# Chronic Obstructive Pulmonary Disease (COPD)

## 1. Introduction

Chronic obstructive pulmonary disease (COPD) is a term which refers to two lung diseases – chronic bronchitis and emphysema. COPD does not include other obstructive pulmonary diseases such as asthma. COPD is characterised by an obstruction to airflow that interferes with normal breathing. The condition begins with serious damage to air sacs in the lungs. This damage is irreversible and progressive.

The main symptoms of COPD are breathlessness, a cough and the production of excessive sputum. Predominantly caused by smoking, other risk factors for COPD include occupational exposures (e.g. coal dust), deficiency of alpha-1 antitrypsin (a naturally occurring enzyme that prevents lung damage), and exposure to air pollutants.

Early diagnosis and treatment can markedly slow the disease's progression and improve patient outcomes. Smoking cessation is the most important factor in slowing the progression of COPD. Treatment with medication can improve and prevent symptoms, reduce the frequency and severity of exacerbations and improve the ability to exercise. Pulmonary rehabilitation programs that include patient education and exercise can reduce symptoms, decrease exacerbations, and improve exercise endurance and quality of life.[1,2]

Universal annual influenza vaccination is recommended for people with COPD. There is strong evidence that the influenza vaccine decreases "flare-ups" of COPD, especially those related to the influenza virus itself.[3]

There are around 835,000 people currently diagnosed with COPD in the UK and an estimated 2.2 million people with COPD who remain undiagnosed[4]. The proportion of deaths from COPD increases with age, as the lungs become more obstructed over time. Although mortality rates from COPD in the UK have decreased over recent decades, data from the World Health Organisation shows that premature mortality from COPD in the UK was almost double the European average in 2008.[5]

COPD has a large impact on the health system in terms of numbers of hospital admissions and mortality. Hospital treatment is much more costly than in primary care settings and self-care. Because of the likelihood of comorbidity, COPD patients may be admitted to hospital for other conditions (such as heart disease).

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[1] Puhan MA, Gimeno-Santos E, Scharplatz M, et al (2009) Pulmonary rehabilitation following exacerbations of chronic obstructive pulmonary disease. Cochrane Database of Systematic Reviews 2009; 1: CD005305

[2] Burtin C, Decramer M, Gosselink R, Janssens W, Troosters T (2011) Rehabilitation and acute exacerbations. Eur Respir J; 38:702-712

[3] Poole P, Chacko EE, Wood-Baker R, Cates CJ. (2006) Influenza vaccine for patients with chronic obstructive pulmonary disease. Cochrane Database of Systematic Reviews 2006, Issue 1. Art. No.: CD002733. DOI: 10.1002/14651858.CD002733.pub2

[4] NHS Choices (2010) Chronic Obstructive Pulmonary Disease. http://www.nhs.uk/Conditions/Chronic-obstructive-pulmonary-disease/Pages/Introduction.aspx

[5] World Health Organisation (2011) Mortality indicators by 67 causes of death, age and sex (HFA-MDB). http://www.euro.who.int/en/what-we-do/data-and-evidence/databases/mortality-indicators-by-67-causes-of-death,-age-and-sex-hfa-mdb

## 2. The Local Picture[6]

*2.1 Prevalence rates and primary care indicators*

In 2009/10, 0.9% of the population in Hounslow had diagnosed COPD and were on a GP register for COPD patients. This figure is slightly lower than the London average (1.0%) and is significantly lower than that of England as a whole (1.6%). (Table 1) COPD prevalence in Hounslow is high, reflecting high levels of smoking (18.6% of adults smoke) and deprivation.

Modelled estimates suggest that 3.8% of Hounslow's population aged over 16 years has COPD – slightly lower than the 3.9% estimated for London, but higher than the England estimate of 3.6%. The difference between this estimated prevalence for Hounslow and the diagnosed prevalence suggests that around 2.7% of Hounslow's population has undiagnosed COPD.

For GP practices in Hounslow that participate in the Quality and Outcomes Framework (QOF) – a tool which helps to measure the provision of quality care and disease management – achievement against key indicators has been good, and in line with both the London and national averages. (Table 1) For example, during 2009/10 in Hounslow, 89.1% of COPD patients had their lung function tested and recorded by their GP in the previous 15 months (Greater London/national average: 87.5% / 88.4%); 90.6% of COPD patients were assessed for breathlessness during the previous 15 months (Greater London/national average: 89.6% / 89.9%); and 95% of COPD patients received an influenza immunisation (Greater London/national average: 92.9% / 92.7%). (Table 2)

*2.2 Hospital inpatient care*

In 2010/11, 422 people were admitted to hospital with a primary diagnosis of COPD, a 3% increase on the 2007/8 figure of 409 admissions. Emergency admissions accounted for approximately 95% of all COPD admissions in 2010/11. This equates to 255 emergency admissions per 100,000 people. The average length of hospital stay for all COPD admissions was at its lowest during the last 4 years in 2010/11 at 5.2 days. (Table 3)

For both emergency and non-emergency admissions for COPD in 2010/11, the average age of the patient was approximately 70 years. (Table 3) The majority of emergency admission patients were aged 70-85 years. (Figure 2) Patients were admitted to hospital an average of 1.5 times during the year, maintaining the flat trend since 2007/8 (an average of 1.5 admissions). The total cost of hospital admissions for COPD has increased significantly during the past 4 years, from £707,600 in 2007/8 to £1,014,400 in 2010/11.

