells score



also check  
<https://www.nice.org.uk/guidance/cg144>



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## Two-level PE Wells score

Clinical feature	Points
Clinical signs and symptoms of DVT (minimum of leg swelling and pain with palpation of the deep veins)	3
An alternative diagnosis is less likely than PE	3
Heart rate > 100 beats per minute	1.5
Immobilisation more than 3 days/surgery in previous 4 weeks	1.5
Previous DVT/PE	1.5
Haemoptysis	1
Malignancy (on treatment/treated in the past 6 months/palliative)	1
Clinical probability simplified scores	
PE likely	More than 4
PE unlikely	4 or less

<sup>a</sup> Adapted with permission from Wells PS et al. (2000) Derivation of a simple clinical model to categorize patients' probability of pulmonary embolism: increasing the model's utility with the SimpliRED D-dimer. Thrombosis and Haemostasis 83: 416-20



## Investigations

Offer all patients with **unprovoked DVT or PE**, who are not known to have cancer :

- physical examination (guided by patient's full history) **and**
- chest X-ray **and**
- blood tests (full blood count, serum calcium and liver function tests) **and**
- urinalysis



## Patient information: self-management

### Information and advice

- Anticoagulant information booklet
- Anticoagulant alert card
- Heparins of animal origin may be of concern to some patients



### Self monitoring of INR

- Do not routinely offer to PE or DVT patients

• <https://www.nice.org.uk/guidance/NG158> for guidance

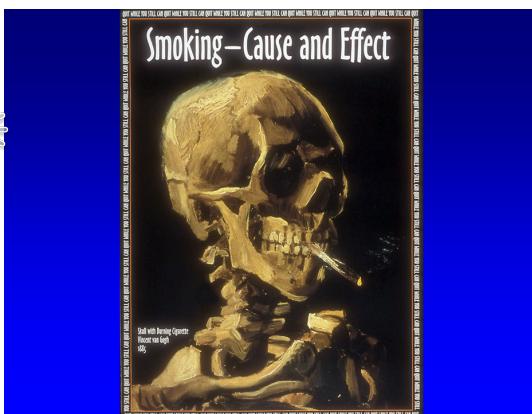


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## Case Study

- Dermot, a 57yr old male is admitted with increasing dyspnoea, non productive cough which has become worse. He is housebound because of breathlessness. He smokes 20-30 cigarettes a day. He is on a thiazide diuretic for his hypertension.
- Differential diagnosis
- What advice would you give him?
- What other tests would you consider?



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## Chronic Obstructive Airways Disease (COPD)-umbrella term

- Chronic Bronchitis
- Emphysema
- Chronic Airflow Limitation
- Chronic Obstructive Airways Disease
- Chronic Airflow Obstruct



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## Epidemiology



- Affects over 3 million people in the UK (British Lung Foundation, 2017) of whom 2 million are undiagnosed
- 30, 000 deaths in 2019 (British Thoracic Society, 2006)
- Rate of 13% in those over 35 years
- It is the fifth biggest killer in the UK
- Main cause related to smoking
- 10-15 % of all smokers and 25% of heavy smokers will develop COPD



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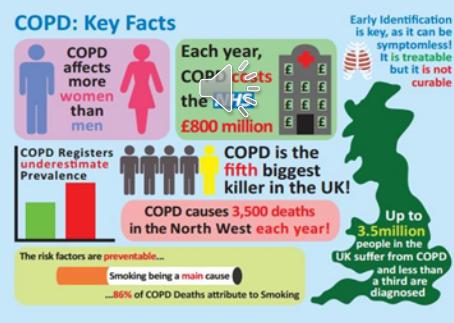
## COPD

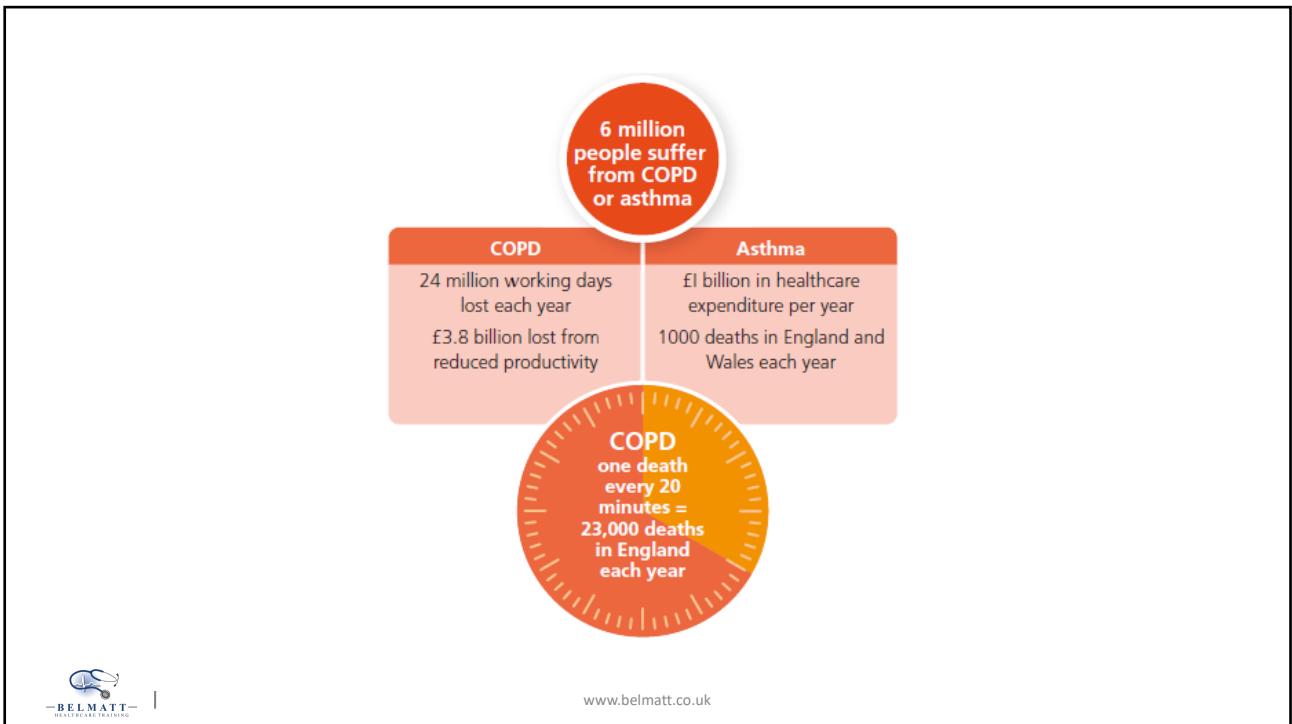
- A progressive disease that is characterized by airflow limitation that is not fully reversible.
- It is associated with chronic inflammation of the airways and lung parenchyma
- It is a global disease: estimated to be the 3<sup>rd</sup> most common cause of mortality by 2030 (WHO,2002)



In the UK, exacerbations of chronic obstructive pulmonary disease account for up to 10% of all medical admissions, equating to more than 100 000 admissions a year

- In 2013, 187 people per 100,000 were newly diagnosed with COPD, down from 226 per 100,000 in 2004. The reduction is most likely a result of a decrease in the number of people who smoked during this time

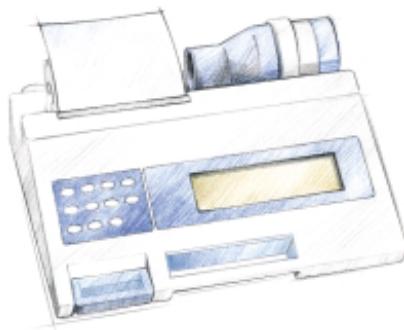




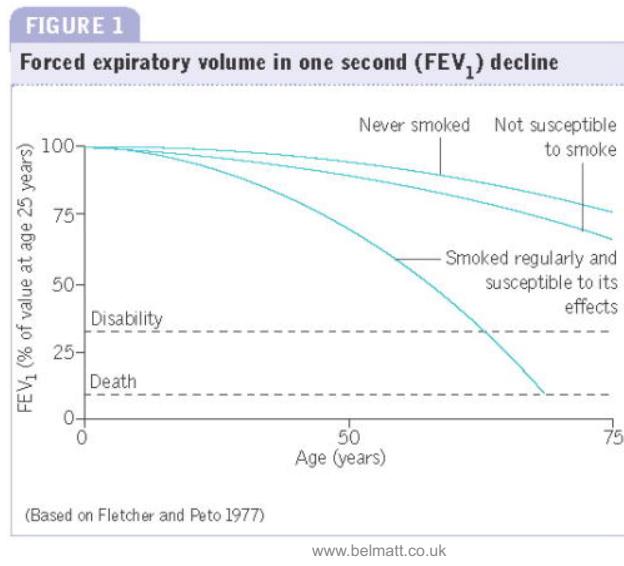
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## Spirometry the gold standard

