



# Invisible Lives

Chronic Obstructive Pulmonary Disease (COPD) -  
finding the missing millions

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**BRITISH LUNG FOUNDATION**

# Foreword

This report is an important step for the British Lung Foundation in its task of drawing public attention to the issue of lung disease. Chronic Obstructive Pulmonary Disease (COPD) is an illness that is generally unheard of by the public and yet has a high incidence and causes untold misery to the people who have it. The BLF wants to ensure that every one who has COPD, or who might have it at some point in the future, knows about the risks and is given the best treatment.

Lung health in the UK is not an issue that is ever discussed. It should be. Lung damage generally cannot be reversed and is cumulative. The earlier people know about the damage that COPD does to the lungs, the sooner the current trend of finding out only when the damage is severe, could stop. If COPD is diagnosed at the "mild" stage and the people with it gave up smoking, the health picture could be transformed. COPD could become a disease which merely inconveniences the people with it, but would not necessarily kill them. It would also mean a huge saving in human misery and the cost of treating the disease in the NHS. To do this we need to improve our awareness and early diagnosis systems.

The BLF wants to provide a new level of information so that individuals know the risks. This would mean that people could avoid getting COPD. It is vital for primary care to diagnose more systematically and for the Government to take the issue of lung health very seriously in view of the burden of the disease on individuals and on the NHS.

This report needs to be followed through locally and nationally to assess whether this tool accurately predicts risk and can be used to find people at risk. The BLF will be attempting to do this by starting in the hotspots identified.

**Dame Helena Shovelton**  
Chief Executive  
British Lung Foundation

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# Introduction

- 53-year-old Sue is a former dinner lady from Dagenham. When she started having attacks of breathlessness at the age of 41, her doctor put it down to her age. After three more years of discomfort, she was eventually referred to a chest clinic where she was diagnosed with Chronic Obstructive Pulmonary Disease (COPD). Sue had smoked ten cigarettes a day since she was 15 before giving up in 1993. Before her diagnosis, she had never heard of COPD.
- Hugh, a 57-year-old retired steel worker from Lanarkshire, was admitted to hospital twice with a bad cough before doctors diagnosed him with COPD. His life is now so restricted by the disease that his wife has to take time off work to care for him. Hugh was a smoker for 35 years. He had never heard of COPD.
- Lyn is 50 and from Bristol. She has suffered a lifetime of chest infections and other breathing problems, but was only diagnosed with COPD four years ago. It was then that doctors told her nothing could be done for her as her condition was so advanced. She gave up her job as a factory worker and cleaner soon after as she kept needing time off work. These days she can't wash or dress herself, is on oxygen therapy for most of the time and is cared for by her husband and family. Before her diagnosis, Lyn had never heard of COPD. She has never smoked.

The experiences of Sue, Hugh and Lyn, and others contained in this report, tell the story of a widespread illness that has a dangerously low profile in the UK. COPD is a progressive, largely preventable lung disease caused mainly by smoking and which has strong links with deprivation. It kills around 30,000 people a year in the UK<sup>1</sup> yet most people have never heard of it<sup>2</sup>. Consequently most people are diagnosed when the disease is in its later stages when symptoms are severe and extensive lung damage is not reversible.

Recent research suggests that there are an estimated 3.7 million people with COPD<sup>3</sup> in the UK, yet only 900,000 people have been diagnosed with the disease<sup>4</sup>. This means that there are 2.8 million people who are currently unaware they have a condition which, if left untreated, could severely restrict their lives and eventually kill them. These are the 'missing millions' after which this report is named.

The British Lung Foundation (BLF) provides support for people with COPD through its network of Breathe Easy support groups for people affected with lung disease. Some 65 % of Breathe Easy members have COPD and so we understand the impact of the disease on their daily lives. We have long campaigned for increased public awareness and for improvements to services for people with the disease and welcome the development of a National Service Framework for COPD due in England in 2009 and the exploration of similar strategies in other UK nations. For these strategies to succeed however, it is vital that the 'missing millions' of people with COPD are found.

With this report the BLF believes it has identified specific communities throughout the UK where people are at high risk of hospital admission with COPD. Within these communities 1.9 million people live in postcode areas at high risk of COPD admissions. We have also identified the best communication channels to reach and engage these people, making it possible for those at risk to be diagnosed and treated to ensure they have the potential to live longer, more productive lives.

We urge policymakers, health and social care planners and others to work with us to reach people with undiagnosed COPD and to end the invisibility of this debilitating disease.

# Executive summary

1. The starting point for this project was epidemiological evidence<sup>3</sup> suggesting that there are an estimated 3.7 million people in the UK with a progressive lung disease called Chronic Obstructive Pulmonary Disease (COPD). With only 900,000<sup>4</sup> people currently diagnosed and receiving treatment and care, the remaining estimated 2.8 million people are unaware they have a disease which, if left untreated, could severely restrict their lives and eventually kill them.

2. COPD is a general term that is used to describe a number of conditions, including chronic bronchitis and emphysema. COPD is an incurable, but largely preventable disease, which leads to damaged airways in the lungs, causing them to become narrower and making it harder for air to get in and out. With early diagnosis and the right care, the progression of the disease can be slowed down allowing people to live healthy and active lives for longer.

3. The most important risk factor for COPD is smoking, followed by other aspects of social deprivation, diet and occupational exposure to dust, indoor pollution such as smoke from wood and coal fires, and, in a small number of cases, inherited faulty genes. Recent research<sup>5</sup> also indicates that poor airway function after birth should be recognised as a risk factor for COPD.

4. COPD is a widespread but largely invisible disease. Most people in the UK have not heard of the disease or its symptoms<sup>2</sup>; it has been neglected by health care services, with misdiagnosis a common theme<sup>6</sup>; and those affected become isolated by the physical and emotional side effects of the disease as its severity increases.<sup>7</sup> Most will eventually find themselves unable to work, will struggle to do everyday activities, and, without proper treatment and care, will be rushed into hospital fighting for breath time and time again – a terrifying event. Because of this, and because of the stigma attached to having a smoking-related lung disease, people with COPD feel invisible and seldom have the energy or the confidence to challenge those in authority or to campaign for improvements in care.



"My wife has washed my hair for 20 years because it makes me breathless to do it myself. I find it very embarrassing and frustrating that my wife has to help me with things that I used to be able to do myself, but I have to know my own limitations otherwise I could end up in hospital"

Barry, 74, from Leicester

5. Despite its invisibility, COPD is the UK's fifth biggest killer disease<sup>1</sup>, claiming more lives than breast, bowel or prostate cancer; it is the second most common cause of emergency admission to hospital<sup>6</sup> and one of the most costly inpatient conditions treated by the NHS; it is estimated that the direct cost of providing care in the NHS for people with COPD is almost £500 million a year<sup>8</sup> – more than half of which relates to hospital care. The estimated annual cost of treating people with mild COPD is £149; it is £1,307 for a person with severe COPD.<sup>8</sup>

6. At present, most people are diagnosed with COPD when the disease has reached a late stage. If people with COPD can be reached whilst the disease is still in its early stages, its progression can be slowed with appropriate management and care.

7. As the NHS begins to tackle how it organises COPD services through a new National Service Framework due in 2009 in England, the establishment of clinical standards in Scotland and similar strategies tackling respiratory disease in the other UK nations, one of its biggest challenges is to identify and reach the estimated 2.8 million people with undiagnosed COPD. The British Lung Foundation (BLF) approached Dr Foster Intelligence to help identify where the 'missing millions' at risk of future hospital admission with COPD are living and how best to target them, including the best communication channels to reach and engage this audience.

8. To identify those at risk, Dr Foster Intelligence used various data sources including hospital admissions data and COPD GP surgery registrations data from the Department of Health, Experian's Mosaic™ lifestyle segmentation and TGI (Target Group Index) Analysis. Mosaic™ lifestyle segmentation is a population classification tool which breaks the population of Great Britain into 61 'lifestyle types' based on more than 400 data variables. By overlaying this information on the postcodes of people admitted to hospital with COPD, it was possible to predict which Mosaic™ lifestyle types are most at risk of future hospital admission with COPD.

# Executive summary

9. Using this data it was possible to identify which areas of the UK (defined by 192 Primary Care Organisation (PCO) boundaries) contain populations which have the highest proportion of predicted COPD hospital admissions. It was then possible to identify which areas of the UK face the greatest overall challenge from COPD taking into account the proportion of predicted COPD hospital admissions and the population size compared to the rest of the UK.

