

# Respiratory Health (COPD) JSNA Profile

## 1 Summary

Chronic Obstructive Pulmonary Disease (COPD) is a common preventable and treatable disease. It is the name for a collection of lung diseases including chronic bronchitis, emphysema and chronic obstructive airways disease. 80-90% of COPD is caused by smoking.

### Mortality and inequalities

- Greenwich residents are 9 times more likely to die of COPD compared to people living in the local authority in England with the lowest COPD rate
- There were 106 deaths from COPD in Greenwich in 2011. Death rates from COPD have been falling in men since the early 1990s but have remained largely unchanged in women since then.
- Deaths in younger people under the age of 75 years are high and though in 2011 rates fell to those of England it is too early to say if this trend will continue.
- COPD mortality in Greenwich is higher in men compared to women at all levels of deprivation. COPD mortality is significantly higher in Quintiles 1-4 compared to Quintile 5 (least deprived) for men and the two most deprived quintiles have higher COPD mortality than the least deprived three quintiles for women.
- Men in unskilled jobs are 14 times more likely to die from COPD than the general population.

### Morbidity

- There are an estimated 8907 (3.25%) people living with COPD registered to Greenwich practices. However, recorded prevalence is considerably lower at 3748 (1.37%). This means there are potentially 5159 people within Greenwich living with undiagnosed COPD. The numbers of people being recognised by GP practices are improving as fast as in Bexley and Bromley.
- Greenwich has some of the lowest exception rates<sup>1</sup> for COPD indicators compared to London and England, most likely resulting from the strategic drive to reduce these across the Borough. Taking exceptions into account, Greenwich performs the best in the sector for undertaking COPD medical reviews and uptake of flu vaccinations in people with COPD. However, it performs worst in the sector and below England and London average for confirmation of diagnosis with bronchodilator spirometry.

### Co-morbidity

- 70% of people with COPD have one or more other long term condition. Patients with co-morbidities have a worse quality of life and poorer clinical outcomes, are more costly and have longer length of stays in hospital with more complications post-operatively (Fortin et al, 2007).

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<sup>1</sup> Exception reporting is when data relating to a patient(s) is not included (i.e. excepted) in the calculation of a practice's achievement for a given indicator. Reasons to except patients may include: - the treatment is not being clinically appropriate or the patient did not attend for or refused treatment.

- A third of patients are likely to have hypertension and around a quarter will have a painful condition, coronary heart disease (CHD) and/or depression.
- Cancer will affect 7% of all patients with COPD suggesting that in Greenwich there might be over 600 patients with COPD and cancer. The most likely cancer is lung cancer and patients with COPD should be monitored carefully for early signs of the disease.

### Service use

- The overall rate of emergency COPD admissions is significantly higher than the national average and twice that of the local authority with the lowest admission rate. The high overall emergency admission rate is coupled with significantly high COPD death rates.
- Once admitted for COPD, patients from Greenwich spend significantly less time in hospital than other patients in England, four days less than the local authority with the longest length of stay (LOS). LOS in Greenwich has reduced significantly since the 2009/10.
- Readmission rates within 90 days of an emergency admission for COPD are statistically similar to the national average. However, 40% of all Greenwich patients admitted for COPD return to hospital within 90 days. This has risen from 30% in 2011.
- Programme budget data shows that Greenwich has a lower than average spend on COPD and has worse outcomes

### Prevention

- COPD is predominately caused by smoking (80-90%). In Greenwich, the adult smoking prevalence rate is reducing and is now at 17.9% (LHO, 2012), this is lower than national and London average rates. All COPD patients still smoking, regardless of age, should be encouraged to stop, and offered help to do so, at every opportunity as irrespective of the severity of symptoms those who stop smoking gain lung function in the year after quitting and half the decline of lung function of those who carry on smoking. (Scanlon et al 2000).

## 2 What do we know about it?

### 2.1 Introduction

Chronic obstructive pulmonary disease (COPD) is the name for a collection of lung diseases including chronic bronchitis, emphysema and chronic obstructive airways disease. It is characterised by airflow obstruction primarily caused by the narrowing of airways and this results in difficulties in breathing. The airflow obstruction is usually progressive, not fully reversible (unlike asthma) and does not change markedly over several months. A diagnosis of COPD should be considered in patients over the age of 35 who have a risk factor (generally smoking) and who present with exertional breathlessness, chronic cough, regular sputum production, frequent winter 'bronchitis' or wheeze. COPD is treatable, but not curable; early diagnosis and treatment can markedly slow decline in lung function and hence lengthen the period in which someone can enjoy an active life.

### 2.2 National strategies

The Outcomes Strategy for COPD and Asthma (Department of Health (DoH), 2011) sets out a high-level vision for all parts of the system - the NHS, public health, social care, other national and local government departments, and the private and voluntary sectors. To support the NHS through transition, a NHS Companion Document (DoH, 2011) was also published and this sets out best practice to achieve improved outcomes for COPD and asthma. Appendix 1 identifies 5 domains that support the improvement in COPD outcomes.

The outcome strategy sets out s 6 key objectives, of which the first 5 relate to COPD. These are as follows:

**Objective 1:** To improve the respiratory health and well-being of all communities and minimise inequalities between communities.

**Objective 2:** To reduce the number of people who develop COPD by ensuring they are aware of the importance of good lung health and well-being, with risk factors understood, avoided or minimised, and proactively address health inequalities.

**Objective 3:** To reduce the number of people with COPD who die prematurely through a proactive approach to early identification, diagnosis and intervention, and proactive care and management at all stages of the disease, with a particular focus on the disadvantaged groups and areas with high prevalence.

**Objective 4:** To enhance quality of life for people with COPD, across all social groups, with a positive, enabling, experience of care and support right through to the end of life.

**Objective 5:** To ensure that people with COPD, across all social groups, receive safe and effective care, which minimises progression, enhances recovery and promotes independence.

In 2011, the DoH published “Transparency in outcomes: a framework for adult social care 2011/12”. This aims to ensure the best outcomes are achieved for those needing social care, their families and carers, and the wider local community, by improving the quality of services and supporting transparent local accountability. The framework contains a set of outcome measures for this purpose, many of which have particular relevance for people with COPD and their carers who use social care services.

The COPD Outcomes Strategy is available at:

[http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/documents/digitalasset/dh\\_128428.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_128428.pdf)

The NHS Companion Document is available at:

[http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/@dh/@en/documents/digitalasset/dh\\_134001.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_134001.pdf)

Transparency in outcomes: a framework for adult social care 2011/12 is available at:

[http://www.dh.gov.uk/en/Consultations/Responsestoconsultations/DH\\_125464](http://www.dh.gov.uk/en/Consultations/Responsestoconsultations/DH_125464)

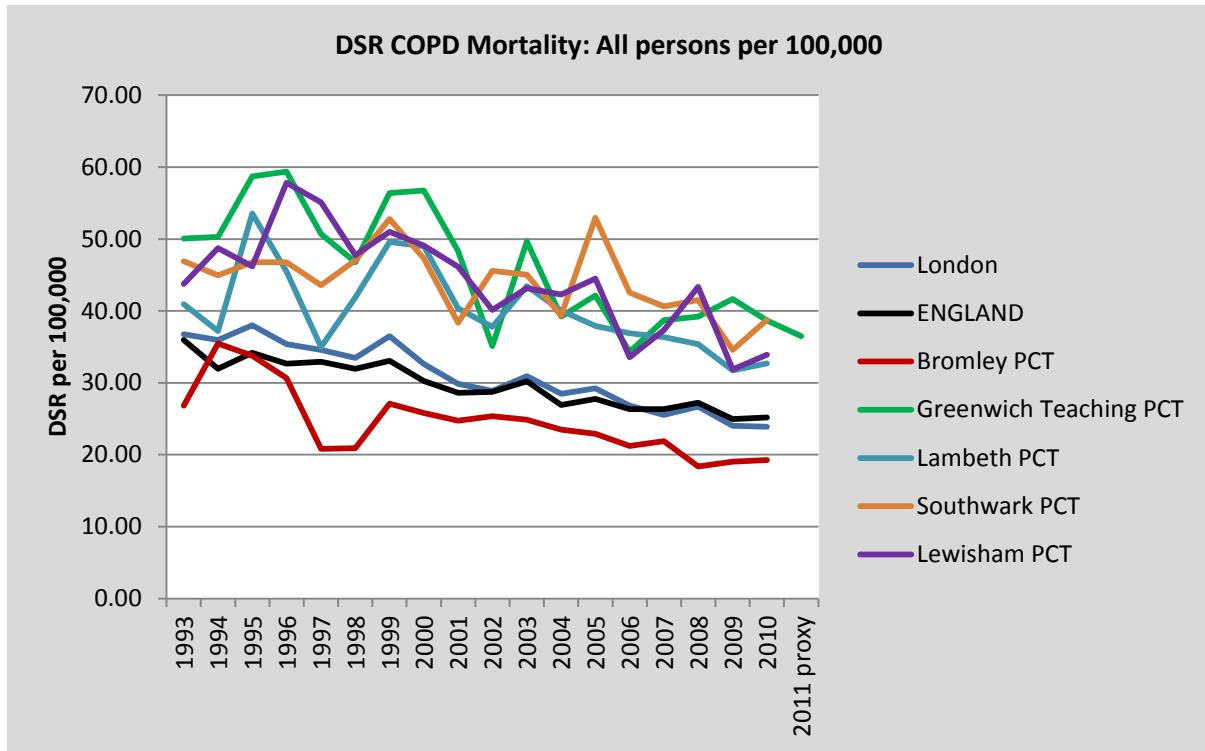
## 2.3 Facts and Figures/Trends

### 2.3.1 Mortality from COPD

Figure 1 shows the trends in directly standardised COPD death rates per 100,000 people in Greenwich compared to South East London and England. In 2010, there were approximately 106 deaths with COPD stated as the underlying cause (DSR: 38.66 per 100,000). Greenwich has the second highest directly standardised death rate from COPD compared to all other boroughs within SE London. Greenwich has the highest proportion of deaths with any mention of respiratory disease in the country and higher rates of death in both under 75s and in all ages. In Greenwich, residents were 9 times more likely to die of COPD as people living in the local authority nationally with the lowest COPD rate (Greenwich COPD Care

pathway Profile, 2012). However, the trend over time indicates death rates due to COPD are decreasing.

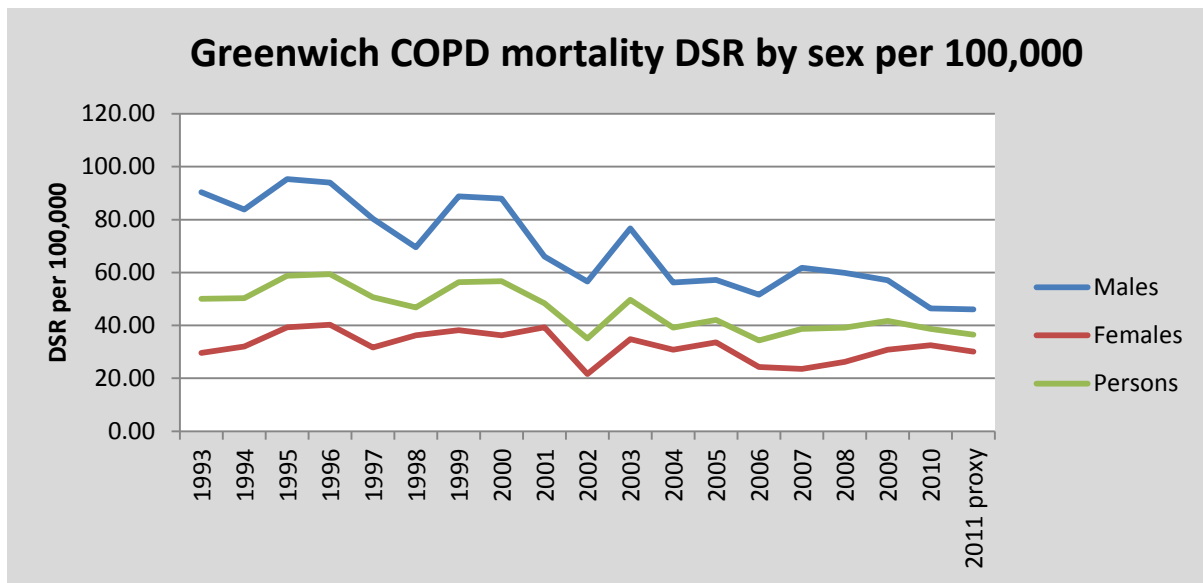
**Figure 1. Mortality from COPD in Greenwich and South East London Boroughs, London and England, all persons 1993-2010 D Mortality (DSRs) 1993-2010**



Source: National Mortality Statistics, The NHS Information Centre for health and social care

The picture of mortality by sex is illustrated in Figure 2. COPD death rates are higher in men (DSR: 46.45 per 100,000) than women (DSR: 32.47 per 100,000) reflecting the higher incidence of smoking in men. This shows that the decrease in COPD mortality identified above is mainly as a result of a decrease in death rates in men.