- Spirometry is a method of assessing lung function by measuring the volume of air that the patient is able to expel from the lungs after a maximal inspiration. It is a reliable method of differentiating between obstructive airways disorders (e.g. COPD, asthma) and restrictive diseases—the GOLD STANDARD
- **Spirometry gives three important measures:**
  - **FEV<sub>1</sub>:** the volume of air that the patient is able to exhale in the first second of forced expiration
  - **FVC:** the total volume of air that the patient can forcibly exhale in one breath
  - **FEV<sub>1</sub>/FVC:** the ratio of FEV<sub>1</sub> to FVC expressed



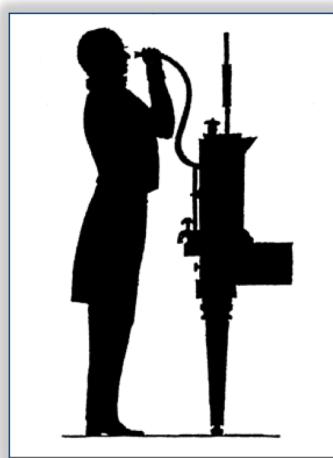
## Effects of smoking on FEV<sub>1</sub>



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## FEV<sub>1</sub> and FVC vary with

- Age
- Gender
- Height
- Ethnic origin
- → predicted value



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## Chronic Obstructive Airways Disease (COPD)

- Characterized by airway obstruction due to chronic bronchitis or asthma.
- Obstruction may vary but never returns to normal.
- Chronic bronchitis is defined by presence of cough productive of sputum on most days
- for at least 3 months of at least 2 consecutive years.
- Emphysema is destruction of distal airspaces.
- Both of above usually due to tobacco consumption.

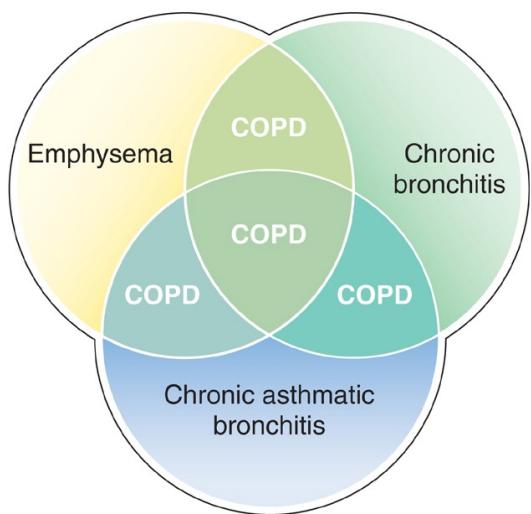


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### Chronic Obstructive Pulmonary Disease (COPD)

- Chronic bronchial outflow obstruction
- Overlapping features



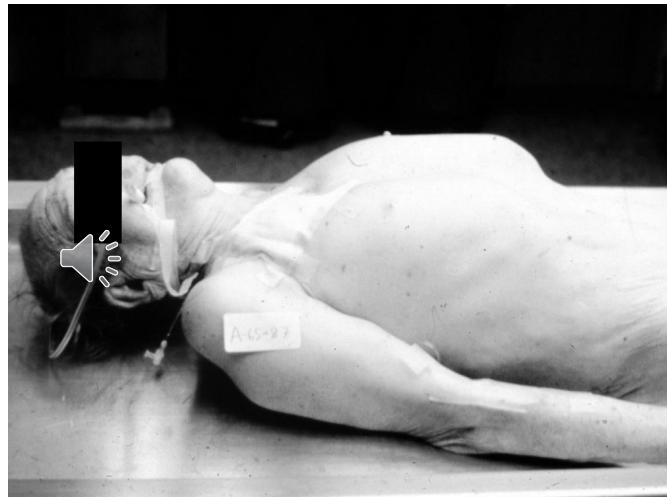
**Chronic obstructive pulmonary disease (COPD)**

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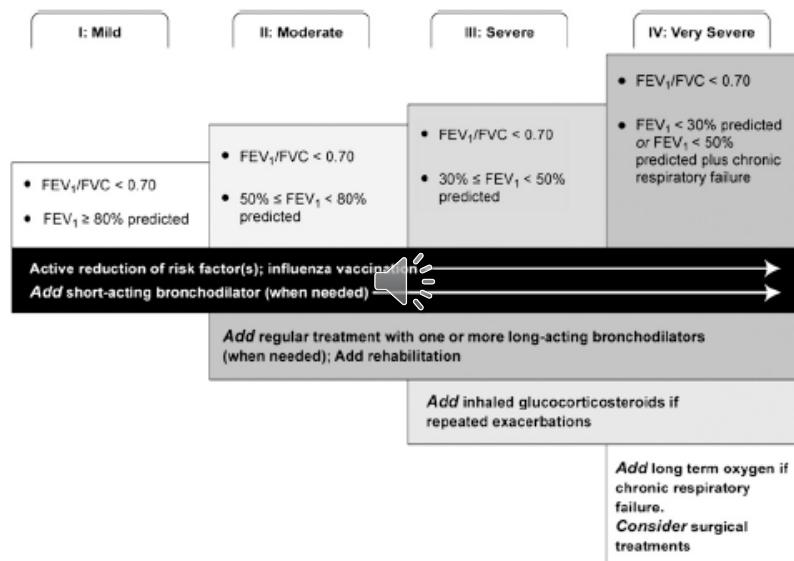


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- Some additional symptoms seen with COPD
- Shortness of breath
- Wheezing & coughing
- Weight loss
- Barrel-chested
- Exhibits “tripoding”

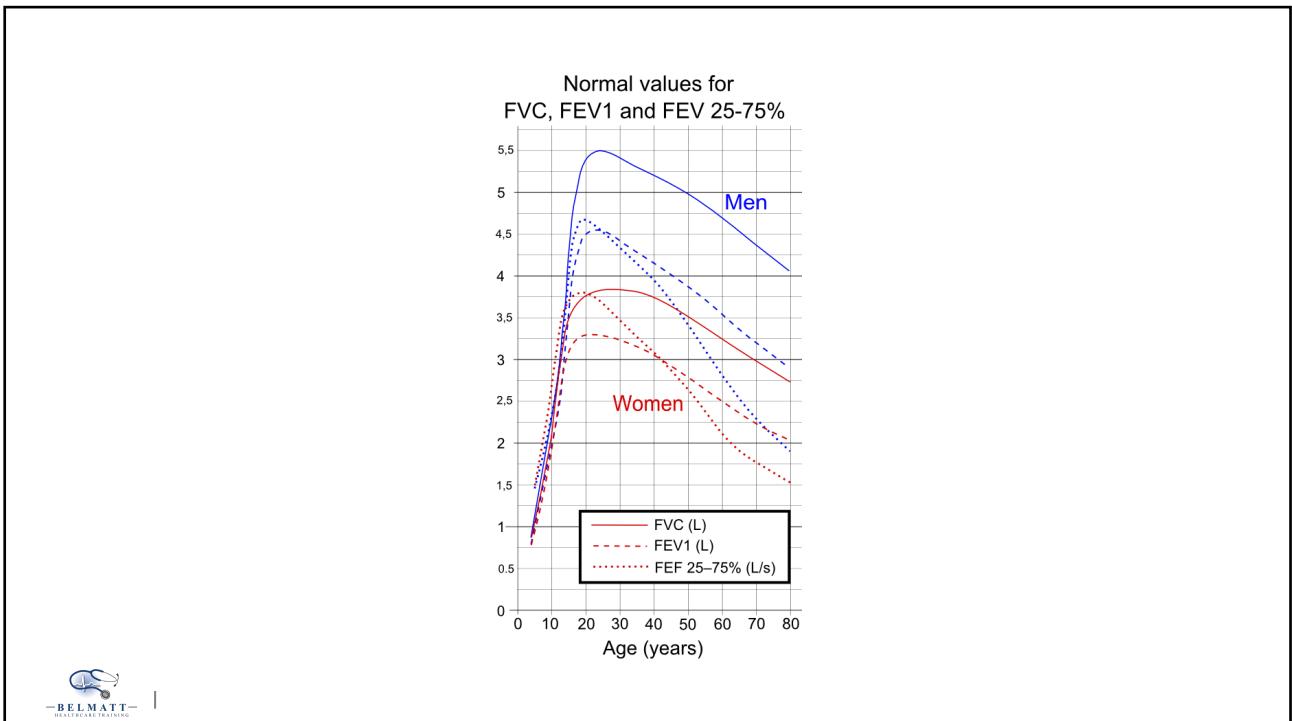


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## Manage Stable COPD: Non-pharmacologic