10. In Scotland these COPD 'hotspots' include Greater Glasgow and Lanarkshire. In England they include ex-industrial and inner city areas in the North East, North West and Yorkshire and Humberside; pockets of deprivation in otherwise affluent areas such as Barking & Dagenham in London; and areas with disproportionately high populations of older people including the South Coast of England and East Anglia. In Wales they include Blaenau Gwent and ex-mining towns along the Welsh valleys. In Northern Ireland they include Belfast and Londonderry. Many of these areas have high and enduring levels of deprivation and associated unemployment.

11. Tables 2 and 3 on pages 24 and 25 show the relative risk of COPD admissions according to Primary Care Organisation (PCO) compared to the UK average. South Tyneside tops the list with a huge 62% higher risk of future hospital admission with COPD. In descending order, Hull, Barking & Dagenham, Blaenau Gwent, Knowsley, Gateshead, Greater Glasgow & Clyde and Sunderland also have high relative risk of between 55% and 51%.

12. Table 4 on page 27 shows Z-scores that indicate the PCO areas facing the greatest challenge from COPD, based on the proportion of people at risk of future hospital admission with COPD and population size. The findings are listed below.

13. In Scotland, Greater Glasgow & Clyde and Lanarkshire face the greatest and second greatest challenges from COPD of all PCOs in the UK.



**'From what I can gather, I've had COPD since the 1980s. I feel strongly that I should have been told. By the time I knew anything about it, it was too late. My husband and I don't have a relationship anymore; in fact, we're not husband and wife. Sean is now my carer'**

Lyn, 50, from Bristol



14. In the North of England, Liverpool faces the 3rd greatest challenge in the UK, followed by Hull (4th), Sunderland (5th) Manchester (6th), County Durham (7th), South Tyneside (9th), Gateshead (10th), Sheffield (14th), Knowsley (15th), Wakefield (16th), Salford (17th) and Barnsley (20th).

15. In the Midlands, Sandwell faces the 8th greatest challenge in the UK, followed by Nottingham (13th).

16. In the South of England, Barking & Dagenham in London faces the 12th greatest challenge from COPD in the UK. Six of the twenty PCOs facing the least challenge from COPD are in the South West of England; seven are in the South Central and South East Coast areas.

17. In Wales, the ex-mining area of Blaenau Gwent faces the greatest challenge from COPD. In Northern Ireland, Belfast faces the greatest challenge from the disease.

18. Those at risk of future hospital admission with COPD live mostly in social housing and have, or have had, industrial or semi-skilled jobs, uncertain employment, low levels of disposable income and considerable health problems.

19. From the above analysis the BLF selected a list of COPD 'hotspot' areas by PCO including the top ten 'hotspot' PCOs in the UK and the top 'hotspot' PCOs in each nation and English Strategic Health Authority. Dr Foster Intelligence then identified specific communities most at risk of future hospital admission with COPD within these PCOs. Postcode areas associated with the top four 'lifestyle' types at risk of hospital admission with COPD within each PCO area were selected. By extenuation, these are the areas likely to face the greatest challenge from COPD, both undiagnosed and established.

# Executive summary

20. The total population of the COPD ‘hotspot’ PCOs selected by the BLF is 6.5 million people. Within these ‘hotspots’, 1.9 million people live in postcode areas at high risk of future hospital admission with COPD. It is important to note that not every individual living in these postal areas is at risk, and that other lifestyle types within each PCO area may also be at risk. This is a way of focusing effort on areas at greatest risk in terms of targeted health campaigns. The top 10 ‘hotspot’ PCOs and their target population size are included in Table 1 below, with the target population expressed as a percentage of the total population of the PCO area.

Table 1: COPD ‘hotspots’ in the UK.<sup>†</sup> © Experian Ltd

Listing	PCO	Target population
1	Glasgow	19%
2	Lanarkshire	56%
3	Liverpool	35%
4	Hull	40%
5	Sunderland Teaching	39%
6	Manchester	34%
7	County Durham	25%
8	Sandwell	36%
9	South Tyneside	43%
10	Gateshead	28%

<sup>†</sup>Source: British Lung Foundation, 2007

21. By identifying these high risk populations at postcode level, targeted health campaigns can bring about improved awareness, diagnosis, treatment and care of people affected by COPD.

22. The BLF urges the four UK Governments and health care planners to work with the BLF to reach and engage people at risk of COPD to improve awareness, diagnosis, treatment and care of people with the disease, to improve the quality of their lives, and to reduce emergency hospital admissions.

23. We recommend an urgent programme of targeted health awareness and COPD screening campaigns in each ‘hotspot’ area. (See Recommendations on page 58).





# About COPD

Chronic Obstructive Pulmonary Disease (COPD) is a general term that is used to describe a number of conditions, including chronic bronchitis and emphysema. COPD leads to damaged airways in the lungs, causing them to become narrower and making it harder for air to get in and out. It can be caused by occupational exposure to dust, indoor pollution such as smoke from wood and coal fires, or, in a small number of cases, can be inherited, but its primary cause is smoking. Recent research<sup>5</sup> also indicates, that poor airway function after birth should be recognised as a risk factor for COPD and that diet is also linked to a higher risk of the disease.<sup>9</sup>

## Symptoms

Cough, phlegm and shortness of breath can be symptoms of COPD. Some people may only notice their symptoms in winter, or they might put them down to bronchitis or 'smoker's cough'. The best way to confirm diagnosis is through a simple breathing test called spirometry, which can usually be carried out in primary care.

## Awareness

A survey by the British Lung Foundation (BLF) in May 2007 found that 89% of people in the UK have never heard of COPD. Even 85% of smokers have never heard of the disease.<sup>7</sup> These findings reflect results from previous surveys carried out by the BLF.

## Statistics and costs

The disease is far from invisible statistically: it is the UK's fifth biggest killer disease, claiming more lives than breast, bowel or prostate cancer<sup>10</sup>; it is the second most common cause of emergency admission to hospital and one of the most costly inpatient conditions treated by the NHS<sup>6</sup>; it is estimated that the direct cost of providing care in the NHS for people with COPD is almost £500 million a year<sup>6</sup> – more than half of which relates to hospital care. The estimated annual cost of caring for a person with COPD is £149 for a person with mild COPD, £307 for a person with moderate COPD and £1,307 for a person with severe COPD.<sup>8</sup>

## Treatment and care

COPD is incurable, but, with early diagnosis and the right care, the progression of the disease can be slowed down allowing people to live healthy and active lives for longer. The most important factor in this is smoking cessation – after stopping smoking the rate of decline of lung function slows, approaching that in non-smokers. Treatment for people with mild COPD, where breathlessness



"My chest feels unbearably tight and I'm so breathless I struggle to walk the short distance to the kitchen to make a cup of tea. At its worst, normal everyday tasks like washing and dressing myself are completely beyond me and I can't sleep for the pain, so feel constantly exhausted"

Eve, 55, from Barnsley

only occurs while exercising, may only consist of inhaled bronchodilators to make the airways relax and open up. In more severe cases of COPD, treatment may consist of an inhaled bronchodilator combined with steroids and oxygen therapy; surgery may also be an option to alleviate symptoms in a minority of cases. Pulmonary rehabilitation and specially-designed exercise classes reduce the risk of attacks of breathlessness and can help improve wellbeing. Pulmonary rehabilitation has also been shown to reduce dependence on health services, with people needing fewer GP consultations and hospital admissions after completing a course.<sup>11 12</sup>

## Living with COPD

The BLF has 200 Breathe Easy support groups around the UK for people affected by lung disease and 65 % of the Breathe Easy membership has COPD. They tell us that they feel isolated and that many are unable to do everyday activities like walking, gardening or playing with their children and grandchildren.<sup>7</sup> In time most people with severe COPD will eventually find themselves unable to work, will struggle to get out of the house, and, without proper treatment and care, will be rushed into hospital fighting for breath time and time again – a terrifying event. Despite this, people with COPD make little fuss. They say they feel invisible and seldom have the energy or the confidence to challenge those in authority. In addition they feel blamed for being ill because of the link between COPD and smoking.

## Service needs

Because of the lack of general awareness of COPD, and because of its association with smoking, COPD has been neglected by local and national health care services. As the Healthcare Commission reported in 2006, misdiagnosis is a common theme amongst sufferers, as is repeated admission to hospital and poor outcomes of care. On average 15 % of those admitted to hospital with COPD die within three months.<sup>6</sup> Variations in treatment and care, poor access to services, and poor provision of palliative care are continuing problems. The BLF believes there is an urgent need to improve the diagnosis and care of people with COPD and has long campaigned for more effective smoking cessation services; increased access to spirometry testing; multi-disciplinary healthcare teams; non-invasive ventilation, early supported discharge and pulmonary rehabilitation.