**Figure 2: Trends in COPD Mortality (DSRs) 1993-2010 by sex**



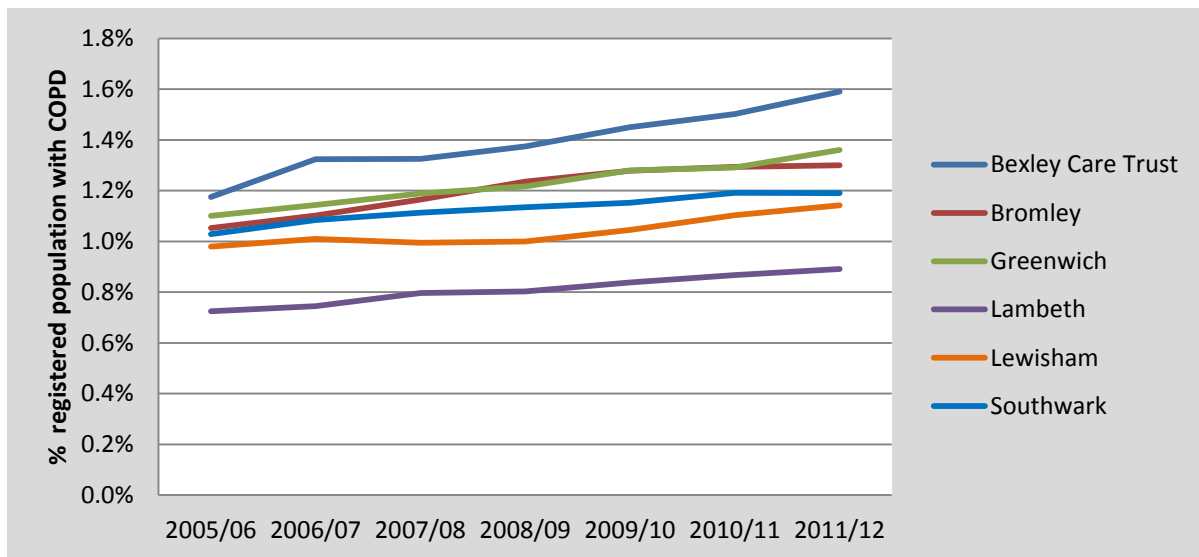
Source: National Mortality Statistics, The NHS Information Centre for health and social care

### 2.3.2 Morbidity of COPD

#### a) Recorded prevalence & trends

In contrast to COPD mortality which is decreasing, COPD morbidity is increasing steadily. Figure 3 shows unadjusted recorded practice prevalence rates 2005/6-2011/12. In 2011/12 there were 3,748 people with a diagnosis of COPD registered to Greenwich practices, this equates to a prevalence rate of 1.37%. Greenwich has the second highest COPD recorded unadjusted recorded prevalence in South East London. Please note the higher rates of prevalence in Bexley reflect better rates of identification and differences in populations rather than higher levels burden of disease, this is supported by the estimated adjusted prevalence rates identified in figure 4 showing Greenwich as having the highest estimated prevalence rates in the sector. COPD prevalence rates have been increasing since 2005/6. The COPD burden is expected to rise due to the aging population and continued exposure to COPD risk factors (Lopez et al., 2006).

**Figure 3: Trends in GP practice recorded COPD prevalence rates (unadjusted) 2005/6-2011/12**



Source: QoF Data 2005/6-2011/12 and APOH (using 2011 registered population from Attribution Data Set (ADS) provided by Dept of Health)

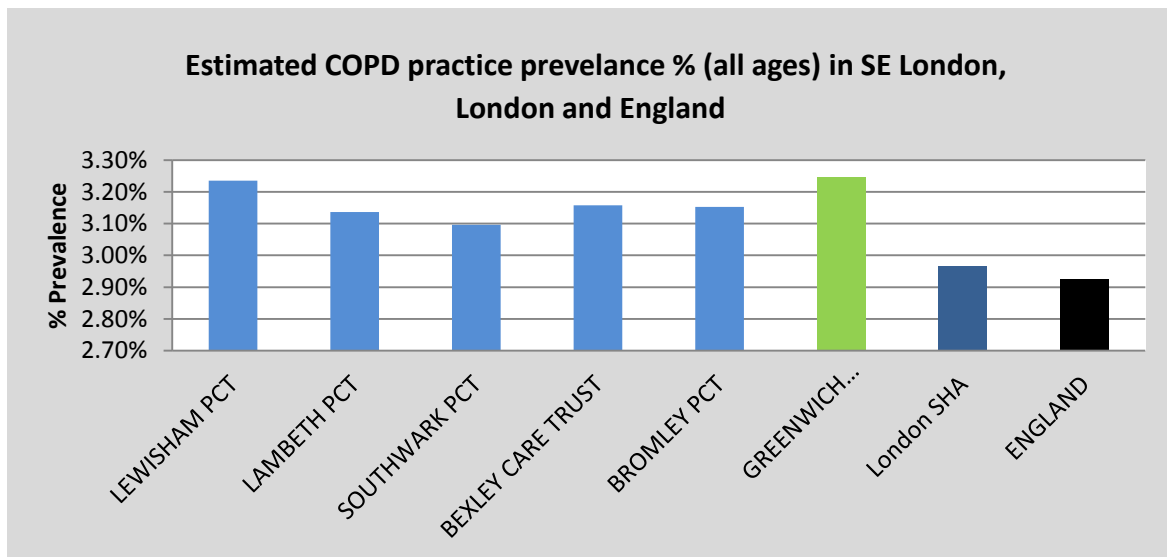
**b) Estimated prevalence & trends**

Accurate and timely diagnosis is important to ensure access to effective care and treatment. Estimating the expected numbers of people with COPD plays a key part in understanding undiagnosed COPD levels.

Figure 4 shows the estimated rates of COPD across South East London, London and England. Greenwich has the highest estimated prevalence rates in South East London; 0.32% and 0.28% higher than in England and London respectively. There are an estimated 8907 (3.25%) people living with COPD registered to Greenwich practices. However, recorded prevalence is considerably lower at 3748 (1.37%). This is a difference of 5159 i.e. there are an estimated 5159 people within Greenwich living with undiagnosed COPD or COPD that is unrecorded on the GP disease register. Disease registers are a mechanism by which patients with a long term conditions will be recalled for annual reviews and other care and treatment. Failure to record a person on a register may impact patient access to care.

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

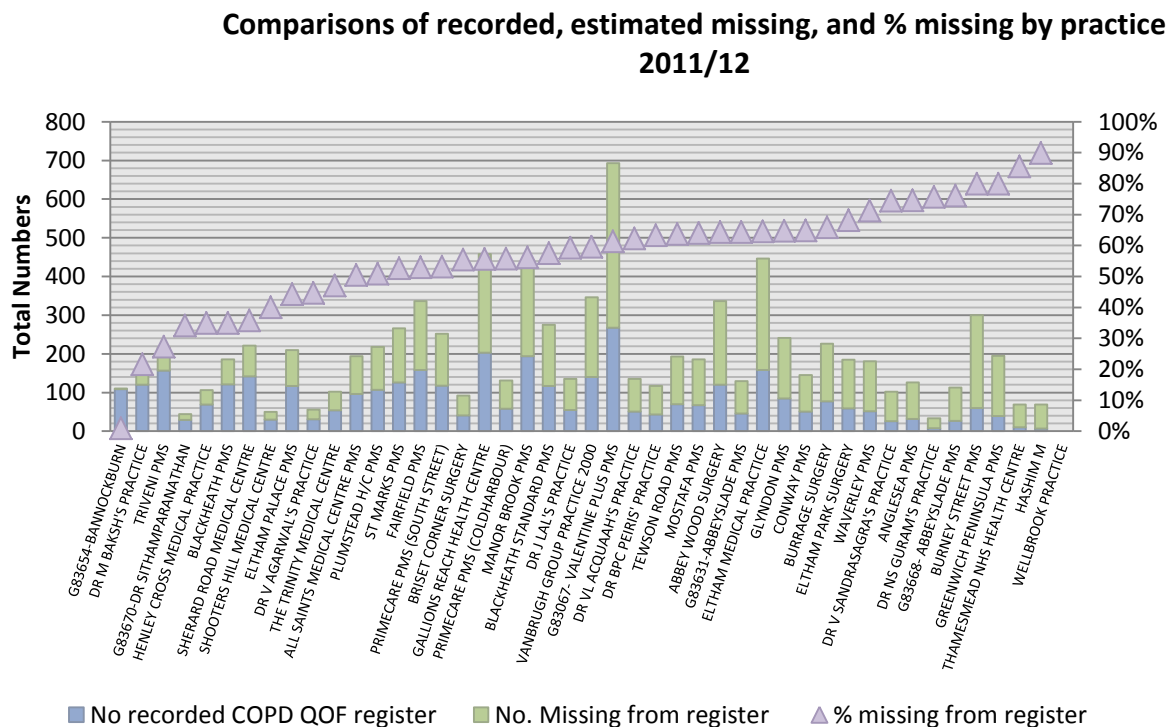
**Figure 4: Estimated prevalence of COPD in SE London, London and England (based on practice populations)**



Source: APHO (using 2011 population by age and sex from Attribution Data Set (ADS) provided by Dept of Health, ethnic distribution of population derived from Hospital Episode Statistics by ERPHO, smoking status at Local Authority level from Integrated Household Survey 2010/11 provided by Dept of Health, weighted IMD2010 score of practice population provided by Dept of Health, MSOA urban/rural classification from DEFRA).

In addition, there is considerable variation in relation to the distribution of “missing” people from COPD registers across practices as illustrated in Figure 5. This graph shows the estimated COPD prevalence per practice compared with recorded numbers. The % estimated to be “missing” from practice registers varies from 1% to 90%.

**Figure 5: Estimated, recorded prevalence and % missing 2011/2 by practice**



Source: APHO (Estimated Prevalence) and QoF 11/12 Reported prevalence \* no QoF data available for Wellbrook Practice therefore excluded from analysis

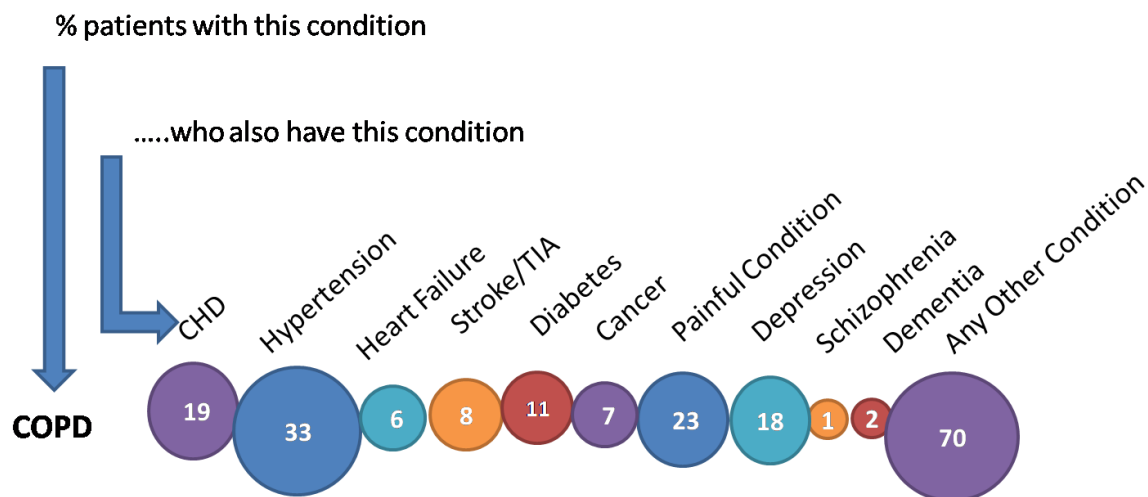
Source: Greenwich JSNA 2013/14 “Closing the Gap.” Public Health & Well-Being, Royal Borough of Greenwich.

### 2.3.3 Living with Co-Morbidities

Whilst there is no Greenwich data on numbers of people living with co-morbidities, the Scottish Primary Care Research Study (2012) undertook a study that identified the multiple conditions that people live with. They found that only 30% of people have COPD as their only disease (see figure 6). Since the Scottish population is different to that in Greenwich, we cannot draw firm conclusions on the levels of co-morbidity in Greenwich. However, it provides some insight into levels of co-morbidity generally. Co-morbidity is important since patients with co-morbidities have a worse quality of life and poorer clinical outcomes, are more costly and have longer length of stays in hospital with more complications post-operatively (Fortin et al, 2007).

Figure 6 shows that third of patients are likely to have hypertension and around a quarter will have a painful condition, coronary heart disease (CHD) and/or depression. Cancer will affect 7% of all patients with COPD meaning that in Greenwich we would expect over 600 patients with COPD (8907\*7%). The most likely cancer is lung cancer and patients with COPD should be monitored carefully for early signs of the disease.