Patient Group	Essential	Recommended	Depending on local guidelines
A	Smoking cessation (can include pharmacologic treatment)	Physical activity	Flu vaccination Pneumococcal vaccination
B, C, D	Smoking cessation (can include pharmacologic treatment) Pulmonary rehabilitation	Physical activity	Flu vaccination Pneumococcal vaccination

Courtesy of Shirley Jones, M.D.

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# Treatment

- **Oral corticosteroids**
- Long-term use of oral corticosteroid therapy in COPD is not normally recommended. Some people with advanced COPD may need long-term oral corticosteroids when these cannot be withdrawn following an exacerbation. In these cases, the dose of oral corticosteroids should be kept as low as possible
- Monitor people who are having long-term oral corticosteroid therapy for osteoporosis, and give them appropriate prophylaxis.
- Start prophylaxis without monitoring for people over 65.
- **? link with pneumonia**

#### **Oral theophylline- RARELY used these days except in USA**

- Theophylline should only be used after a trial of short-acting bronchodilators and long-acting bronchodilators, or for people who are unable to use inhaled therapy, as plasma levels and interactions need to be monitored.
- Take particular caution when using theophylline in older people, because of differences in pharmacokinetics, the increased likelihood of comorbidities and the use of other medications.



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# Treatment COPD

#### **Oral mucolytic therapy**

- Consider mucolytic drug therapy for people with a chronic cough productive of sputum.
- Only continue mucolytic therapy if there is symptomatic improvement (for example, reduction in frequency of cough and sputum production).
- Do not routinely use mucolytic drugs to prevent exacerbations in people with stable COPD.

#### **Oral anti-oxidant therapy**

- Treatment with alpha-tocopherol and beta-carotene supplements, alone or in combination, is not recommended. – 
- **no evidence or poor evidence**

#### **Oral anti-tussive therapy**

- Anti-tussive therapy should not be used in the management of stable COPD.

#### **Oral prophylactic antibiotic therapy**

- Before starting prophylactic antibiotic therapy in a person with COPD, think about whether respiratory specialist input is needed.
- Consider azithromycin (usually 250 mg 3 times a week) for people with COPD if they: do not smoke **and** have optimised non-pharmacological management and inhaled therapies, relevant vaccinations and (if appropriate) have been referred for pulmonary rehabilitation **and** continue to have 1 or more of the following, particularly if they have significant daily sputum production:



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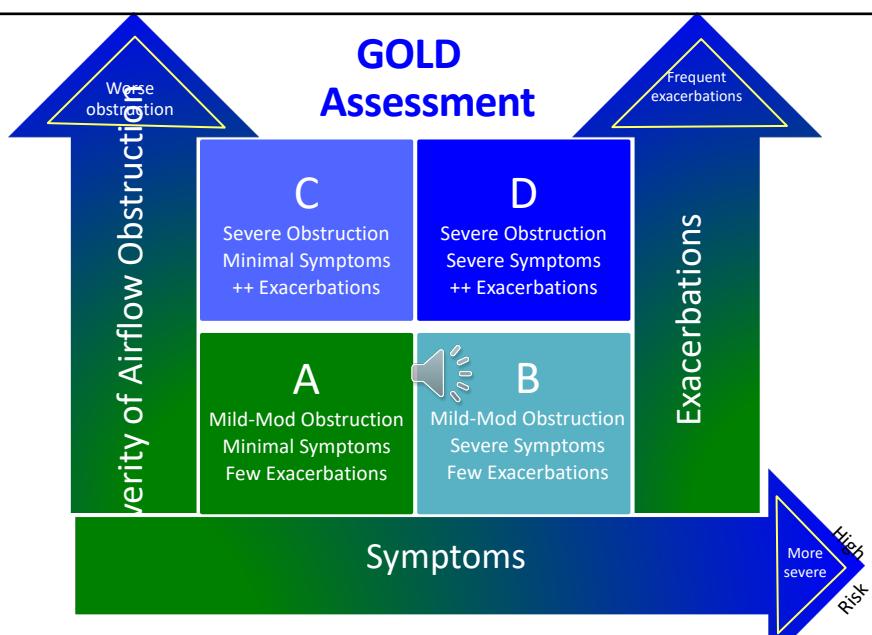
## Treatments- some newer treatments

- Roflumilast – this is a PDE-4 inhibitor (PDE-4 inhibition decreases inflammation and promotes airway smooth muscle relaxation)
  - Approved for COPD patients with a history of exacerbations – the experience is limited,
  - but this agent may be useful perhaps not only in COPD, but in asthma,
  - bronchiectasis, etc – time will tell
- Mucoactive agents- the jury is out, but some patients may improve,
- some even think that they are better than the inhaled medications
- (but this is doubtful)eg carbocysteine



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GOLD Website. <http://www.goldcopd.com>. Updated December 2011  
www.belmatt.co.uk

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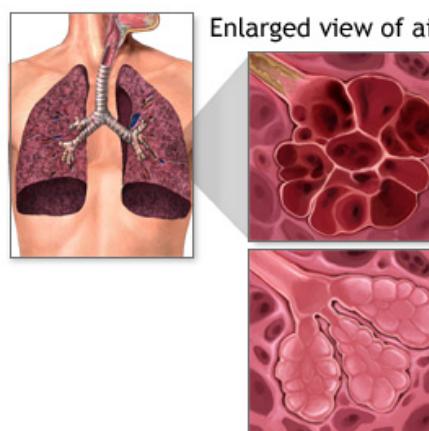
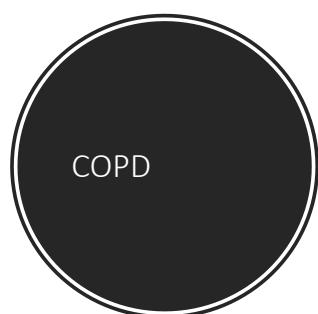
- The burden of COPD is high and may be rising although stats variable
- COPD is a multicomponent disease with inflammation at its core
- It is important to treat the underlying inflammation, which is present even in the early stages of the disease
- Patients on combined inhalers eg combination of salmeterol and fluticasone propionate (SFC) and tiotropium bromide (TIO) have significantly improved lung function and quality of life, and a significant reduction in exacerbations compared with components or placebo
- Exacerbations are common. Patients with previous ~~exacerbations~~ are more likely to have more. Presence of cough and sputum production are associated with ~~more~~ exacerbations
- Antibiotics are useful to treat exacerbations in patients with mild to moderate COPD-consider self management plans with home therapy
- Prednisone 40 mg daily for 5 days is enough
- Use of β-blockers in patients with HF, even non selective are well tolerated and may be associated with improved survival

1. Murray CJL et al. *Lancet* 1997; 349:1498–1504. 2. Agusti AGN et al. *Eur Respir J* 2005; 99: 670–682. 3. Hogg JC et al. *New Eng J Med* 2004; 350: 2645–2653.  
4. Barnes NC et al. *Am J Respir Crit Care Med* 2006; 173: 736–743. 5. Calverley PMA et al. *New Eng J Med* 2007; 356: 775–789.



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ADAM.



