COPD
CHRONIC OBSTRUCTIVE PULMONARY DISEASE

The facts about COPD

- COPD is an umbrella term for a group of lung diseases which include chronic bronchitis, emphysema and small airways disease. Lung damage over a long period of time impairs the flow of air in and out of the lungs and causes breathlessness

- COPD kills around 30,000 people a year in England and Wales. It is the 5th biggest killer in the UK[1] and the 5th biggest killer worldwide[2]. Every hour COPD is estimated to kill over 250 people worldwide[3]

- COPD is the only major cause of death whose incidence is on the increase[4] and is expected to be the third leading cause of death worldwide by 2020 (exceeded only by heart disease and stroke)[5,6,7,8,9]

- There are an estimated 3 million people with COPD in the UK[10], although only an estimated 900,000 (1.5% of the population) are correctly diagnosed[11]

- 24,160 people in the UK died as a result of COPD in 2005[12]. The disease kills more people every year in the UK than bowel cancer, breast cancer or prostate cancer[13]

- COPD is the third biggest cause of respiratory death in the UK, accounting for more than one fifth (23%) of all respiratory deaths[14]

- In 2005 COPD killed more women than breast cancer: 11,302 died of COPD, 10,969 died of breast cancer[15]

- In the UK, the rate of COPD has been increasing nearly three times faster amongst women than men[16]

- Women are more susceptible to developing COPD than men – their lung function worsens with less duration of smoking or intensity of smoking than that of men[17]

- COPD is caused mainly by smoking, but also by exposure to airborne pollution, to harmful fumes or particles at home or at work, or by inheriting a genetic deficiency. Some research suggests that COPD may be related to childhood lung disease

- COPD is closely associated with levels of deprivation – rates of COPD are higher in more deprived communities which has been linked to slow decline in the rates of smoking compared to more affluent areas.[18]

- It is estimated that up to 75% of all COPD cases in the UK are misdiagnosed/undiagnosed[19]

The cost of COPD

- One in eight (130,000) acute medical admissions in adults is due to COPD[20] making it the second largest cause of emergency admission in the UK[21]. It accounts for one million 'bed days' in hospitals in the UK each year

- NICE estimates that the direct cost of providing care in the NHS for people with COPD is almost £500 million a year. More than half this cost relates to the provision of care in hospital[22]

- It is estimated that in the UK COPD causes at least 20.4 million lost working days among men and 3.5 million days among women every year – more than any other respiratory condition[23]

- More than five times the number of bed days are spent due to COPD compared with asthma (9,600 for COPD, 1,800 for Asthma)[24]

- Emergency hospital admissions account for up to 84 per cent of the costs directly associated with COPD[25] due to the high number of bed days

- On average, 15% of those admitted to hospital with COPD die within three months and although estimates vary, it is thought that 25% of patients die within a year.[26]

- The average length of stay for COPD patients is 9-12 days, and 50 per cent of those who survive their first admission will be readmitted within 6 months[27]

- COPD accounts for 21% of bed days used for respiratory disease[28]

- Hospitalisations increased by 50% between 1991 and 2003[29]

The impact of COPD

- 83% of COPD patients, surveyed by the British Lung Foundation, 'agreed' or 'strongly agreed' that fear of having an attack of breathlessness often limits their ability to do things they enjoy[30]

- The same survey showed that in the last 12 months, COPD patients have been prevented from:
  - 3.82 million chances to make love
  - 3.15 million hugs and 2.89 million kisses
  - 3.45 million trips to the pub

- The survey[31] also found that the activities COPD patients find most limiting were going to a restaurant (43%), a pub (42%), a family get together (35%) and the cinema (32%)

- 83% of COPD patients surveyed by the British Lung Foundation said their COPD slows them down, 79% said they had to cut down on their activities and 56% said their COPD had a great effect on their family[32]

More about COPD

- It is an umbrella term for a group of lung diseases, including:

  - Chronic Bronchitis – Bronchitis means inflammation of the large airways (bronchi). This increases mucus in the airways producing phlegm which makes sufferers cough
  - Small airways disease – these airways become narrower, making it harder for air to get in and out of the lungs. Narrowing of the airways causes shortness of breath
  - Emphysema – This is where the alveoli (air sacs) in the lungs are gradually destroyed. It reduces the support to the airways, causing them to narrow and may, if severe, lead to people having difficulty absorbing enough oxygen. This results in shortness of breath

Who does COPD affect?