As the NHS begins to tackle how it organises COPD services through a forthcoming National Service Framework in England in 2009 and with similar initiatives being planned in the other UK nations, one of its biggest challenges is to identify and reach the 2.8 million people with undiagnosed COPD in order to diagnose and treat them correctly.

# Mapping risk of COPD

## Aims of the research

The starting point for this project was epidemiological evidence published in 2006 suggesting that out of an estimated 3.7 million people in the UK with COPD, only 900,000 are currently diagnosed and receiving treatment and care.<sup>3</sup> The remaining 2.8 million people are still unaware they have a disease which, if left untreated, could severely restrict their lives and will eventually kill them.

With the Government in England introducing a National Service Framework for COPD in 2009 and Governments in the other UK nations exploring similar strategies, the BLF wanted to find these 'missing millions' of people with COPD so they could receive appropriate information, support, treatment and care. With COPD causing the second largest number of emergency hospital admissions in the UK<sup>6</sup>, it is acknowledged that better management of the disease is desperately needed to improve the quality of life of those who have it and to ease the enormous burden COPD places on health services throughout the UK. The 'missing millions' need to be found for the NHS to succeed in achieving both these aims.

Because of the link between COPD and smoking, certain occupations and deprivation, we know that people who live in our former industrial heartlands and urban areas will be at higher risk of COPD. To refine the search further, the BLF commissioned Dr Foster Intelligence to highlight precise areas of the UK by postcode that may be home to the 'missing millions' of people with COPD. The BLF also commissioned Dr Foster Intelligence to provide information on how best to target these high risk groups, including the most effective communications channels.

For the purposes of this report, risk is defined as risk of future hospital admission with COPD.

The aims of the research were to:

- Identify which areas of the UK, by Primary Care Organisation and by postcode, contain people at greatest risk of future hospital admission with COPD
- Identify the key lifestyle characteristics of people at greatest risk of future hospital admission with COPD
- Identify the best communication channels to reach this audience.

"I would often suffer from chest pains but kept putting off going to the doctor"

Hugh, 57, from Lanarkshire



## Methodology

Information was obtained from a number of sources:

- The Quality & Outcomes Framework (QOF): this data was used to calculate the prevalence of COPD for each general practice in the UK. (Prevalence is defined as the percentage of patients on a practice list diagnosed with COPD and is calculated by dividing the number of patients with COPD by the number of patients registered at the practice. It is a measure of the burden of the disease in a population at a particular point in time.)
- Hospital Episode Statistics (HES)\*: this data was used to identify admission rates for COPD. All data are liable to human error in recording and coding. Since these Statistics have been collected, inaccuracies have been reduced and they are used by the Department of Health and health service planners.
- Experian's Mosaic™ lifestyle segmentation: this is a population classification tool which breaks the population of Great Britain into 61 types based on more than 400 data variables. Key within these are the 2001 census, Office of National Statistics (ONS) local area statistics, the electoral roll, Experian Lifestyle Survey information, consumer credit activity, Shareholders Register, house price and council tax information. Other data resources incorporated in the analysis include education and crime databases.

By fusing HES data with Experian's Mosaic™ lifestyle segmentation for conditions such as COPD, it is possible to identify risk areas at a local level, even isolating it to individual streets.

- Target Group Index (TGI) analysis to provide marketing information about the 'at risk' populations.

\*Dr Foster Intelligence used HES data for England only. This is because Dr Foster Intelligence has access to patient level (therefore postcode level) data for England through its Unit at Imperial College and under the auspices of the Patient Information Advisory Group (PIAG). Whilst inpatient, daycase and outpatient activity data is published at health board level by Information Services Division (ISD) in Scotland using the same classification as in England, it is not available publicly at postcode level and it is therefore not practical to use Scottish data to the same extent. Analysis for Wales, Scotland and Northern Ireland is based on estimates provided by Experian combining a number of different datasets (described in the Health Needs Mapping section).

# Mapping risk of COPD

## Health Needs Mapping

Health Needs Mapping (HNM) utilises several socio-demographic and consumer lifestyle databases, linked with health data at postcode level. Key among these are Hospital Episode (HES), other health data-sets including local data from primary care (the Dr Foster Intelligence team has developed protocols for the qualitative evaluation of local databases) and Experian's Mosaic™ lifestyle segmentation, a population classification tool devised by Professor Richard Webber, now a member of the Dr Foster Intelligence research and development team.

This tool was used as it helps us understand more than a single data set would, such as deprivation data, about areas of high risk. For example, older people are at greater risk of developing COPD but they would not necessarily live in areas that are deprived. Furthermore, the data provides a valuable insight into the lifestyles of people who may be at risk, facilitating the development of targeted marketing and public health campaigns.

## Interpretation of data

To map COPD levels across the UK, Dr Foster Intelligence took anonymised hospital data for all admissions for COPD in England and logged the postcodes of all people who had been admitted. This information was used at PCO level to identify those areas of the country where COPD admission levels were at their highest per head of population. Using this data, Dr Foster Intelligence inferred that, without sufficient changes to social, economic and health factors, these high levels will persist.

This information was then examined in relation to Mosaic™ lifestyle categories. By linking Experian's Mosaic™ information to the postcodes of people admitted to hospital with COPD, Dr Foster Intelligence calculated which 'lifestyle types' had the highest rates of hospital admission with COPD.

"I find it constantly distressing to be dependant on oxygen and other people – the loss of independence really is the worst thing"

Paul, 61, from Ilford

"I was exhausted at the end of each working day and was forced to take more and more time off. It was devastating when I eventually left work. I was the breadwinner for the family and my wife and I had to reverse our roles. She became the breadwinner and I stayed at home. Jennifer is not just my wife now, she is my carer"

Graham, 58, from Glen Parva, Leicester

## Results

Dr Foster Intelligence's analysis of the above data provided the BLF with the following information:

- COPD Penetration by PCO: this expresses the proportion of predicted COPD hospital admissions per head of population by PCO area. For example, if 100 individuals with COPD living in a particular postal district fall into Experian's Mosaic™ Type A01 and 5000 individuals make up the total population of that postal district, the penetration is 2% ( $100/5000 \times 100$ ).
- COPD Index by PCO: this expresses the proportion of risk of predicted COPD hospital admissions by PCO area compared to the average for the UK. An index value of 100 means the proportion of predicted COPD admissions is average for the proportion of the population – if it is more than 100 the proportion of admissions is greater than expected, lower than 100 less than expected.
- COPD Z-scores by PCO: these express both the proportion of risk and relative population size of a PCO area compared to the rest of the UK. The higher the Z-score, the greater the challenge from COPD faced by a PCO area. For example, whilst analysis by Penetration shows that the population of South Tyneside has a higher proportion of risk of future hospital admission with COPD than Glasgow, it is clear that Glasgow has a larger population and therefore higher numbers of people at risk.
- A description of Lifestyle Types of people most at risk of future hospital admission with COPD and analysis of their postcodes in selected areas.
- An understanding of how these 'at risk' populations can be reached with social marketing campaigns.
- A list of general practices in England ranked according to their current COPD burden.
- A list of general practices in England with higher than expected admission rates for COPD.

# Key findings

- Data provided by Dr Foster Intelligence has identified specific communities throughout the UK at high risk of future hospital admission with COPD. By extension, these are the areas likely to face the greatest challenge from COPD, both undiagnosed and established.
- The total population of the COPD 'hotspot' PCOs selected by the BLF is 6.5 million people. Within these 'hotspots', 1.9 million people live in postcode areas at high risk of future COPD admissions.
- In Scotland these COPD 'hotspots' include Greater Glasgow and Lanarkshire. In England they include ex-industrial and inner city areas in the North East, North West and Yorkshire and Humberside; pockets of deprivation in otherwise affluent areas such as Barking & Dagenham in London; and areas with disproportionately high populations of older people including the South Coast of England and East Anglia. In Wales they include Blaenau Gwent and ex-mining towns along the Welsh valleys. In Northern Ireland they include Belfast and Londonderry. Many of these areas have high and enduring levels of deprivation and associated unemployment.
- Tables 2 and 3 on pages 24 and 25 show the relative risk of COPD admissions according to Primary Care Organisation (PCO) compared to the UK average. South Tyneside tops the list with a huge 62% higher risk of future hospital admission with COPD. In descending order, Hull, Barking & Dagenham, Blaenau Gwent, Knowsley, Gateshead, Greater Glasgow & Clyde and Sunderland also have high relative risk of between 55% and 51%.
- Table 4 on page 27 shows Z-scores that indicate the PCO areas facing the greatest challenge from COPD, based on the proportion of people at risk of future hospital admission with COPD and population size. Reflecting their large populations, the top 'hotspot' PCO areas in the UK are:
  - In Scotland, Greater Glasgow & Clyde and Lanarkshire face the greatest and second greatest challenges from COPD of all PCOs in the UK. Elsewhere in Scotland, Ayrshire & Arran face the 11th greatest challenge from COPD in the UK and Lothian faces the 18th greatest.