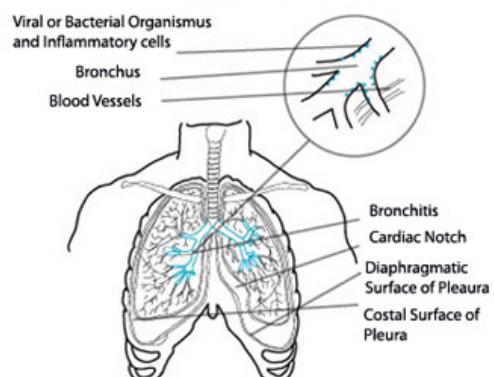
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## Bronchitis

- An infection of the bronchi

2 types:

**Acute** – caused by a bacteria or virus



ACTUE BRONCHITIS



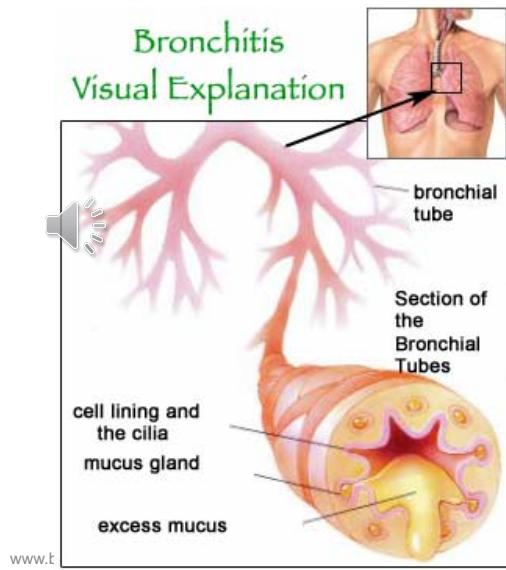
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## Bronchitis

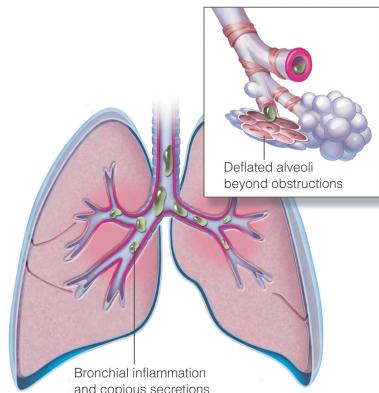
**Chronic** – long term

- usually caused by an irritant – ie smoking
- cilia become damaged and can't clear debris
- treatment – quit smoking



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## Chronic Bronchitis



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## Respiratory scenario

- John, 37 presents to you with a 3 week history of a cough. He had a cold with a fever about 4 weeks ago and after a week of the cold developed this
- cough which is dry, irritating and non productive.
- He has no significant PMH or FH but how can you be sure of this? Document your systematic history taking sequence.
- Following history taking you take his vital signs which are T 36.5, RR 14, B/P 125/90, P62.
- You listen to his chest –there are no added sounds – what 4 techniques would you use in this examination to check his chest?
- What other types of the examination or near patient testing should you include?
- All is normal – what are your conclusions and management/recall of this patient?

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## Bronchiectasis can be a result of COPD

- Marked, permanent dilation of small bronchi
- Destruction of smooth muscle & elastic supporting tissue
- Must have obstruction & infection
  - obstruction causes mucus retention
  - infection damages bronchial walls which causes excess mucus production
- Not a primary condition
- Typically involves lower lobes
- Persistent cough



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## Bronchiectasis

- It is a condition that results from prolonged injury or inflammation of respiratory airways
- and bronchioles.
- It is characterized by abnormal dilation of the bronchus or bronchi. It is most frequently
- associated with chronic respiratory disease, infections, cystic fibrosis, tumor growth or
- exposure to respiratory toxins.
- The major manifestations of bronchiectasis are impaired ventilation of the alveoli,
- chronic inflammation and possible fibrosis of the areas.



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## Management Bronchiectasis

- Obtain a sputum sample from people with an acute exacerbation of bronchiectasis and send for culture and susceptibility testing.
- Offer an antibiotic to people with an acute exacerbation of bronchiectasis. When choosing an antibiotic previous exacerbation and hospital admission history, and the risk of developing complications
- previous sputum culture and susceptibility results.
- When results of sputum culture and susceptibility testing  available:
  - review the choice of antibiotic 
  - only change the antibiotic according to susceptibility results if bacteria are resistant and symptoms are not already improving (using a narrow-spectrum antibiotic wherever possible).
  - With an antibiotic, give advice about:
    - possible adverse effects of antibiotics, particularly diarrhoea
    - seeking medical help if symptoms worsen rapidly or significantly at any time, or the person becomes systemically very unwell.

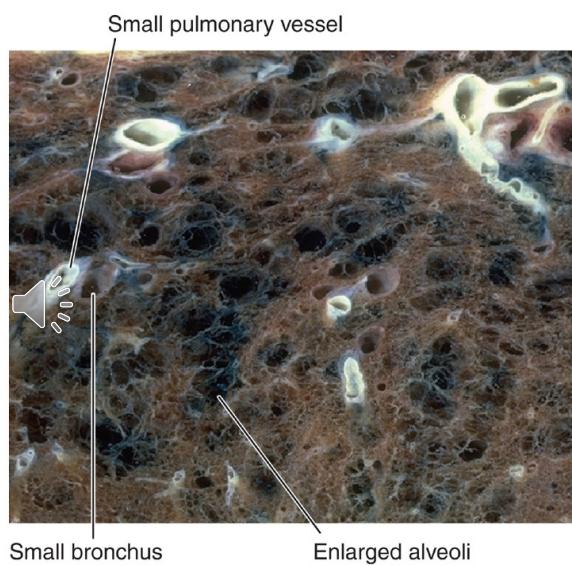


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## Emphysema

- Destruction of alveolar walls, alveoli merge to form large air spaces
- Loss of surface area affects diffusion
- 90% of cases are smokers



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## COPD - Emphysema

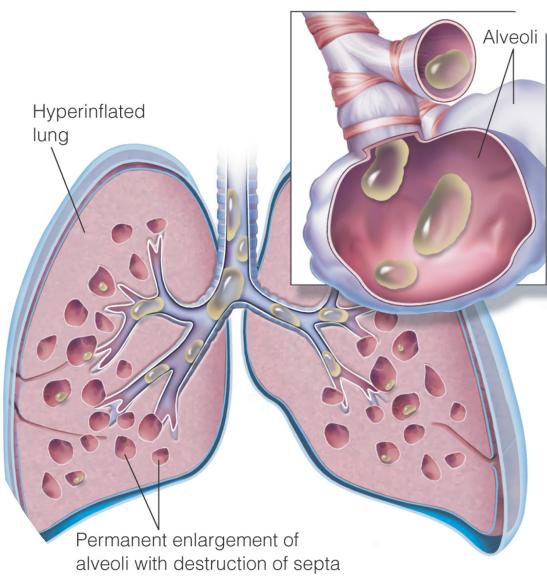
- Loss of elasticity of the lung tissue
- Destruction of structures supporting the alveoli and capillaries feeding the alveoli
- Air trapping at the alveolar level
- “Pink Puffers” hyperventilate to maintain adequate oxygen levels – this prevents hypoxia



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## Emphysema



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## Treatments

- Low-flow oxygen tank – delivers a higher oxygen concentration
- Lung volume reduction surgery (LVR) – removal of damaged tissue to let healthy tissue work more efficiently



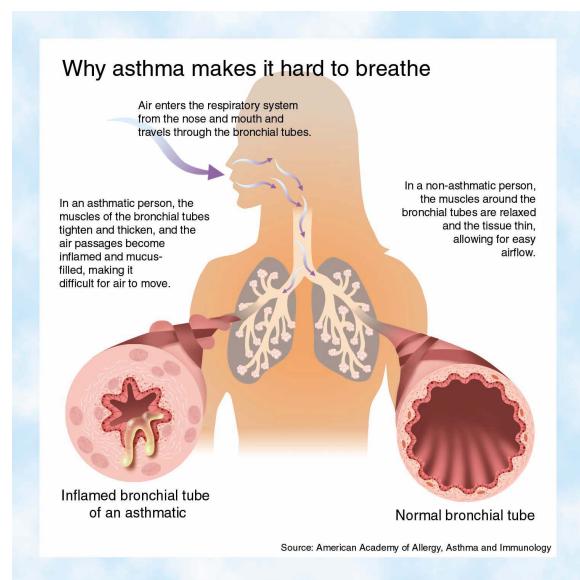
[www.wellcomecollection.org](http://www.wellcomecollection.org)



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## ASTHMA

- Asthma is a chronic respiratory disorder
- Bronchi and bronchioles are affected – bronchiole muscles tighten, mucus is produced – breathing is difficult
- Airway hyper-responsiveness.