- Typically, COPD occurs in people over the age of 35 who are, or who have been, heavy smokers. It can also result from chronic severe asthma and as a result of passive smoking or exposure to other environmental pollutants at work or elsewhere

- COPD sufferers do not normally seek medical attention until their disease is quite advanced. Although smokers in their late 20's may have early COPD, they often attribute symptoms to 'smoker's cough' and modify their daily activity to avoid exercise which provokes breathlessness. By the time they seek help it may be too late for appropriate treatment. A public awareness campaign for young smokers is therefore vital to stop this occurring

- A recent British Lung Foundation survey found that 1 in 4 people surveyed had delayed seeing their GP about their symptoms for as long as 10 years after first noticing them[33]. Their reasons for not going sooner included that their symptoms had not stopped them doing things they wanted to (57%), they blamed it on their smoking habit (58%), they thought it was part of their ageing process (26%) or they didn't think there was anything that could be done (26%)

Causes of COPD

- Over 90% of COPD cases are caused by cigarette smoking[34] however a recent British Lung Foundation survey found that fewer than half of the participants understood that smoking led to their COPD[35]

- Other factors include exposure to air borne pollution; exposure to fumes or particles at work e.g. welding fumes or coal dust; or the inheritance of Alpha-1-antitrypsin deficiency, a genetic condition in which a person is deficient in the Alpha-1-antitrypsin protein that protects the lungs from destructive enzymes, resulting in a loss of lung tissue leading to emphysema

Symptoms of COPD

- The symptoms of COPD depend on how severe it is. In mild cases, symptoms such as cough, phlegm and shortness of breath may only be present during the winter after a cold, while in more severe cases shortness of breath may occur everyday. With advanced COPD normal activities become much more difficult

- Many people living with COPD fear a lung attack or exacerbation (sudden worsening of symptoms) so much that they reduce their activity and personal fitness, ultimately making breathing problems worse. Respondents who took part in the recent British Lung Foundation said that fewer than half of GP's discuss flare-ups with people with COPD[36]

- Some centres run pulmonary rehabilitation courses, designed specifically for people with COPD. These programmes involve exercise and education and have been shown to improve exercise performance, health status and quality of life (please also refer to treatments section below)

Diagnosis of COPD

- The best way to confirm the diagnosis of COPD is through spirometry, a breathing test which can be taken at a GP surgery. This will indicate whether the airways have been narrowed. This may also be accompanied by another breathing test called a Peak flow test. This measures how quickly the person can breathe out. If the person's COPD is severe, then other, more detailed tests, such as a CT scan or checks on levels of blood oxygen, and referral to hospital may be required

Treatment of COPD

Bronchodilator Inhalers

- All COPD patients should be given a short-acting bronchodilator inhaler. Bronchodilators reduce airway narrowing by relaxing the muscle layers, making it easier to breathe

- There are two types of bronchodilator:
  - Short-acting bronchodilator inhaler – This relieves symptoms of breathlessness. These work quickly and last for 4-6 hours. There are two types: beta-2 agonists and anticholinergics. These can also be given together
  - Long-acting bronchodilator inhaler – This works the same way as the short-acting bronchodilator inhaler but its action lasts for 12-24 hours

Corticosteroid inhaler

- This type of inhaler reduces airway inflammation (irritation) and will be prescribed if the patient's COPD is causing problems (e.g. poor lung condition) and they have had antibiotics or steroid tablets more than twice in a 12-month period. They are especially helpful in the recovery from lung attacks

Theophylline

- This is a supplementary tablet if the patients discovers that their bronchodilator is not fully relieving their symptoms. It reduces airway narrowing by relaxing the muscle layers making it easier to breathe

Oxygen

- Some people with COPD develop low oxygen levels in the blood. Long-term home oxygen treatment in this situation is beneficial. It is also one of the treatments shown to improve survival in people with COPD. Prescribed home oxygen is supplied via an oxygen concentrator, an electrically-operated machine that extracts oxygen from the air. The oxygen supply tube from the concentrator may be many feet long, to allow movement around the house during the oxygen treatment. Many COPD sufferers benefit hugely from ambulatory oxygen, these small tanks contain enough oxygen for an hour, are supplied in a shoulder pack, and make shopping or travelling easier. The new oxygen contract makes provision for people to receive light-weight ambulatory oxygen cylinders on the NHS

Non-invasive ventilation (NIV)