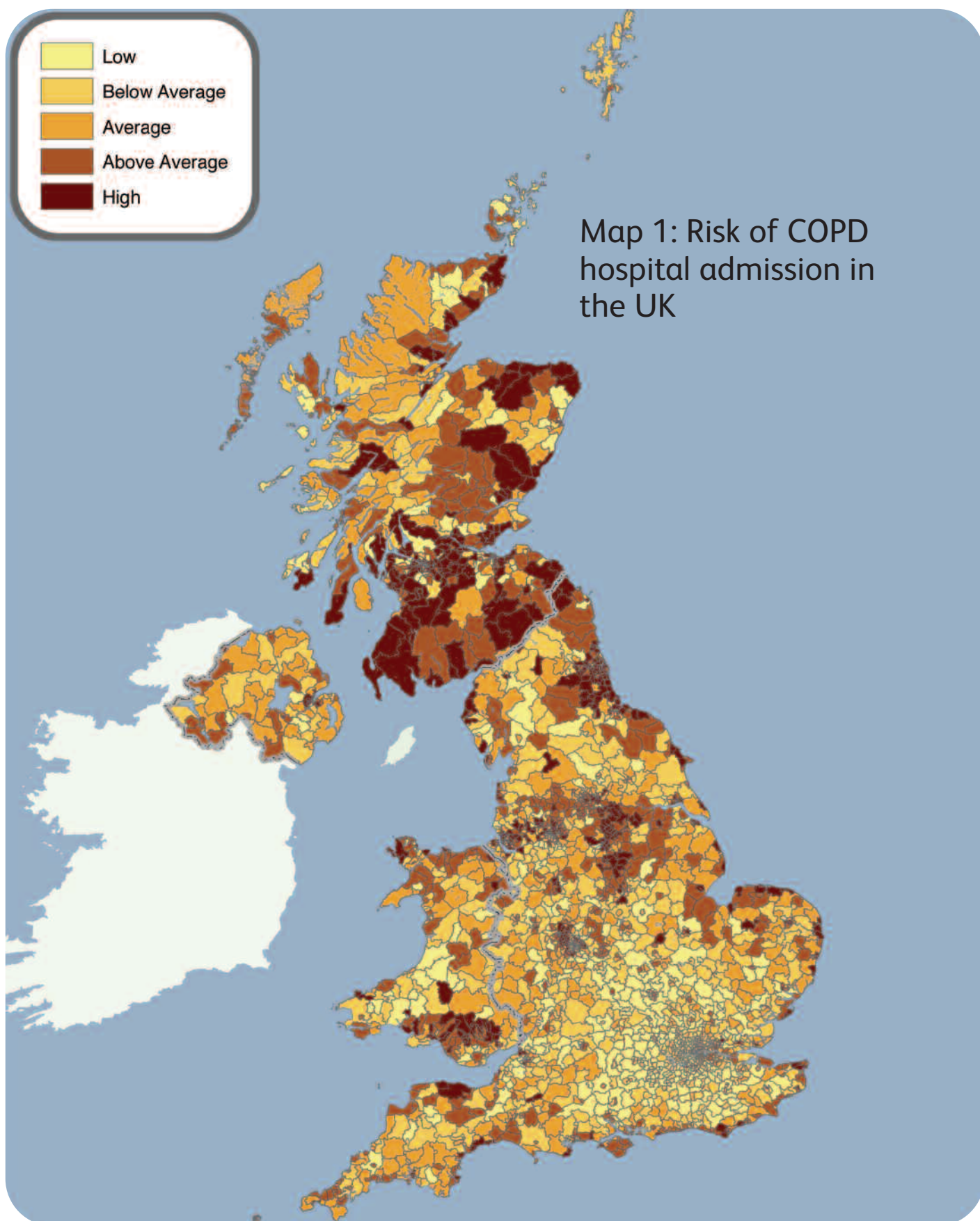




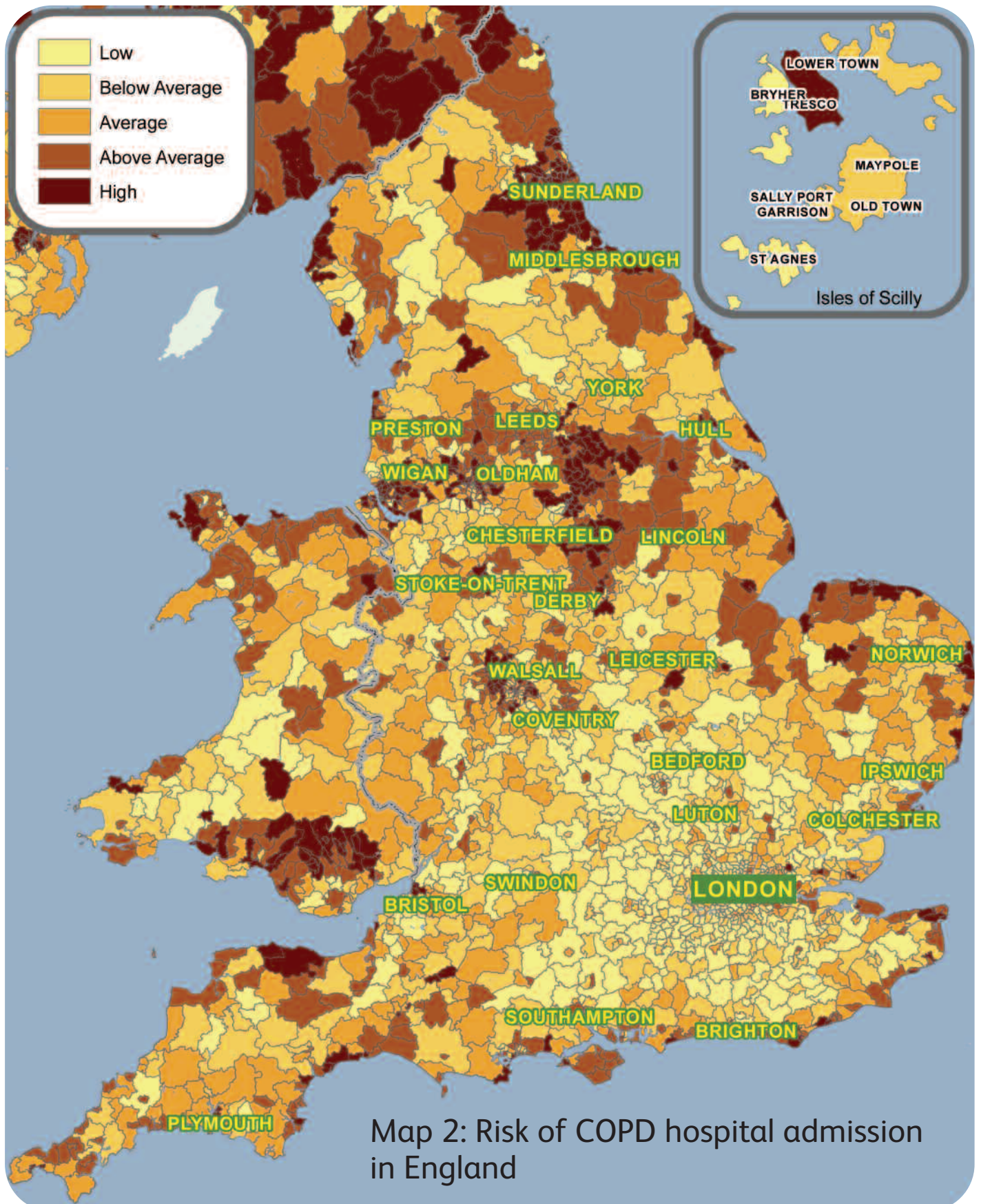
# Key findings

- In the North of England, Liverpool faces the 3rd greatest challenge in the UK, followed by Hull (4th), Sunderland (5th) Manchester (6th), County Durham (7th), South Tyneside (9th), Gateshead (10th), Sheffield (14th), Knowsley (15th), Wakefield (16th), Salford (17th) and Barnsley (20th).
- In the Midlands, Sandwell faces the 8th greatest challenge in the UK, followed by Nottingham (13th) and Birmingham East and North (19th).
- In the South of England, Barking & Dagenham in London faces the 12th greatest challenge from COPD in the UK. Six of the twenty PCOs facing the least challenge from COPD are in the South West of England; seven are in the South Central and South East Coast areas.
- It should be noted that these findings are not an indication of the quality of service provision for COPD in any PCO area.
- Those at risk of future hospital admission with COPD live mostly in social housing and have, or have had, industrial or semi-skilled jobs, uncertain employment, low levels of disposable income and considerable health problems. They are in the main people living in urban areas and former industrial heartlands who work, or once worked, in factories, steelworks, dockyards and mines. These findings illustrate the huge health inequalities in the UK today.
- Using the above data the BLF has identified a list of COPD 'hotspot' PCO areas ensuring that the top COPD 'hotspot' in every nation and English Strategic Health Authority was included in the list. Those at high risk of future hospital admission with COPD in these areas can now be targeted with information, support and other interventions.
- These findings are illustrated on COPD 'risk' maps on the following pages. The maps show areas of risk in the UK as a whole followed by risk maps for England, Scotland, Wales and Northern Ireland. In each of the maps, the darker colours indicate that people living in those areas are at high risk of future hospital admission with COPD. The lighter colours indicate that their risk is low.