**Figure 6: The co-morbidities of people living with COPD**



Source: Adapted (with permission) from Scottish Primary Care Research Study, 2012

### 2.3.4 Health inequalities

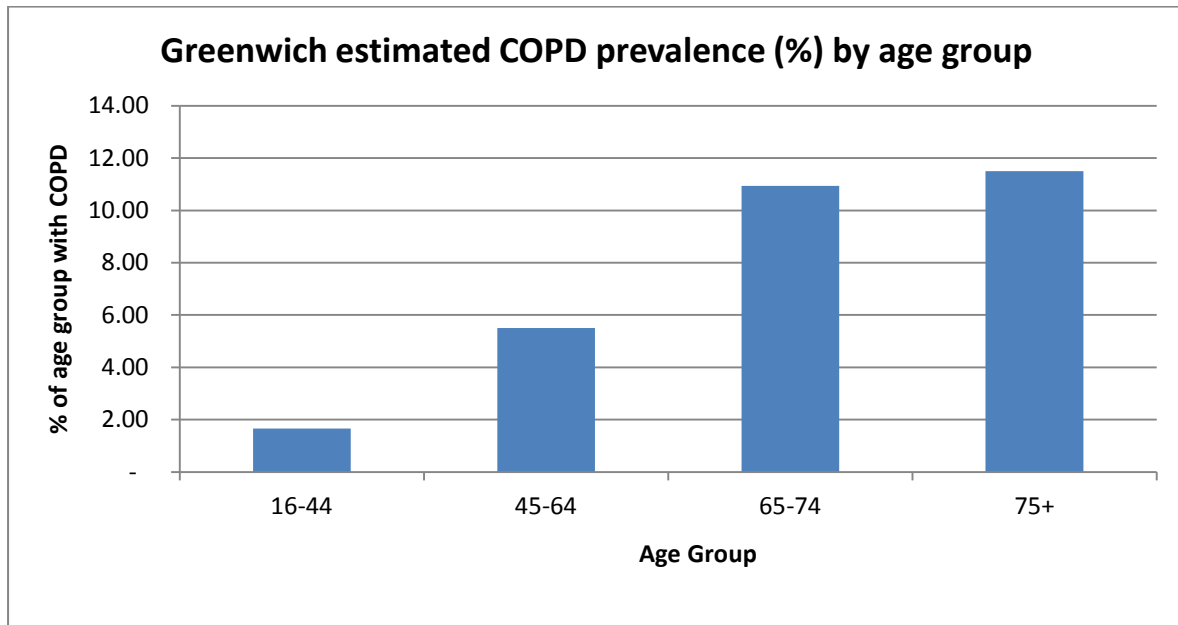
#### a) Health inequalities by age

Figure 7 indicates the estimated prevalence rates (%) by age in Greenwich. This highlights that COPD estimated prevalence increases with age, to be expected since age is often listed as a risk factor for COPD. However, it is unclear from the evidence whether this is as a result of natural aging or whether it reflects the sum of cumulative exposures throughout life.

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.



**Figure 7: Greenwich estimated COPD prevalence (%) by age group**



Source: APHO (using 2011 population by age and sex from Attribution Data Set (ADS) provided by Dept of Health, ethnic distribution of population derived from Hospital Episode Statistics by erpho, smoking status at Local Authority level from Integrated Household Survey 2010/11 provided by Dept of Health, weighted IMD2010 score of practice population provided by Dept of Health, MSOA urban/rural classification from DEFRA).

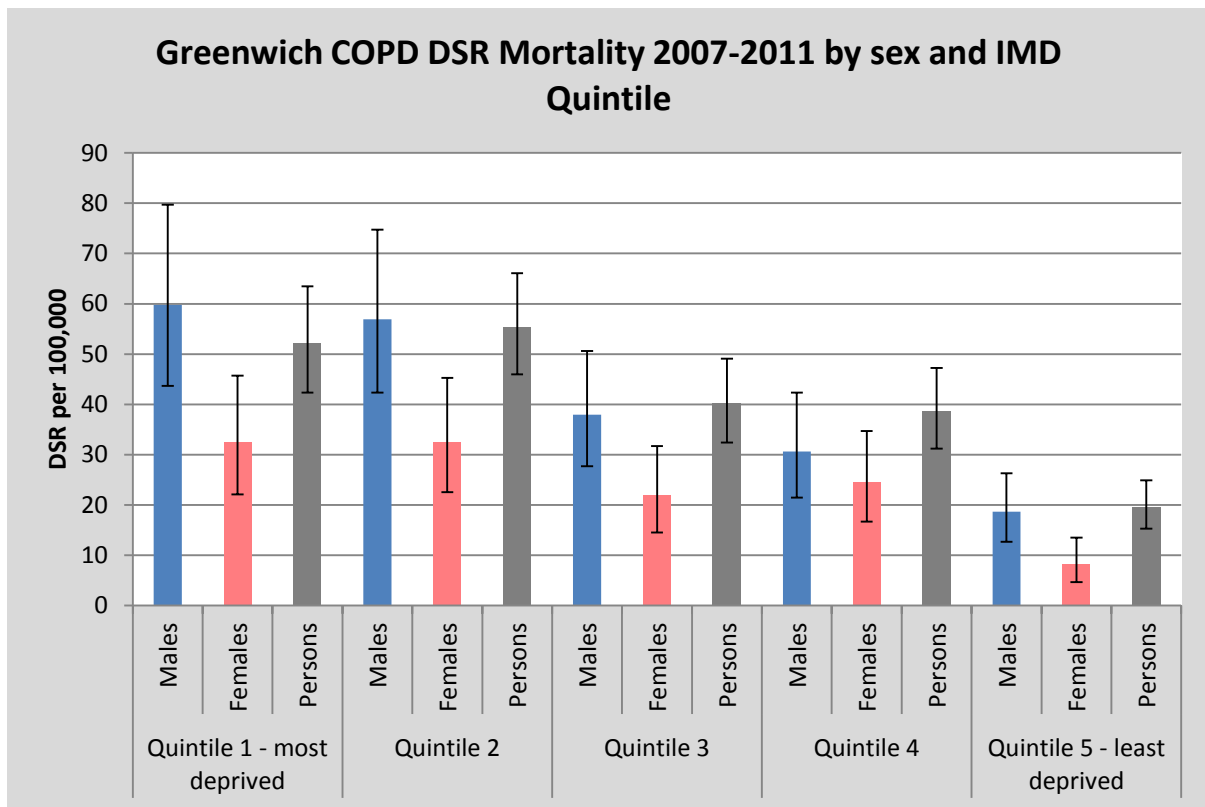
b) Health inequalities by sex and deprivation

As illustrated earlier, mortality rates from respiratory disease are higher in men than women. This is also true of incidence rates. Dever and Whitehead (2006) demonstrated that men aged 20-63 in unskilled jobs are 14 x more likely to die from COPD than the rest of the population.

Figure 8 highlights the differences in COPD mortality rates by gender by local levels of deprivation (Index of Multiple Deprivation (IMD) 2010). The chart illustrates that COPD mortality in Greenwich is higher in men compared to women at all levels of deprivation. COPD mortality is significantly higher in Quintiles 1-4 compared to Quintile 5 and in women the two most deprived quintiles have higher COPD DSR of mortality than the least deprived three quintiles. This pattern is consistent with smoking prevalence rates which also increase with deprivation and are greater in men.

Local data also shows that directly standardised admission rates (per 100,000) increases incrementally with level of deprivation with those living in the most deprived areas being more likely to be admitted into hospital than those living in the least deprived areas (Greenwich COPD Care pathway Profile, 2012).

**Figure 8: COPD Mortality DSR by sex and deprivation**

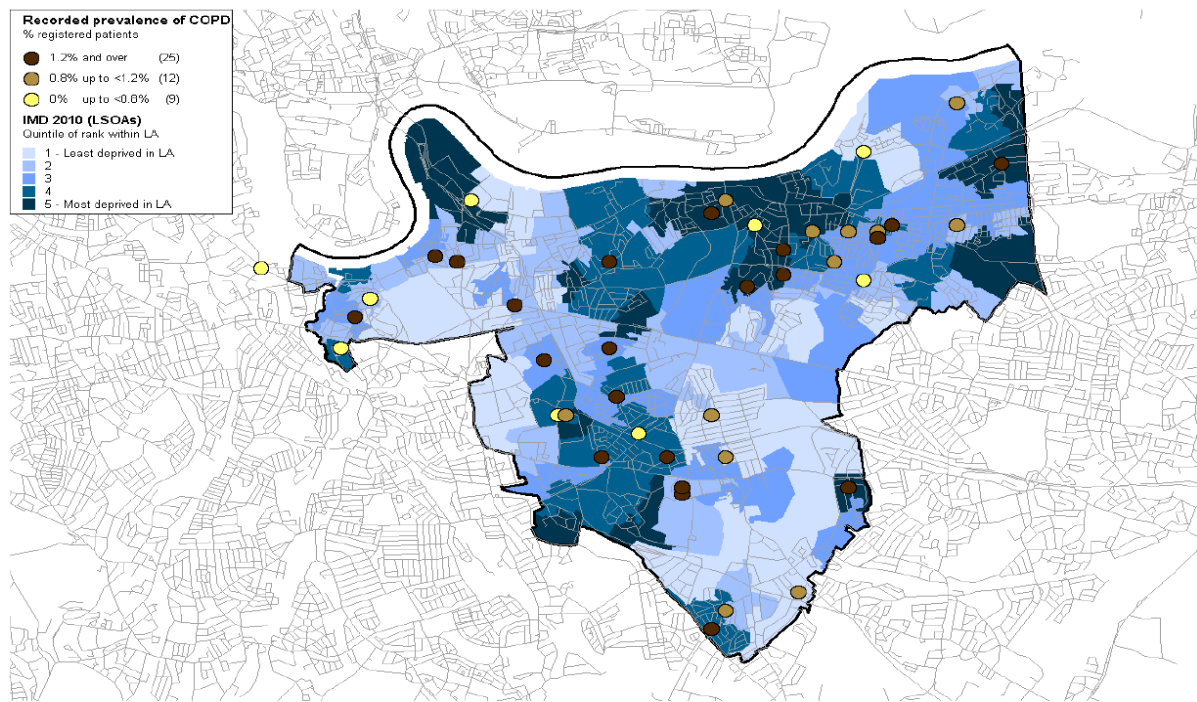


Source: National Mortality Statistics, The NHS Information Centre for health and social care

Map 1 represents reported prevalence of COPD at a general practice level alongside socio-economic deprivation for lower super output areas. Again, this presents a general picture of higher prevalence rates in areas of higher levels of deprivation. However, since other factors relate to COPD e.g. age structure, areas of low prevalence in areas of high levels of deprivation does not necessarily mean “more missing” but may reflect the age structure of practice populations. However, since the overall estimated prevalence is 3.25% and the “highest” tertile of prevalence stands at 1.2% or above, it is likely that this does indicate people missing from COPD registers.

Source: Greenwich JSNA 2013/14 “Closing the Gap.” Public Health & Well-Being, Royal Borough of Greenwich.

**Map 1: COPD recorded prevalence % and index of multiple deprivation (IMD)**



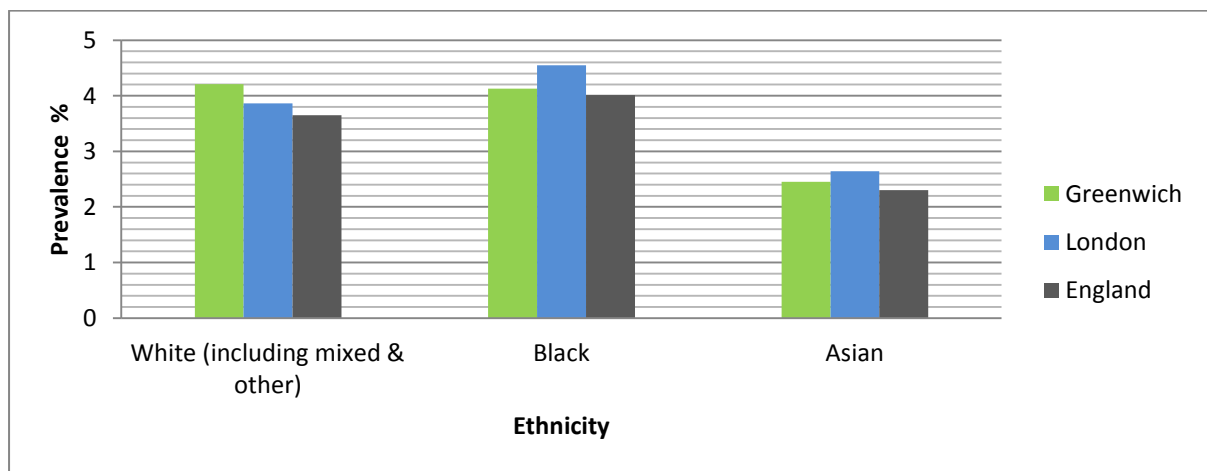
Contains Ordnance Survey data © Crown copyright and database right (2012). Contains Royal Mail data © Royal Mail copyright and database right (2012). Source: QOF 2010/11

Source: APHO, Greenwich COPD Care Pathway Profile 2012

b) Health inequalities by ethnicity

Figure 9 illustrates the estimated COPD prevalence rates across different ethnicity groups and highlights, that within Greenwich, the rates of COPD are estimated to be lower in the Asian population compared to the Black and White population in Greenwich. However, we know there are differences in smoking behaviours between genders within specific ethnic groups. For example, lower prevalence rates in the Asian population may mask the fact that prevalence rates are considerably higher in Asian men compared to women.