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Airway disorder characterized by

- Hyper-reactivity to various stimuli - trigger
- Broncho-constriction
- Inflammation

**Associated Symptoms**

Common symptoms: cough, wheeze, shortness of breath, tight chest & wheeze

May also have atopic conditions: eczema and allergic rhinitis

Family History : asthma or atopy



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## Risk Factors




Children whose parents smoke are 1.5 times as likely to develop asthma




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## Risk factors/triggers for asthma symptoms

- Exposure to allergens eg. ?
- Smoking
- Gender(more common in males in childhood)
- Occupational irritants
- Viral infections
- Exercise
- Cold air
- Strong Emotional expressions eg. Laughing
- Certain drugs eg. Aspirin, beta blockers
- Lower socio-economic groups
- Animals/pets
- House dust mite



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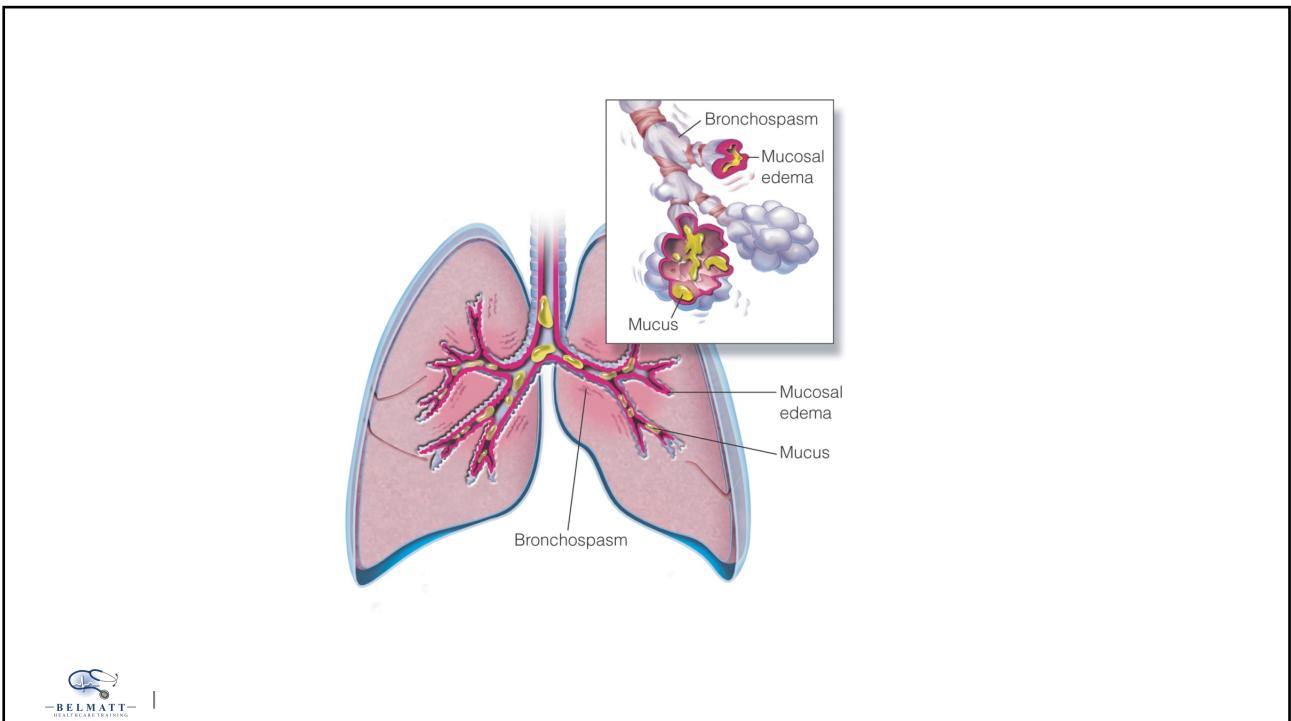
## Aim of asthma Management

- No daytime symptoms
- No night-time awakening due to asthma
- No need for rescue medication
- No exacerbation
- No limitations on activity including exercise
- Normal lung function (in practical terms FEV<sub>1</sub> and/or PEF>80% predicted or best).
- Minimal side effects from medication



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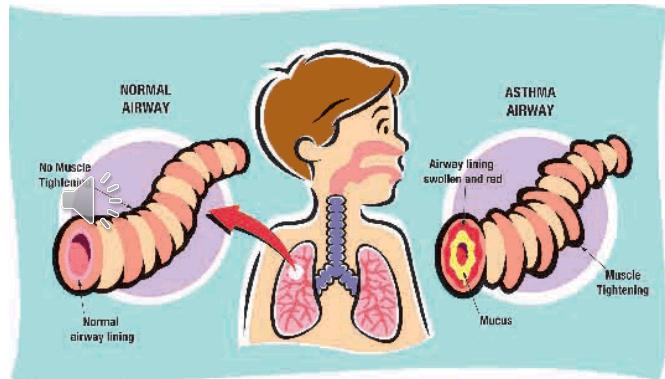
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## Symptoms

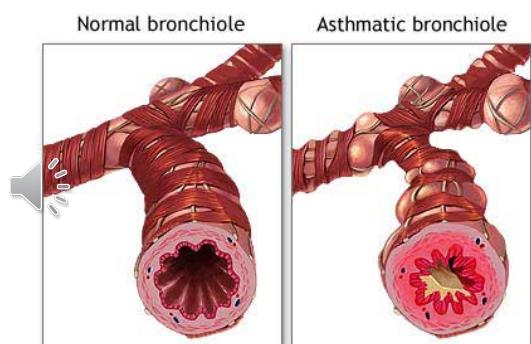
- Chest tightness
- Wheezing
- Night-time cough
- Restricted breathing



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## Causes

- Generally it is thought that asthma is familial and related to atopy
- TRIGGERS – include pollen, dust, smoke, pets, exercise
- Hot and windy weather



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## Precipitating Factors - Triggers

- Viral infections – especially with infants and young children
- Allergies
- GORD – Gastro Oesophageal Reflux Disease
- Cigarette smoke
- Smoggy air – smoke from fires
- Windy weather – hot and dry winds
- Family atopy



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## Pathophysiology

- Acute reaction to some trigger – reversible with treatment
- Mast cells release substances that cause inflammation and constriction
- Broncho-constriction or bronchospasm 
- Spasm aggravated by inflammation, mucosal oedema and excessive mucus.



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## Management of asthma

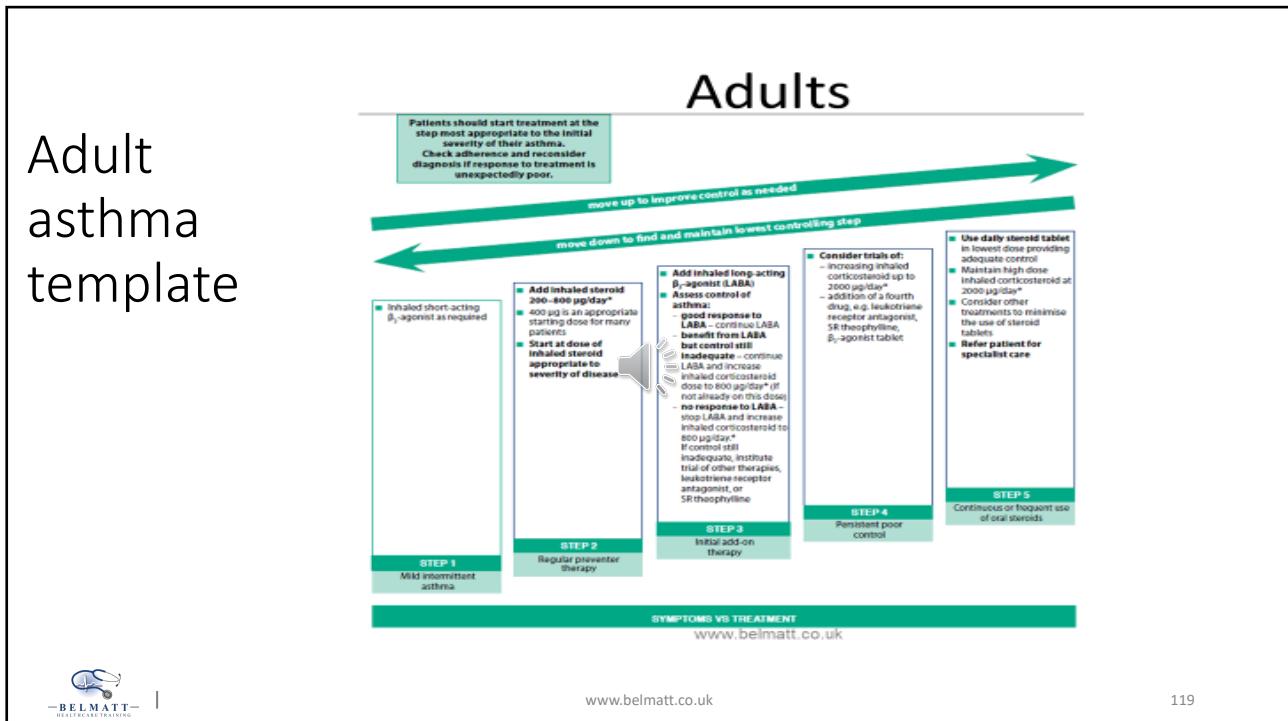
- Allergen avoidance
- Breastfeeding
- Nutritional supplements- Fish oils –jury out on this one
- Non-smoking
- Stepwise approach;
  - 1- inhaled short-acting  $\beta_2$  agonist 
  - 2-introduction of preventative therapy (inhaled steroid)
  - 3-Leukotrine receptor antagonists eg singulair
  - 4-Add on therapy- (LABA) and combinations
  - 5-oral steroids
- -