- NIV is an emergency treatment that a person may receive if they are taken to hospital because of an exacerbation. NIV is a method of helping someone's breathing during a bad attack of breathlessness. It is not the same as oxygen therapy. NIV involves the person

wearing a mask which covers the nose and is connected to a small machine the pushes oxygen through the mask and into their lungs

Pulmonary Rehabilitation

- A typical pulmonary rehabilitation course includes a gentle physical exercise programme which is carefully adapted for each individual and also provides individuals with advice on lung health and coping with breathlessness. Exercise which makes you a bit breathless is not harmful

- Pulmonary rehabilitation not only improves a person's physical health it can also improve their mental well being. Up to three quarters of people with COPD struggle with simple, everyday activities which can lead to feelings of frustration and isolation[37]. A pulmonary rehabilitation course allows them to meet and interact with others who are experiencing similar lung problems

- Pulmonary rehabilitation is not available everywhere at the moment but has proved very successful where implemented to help people live active and more independent lives.

- A recent audit of 236 hospital units suggested that 64% of units had Pulmonary rehabilitation schemes however many schemes had capacity for only a small number of patients and some did not have secure funding as a result only 3% of people with COPD may be recommended for such schemes.[38] However it is hoped that the implementation of the National Service Framework for COPD will help to make these programmes more widely available as encouraging research results have found that participation in pulmonary rehabilitation schemes can reduce the number of emergency admissions and the number of days spent in hospital[3940]

- In a recent British Lung Foundation survey it was disappointing to find that 63% of respondents said their GP had not discussed ways to increase their day to day activity, and 57% of respondents said their GP had not given them any advice on how to control breathing[41]

Prevention of COPD

- Smoking is a major cause of COPD and therefore the single most important way COPD can be prevented is through people not smoking or giving up smoking and improving public awareness of COPD and its link with smoking. Cessation programmes are readily available through local GP's surgeries and the NHS stop smoking service

- However in a recent survey by the British Lung Foundation more than a third of respondents said their GP did not explain that stopping smoking would slow the progression of the disease and 43% said they did not offer help with smoking cessation now or in the past[42]. This highlights the importance that health professionals stress to patients the benefits of giving up smoking and give them the support needed to do this
- It is common for people with COPD to play down their symptoms through guilt that their condition was self induced through smoking. These feelings can result in a reluctance to seek medical advice, which in turn simply speeds up the decline of their condition, greatly impairing their quality of life. Therefore it is highly important that those people who have symptoms of COPD or who have been diagnosed with COPD, get their condition reviewed regularly through check ups with their GP or practice nurse

British Lung Foundation funded research

The effect of exercise therapy following hospital admission with COPD (2003- 2004)

- Professor John Moxham at the Department of Asthma, Allergy and Respiratory Science, Kings College London studied the effects of Pulmonary Rehabilitation on COPD patients who had recently been discharged from hospital after suffering an exacerbation (worsening of symptoms)

- The results clearly showed that Pulmonary Rehabilitation led to significant improvements in the exercise capacity and health status of COPD patients and also resulted in reduced hospital readmissions compared with those given usual care

- Professor Moxham was funded by the BLF to do this initial research and was awarded a further project grant in 2004 to build on this research and investigate whether these benefits were long lasting

Understanding why certain inflammatory lung diseases such as COPD and cystic fibrosis are resistant to steroid treatment (2002)

- Professor Ian Adcock of the National Heart and Lung Institute, Imperial College London aimed to investigate what factors prevented corticosteroids from effectively treating COPD

- This work determined that cigarette smoke, acting through oxidative stress, can stop corticosteroids from working

- Furthermore this work identified particular enzymes that are affected by cigarette smoke which therefore stop the drug from working properly

- Finally the researchers found that low doses of an older drug used in the treatment of asthma and COPD called 'theophylline' can reactivate enzymes that cigarette smoke affects and enhance the function of corticosteroids

- Further work in now being done in this field to try and improve the effectiveness of corticosteroid's in treating COPD

Policy and Key Issues

England - National Service Framework for COPD

- The British Lung Foundation is delighted that, following our lengthy campaign, the Government announced a National Service Framework (NSF) for COPD on 28 June 2006

- The NSF will outline the minimum standards of treatment and care that people with COPD can expect to receive in their local area

- As this is a national policy for the whole of England, it will also ensure that people have access to the same high standards of care, regardless of where in the country they live

- Healthcare providers will be inspected on the basis of whether they are providing the standards outlined in the NSF

- The British Lung Foundation looks forward to working with the Department of Health to ensure that the NSF remains patient focussed and will deliver the improvements that are desperately needed

- In addition we will be calling on the Government to announce additional chapters to the NSF in different lung diseases, such as asthma, sleep apnoea and interstitial lung disease in due course

Moving forward

- Good care for COPD patients is well defined. NICE published a Guideline on the management of COPD in primary and secondary care in February 2004 which follows on from the earlier British Thoracic Society and GOLD (Global Initiative for Chronic Obstructive Lung Disease) recommendations

- By improving the management of the condition in primary care, the significant drain COPD places on NHS resources can be avoided.