**Figure 9: Greenwich estimated COPD prevalence rates (%) by ethnicity**



Data Source: APHO- Modelled COPD prevalence, Dec 2011

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

## 2.4 Risk Factors

### 2.4.1 Risk Factors that can be modified

- **Smoking:** Smoking is the main risk factor for COPD (Fletcher et al., 1977). At least four out of five people who develop the disease are, or have been, smokers. The lining of the airways becomes inflamed and permanently damaged by smoking. This damage cannot be reversed. Around 10-25% of smokers develop COPD.
- **Passive smoking:** Exposure to other people's smoke increases the risk of COPD. For example, Jordon et al. (2011) found that the risk among never smokers was doubled if exposure exceeded 20 h/week.
- **Fumes and dust:** Exposure to certain types of dust and chemicals at work, including grains, isocyanates, cadmium and coal, have been linked to the development of COPD, even in people who do not smoke. The risk of COPD is even higher if dust or fumes are inhaled in the workplace by smokers. It is estimated that around 15% of COPD may be caused or made worse by exposure to dusts and gases at work (Trupin et al, 2003).
- **Air pollution:** According to some research, air pollution may be an additional risk factor for COPD. However, at the moment it is not conclusive and research is continuing. However, air pollution is linked to the exacerbation of already existing COPD.
- **Socioeconomic Status** There is strong evidence that the risk of developing COPD is inversely related to socioeconomic status (Prescott et al., 1999). However, it is not clear, whether this reflects exposures to air pollutants, crowding, poor nutrition, infections, or other factors that are related to low socioeconomic status.
- **Lung Growth and Development:** Lung growth is related to processes occurring during gestation, birth, and exposures during childhood and adolescence and has been found to be related to COPD (Todisco et al., 1993; Barker et al., 1991). In particular, one study found a positive association between birth weight and FEV1 in adulthood (Lawlor et al. 2005) and another identified that factors in early life termed "childhood disadvantage factors" were as important as heavy smoking (Svanes et al., 2010).

#### **Greenwich: Air quality and pollution**

There is evidence Outdoor air pollution, particularly from road transport, is linked to adverse health effects particularly cardio-respiratory mortality and morbidity. Poorer communities are disproportionately negatively affected. The key pollutants with respect to their effect on human health are NO<sub>2</sub> (nitrogen dioxide), PM<sub>10</sub> (small particulates) and ozone levels. Greenwich monitors adherence to WHO air quality standards and would expect that potential impact on air quality is considered in planning applications made to the borough. Overall, background levels of pollutants in Greenwich fall below WHO thresholds however pollution hot spots remain particularly along major roads. Greenwich's daily CO<sub>2</sub> emissions are 3,562 tonnes, which would approximately fill the O2 arena. Around 1.3 million tonnes are released every year. The proposed regeneration and likely population growth in the borough means that emissions could potentially grow by 1,500 tonnes a year. The Royal Borough of Greenwich has identified a number of mitigating measures such as discouraging car and lorry use and encouraging walking, cycling and use of public transport that will have positive impacts on health directly.

## 2.4.2 Risk Factors that cannot be modified

- **Having a brother or sister with severe COPD:** A research study has shown that smokers who have brothers and sisters with severe COPD are at greater risk of developing the condition than smokers who do not. (McCloskey et al.,2001)
- **Having a genetic tendency to COPD:** There is a rare genetic tendency to develop COPD called alpha-1-antitrypsin deficiency. This causes COPD in a small number of people (about 1%). Alpha-1-antitrypsin is a protein that protects the lungs. Without it, the lungs can be damaged by other enzymes that occur naturally in the body. People who have an alpha-1-antitrypsin deficiency usually develop COPD at a younger age, often under 35 (Silverman, 1998).

## 3 What Works?

The following is a summary of evidence contained in BMJ Clinical Evidence summary (2010) and NICE Guidance: Chronic obstructive pulmonary disease CG101 (2010): Management of chronic obstructive pulmonary disease in adults in primary and secondary care (partial update). These set out the clinical effectively treatment for COPD.

Evidence based Area	Interventions
Address under-diagnosis	<b>NICE Recommendations</b>
	<ul style="list-style-type: none"> <li>• A diagnosis of COPD should be considered in patients over the age of 35 who have a risk factor (generally smoking) and who present with exertional breathlessness, chronic cough, regular sputum production, frequent winter 'bronchitis' or wheeze.</li> <li>• The presence of airflow obstruction should be confirmed by performing post-bronchodilator* spirometry. All health professionals involved in the care of people with COPD should have access to spirometry and be competent in the interpretation of the results</li> </ul>
Smoking Cessation	<b>NiCE Recommendations</b>
	<p>Encouraging patients with COPD to stop smoking is one of the most important components of their management. All COPD patients still smoking, regardless of age should be encouraged to stop, and offered help to do so, at every opportunity. Scanlon et al (2000) found that smokers with COPD who quit had gained lung function at 1 year and at 5 years had half the decline in lung function as those who continued to smoke. They found the impact of quitting smoking was irrespective of severity of symptoms and that benefits accrued <i>“despite previous heavy</i></p>

	<p>smoking, advanced age, poor baseline lung function, or airway hyperresponsiveness.”.</p>				
	<p><b>Evidence</b></p>				
	<table border="1"> <thead> <tr> <th data-bbox="454 414 933 448"><b>Beneficial</b></th> <th data-bbox="933 414 1420 448"><b>Unknown effectiveness</b></th> </tr> </thead> <tbody> <tr> <td data-bbox="454 448 933 683"> <p>Combined psychosocial plus pharmacological interventions for smoking cessation can slow the lung function decline but have not been shown to reduce long-term mortality compared with usual care.</p> </td> <td data-bbox="933 448 1420 683"> <p>Pharmacological or Psychosocial interventions alone for smoking cessation</p> </td> </tr> </tbody> </table>	<b>Beneficial</b>	<b>Unknown effectiveness</b>	<p>Combined psychosocial plus pharmacological interventions for smoking cessation can slow the lung function decline but have not been shown to reduce long-term mortality compared with usual care.</p>	<p>Pharmacological or Psychosocial interventions alone for smoking cessation</p>
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<p><b>Drug Therapy</b></p> <ul style="list-style-type: none"> <li>• Promoting effective inhaled therapy</li> <li>• Providing non-invasive ventilation</li> <li>• Managing exacerbations</li> </ul>	<p><b>NICE Recommendations</b></p> <p><b>Promoting effective inhaled therapy</b></p> <ul style="list-style-type: none"> <li>• In people with stable COPD who remain breathless or have exacerbations despite use of short-acting bronchodilators as required, offer the following as maintenance therapy: <ul style="list-style-type: none"> <li>• if FEV1 ≥ 50% predicted: either long-acting beta2 agonist (LABA) or long-acting muscarinic antagonist (LAMA)</li> <li>• if FEV1 &lt; 50% predicted: either LABA with an inhaled corticosteroid (ICS) in a combination inhaler, or LAMA.</li> <li>• Offer LAMA in addition to LABA+ICS to people with COPD who remain breathless or have exacerbations despite taking LABA+ICS, irrespective of their FEV1.</li> </ul> </li> </ul> <p><b>Providing non-invasive ventilation</b></p> <ul style="list-style-type: none"> <li>• Non-invasive ventilation (NIV)<sup>2</sup> should be used as the treatment of choice for persistent hypercapnic<sup>3</sup> ventilatory failure during exacerbations not responding to medical therapy. It should be delivered by staff trained in its application, experienced in its use and aware of its limitations.</li> <li>• When patients are started on NIV, there should be a clear plan covering what to do in the event of deterioration and ceilings of therapy should be agreed.</li> </ul> <p><b>Managing exacerbations</b></p> <ul style="list-style-type: none"> <li>• The frequency of exacerbations should be reduced by appropriate use of inhaled corticosteroids and bronchodilators, and vaccinations.</li> <li>• The impact of exacerbations should be minimised by: <ul style="list-style-type: none"> <li>○ giving self-management advice on responding promptly to the symptoms of an exacerbation</li> <li>○ starting appropriate treatment with oral steroids and/or antibiotics</li> </ul> </li> </ul>				

<sup>2</sup> Noninvasive ventilation (NIV) refers to the administration of ventilatory support without using an invasive artificial airway (endotracheal tube or tracheostomy tube).

<sup>3</sup> Hypercapnic- a high concentration of carbon dioxide in the blood

	<ul style="list-style-type: none"> <li>○ use of non-invasive ventilation when indicated</li> <li>○ use of hospital-at-home or assisted-discharge schemes.</li> </ul>		
	<b>Evidence</b>		
	<b>Beneficial</b>		<b>Likely to be beneficial</b>
<ul style="list-style-type: none"> <li>• Anticholinergics: inhaled anticholinergics reduce exacerbation rate, and improve symptoms and FEV1 compared with placebo.</li> <li>• Anticholinergics plus beta2 agonists (inhaled anticholinergics plus beta2 agonists improve FEV1 compared with either drug alone)</li> <li>• Beta2 agonists (inhaled beta2 agonists reduce exacerbation rate compared with placebo)</li> <li>• Corticosteroids (inhaled corticosteroids reduce exacerbation rate compared with placebo)</li> <li>• Corticosteroids plus long-acting beta2 agonists (inhaled combination reduces exacerbation rate, and improves symptoms, quality of life, and FEV1 compared with placebo)</li> </ul>		<p>Oxygen: Long-term domiciliary oxygen treatment may improve survival in people with severe daytime hypoxaemia.</p>	
<b>Trade off between benefits and harms</b>	<b>Unknown effectiveness</b>	<b>Unlikely to be beneficial</b>	
Theophylline may improve lung function compared with placebo, but adverse effects limit its usefulness in stable COPD.	<ul style="list-style-type: none"> <li>• Alpha1 antitrypsin</li> <li>Antibiotics (prophylactic)</li> <li>• Anticholinergics versus beta2 agonists (both treatments effective; unclear if one consistently more effective than the other)</li> <li>• Mucolytics</li> </ul>	Corticosteroids (oral; evidence of harm but no evidence of long-term benefits)	
<b>Pulmonary rehabilitation</b>	<b>NICE Recommendations</b>		
	Pulmonary rehabilitation should be made available to all appropriate people, including those who consider themselves functionally disabled by COPD or those who have had a recent hospitalisation for an acute		

	exacerbation. Programmes must meet clinical needs in terms of access, location and availability.		
	<b>Evidence</b>		
	<b><i>Beneficial</i></b>	<b><i>Likely to be beneficial</i></b>	<b><i>Unlikely to be beneficial</i></b>
	Multi-modality pulmonary rehabilitation can improve exercise capacity, dyspnoea, and health-related quality of life in people with stable COPD	General physical exercises and peripheral muscle training can improve exercise capacity; inspiratory muscle training may improve lung function and exercise capacity	Nutritional supplementation has not been shown to be beneficial.

Source: BMJ: McIvor, Tunks and Todd (2012): Summary of evidence & NICE CG101 (2010)

## 4 What do we know about local services?

### 4.1 Health care

The COPD Model of care consists of four main elements of care as:

#### 4.1.1 Level 1: Prevention Services: Smoking Cessation

Encouraging people to stop smoking cessation is the cornerstone of COPD prevention. Please see the relevant JSNA section for more detail on smoking cessation services. There has been significant investment into smoking cessation services in Greenwich in recent years.

#### 4.1.2 Level 2: Primary care Services

Primary care has a dominant role in the management of COPD. This includes case finding and initial diagnosis, referrals to specialists and COPD services, administering seasonal flu jabs, annual reviews, self-management plans, inhaler checks etc.

#### 4.1.3 Level 3: Community COPD service

The Community COPD service case manages patients who are complex, providing a telephone and home visit service. Patients, who have been admitted to the local secondary care provider, are discharged to the community COPD service for on-going management.

The COPD team provides a seven day service and assists patients to self- manage their condition and stay in the best health possible by a combination of clinic appointments and visits in their own home. A seven week course of twice weekly education and exercise is also provided. Patients who are unwell can call the service for assessment, support and

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.



advice. This allows patients in a period of exacerbation to be monitored and treated at home by the COPD team rather than being admitted to hospital. The team also manages the oxygen prescription service for the borough of Greenwich.

#### 4.1.4 Level 4: Secondary Care

Secondary care provides diagnosis and emergency in-patient care, working in partnership with the community COPD team by providing a consultant led clinic and discharging patients into the community service.

## 4.2 Costs (Programme Budget)

Table 1 highlights a range of COPD spends compared to London and the rest of England. The average rate for England is shown by the black line in the centre of the chart. The range of results for all local authorities in England is shown as a grey bar. A red circle means that data for this local authority is significantly worse than the England average. A green circle shows that data for this PCT is significantly better than the England average; however, this may still indicate an important public health problem. As can be seen, Greenwich spends significantly less on all spend areas with the exception of total spend on secondary care which is significantly greater than England.