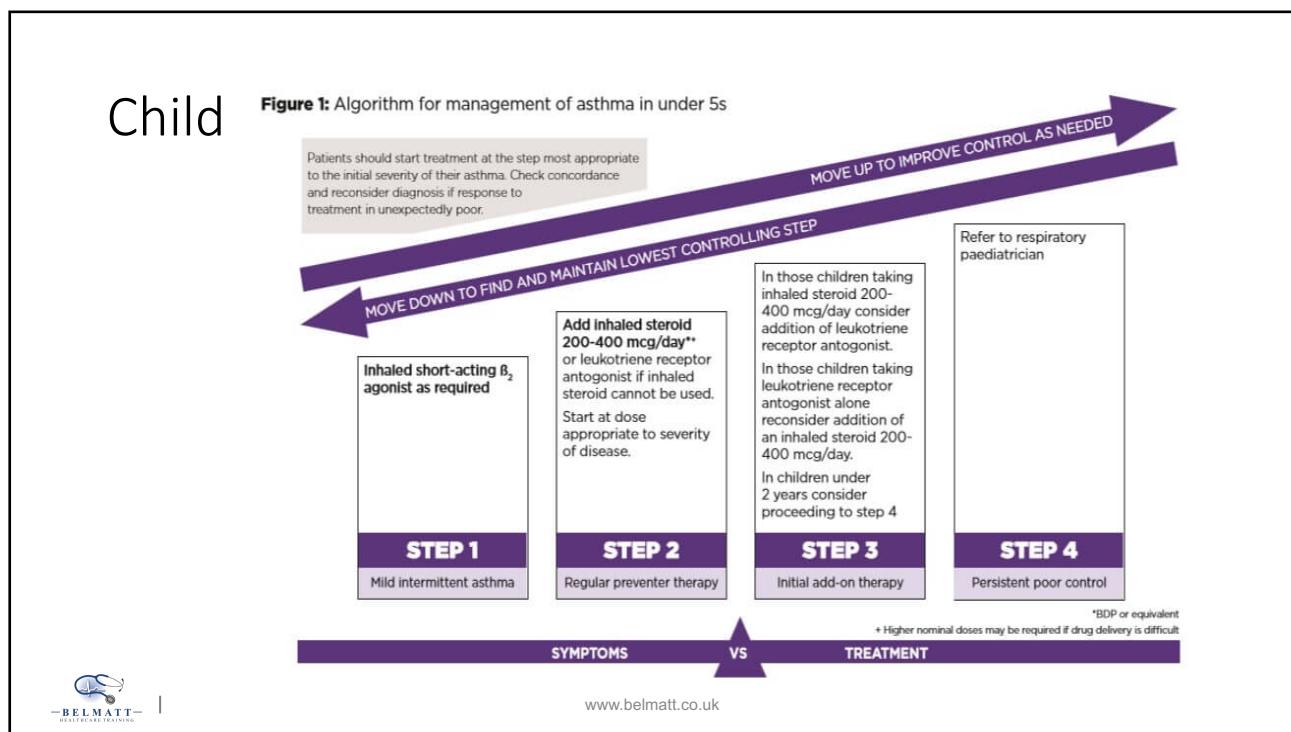
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# Adult asthma template



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## Beta2 Agonist

- Rescue drug – short acting beta2- adrenergic agonist used for prevention and treatment of bronchoconstriction-fine to use but overuse = poor control and needs reassessment.
- Onset 15 to 30 minutes
- Peak 60 to 90 minutes
- Duration 3-6 hours
- Mild-intermittent
- Symptoms 2 days/week or less
  - Beta 2 agonist and monitor for increase in symptoms
  - Short course of systemic corticosteroid – prednisone for acute exacerbations



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## Preventers -ICS

- LONG-TERM preventers–corticosteroid to control spasms and reduce long term inflammation and scarring in the bronchioles (eg – QVAR, Pulmicort, Becloforte, Clenil)
- Patients with severe asthma may take medications such as Prednisolone –also for acute exacerbations
- Also biologics with ‘Brittle asthma’ or hard to control asthma
- Also dual consider therapy...

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## Which steroid inhaler??

- BDP (Clenil modulite) and budesonide are approximately equivalent in clinical practice
- Fluticasone provides equal clinical activity to BDP and budesonide at half the dosage
- Qvar\* - 200-300mcg (not suitable for children)
- Fostair - over the age of 18
- Budesonide- symbicort can be used in adults and children over the age of 6
- Mometasone- not to be used in children
- Combination inhalers eg Seretide, Symbicort



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## High dose Steroid inhaler

- Changes in bone density ?
- Children- growth failure/ adrenal insufficiency – care with dosing and use spacer-but 
- evidence suggest growth reduction is <1 cm annually!!
- Children-Specific written advice about steroid replacement (eg Steroid Alert Card) in
- event of a severe intercurrent illness or surgery should be part of the management plan.



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# Differential diagnosis of Asthma and COPD

Asthma	COPD
Smoker?-Possibly	Smoker- nearly all
Symptoms <35 – often	Symptoms <35 - rare
Breathlessness – variable	Breathlessness – persistent & progressive
Night time wakening with breathlessness/wheezing-common	Night time wakening with breathlessness/wheezing-uncommon
Significant day to day variation in symptoms- common	Significant day to day variation in symptoms- Uncommon



## Atelectasis

Atelectasis is a condition in which there is incomplete expansion of lung tissues due to blockage of the airways or compression of the alveolar sacs.

Types of atelectasis:

1. Absorption atelectasis

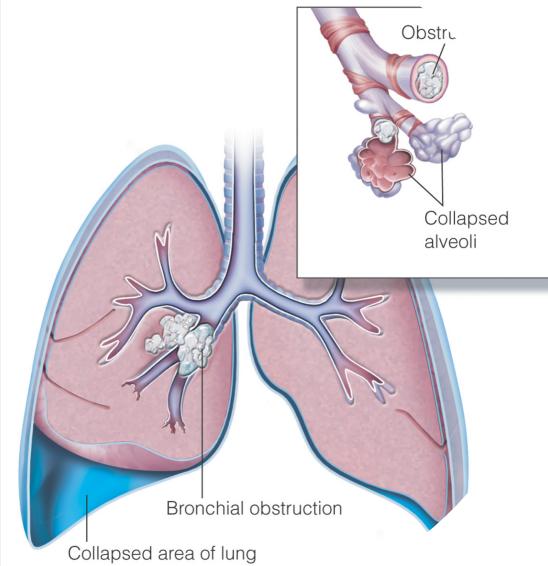
Results when the bronchial passages are blocked with mucus, tumours or edema

May occur with conditions such as chronic bronchitis or cystic fibrosis in which there is the accumulation of excess mucus in the respiratory passages