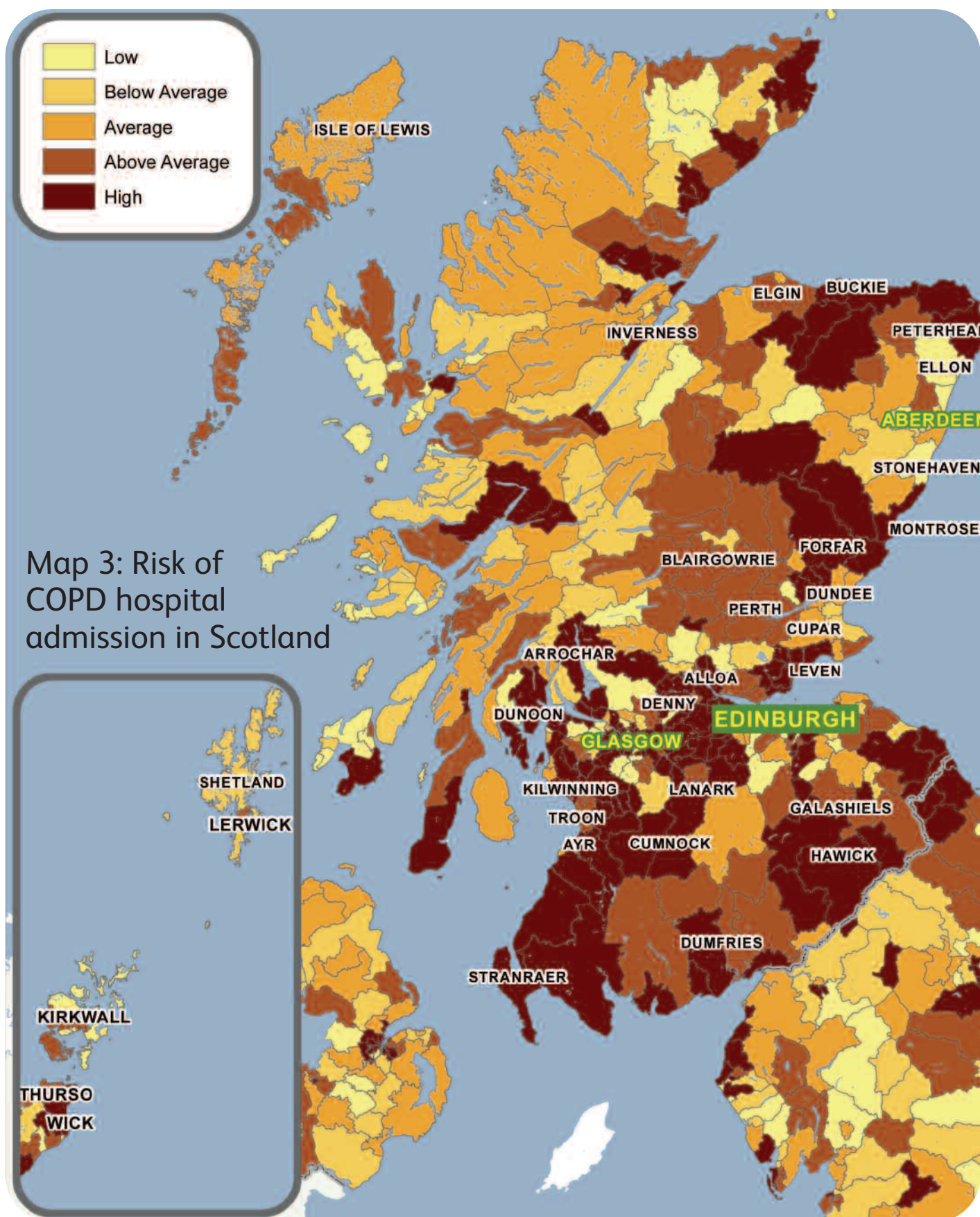


# Key findings

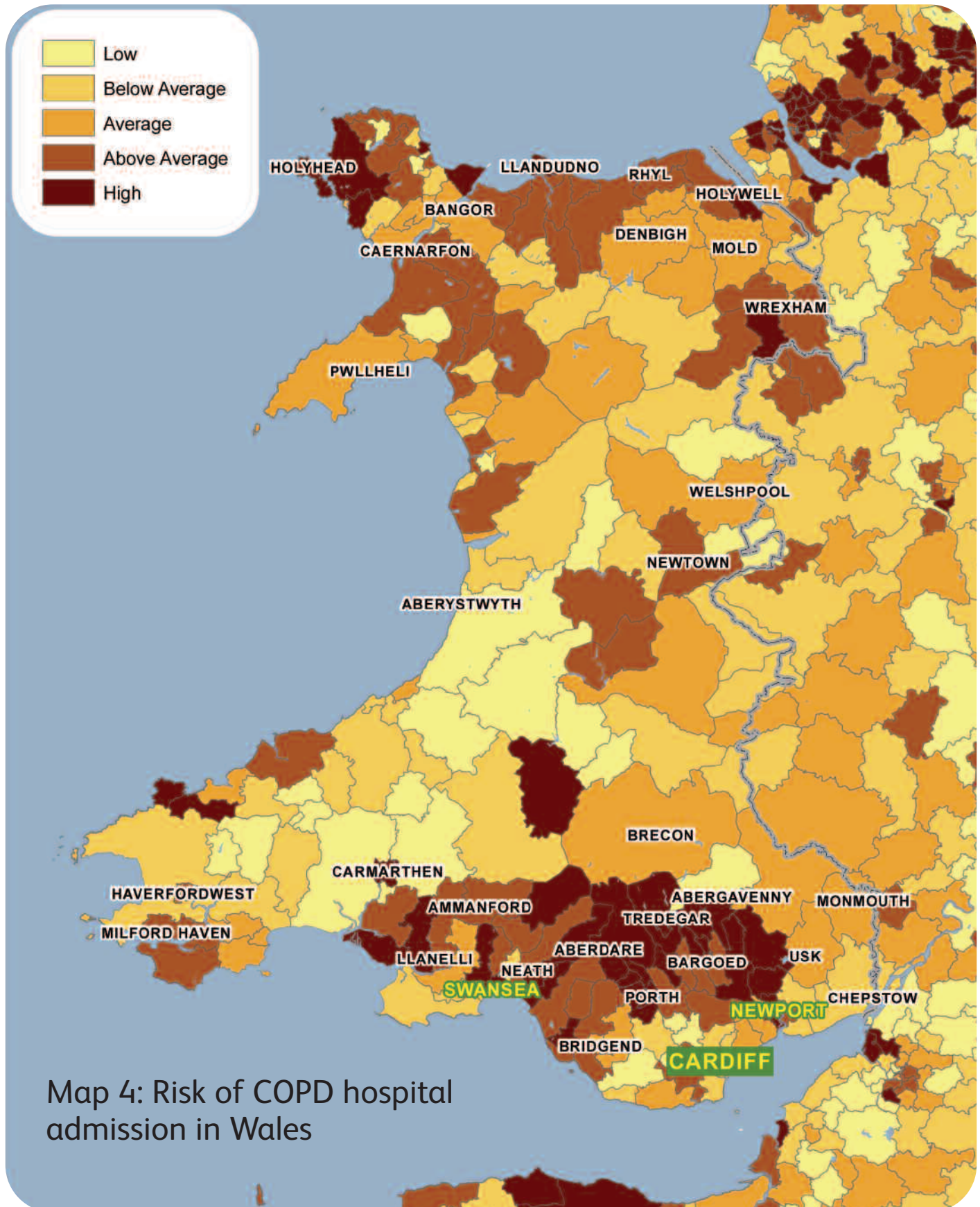


Map 2: Risk of COPD hospital admission in England

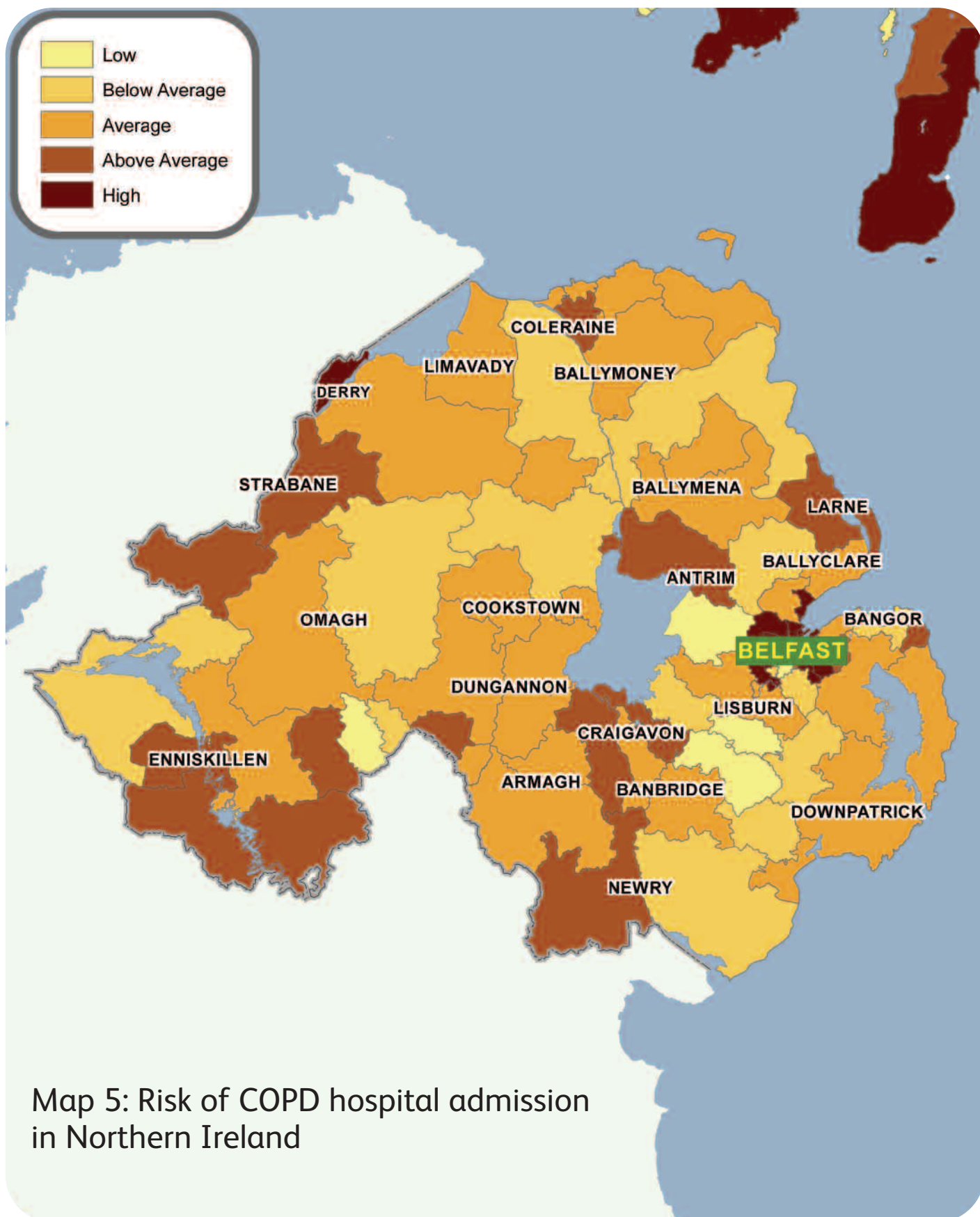




# Key findings







# Detailed findings

## Proportion of people at risk of COPD

Table 2 below shows the 20 Primary Care Organisations (PCOs) across the UK with the highest penetration rates (proportion of people at risk of future hospital admission with COPD). The Index column is the penetration divided by the proportion of the population and gives a measure of predicted risk of COPD, where 100 is average and 150 is one and a half times the average. For example, people in South Tyneside have a 62 % higher risk of future hospital admission with COPD than the UK average.

**Table 2: PCOs across the UK with the highest proportion of people at risk of future hospital admission with COPD.<sup>†</sup> © Experian Ltd**

Listing	Primary Care Organisation	Penetration	Index
1	South Tyneside PCT	0.35 %	162
2	Hull PCT	0.33 %	155
3	Barking and Dagenham PCT	0.33 %	155
4	Blaenau Gwent LHB	0.33 %	154
5	Knowsley PCT	0.33 %	154
6	Gateshead PCT	0.33 %	154
7	Greater Glasgow & Clyde CHCP	0.32 %	152
8	Sunderland Teaching PCT	0.32 %	151
9	Sandwell PCT	0.31 %	147
10	Lanarkshire CHCP	0.31 %	144
11	Merthyr Tydfil LHB	0.31 %	144
12	Liverpool PCT	0.30 %	143
13	Salford PCT	0.30 %	142
14	Hartlepool PCT	0.30 %	142
15	Nottingham City PCT	0.30 %	140
16	Manchester PCT	0.30 %	140
17	Barnsley PCT	0.29 %	138
18	Ayrshire & Arran CHCP	0.29 %	137
19	County Durham PCT	0.29 %	137
20	Wolverhampton City PCT	0.29 %	136

<sup>†</sup>Source: British Lung Foundation, 2007



Table 3 below shows the 20 Primary Care Organisations (PCOs) across the UK with the lowest penetration rates (proportion of people at risk of future hospital admission with COPD).

**Table 3: PCOs across the UK with the lowest proportion of people at risk of future hospital admission with COPD.<sup>†</sup> © Experian Ltd**

Listing	Primary Care Organisation	Penetration	Index