**Table1: COPD: comparison of spends**

Domain	Indicator	Local Number	Local Value	Lon Avg	Eng Avg	Eng Worst	England Range	Eng Best
--------	-----------	--------------	-------------	---------	---------	-----------	---------------	----------

Indicator	Local Number	Local Value	Lon Avg	Eng Avg	Eng Worst	England Range	Eng Best
26 Spend on oxygen prescribing							
27 Spend on primary prescribing and pharmacy services*	1,239,000	4.64	4.03	6.06	8.74		0.85
28 Spend on inpatient elective and daycase admissions*	10,000	0.04	0.19	0.29	4.46		0.00
29 Spend on inpatient non elective admissions*	1,062,000	3.97	4.54	5.30	14.12		0.00
30 Total spend on secondary care*	1,608,000	6.02	5.27	5.95	14.41		0.04
31 Spend on non-health/social care*	102,000	0.38	0.45	0.44	1.30		0.00
32 Overall spend on obstructive airways disease*	2,949,000	11.0	10.8	13.4	26.0		3.4

\*PCT level data

- KEY:**
- Significantly better than the England average
  - Not significantly different from the England average
  - Significantly worse than the England average

26 £ per head of COPD population (data not currently collected). 27-32 £ spent on obstructive airways disease per weighted head of population, 2010/11 (DH)

Source: NHS London Health Programmes. © Crown Copyright, 2011.

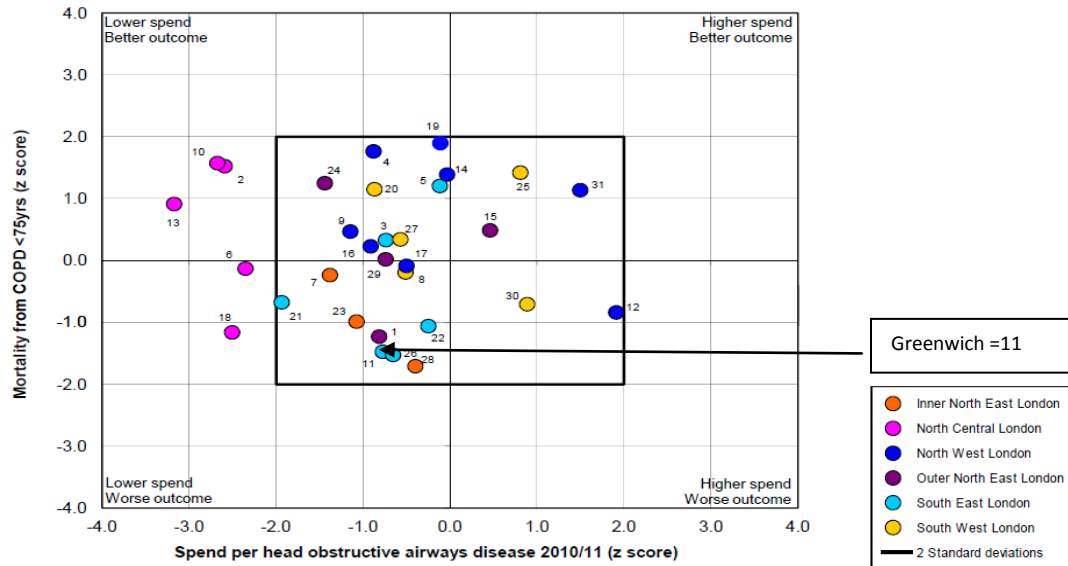
Figure 10 shows the standardised z scores<sup>4</sup> for premature COPD mortality and spend data (primary and secondary spend per head on chronic obstructive airways disease) per local

<sup>4</sup> Z scores measure the distance of a value from the mean in units of standard deviation. A positive z score indicates that the value is either higher spend or better outcome than the national average whereas a negative z score indicates lower spend or worse outcome than the national average. A z score below -2 or above +2 indicates that the value is statistically significantly different from the national average (at 95% confidence level)

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

authority area. Greenwich (no.11) has lower spend and worse outcomes than the national average, although this is not statistically different.

**Figure 10: Quadrant analysis of obstructive airways disease spend (2009/10) and premature mortality from COPD (2007-2009)**



Source: London Health Programmes. Crown Copyright © 2012. Data NHS Information Centre Information Portal and Department of Health

## 4.3 Outcomes and Performance

### 4.3.1 Primary Care

**Evidence into Practice (EiP) COPD**

We are currently undertaking a pilot programme within 20 practices selected at random from syndicate clusters<sup>5</sup>. The programme aims to improve the clinical outcomes of people with COPD through a fully facilitated, structured practice based programme. As part of this an audit will be undertaken with patients on GP COPD registers. This will provide a wealth of valuable information and, when completed, the JSNA will be updated to reflect this evidence.

#### a) Performance

Table 2 records the Quality and Outcome Framework (QoF) indicators relating to COPD. The QoF incentivises high quality management and care by GP Practices in relation to the identification and management of COPD and provides a useful tool to compare outcomes of practice.

<sup>5</sup> Syndicate clusters are 5 clusters of GP Practices who work together at a syndicate level with the NHS Greenwich GP Commissioners to improve services and outcomes in healthcare in Greenwich

**Table 2: COPD Quality & Outcome Framework Indicators**

Indicator	Points	Payment Stages
<b>Records</b>		
COPD14: The practice can produce a register of patients with COPD	3	
<b>Initial diagnosis</b>		
COPD15: The percentage of all patients with COPD diagnosed after 1 April 2011 in whom the diagnosis has been confirmed by post bronchodilator spirometry.	5	40–80%
<b>Ongoing management</b>		
COPD10: The percentage of patients with COPD with a record of FEV1 in the preceding 15 months	7	40–70%
COPD13: The percentage of patients with COPD who have had a review, undertaken by a healthcare professional, including an assessment of breathlessness using the MRC dyspnoea score in the preceding 15 months	9	50–90%
COPD8: The percentage of patients with COPD who have had influenza immunisation in the preceding 1 September to 31 March	6	40–85%

Table 3 shows a summary of clinical and process outcomes for patients with COPD or who smoke. As can be seen Greenwich does better than nationally in recorded prevalence, COPD exception reporting and prescribed NRT, Varenicline and Bupropion but worse than nationally at recording CO validated successful quitters, exception rates for smoking indicators and COPD medical reviews (18 monthly) and confirmation of diagnosis with bronchodilator spirometry.

**Table 3: QoF outcomes in relation to smoking and COPD compared to London and England<sup>6</sup>**

Domain	Indicator	Local Number	Local Value	Lon Avg	Eng Avg	Eng Worst	England Range	Eng Best
General Practice: diagnosis	4 COPD prevalence, recorded*	3,576	1.3	1.0	1.6	3.3		0.7
	5 COPD prevalence, modelled	7,229	4.1	3.8	3.6	6.6		2.0
	6 COPD prevalence, modelled v. recorded*	-	3.1	2.2	3.7	6.1		1.2
	7 Asthma prevalence, recorded*	13,311	4.8	4.7	5.9	7.1		3.5
	8 COPD diagnosis confirmed by post bronchodilator spirometry*	967	87.4	88.8	89.7	84.0		84.0
	9 Exception rate for COPD indicators*	1,070	8.9	10.8	12.4	19.4		7.2
	10 Adults with COPD who smoke							
	11 Patients with long-term conditions with smoking status recorded*	47,170	95.2	95.4	95.4	93.8		97.5
	12 Patients with long-term conditions offered stop smoking advice*	9,305	93.1	93.0	92.9	89.8		96.3
General Practice: treatment	13 Exception rate for smoking indicators*	464	0.8	0.8	0.7	1.5		0.4
	14 Successful smoking quitters at 4 weeks, CO validated*	-	2,702	2,825	3,068.1	282		6,172
	15 Prescribed NRT, Varenicline and Bupropion*	14,796	6,298	3,256	4,868.6	995		13,630
	16 Eligible COPD patients offered pulmonary rehabilitation							
	17 COPD patients with medical review in the last 15 months*	3,015	89.7	91.2	91.6	85.9		94.2

**4** GP patients on COPD register, 2011/12 (QOF). **5** % aged 16yrs+, 2010 (ERPHO). **6** Ratio of modelled 2010 (ERPHO) to recorded prevalence 2011/12 (QOF). **7** GP patients on asthma register, 2011/12 (QOF). **8** % of GP patients on smoking register, 2011/12 (QOF). **9** GP patients excepted from all QOF COPD indicators as a % of all QOF COPD indicator denominators + exceptions, 2010/11 (PHO GP Profiles). **10** % GP patients on COPD register (data not currently collected). **11-12** % of GP patients on smoking register recorded in last 15 months, 2011/12 (QOF). **13** GP patients excepted from all QOF smoking indicators as a % of all QOF smoking indicator denominators + exceptions, 2010/11 (PHO GP Profiles). **14** Crude rate per 100,000 smoking population aged 16yrs+, 2010/11 (PHO Tobacco Control Profiles). **15** Prescribed items of NRT, Varenicline and Bupropion per 100,000 ONS midyear population estimate, 2011/12 (Tobacco Control Profiles). **16** % MRC3+ patients (data not currently collected). **17** GP patients on COPD register, 2011/12 (QOF)

Source: London Health Programmes. Crown Copyright © 2012.

## b) Variations in Practice

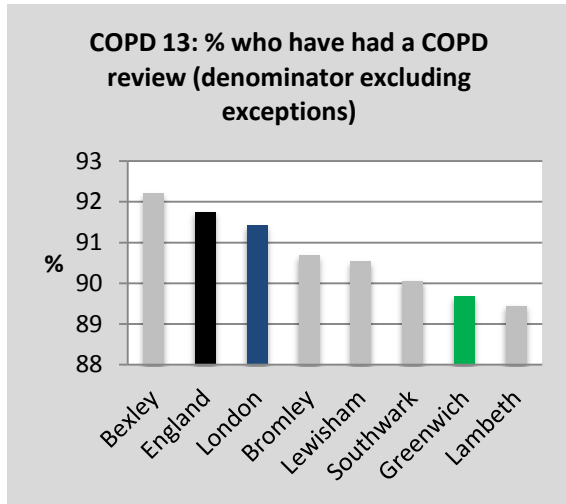
### COPD 13: Patient Reviews

Figure 11 and 12 illustrate the percentage of people with diagnosed COPD that have received a review in 11/12 including an assessment of breathlessness using MRC dyspnoea<sup>7</sup> score with exceptions excluded and included in the denominator respectively. For this indicator, Greenwich has the second lowest exception rate in the country (4.7% compared to England 10.3%). If we take into account exception rates then, in contrast to results in Table 3 described earlier, Greenwich is the highest performing Borough in the sector and performs better than London and England. This would suggest that NHS Greenwich's strategy to reduce exception rates has worked and performance should be understood within this context.

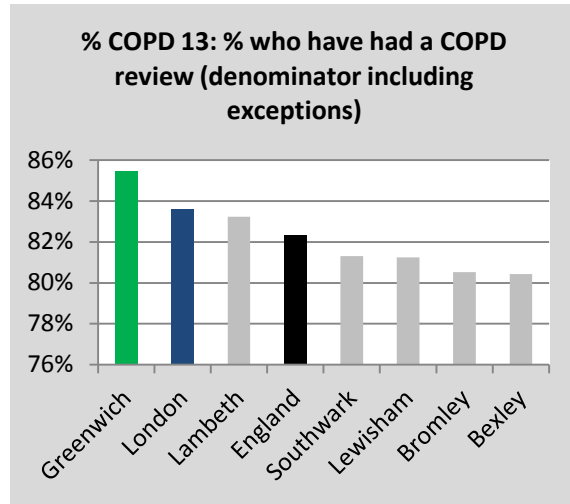
<sup>6</sup> Differences in prevalence rates above compared to those reported in section 2.3.2 are due to the use of different denominator populations and the date of information used. Section 2.3.2 uses the most up to date information available.