2. Compression atelectasis

- Occurs when lung tissue is compressed externally by air, blood, fluids or a tumor





## Atelectasis

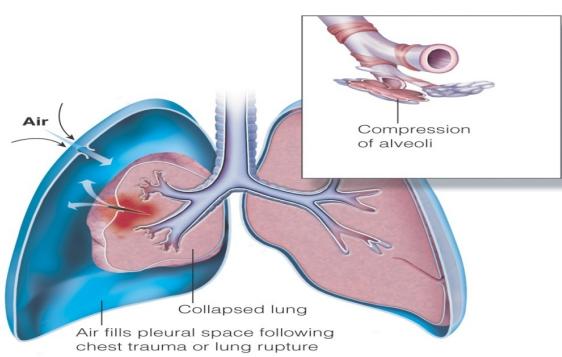


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## Pneumothorax

- Air in the pleural space
- Pneumothorax – spontaneous, tra



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## Tuberculosis (TB)



- Tuberculosis is caused by the bacteria from the *Mycobacterium tuberculosis* complex and it is believed that an infectious person will infect an average of 10-15 people every year (Department of Health (DH), 2004)

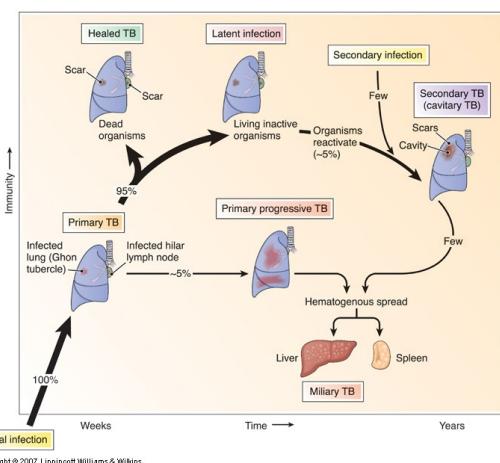
- Common symptoms-
  - Prolonged cough – dry or productive
  - Fever
  - Weight loss
  - Night sweats
  - Dyspnoea
  - Chest pain
  - Lethargy
  - Loss of appetite
  - Haemoptysis
- Diagnostic tests
  - sputum sampling x 3 early morning (requests acid fast bacilli testing) ; Chest x-ray. Infection control
- Six month course consisting of two months rifampicin, isoniazid, pyrazinamide and ethambutol (initial phase) and a further 4 months rifampicin and isoniazid (continuing phase)



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## Pathogenes



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## TB in the UK

New cases of tuberculosis (TB) in England have fallen to the lowest levels since records began in 1960.

The new data published by Public Health England (PHE) comes ahead of World TB Day on Sunday March 24 2019.

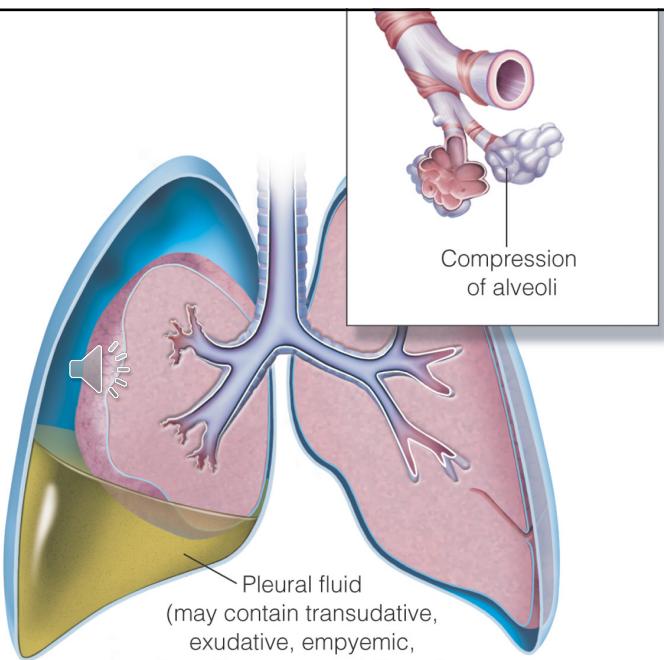
Following action by PHE, the NHS and others, there was a 44% drop in new diagnoses from the peak in 2011 to 2018 (from 8,280 to 4,672), with an 8.4% fall in diagnoses between 2017 and 2018 alone.



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## Pleural Effusion



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## Pleural Effusion

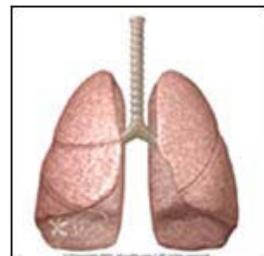
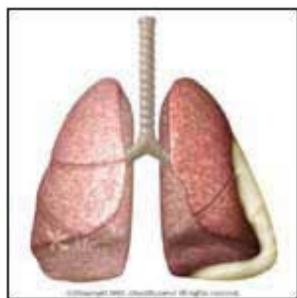
- Due to exudates or transudates
- Expansion is reduced
- Percussion is dull
- Vesicular breath sounds with reduced intensity
- Apex and trachea may be displaced if effusion is large.
- Diaphragmatic excursion can detect this without X ray



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## PLEURISY

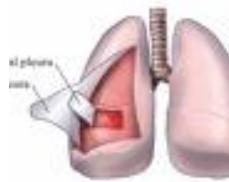


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- Pleurisy refers to the inflammation (irritation, swelling, stickiness) of the pleura.
- Pleurisy is not a disease, but a symptom of another condition (e.g. virus or bacterial infection).

## PLEURISY

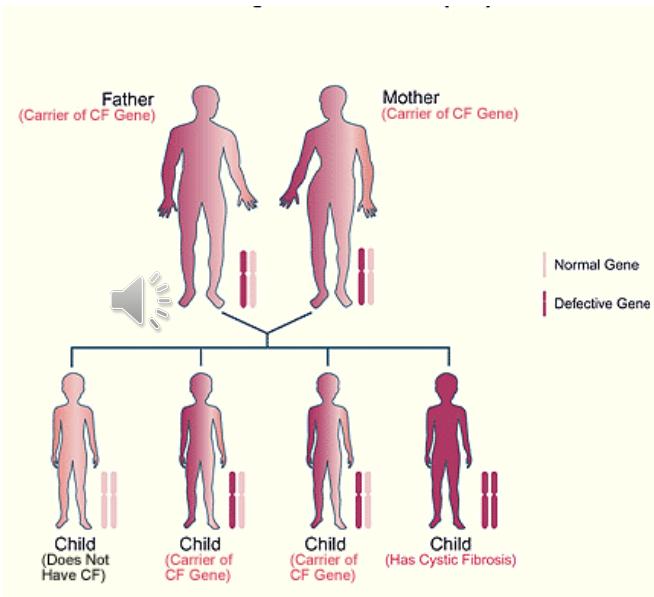


## Presentation of Pleurisy

- Sharp, sudden and intermittent chest pain with related dyspnea
  - Possibly referred to shoulder
  - May ↑ or ↓ with respiration
  - Pleural “friction rub” may be audible”
  - May have effusion or be dry
  - Inflammation of pleura caused by a friction rub
    - layers of pleura rubbing together
  - Commonly associated with other respiratory disease
  - Consider the rub you may hear -?cardiac or pleural?
  - Fifth level



## CYSTIC FIBROSIS

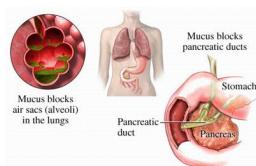


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## Treatments

- There is no cure – life expectancy is usually low – early 30s but is improving
- Medicines are used to thin the mucus
- Antibiotics are given for infections
- New inhaled treatments for CF



<https://www.nice.org.uk/guidance/ng78/chapter/Recommendations#diagnosis-of-cystic-fibrosis>