173	Berkshire West PCT	0.15	72
174	Shropshire County PCT	0.15	72
175	Kingston PCT	0.15	71
176	Conwy LHB	0.15	71
177	Pembrokeshire LHB	0.15	71
178	Kensington and Chelsea PCT	0.15	71
179	North Somerset PCT	0.15	71
180	Buckinghamshire PCT	0.15	70
181	Isle of Wight National Health Service	0.15	69
182	Gwynedd LHB	0.15	69
183	Surrey PCT	0.15	69
184	Cornwall and Isles of Scilly PCT	0.15	68
185	Herefordshire PCT	0.14	67
186	East Sussex Downs and Weald PCT	0.14	66
187	Richmond and Twickenham PCT	0.14	64
188	Devon PCT	0.14	64
189	Dorset PCT	0.13	61
190	Powys LHB	0.12	56
191	Orkney CHP	0.12	54
192	Ceredigion LHB	0.08	40

<sup>†</sup>Source: British Lung Foundation, 2007



# Detailed findings

## PCOs facing the greatest challenge from COPD

Table 4 below shows the 20 Primary Care Organisations (PCOs) across the UK with the highest Z-scores and therefore those which face the greatest challenge from COPD. Z-scores are based on both penetration of COPD and relative population size.

Table 4: PCOs with the highest Z-scores.<sup>†</sup> © Experian Ltd

Listing	Primary Care Organisation	Z-score (greatest challenge)
1	Greater Glasgow & Clyde CHCP	26.5
2	Lanarkshire CHCP	15.4
3	Liverpool PCT	13.0
4	Hull PCT	12.5
5	Sunderland Teaching PCT	12.5
6	Manchester PCT	12.4
7	County Durham PCT	12.0
8	Sandwell PCT	11.5
9	South Tyneside PCT	11.1
10	Gateshead PCT	10.8
11	Ayrshire & Arran CHCP	10.4
12	Barking & Dagenham PCT	10.4
13	Nottingham City PCT	9.7
14	Sheffield PCT	9.7
15	Knowsley PCT	9.6
16	Wakefield District PCT	9.4
17	Salford PCT	8.9
18	Lothian CHCP	8.7
19	Birmingham East and North PCT	8.5
20	Barnsley PCT	8.3

<sup>†</sup>Source: British Lung Foundation, 2007



# Detailed findings

## PCOs facing the least challenge from COPD

Table 5 below shows the 20 Primary Care Organisations (PCOs) across the UK with the lowest Z-scores and therefore those which face the least challenge from COPD. It should be noted that the findings are not an indication of the quality of COPD service provision in any PCO area.