<sup>7</sup> Dyspnoea=breathlessness

**Figure 11: % of patient reviews including assessment of breathlessness using MRC dyspnoea score in 2011/12 by sector, London and England (exclusive of exceptions). Source QoF 2011/12.**

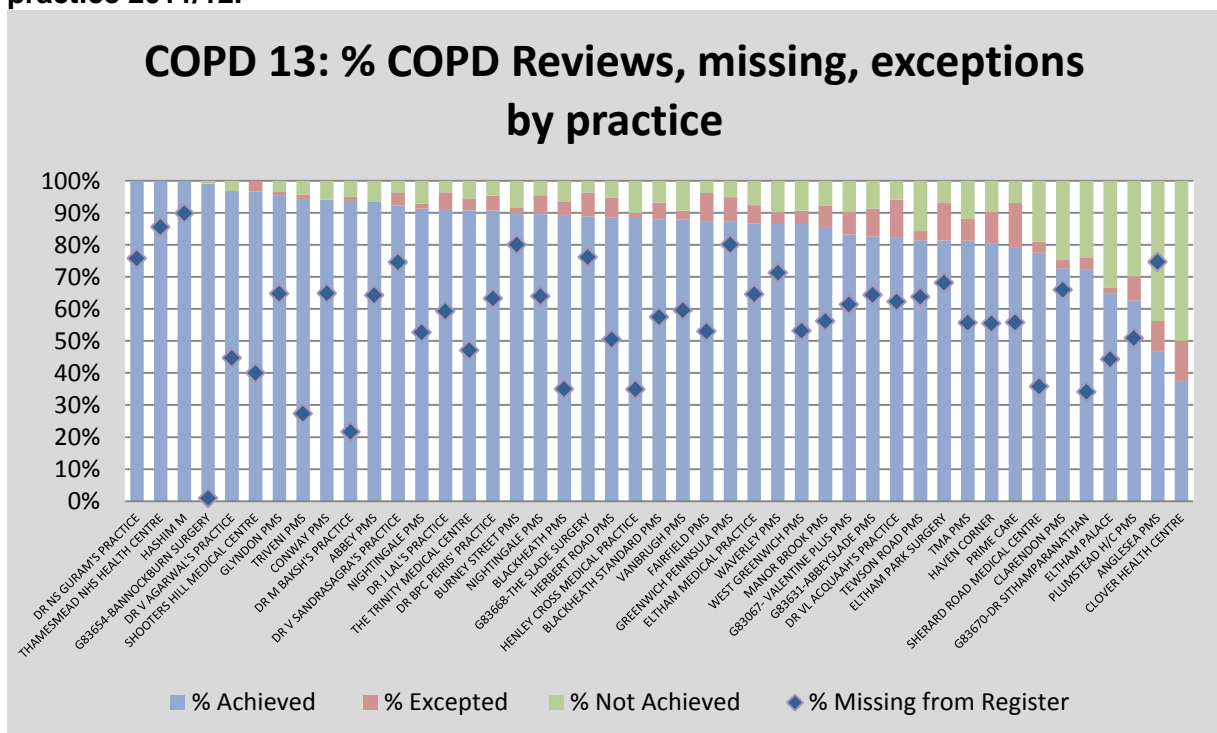


**Figure 12: % of patient reviews including assessment of breathlessness using MRC dyspnoea score in 2011/12 by sector, London and England (inclusive of exceptions). Source QoF 2011/12.**



However, figure 13 illustrates that there is still variation in achievement rates between practices (37.5% to 100%). There is also variation in exception reporting (0% to 12.5%). However, these variations must also be understood within the context of expected and actual prevalence rates identified in figure 5. A practice needs to minimise the gap between expected and actual whilst at the same time secure high levels of achievement whilst also minimising exceptions. For example, the three practices reporting the highest achievement rates have the largest gaps between recorded and estimated COPD levels. From a public health point of view both high achievement rates and low exception rates are required.

**Figure 13: COPD 13: % of people who had annual review, excepted and missing by practice 2011/12.**

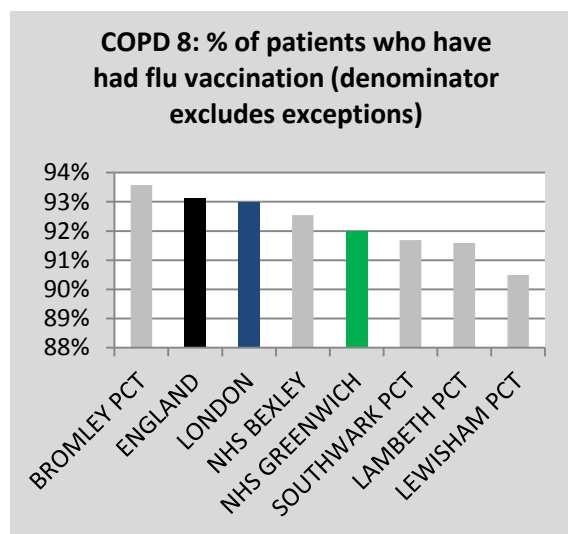


Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.

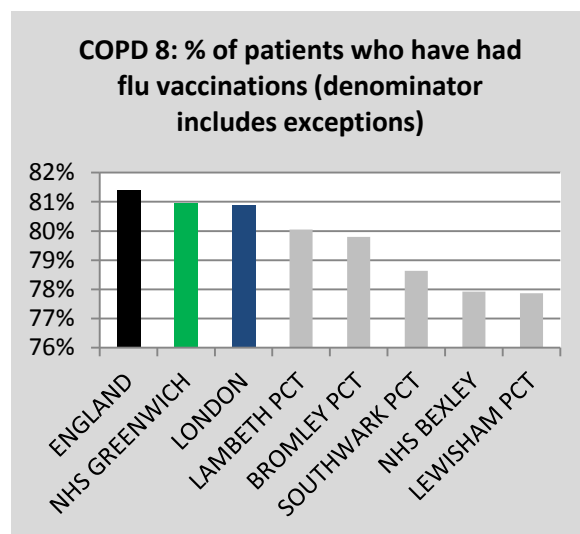
## COPD 8: Flu vaccination in people with COPD

Figure 14 and 15 illustrate the percentage of people that have received a flu vaccination in 11/12 with exceptions excluded and included in the denominator respectively. For this indicator, Greenwich has a below national exception rate in the country (12.0% compared to England 12.6%). If we take into account exception rates then, Greenwich is the highest performing Borough in the sector and performs better than London but less than England. Performance should be understood within the context of exception rates.

**Figure 14: Flu vaccination rates 2011-12 by sector, London and England (excluding exceptions in denominator)**



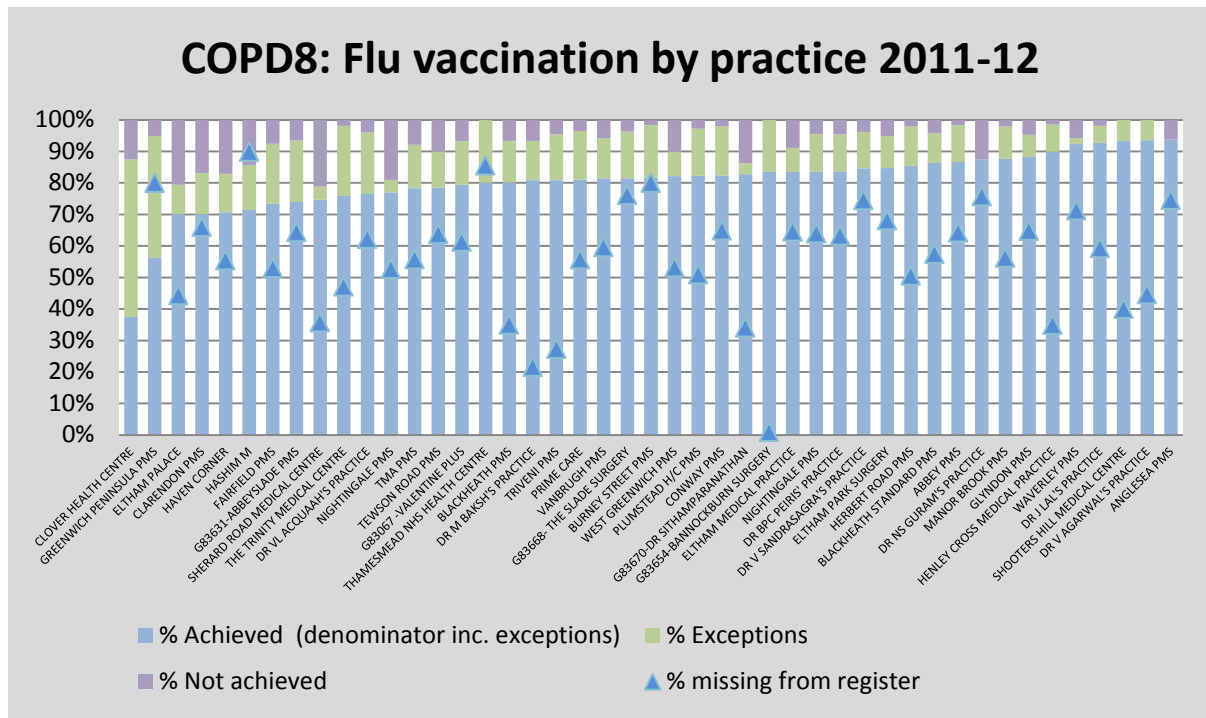
**Figure 15: Flu vaccination rates 2011-12 by sector, London and England (including exceptions in denominator)**



Source; QoF Data 2011/12

However, figure 16 illustrates that there is still variation in achievement rates between practices (37.5% to 93.8%). There is also variation in exception reporting (0% to 50%). However, these variations must also be understood within the context of expected and actual prevalence rates identified in figure 5. A practice needs to minimise the gap between expected and actual whilst at the same time secure high levels of achievement whilst also minimising exceptions. For example, the three practices reporting the highest achievement rates have the largest gaps between recorded and estimated COPD levels.

Figure 16: Flu vaccination rates 2011-12 by Greenwich Practice

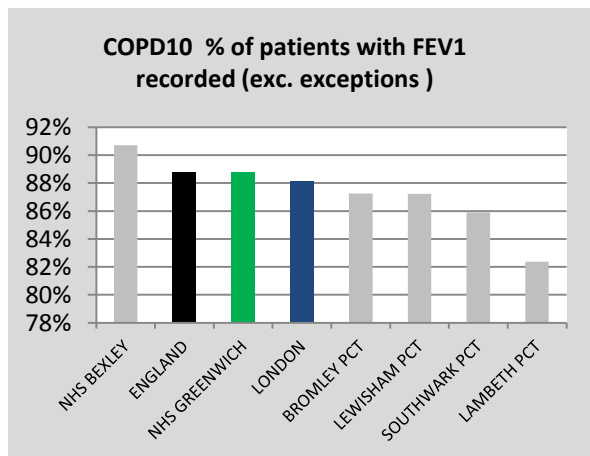


Source; QoF Data 2011/12

**COPD patients and record of FEV1**

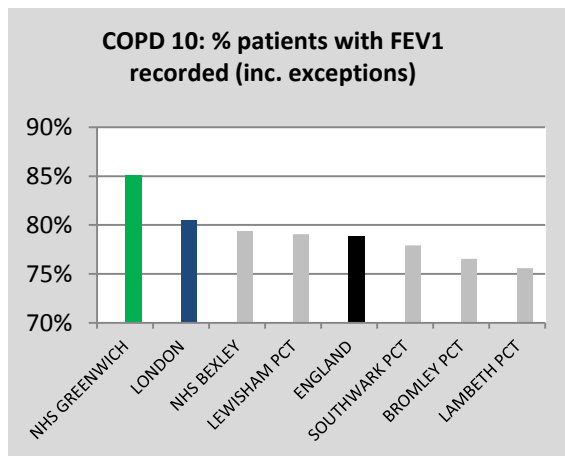
Figure 17 and 18 illustrate the percentage of people with COPD who have FEV1 recorded in 11/12 with exceptions excluded and included in the denominator respectively. For this indicator, Greenwich has the lowest exception rate in the country (4.1% compared to England 11.2%). If we take into account exception rates then, Greenwich is the highest performing Borough in the sector and performs better than London and England. Performance should be understood within the context of exception rates.