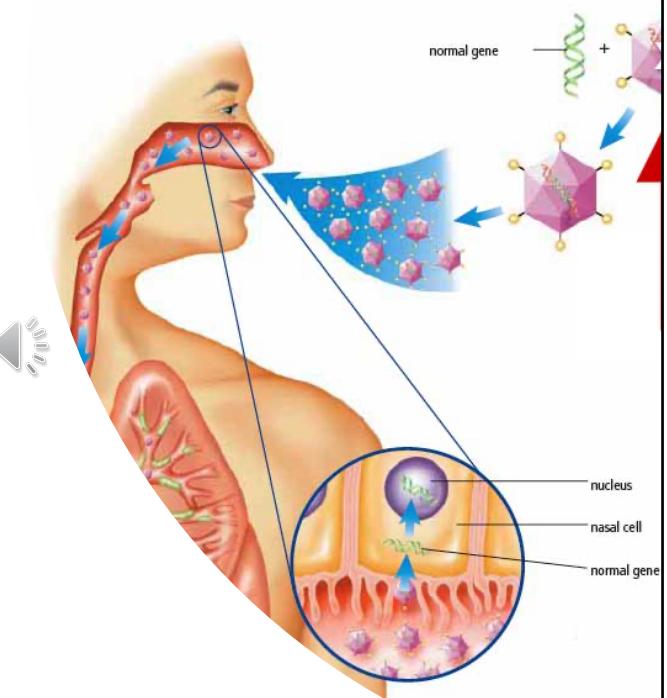


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## CYSTIC FIBROSIS

- New treatments include gene therapy
- An inhaler is used to spray healthy versions of the abnormal gene – the healthy genes can then make proper mucus



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## Lung Cancer

- Primary or secondary; benign is rare
  - Primary is major cause of death
- Linked with cigarette smoking but not always
- Metastases develop frequently in lung :
  - Venous return and lymph vessels bring tumor cells from distant site in body → heart → lung
- Generally poor prognosis



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## Normal Lung vs. Cancerous Lung

## Lung Neoplasms

- Often due to metastasis eg prostate and breast consider PMH carefully
- Bronchogenic carcinoma is the most common
  - most common of all cancers
  - about 90% are cigarette smokers

## Macmillan statistics 2017

- People dying with and from cancer or
- cancer mortality
- In England and Wales, cancer was the leading cause of avoidable deaths, across broad cause groups, with an age standardised rate of 78.2 per 100,000 population
- Cancers accounted for 40% of all deaths from preventable causes in England and Wales
- In the UK, cancer was the most common cause of death, by broad disease group, in 2013 for both men and women.
- (2017 dementia, heart disease, stroke and lung cancer)
- This was a change from a decade earlier, where circulatory diseases (including heart disease and stroke) were the most common cause of death



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## Bronchogenic Carcinoma

- Mostly caused by cigarettes
- Direct relationship between incidence of cancer & number of cigarettes smoked
- Direct relationship between precancerous changes in bronchial mucosa & number of cigarettes smoked



Tumor	Small cell carcinoma ~20%	Non-small cell carcinoma ~80%			
Approximate 5-year survival rate	3-5%	Squamous cell carcinoma ~30%	Adenocarcinoma ~30%	Large cell carcinoma ~15%	Mixed pattern carcinoma ~5%
		5-8%	10-12%	2-3%	5-8%

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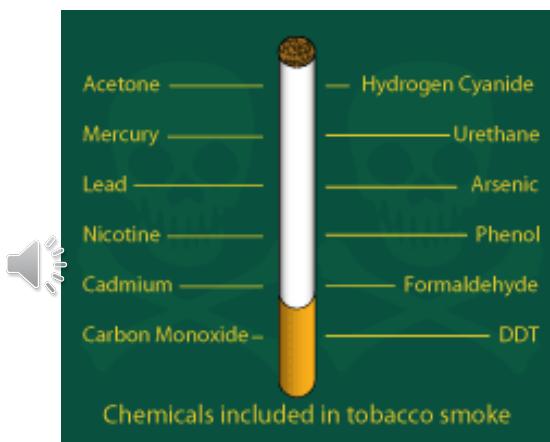
- Small cell carcinoma
  - 20% of cases
  - arise from specialized neuroendocrine cells of the bronchus
  - strongest relationship to cigarettes
  - aggressively malignant
- Squamous cell carcinoma
  - 30% of cases
  - bronchial epithelium that has undergone metaplasia
  - arises centrally
  - most common in men who smoke
  - grows slower so better prognosis
- Adenocarcinomas
  - 30% of cases
  - most well-differentiated
  - somewhat better prognosis
  - more peripheral in smaller bronchi
  - less associated with smoking
- Large cell carcinoma
  - 15% of cases
  - poor prognosis
  - metastasizes early



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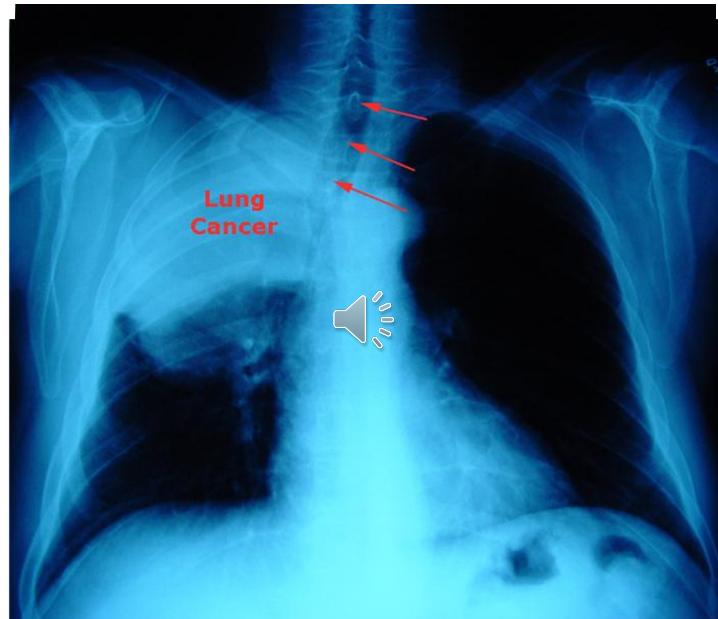
## Causes

- Carcinogens (cancer-causing agents) in cigarette smoke are the leading cause of lung cancer
- Exposure to radon – a heavy gaseous radioactive element – found in rocks, soil and some buildings
- Exposure to asbestos – found in some insulation & ceiling tiles



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## Treatment

- **Surgery on localized lesions**
- **Chemotherapy and radiation**
- **Poor prognosis unless tumor in early stages of development**



Chemotherapy, alone or combined with radiation, may be used before, after or instead of surgery in treating lung cancer

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## Red Flags Overview for respiratory problems



- Altered mental status or confusion
- Absent signs of ventilation- quiet chest
- Audible stridor or wheezing
- Able to speak in short phrases only
- Sustained Tachycardia
- Pallor / Diaphoresis
- Accessory muscle use / Retraction/tracheal tug



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Advice about the usual natural history of the illness, including the average total length of the illness

- acute otitis media: 4 days
- acute sore throat/acute pharyngitis/acute tonsillitis: 1 week
- common cold: 1½ weeks
- acute rhino-sinusitis: 2½ weeks
- acute cough/acute bronchitis: 3 weeks



Suggest some pts for whom we should be prescribing a/b?

- And some who we should not??



## Identifying those patients with RTIs who are likely to be at risk of developing complications

- Antibiotics to who?
- if the patient is systemically very unwell
- if the patient has symptoms and signs suggestive of serious illness and/or complications (particularly pneumonia, mastoiditis,
- peritonsillar abscess, peritonsillar cellulitis, intraorbital and intracranial complications)
- if the patient is at high risk of serious complications because of pre-existing comorbidity. This includes patients with significant
- heart, lung, renal, liver or neuromuscular disease, immunosuppression, cystic fibrosis, and young children who were born prematurely
- if the patient is older than 65 years with acute cough and two or more of the following criteria, or older than 80 years with acute
- cough and one or more of the following criteria:
  - hospitalisation in previous year
  - type 1 or type 2 diabetes
  - history of congestive heart failure
- current use of oral glucocorticoids.



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## New drugs

- Immunomodulators eg infliximab
- Phage treatment with nebulisers
- Trelegy ▼ Ellipta (fluticasone furoate/umeclidinium/vilanterol , Ellipta and
- Annoro
- Evidence from the IMPACT trial can be appreciated alongside the new
- NICE and GOLD algorithms and will help decision making.
- Awareness of ICS



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## Summary



- Do not underestimate the importance of a comprehensive history.
- Be aware of red flags
- Keep up to date with current evidence
- Remember to safety net and give worsening care advice.

Any questions?





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## HEALTHCARE TRAINING



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