Table 5: PCOs across the UK with the lowest Z-scores.<sup>†</sup>  
© Experian Ltd

Listing	Primary Care Organisation	Z-score
164	Suffolk PCT	-7.5
165	Leicestershire County and Rutland PCT	-7.6
166	Ceredigion LHB	-7.8
167	Somerset PCT	-8.0
168	Norfolk PCT	-8.1
169	Cambridgeshire PCT	-8.3
170	Lincolnshire PCT	-8.4
180	Gloucestershire PCT	-8.4
181	Berkshire West PCT	-8.5
182	Wiltshire PCT	-8.6
183	East Sussex Downs and Weald PCT	-9.00
184	Oxfordshire PCT	-9.7
185	Buckinghamshire PCT	-9.8
186	West Sussex PCT	-10.5
187	Cornwall and Isles of Scilly PCT	-10.7
188	North Yorkshire and York PCT	-11.23
189	Dorset PCT	-11.41
190	Hampshire PCT	-13.47
191	Devon PCT	-14.48
192	Surrey PCT	-14.89

<sup>†</sup>Source: British Lung Foundation, 2007

## Who is at risk?

Using Experian's Mosaic™ lifestyle segmentation Dr Foster Intelligence identified five Mosaic™ groups that are likely to live in the high risk areas identified above. Each group contains several 'lifestyle types'. Two Mosaic™ groups contained a significant number of elderly people where higher levels of COPD would be expected to be already diagnosed. The three other Mosaic™ groups were therefore of particular interest. Amongst these were four 'lifestyle types' at highest risk of hospital admission with COPD.

Table 6 below provides a summary of each of these four 'lifestyle types' according to their highest relative risk of hospital admission with COPD. The index figure is a measure of risk and the average is 100, so an index of 300 suggests that people in this group are three times more at risk of hospital admission with COPD than the average.

**Table 6: Summary of 'lifestyle types' according to their highest relative risk of hospital admission with COPD.<sup>†</sup>**  
© Experian Ltd

Ranked Mosaic™ 'lifestyle types'	Relative risk of COPD (100= UK average)
Older people living in crowded apartments in high-density social housing	398
Older people, many in poor health from work in heavy industry, in low-rise social housing	284
Older couples, mostly in small towns, who now own houses once rented from the council	203
Families with school age children, living in very large social housing estates on the outskirts of provincial cities	202

<sup>†</sup>Source: British Lung Foundation, 2007







# Detailed findings

## Description of lifestyle types

### Older people living in crowded apartments in high-density social housing

This group is nearly four times more likely to be admitted to hospital with COPD than the UK average. It describes people who live in small inner city flats and maisonettes occupied by low income couples and pensioners whose children are now independent. They tend to be located in areas of large cities which have experienced many generations of economic deprivation where many older residents now live an impoverished existence. A large proportion of the population is retired and many of those of working age are either unemployed or permanently disabled. The traditional maritime and industrial employment on which these communities once depended disappeared many years ago and few people in the area have adapted their skills to the requirements of nearby jobs. There are serious problems with poor health and physical incapacity but there is often a strong sense of community and belonging as there is little evidence of family and social breakdown.



**"I think I had COPD for about five years before it was diagnosed"**

Malcolm, 78, from Manchester

### Older people, many in poor health from work in heavy industry, in low-rise social housing

This group is nearly three times more likely to be admitted to hospital with COPD than the UK average. It describes people who live in parts of declining industrial areas whose population consists of older people towards the end of their working lives or in retirement. They tend to live in communities that have been traditionally reliant on employment in mining, shipbuilding and other heavy industries. Because of long histories of employment in dangerous occupations, there are high numbers of people in poor health or who are permanently unable to work because of sickness. This poor level of health is reflected in low levels of life expectancy, particularly among males, and a high proportion of the population is widowed. Many neighbourhoods have suffered seriously from the decline in traditional industries over many generations and are in regions where more enterprising young people have tended to migrate to other parts of the country. There is considerable unemployment and many people are confined to the home. Others may have reasonably well-paid jobs in skilled trades, as well as in routine or semi-routine manual jobs.

# Detailed findings

## Families with school age children, living in very large social housing estates on the outskirts of provincial cities

This group is twice as likely to be admitted to hospital with COPD than the UK average. It describes large numbers of people in large provincial cities who are on low incomes and are dependent on city councils for housing and transport. The majority work in semi-skilled jobs that demand few qualifications and offer modest wages. Many neighbourhoods have suffered seriously from the decline in the traditional sources of manual employment both in inner city factories that have moved to peripheral locations and in large capital intensive plants, many of which have been closed entirely. Many younger workers struggle against the disadvantage caused by low levels of qualifications. Many residents are unemployed, sick or bringing up children on their own. The social problems associated with these often bleak housing estates are well recognised – violence, vandalism, burglary and poor home conditions.

**"As a keen cyclist and hill walker I miss being able to just pop out for a walk"**

Sadie, 72, from Lanarkshire

## Older couples, mostly in small towns, who now own houses once rented from the council

This group is twice as likely to be admitted to hospital with COPD than the UK average. It describes people of older working age (from 45 upwards), working in manufacturing industries and living in mixed areas of older social housing and owner-occupied terraces. These neighbourhoods tend to be areas that have traditionally relied on a mixture of mining and large-scale industrial plants, such as power stations and steelworks, for their employment and are set in towns that have been relatively unsuccessful in developing modern middle-class suburbs. Many of the workforce benefit from well-paid craft jobs in large process plants which often involve quite lengthy journeys to get to work, but many others work in comparatively unskilled, routine operations in new industries as well as the old process plants. The key characteristic of the population is its stability, with few of the older people moving out of the area and few families with young children moving in.

The broad 'lifestyle types' identified above represent the stories of people living in deprived inner city areas on low incomes; people in former industrial heartlands who either once worked in factories, steelworks, dockyards and mines or are still working in a factory or manufacturing job of some kind; and people in provincial cities in low-paid semi-skilled jobs or unemployed. Many worked in smoky or dusty atmospheres and are now paying a high price for the UK's industrial past; many are smokers whose habit will have caused damage to their lungs before the consequences of smoking were fully known.

They include the stories of people in their sixties, seventies and eighties, people who are coming towards the end of their working lives or already in retirement. But they also include the stories of people in their late forties and fifties, people now looking forward to their retirement but who may find themselves disabled by COPD in the not too distant future if the disease goes undetected and untreated. It should also be noted that the relatives of these people, an even younger group in their twenties, thirties and early forties, are also at risk of future hospital admission with COPD.

# Other findings

## Prevalence of COPD

An overview of the prevalence of Chronic Obstructive Pulmonary Disease (COPD) was provided by Dr Foster Intelligence, as measured at general practice level in the UK by the Quality and Outcomes Framework (QOF) data.

It is important to note that there are a number of limitations to the QOF data, as described below.

The QOF is the annual reward and incentive programme that details the achievements of general practices across the UK. The framework was introduced as part of the new General Medical Services (GMS) contract in 2004 and was designed to deliver to practices financial rewards for high-quality care.

General practices' achievements are measured against a range of evidence-based indicators, with points and payments awarded according to their level of achievement.

For the record keeping and diagnosis of COPD, practices gain points if they:

- produce a register of patients with COPD
- confirm diagnosis of COPD by spirometry testing.

Prevalence is defined as the percentage of patients on a practice list diagnosed with COPD and is calculated by dividing the number of patients with COPD by the number of patients registered at the practice. It is a measure of the burden of the disease in a population at a particular point in time.

For the purposes of this report, the prevalence data was based on submissions at the end of the 2005/06 financial year to the Quality Management and Analysis System (QMAS), the national IT system that gives practices and PCOs objective evidence and feedback on the quality of care delivered to patients. For practices where year-end submissions were not available, disease prevalence submissions closest to year end were taken.

QOF prevalence data can be affected by a number of factors which need to be considered when interpreting the data:

"I'm angry that I smoked once, I'm angry that my husband always walks about ten feet in front of me and when I catch up, he is off again. I'm angry that I always need to lean on something"

Roza, 64, from Birmingham

- Healthcare-seeking behaviour: people differ in the readiness with which they seek healthcare when they are not well
- Access to services: people are more likely to consult for a condition if services are readily available
- QOF is dependent on diagnosis and recording within practices, using practices' clinical information systems, and there may be variations in the accuracy and completeness of practice records
- QOF data do not include information on the age of individual patients. Differences in the average age of different populations are likely to affect comparisons of the prevalence of diseases
- Different types of practices may serve different communities. Comparative analyses should therefore take into account local circumstances, such as numbers on practice lists of student populations, drug users, homeless populations and numbers of asylum seekers
- Data is available at practice postcode level. This is not the same as a patient's postcode of residence.

## Analysis of the QOF data

The first stage of the analysis was to calculate the prevalence of COPD for each general practice in the UK.