Figure 17: QoF: % of people having recorded FEV1 in last 15 months (exc. exceptions in denominator) across SE London



Source; QoF Data 2011/12

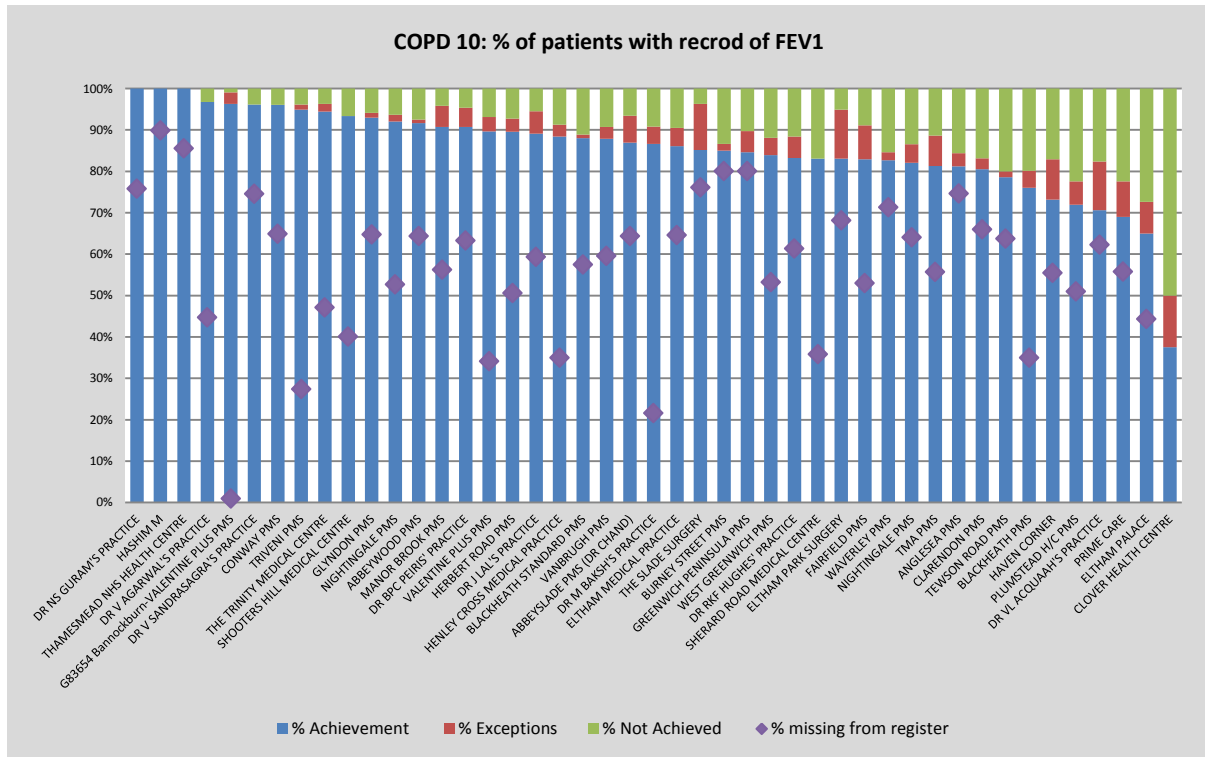
Figure 18: QoF: % of people having recorded FEV1 in last 15 months (inc. exceptions in denominator) across SE London



Source; QoF Data 2011/12

However, figure 19 illustrates that there is still variation in achievement rates between practices (37.5% to 100.0%). There is also variation in exception reporting (0% to 12.5%). However, these variations must also be understood within the context of expected and actual prevalence rates identified in figure 5. A practice needs to minimise the gap between expected and actual whilst at the same time secure high levels of achievement whilst also minimising exceptions. For example, the three practices reporting the highest achievement rates have the largest gaps between recorded and estimated COPD levels.

**Figures 19: COP10: % of patients with COPD with a record of FEV1 by practice including % exceptions and % missing.**



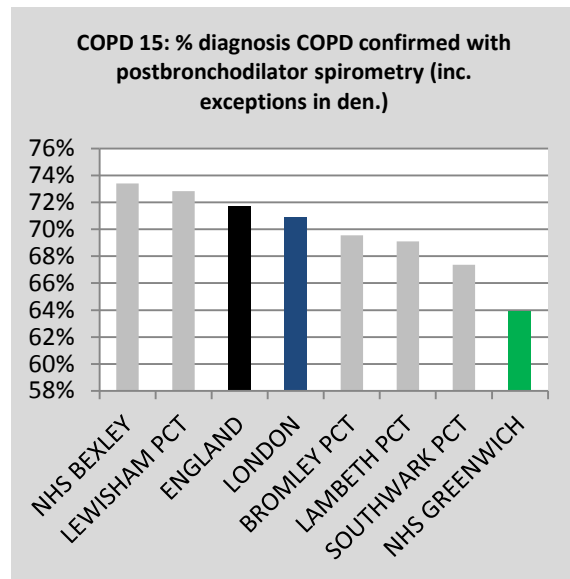
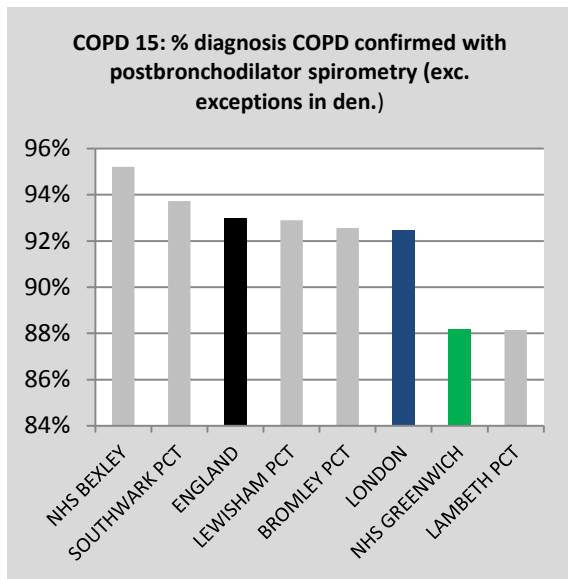
Source; QoF Data 2011/12

**COPD 15: Confirmation of COPD diagnosis with bronchodilator spirometry**

Failure to use post bronchodilator readings has been shown to overestimate the prevalence of COPD by 25 per cent (Johannessen et al. 2005). Figure 20 and 21 illustrate the percentage of people who after April 2011 have had their diagnosis confirmed with post bronchodilator spirometry in 11/12 with exceptions excluded and included in the denominator respectively. For this indicator, Greenwich has above England average exception rates (27.5% compared to England 22.0%). If we take into account exception rates then, Greenwich is the worst performing Borough in the sector and performs worse than London and England.

Source: Greenwich JSNA 2013/14 "Closing the Gap." Public Health & Well-Being, Royal Borough of Greenwich.



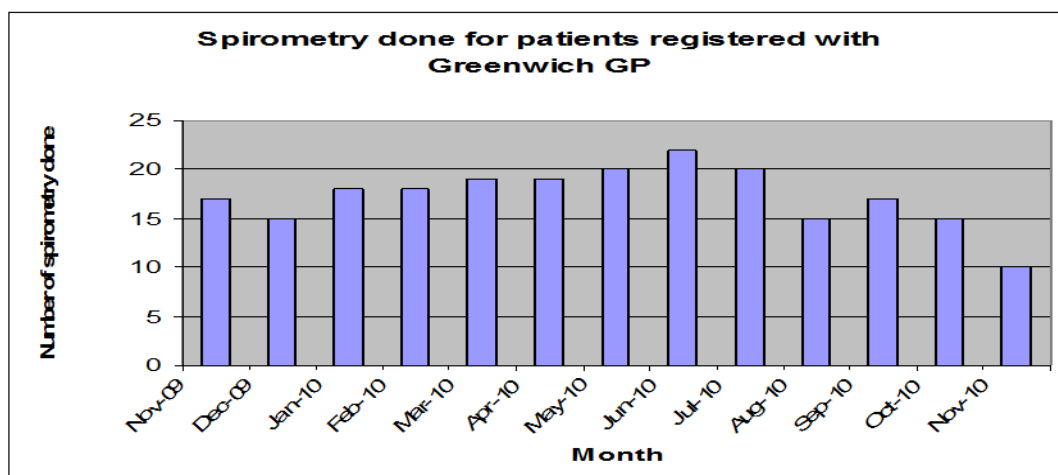


NB: COPD 15 by practice has not been included as the numbers are very small.

### Referrals by Practices to QEH: Spirometry Testing

Whilst most spirometry can and should be provided in the community, routine spirometry is being performed by respiratory laboratory for investigation and condition monitoring purposes. Figure 13 highlights that between November 2009 and November 2010, a total of 225 spirometry tests were undertaken in the respiratory lab. Local investigations into reasons for referral included staff not feeling competent to interpret or perform investigation and staff absence e.g. annual leave etc. In total, 19 practices carried out these referrals. The former issue has been a particular concern for smaller practices in that they do not have sufficient volumes of COPD patients to ensure maintenance of skills.

Figure 13: Spirometry undertaken at QEH

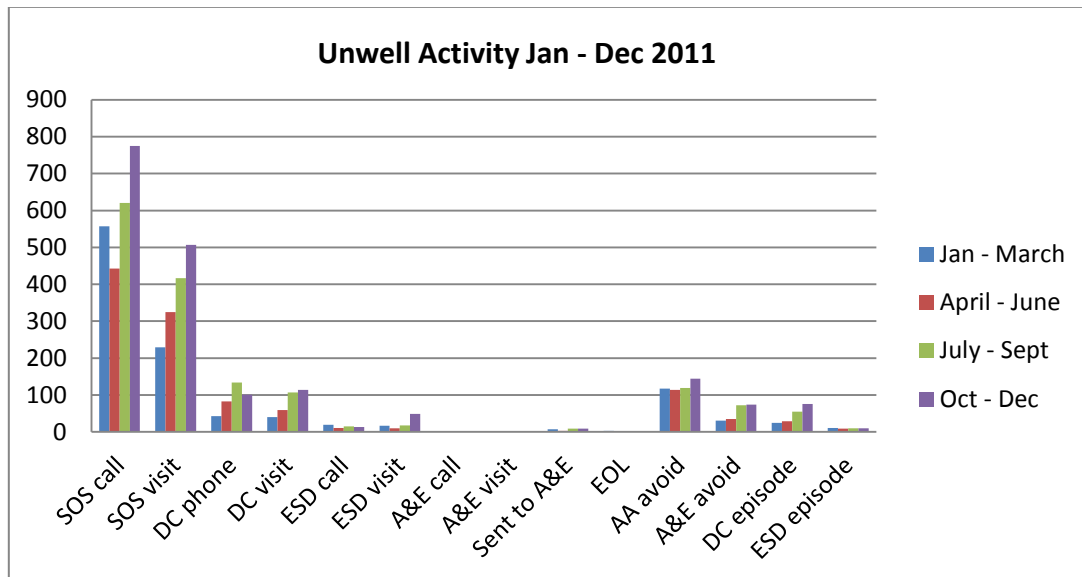


Source: QEH local respiratory department database, 2009-2010

### 4.3.2 COPD Community Based Activity

Figure 14 identifies activity provided by the COPD team, Oxleas NHS Trust by type of unwell activity Jan-Dec 2011. SOS service calls and, secondly, SOS visits constitute the greatest types of activity.

**Figure 14: Nature community activity by unwell category Jan- Dec 2011**



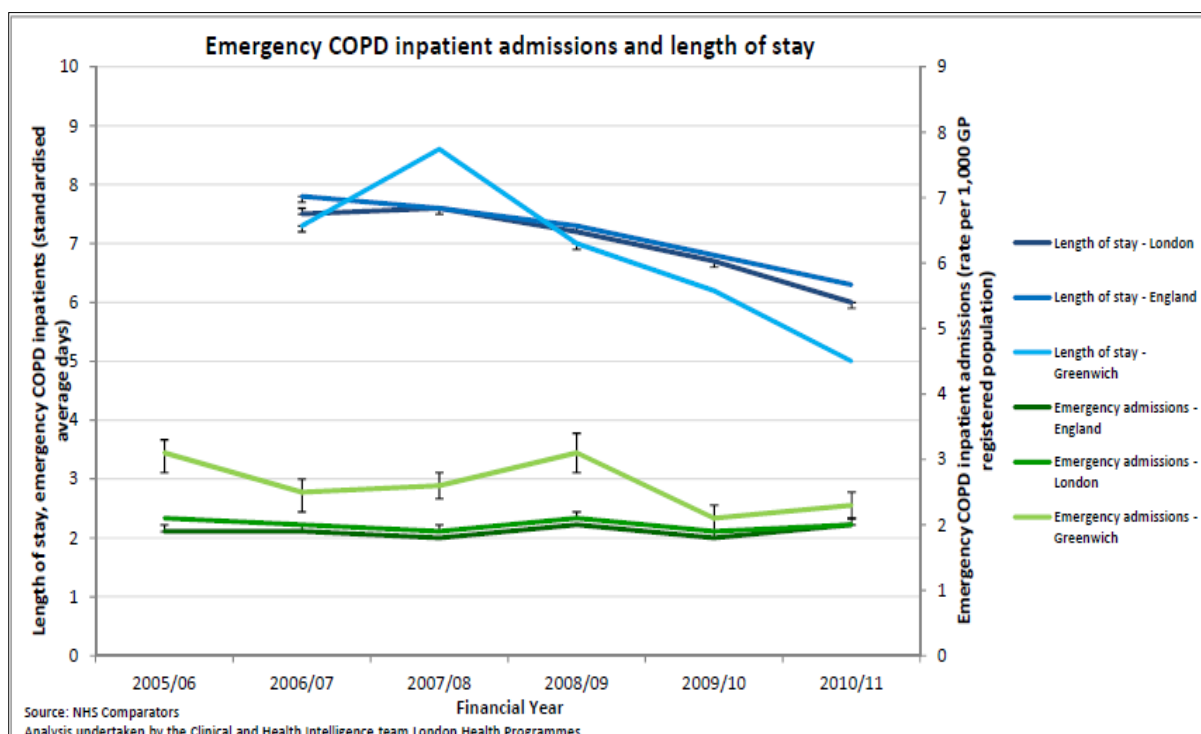
Key: SOS – SOS Service; DC = Discharge Follow-up; ESD- Early supported Discharge; EOL- End of Life; A&E = Accident & Emergency; AA= Admission Avoidance

### 4.3.3 Secondary Care services

The overall rate of emergency COPD admissions is significantly higher than the national average and twice that of the local authority with the lowest admission rate. Once admitted for COPD, patients from Greenwich spend significantly less time in hospital than other patients in England, four days less than the local authority with the longest length of stay. LOS in Greenwich has reduced significantly since 2011. Readmission rates within 90 days of an emergency admission for COPD are statistically similar to the national average. However, 40% of all Greenwich patients admitted for COPD return to hospital within 90 days.