The standardised rate of emergency admissions in COPD inpatients where the primary diagnosis was pneumonia has increased dramatically, from 33 per 100,000 population in 2007/08 to 82 per 100,000 in 2010/11. These patients stay in hospital an average of ten days. (Table 4)

The number of outpatient COPD attendances to hospital, measured as a proportion of patients on a GP COPD register, is significantly higher in Hounslow than the average figures for both London and England (30.6 versus 28.2 and 18.2 per 1,000 population, respectively).

[6] Except where stated, all data is taken from: London Health Programmes (2011) Hounslow COPD Pathway Profile. http://www.londonhp.nhs.uk/wp-content/uploads/2011/06/COPD-profile_Hounslow-PCT.pdf

(Table 5) Between April 2007 and March 2011, 205 people were admitted to hospital as an emergency inpatient, before being referred to a respiratory medicine outpatients. (Table 6)

Hounslow's cost of prescribing is generally similar to the London average for both bronchodilators (£3.31 per person) and respiratory corticosteroids (£6.94 per person). Hounslow spends less on mucolytics (£0.17 per person) than the London (£0.23 per person) and national (£0.36 per person) averages. (Table 7)

*2.3 Mortality rates*

The latest mortality data for Hounslow shows a reduction in deaths from COPD in 2008-2010, from 2002-2004. (Figure 3) From 2007–09, the COPD mortality rate in Hounslow was 25.9 per 100,000 European standard population – slightly higher than the London average of 25.4 per 100,000 European standard population, but lower than the national rate of 26.2 per 100,000 European standard population. For those aged under 75 years, the rate of death from COPD during the same period was 13.3 per 100,000 population European standard population (higher than both the London and England averages of 11.4 and 11.8 per 100,000, respectively).

The standardised mortality rate per 100,000 (England) population for COPD in Hounslow has decreased during the last 8 years for both males and females. In 2002-2004, the rate of death due to COPD was 74 per 100,000 men, reducing to 55 per 100,000 men by 2008-2010. For females, the mortality rate steadily decreased from 40 per 100,000 women in 2002-2004 to 32 per 100,000 women in 2008-2010.

The majority of people who died from COPD in Hounslow between 2002-10 were between the ages of 70-90, with a peak between 80-85 years. (Figure 5) In 2010, 38 people (55% female) died in hospital where COPD was noted as they underlying cause, a year-on-year increase from 2007. The average length of hospital stay for these people was 13.4 days, a decrease since 2007 (21.5 days). (Table 8) The vast majority of people who died in hospital between 2007-10 were admitted with a diagnosis of 'influenza and pneumonia' or 'chronic lower respiratory disease'. (Table 9)

## 3. Strategic Leadership and Collaboration

The Department of Health (DH) published an outcomes strategy for COPD and asthma in England in July 2011. This strategy sets out how outcomes for COPD will be improved and recognised the high level of undiagnosed COPD in the population. The DH strategy suggests a shift away from reactive care for people with COPD to proactive, multidisciplinary teams and self-care. The Strategy set out to proactively address health inequalities, improve health education about the risk of COPD to reduce both the number of people who develop the disease and the number of people with COPD who die prematurely, through a proactive care and management at all stages of the disease (including support through to the end of life).

The updated NICE guidelines on COPD provide strategies for the improved diagnosis and management of adults with COPD. The guidelines consider diagnosis of COPD for patients aged over 35 years who smoke, have unexplained shortness of breath, a chronic cough, regular sputum production and/or frequent respiratory infections. The guidelines also included updates to recommendations, including that pulmonary rehabilitation should be

made available to all appropriate people with COPD, including those who have had a recent hospitalisation for an acute exacerbation.

NHS Hounslow has identified redesigning COPD services as one of its key targets for this year. Public Health is working with GP Commissioning to progress this work, building on the needs analysis for COPD services (completed in October 2011). The needs analysis:

- Reviewed the evidence for models of care for COPD, including pulmonary rehabilitation;
- Reviewed Oxygen Services;
- Provided estimates of the undiagnosed prevalence of COPD to support earlier detection of patients with the disease;
- Described trends and variation in COPD admissions and readmissions across Hounslow GP practices;
- Provided good estimates of the costs of COPD management in Hounslow;
- Modelled likely future healthcare costs due to diagnosed and undiagnosed COPD; and
- Proposed seeking the views of COPD patients about key services (e.g. early discharge schemes, rehabilitation, etc.).

## 4. Priorities

The key foci for COPD in Hounslow in 2011/12 are to:

- Engage with local stakeholders as part of the COPD service redesign;
- Commission a pulmonary rehabilitation service;
- Commission clinicians to undertake regular reviews of patients who require the home oxygen service; and
- Ensure that clinical discharge coordinators have discharge plans in place for patients after an unplanned admission (e.g. for an exacerbation).

## 5. Summary of Need

The following table summarises the needs in COPD in the Borough of Hounslow.

| SUMMARY OF NEED: CHECKLIST | |
|---|---|
| Is need increasing over time? | **Yes** |
| Is need greater than the London average? | **Yes** |
| Is there qualitative intelligence indicating that need is substantially unmet? | **Yes** |
| Is there an external inspection or report suggesting need is unmet? | **Yes** |
| Are quality indicators worsening over time? | **Yes** |
| Are quality indicators worse than the London average? | **Yes** |

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|---|---|
| Is there an intervention of proven effectiveness to address the need which is not currently delivered in Hounslow (or not delivered enough)? | **Yes** |