- Effective management can help relieve symptoms and slow the rate of exacerbations. Exacerbations are a huge burden on secondary care and represent a spiral of decline and repeated and extended hospitalisation for the patient

- The urgent need for equality in the provision of care for people with COPD was reinforced by the national COPD Audit[43] which confirmed that services for patients are patchy across the country and implementation of NICE recommendations is highly variable

Key interventions – the new NSF needs to include priorities for:

- *Diagnosis* – Early diagnosis is vital for timely intervention and optimum management of the condition. COPD presents very similarly to asthma in primary care and it is imperative that the diagnosis is confirmed using spirometry testing

  - The NICE Guideline and the GMS Contract signal progress for spirometry testing. All doctors should have access to a spirometer and, most importantly, both GPs and practice nurses should have access to adequate training on the use of equipment

- *Pulmonary rehabilitation* – The British Lung Foundation estimates that only 1.7% of the total patients diagnosed with COPD currently have access to pulmonary rehabilitation

  - The NICE Guideline recommends that all people who could benefit from it should have access to pulmonary rehabilitation. The British Lung Foundation endorses this recommendation and calls for pulmonary rehabilitation to be universally available

- *Multi-disciplinary healthcare team* – in addition to a GP and practice nurse, COPD patients should have access to a range of healthcare professionals including a chest consultant and a physiotherapist or occupational therapist. This team of health professionals should work together to ensure the patient receives the optimum care available to them

- *Non-invasive ventilation (NIV)* – The NICE Guideline recommends that NIV is used during exacerbations after other treatments have been tried. This treatment should now be made available to all COPD patients who need it, not only in hospital, but at home

- *Early supported discharge* – These schemes help patients leave hospital earlier after an exacerbation by providing comprehensive at home care from community based healthcare

professionals. They are supported through the final days of their recovery and given advice and support in preventing future hospitalisations. Patients indicate that they would prefer to recover in the comfort of their own home where this is possible. By providing this primary care support, hospital beds are released earlier, reducing the burden on the secondary care sector

- *Prevention of COPD* – One of the key interventions in the management of COPD in primary care is the prevention of new cases. COPD is primarily caused by smoking and, therefore, effective smoking cessation services and other stop smoking initiatives are an important element in reducing the burden this disease has on the NHS

Northern Ireland – Strategic Framework for Respiratory disease

- In Northern Ireland, a Strategic Framework for Respiratory Disease was published in April 2006

- This is a 10 year strategy document which outlines the care and treatment that should be available for people with all respiratory diseases in the province

- The British Lung Foundation contributed to the development of the document and will be working with the Department of Health, Social Services and Public Safety to ensure the standards in the document are implemented

Wales – Service Development and Commissioning Directives

- The Welsh Assembly Government has been working on its own guidelines for respiratory disease for the last three years

- The Head of British Lung Foundation Wales and a Breathe Easy representative sat on the planning group which contributed to its development

- It is hoped that this policy will be published before the end of 2006. It is expect it to be in the form of Service Development and Commissioning Directives which will outline the treatments and services that Health Boards in Wales need to commission for people with all respiratory conditions

Scotland – Managed Clinical Networks

- The Scottish Executive has decided against introducing a national strategy for respiratory disease. Therefore, in Scotland the British Lung Foundation is campaigning for services to be provided through the establishment of Managed Clinical Networks (MCNs)

- These networks bring together multi-disciplinary health professionals from across primary and secondary care to co-ordinate care and services for people with a particular condition. There is currently one MCN for COPD in Grampian and MCNs for airways diseases are being developed in Lanarkshire and Forth Valley. British Lung Foundation Scotland has welcomed these and is continuing the campaign to secure respiratory MCNs in every Health Board area in the country as soon as possible

- British Lung Foundation Scotland would also like to see the development of clinical standards for COPD care in Scotland and have made approaches to NHS QIS and SIGN calling for this

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