Figure 15 displays trends in rates, and length of stay, for emergency COPD inpatient admissions at PCT, regional and national level. Overall, length of stay has shortened over the given time period, while the trend in emergency admissions is less changeable over time. There are notable differences in the rate of change between London, England and some local rates.

**Figure 15: Greenwich, London and England Emergency Inpatient Admissions and length of stay 2005/6 – 2010/11**



## 4.4 Social Care

People with COPD and other long-term conditions want to have and control their own support and engage socially to help avoid loneliness and isolation. They also want to know what choices are available to them locally and what they are entitled to and who to contact when they need help (DoH, 2011) The social care sector, including employment services, leisure and housing, for instance, will want to consider how these goals can be delivered.

Social Care services will also need to understand how these common goals support local services to work together to improve outcomes for their local population and that the detail of different frameworks or organisations do not place barriers in the way of partnerships. In working together, the NHS and social care can ensure there is a supported discharge arrangement in place and with re-ablement or intermediate care services, help reduce repeat emergency admissions and support carers in care planning arrangements.

## 5 Outcomes (Public Health Outcomes Framework)

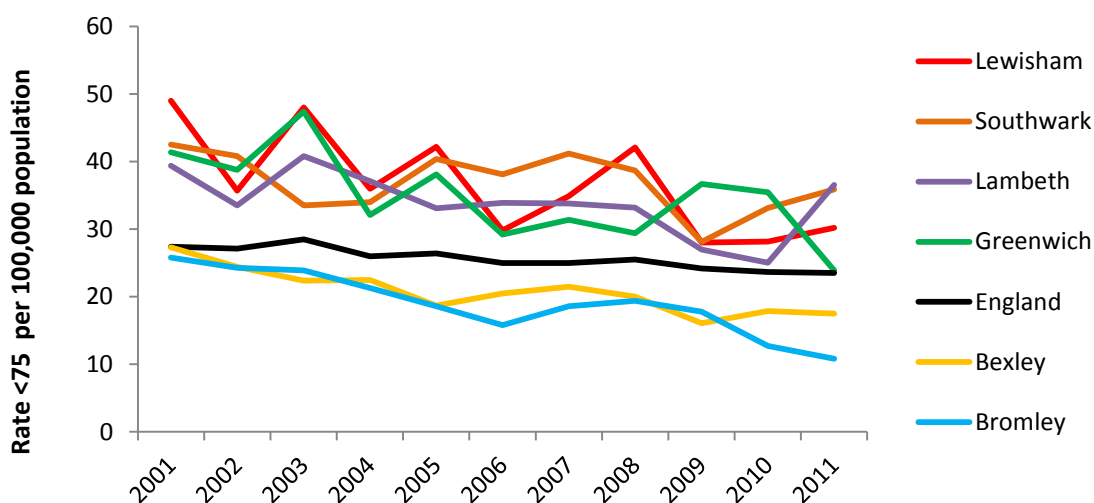
Please note that the following graph differs from figure 1 as the mortality recorded below reports deaths from all respiratory disease under 75 years.

### Mortality from respiratory diseases

Mortality from respiratory disease all ages (see figure 1) is one of the indicators in the Public Health Outcomes Framework; whilst mortality under 75 years (figure 16) is one of the indicators for the CCG under the preventing people dying prematurely domain of the NHS Outcomes framework. Figure 16 shows an improvement for Greenwich in 2011 with mortality falling to that

of England. There is considerable variability in mortality rates so Figure 17 has been included to show the 3 year rolling average trends which make it easier to see the overall picture.

**Fig. 16 Mortality from respiratory diseases < 75 years**



Rate per 100,000 population aged under 75 years

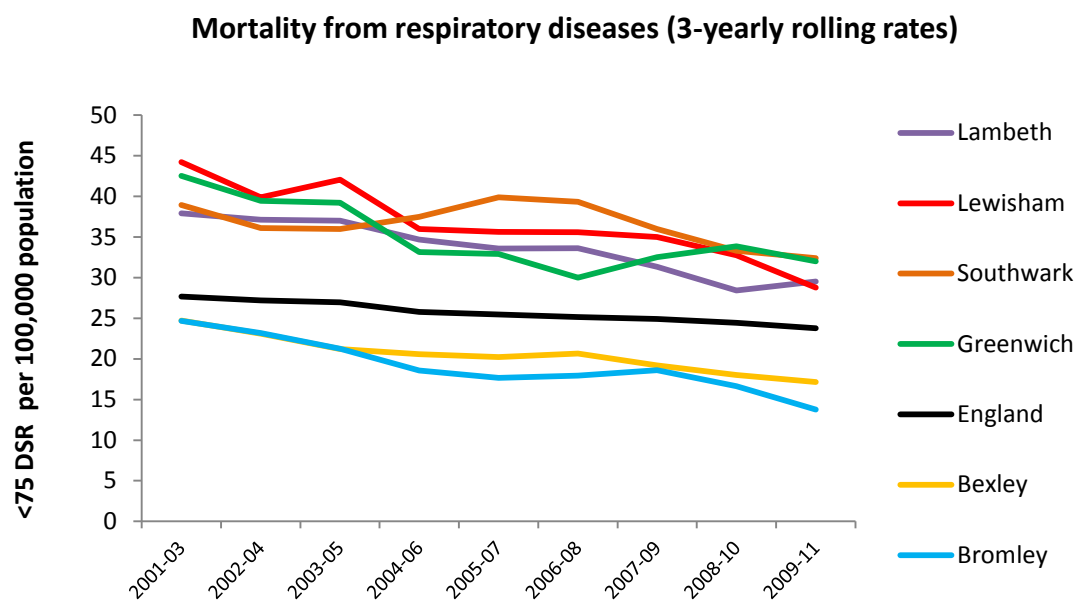
	Bexley	Bromley	Greenwich	Lambeth	Lewisham	Southwark	England
2001	27.3	25.8	41.4	39.4	49.0	42.5	27.4
2002	24.4	24.3	38.8	33.5	35.7	40.8	27.1
2003	22.4	23.9	47.4	40.8	48.0	33.5	28.5
2004	22.5	21.3	32.1	37.1	36.0	34.0	26.0
2005	18.7	18.6	38.1	33.1	42.2	40.4	26.4
2006	20.5	15.8	29.2	33.9	29.8	38.1	25.0
2007	21.5	18.6	31.4	33.8	34.9	41.2	25.0
2008	20.0	19.4	29.4	33.2	42.1	38.7	25.5
2009	16.1	17.8	36.7	27.0	28.0	28.1	24.2
2010	17.9	12.7	35.5	25.0	28.2	33.2	23.7
2011	17.5	10.8	23.9	36.5	30.2	35.9	23.5

Source: NHS Information Centre (NHS IC), Indicator Portal

Colour coding:

	- indicator improved from previous year + % change from baseline higher than England % change
	- indicator improved from previous year + % change from baseline lower than England % change
	- indicator declined from previous year + % change from baseline higher than England % change
	- indicator declined from previous year + % change from baseline lower than England % change

Figure 17. Trend in COPD mortality rates <75 years in Greenwich, England and South East London CCGs. 2001-11



**Mortality from respiratory diseases (3-yearly rolling rates)**

	Bexley	Bromley	Greenwich	Lambeth	Lewisham	Southwark	England
2001-03	24.7	24.7	42.5	37.9	44.2	38.9	27.7
2002-04	23.1	23.2	39.4	37.1	39.9	36.1	27.2
2003-05	21.2	21.3	39.2	37.0	42.1	36.0	27.0
2004-06	20.6	18.6	33.1	34.7	36.0	37.5	25.8
2005-07	20.2	17.7	32.9	33.6	35.6	39.9	25.5
2006-08	20.7	17.9	30.0	33.6	35.6	39.3	25.2
2007-09	19.2	18.6	32.5	31.3	35.0	36.0	24.9
2008-10	18.0	16.6	33.9	28.4	32.8	33.3	24.5
2009-11	17.2	13.8	32.0	29.5	28.8	32.4	23.8

Figure 17 shows that the overall trend in Greenwich is still up and that Greenwich on longer term time trends still has the highest mortality rate in the south east London cluster.

## 6 Planned Service Improvements

In 2013/14 a new pilot COPD initiative involving up to 20 GP practices will be undertaken. This will involve an in-depth assessment of training needs, an audit of the management of patients with COPD followed by a facilitated programme to improve patient outcomes. This will be provided through the EiP (Evidence into Practice) programme. A similar scheme with diabetes led to very impressive improvements in the management of diabetic disease and its

complications. This led to a reduction in the rise in admissions and a fall in outpatient attendances. If similar impacts are found with the COPD pilot the initiative will be extended across all practices in 2014/15.

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## Appendix 1: NHS Compendium: What the NHS can do to improve outcomes?

<b>Domain One: Preventing people from dying prematurely</b>
<b>Diagnose earlier and accurately</b> <ul style="list-style-type: none"><li>• Identify people whose treatment history and symptoms suggest that COPD may have been missed, and those currently diagnosed with COPD without a clear diagnosis</li><li>• Perform quality-assured diagnostic spirometry on those identified and confirm diagnosis, together with other investigations to assess severity and coexistence of other conditions</li><li>• Assess for the presence of alpha-1-antitrypsin deficiency and for bronchiectasis in patients with a suggestive history</li><li>• Recognise the link between COPD and lung cancer and explore the use of proactive strategies to diagnose earlier</li></ul>
<b>Prevent progression</b> <ul style="list-style-type: none"><li>• Ensure people with COPD receive evidence-based treatment</li><li>• Offer appropriate smoking cessation support to people with COPD who smoke</li><li>• Identify and treat exacerbations promptly</li></ul>
<b>Prolong survival</b> <ul style="list-style-type: none"><li>• Promote regular physical activity in all people with COPD</li><li>• Identify those who may need Non-Invasive Ventilation (NIV) both in the acute setting and as a long-term domiciliary treatment, and ensure structured assessment of need for NIV is carried out by a respiratory specialist</li><li>• Ensure routine pulse oximetry is performed in people with COPD whose FEV1 is lower than 50% predicted to identify those who may need long-term home oxygen therapy and, for those identified, ensure structured assessment of need by a home oxygen assessment and review service</li></ul>
<b>Domain Two: Enhancing the quality of life for people with long-term conditions</b>
<b>Risk stratify and understand the local population</b> <ul style="list-style-type: none"><li>• Assess for disease severity and other complicating factors</li><li>• Provide proactive chronic disease management appropriate for the severity level assessed – mild, moderate or severe</li></ul>
<b>Support self-management and shared decision-making</b> <ul style="list-style-type: none"><li>• Ensure people with COPD are offered support to self-manage their condition, and provide access to integrated community care teams with access to specialist respiratory advice</li></ul>
<b>Provide and optimise pharmacological and non-pharmacological treatment</b> <ul style="list-style-type: none"><li>• Ensure people with COPD receive evidence-based treatment in a structured medicines management approach</li><li>• Provide pulmonary rehabilitation for all people with COPD with a MRC score of three or above</li></ul>



### **Domain Three: Helping people to recover from episodes of ill health or following injury**

#### **Provide the right care in the right place at the right time**

- Agree locally a pathway of care for acute exacerbations – including timing and location of initial assessment and delivery of care (hospital, GP surgery / community care, or in their own home)

#### **Ensure structured hospital admission**

- Ensure structured hospital admission with early access to specialist respiratory care, prompt management of COPD and co-morbidities in line with NICE guidance
- Ensure prompt assessment on admission to hospital, including blood gas analysis and provision of NIV within 1 hour of decision to treat being made, where clinically indicated

#### **Support post-discharge**

- Ensure all people with COPD are assessed for suitability for an Early Supported Discharge Scheme
- Ensure that people admitted to hospital with an exacerbation of COPD are reviewed within 2 weeks of discharge

### **Domain Four: Ensuring that people have a positive experience of care**

#### **Empower people with COPD by providing information and education**

- Ensure all people with COPD are offered personalised information, with support to understand it, at key points throughout their care, which enables them to make choices and to fully participate in shared decision making

#### **Assess psychosocial support and social care needs**

- Assess the psychosocial needs of people diagnosed with COPD and ensure people identified with psychosocial needs are referred for appropriate treatment and support

#### **Assess palliative care needs**

- Ensure that people with COPD who have an FEV1 < 30 predicted, frequent exacerbations or a history of NIV, are assessed for end of life care needs
- Ensure people identified with end of life care needs are referred for appropriate treatment and support

### **Domain Five: Treating and caring for people in a safe environment**

#### **Deliver high flow and emergency oxygen safely**

- Identify individuals who would be at risk if they received high-flow oxygen
- Give those identified as high-risk an oxygen alert card

#### **Prescribe steroids according to evidence-based guidance**

- Prescribe steroids in accordance with evidence-based guidance
- Give appropriate people steroid treatment cards

#### **Robustly risk manage home oxygen environments**

- Risk assess the home environment of someone receiving long-term oxygen therapy to ensure that all safety requirements are in place