The next stage of the analysis was to look at the rates of hospital admission for COPD for each general practice. This revealed that some practices have recorded higher than expected hospital admission rates for COPD. The error rate (predicted vs. actual admissions) does not seem to be related to COPD prevalence as some of the practices concerned have a very low prevalence while others have a high prevalence.

Higher than expected admission rates, however, do reflect that these practices may not be managing people with COPD as efficiently at primary care level as they could. It is important to note that the practices concerned have list sizes that are smaller than the national average. This might be because these are single-handed practices that may not be



# Other findings

copied very well, but there could also be other issues that require further investigation. Furthermore it would be prudent to study the populations covered by the practices, as they could be made up of older adults or other vulnerable populations. The presence of many varied health problems might impact on the practices' abilities to cope.

The data also revealed that some practices have lower than expected hospital admission rates for COPD. In these practices, prevalence rates of COPD are high while hospital admission rates remain very low. This suggests that the practices have protocols for identifying and registering people with COPD in their catchment area and have targeted their services at primary care level to avoid hospital admissions. That is to say, these practices are managing their COPD patients well.



# Identifying the UK's COPD 'hotspots'

From the information provided by Dr Foster Intelligence, the British Lung Foundation selected the 10 PCO areas with the highest Z-scores, or those facing the greatest challenge from COPD, and asked Dr Foster Intelligence to identify postcodes associated with the top four 'lifestyle types' most at risk of future hospital admission with COPD within each PCO area. By extenuation, these are the communities likely to face the greatest challenge from COPD, both undiagnosed and established. It is important to note that not every individual living in these postal areas is at risk, and that other lifestyle types within each PCO area may also be at risk. This is a way of focusing effort on areas at greatest risk in terms of targeted health campaigns. For example, Greater Glasgow & Clyde CHCP is the PCO facing the greatest challenge from COPD in the UK but it has a more diverse population than Lanarkshire CHCP. The four most 'at risk' lifestyle types represent a smaller percentage of the PCO population than the four most 'at risk' lifestyle types in Lanarkshire.

Table 7 shows the top 10 COPD 'hotspots' across the UK listed by their Z-score. The Target Population column shows the total population of the target postcodes in each PCO area; the % PCO Population column shows this figure as a percentage of the total population in each PCO area.

**Table 7: Top 10 COPD 'hotspots' in the UK listed according to their Z-score.<sup>†</sup>**  
© Experian Ltd

UK Z score listing	Primary Care Organisation	Nation/Region	Target Population	% of PCO population
1	Greater Glasgow & Clyde CHCP	Scotland	190,348	19%
2	Lanarkshire CHCP	Scotland	319,550	56%
3	Liverpool PCT	North West	153,234	35%
4	Hull PCT	Yorkshire & Humberside	96,667	40%
5	Sunderland Teaching PCT	North East	108,912	39%
6	Manchester PCT	North West	146,454	34%
7	County Durham PCT	North East	174,957	35%
8	Sandwell PCT	West Midlands	101,727	36%
9	South Tyneside PCT	North East	63,944	43%
10	Gateshead PCT	North East	52,772	28%
			<b>1,408,565</b>	

<sup>†</sup>Source: British Lung Foundation, 2007

The BLF has also identified other COPD ‘hotspots’ based on their Z-scores, including the top COPD ‘hotspot’ in each UK nation/region not included in Table 7 opposite. These include Blaenau Gwent, the top COPD ‘hotspot’ in Wales, and the Eastern and Social Care Trust, the top COPD ‘hotspot’ in Northern Ireland. These are shown in Table 8.

**Table 8: Other COPD ‘hotspots’ in the UK listed according to their Z score.<sup>†</sup>**  
© Experian Ltd

UK Z score listing	Primary Care Organisation	Nation/Region	Target Population	% of PCO population
12	Barking and Dagenham PCT	London	90,080	54 %
13	Nottingham City PCT	East Midlands	61,368	22 %
15	Knowsley PCT	North West	63,776	43 %
33	Blaenau Gwent LHB	Wales	34,586	50 %
56	Eastern Health and Social Care Trust (Belfast)	Northern Ireland	131,578	20 %
60	Bristol PCT	South West	27,071	7 %
64	Southampton City PCT	South Central	18,729	8 %
78	Peterborough PCT	East of England	14,255	8 %
114	Medway PCT	South East Coast	40,744	16 %
			<b>482,187</b>	

<sup>†</sup>Source: British Lung Foundation, 2007

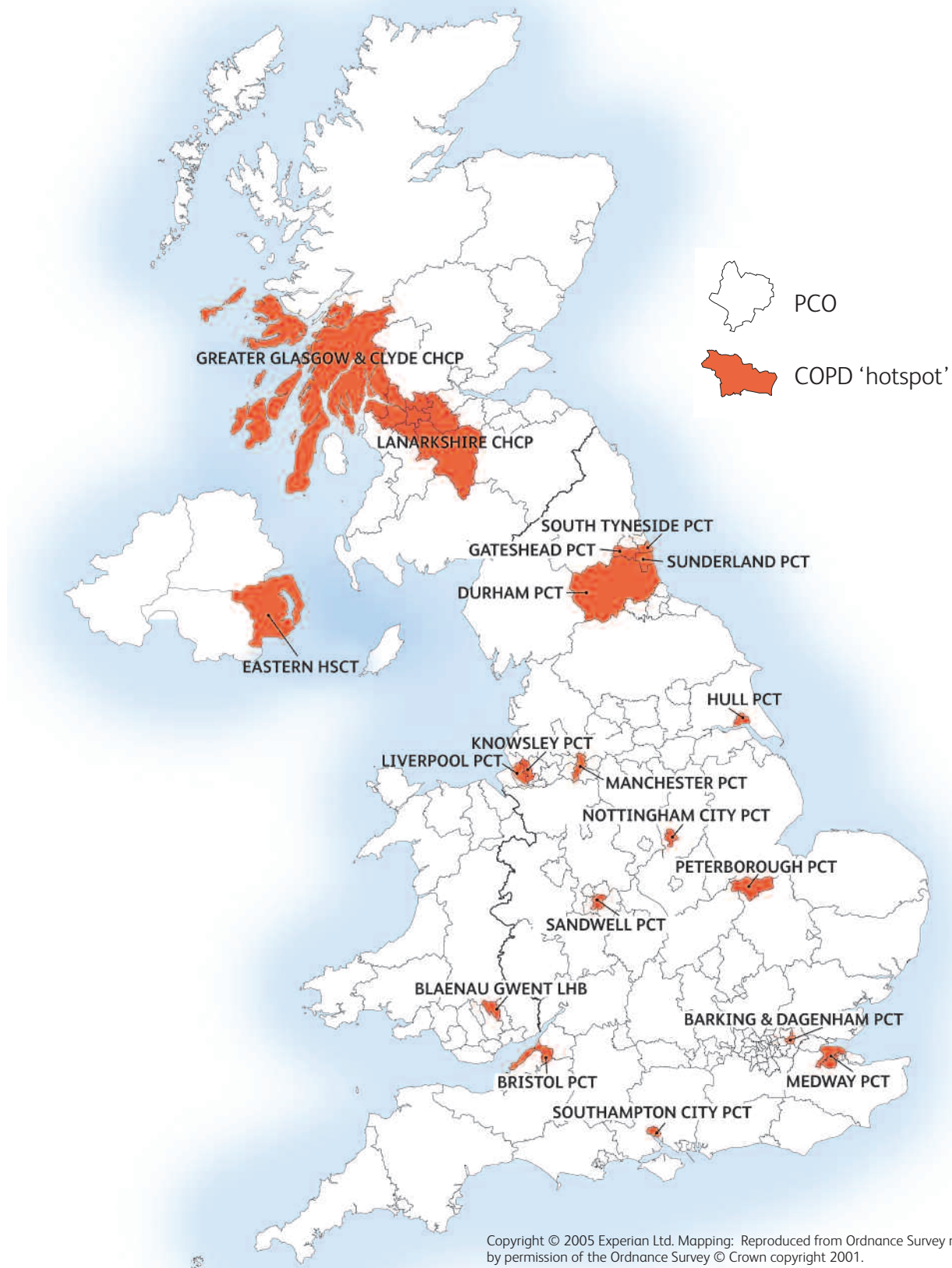
The total population of the COPD ‘hotspots’ listed above is 6,565,000 people. Within these ‘hotspots’, 1,890,752 people live in postcode areas at high risk of future hospital admission with COPD.

Detailed information at postcode level about the at risk ‘lifestyle types’ has been provided to the BLF by Dr Foster Intelligence, enabling those at high risk of future hospital admission with COPD to be targeted with information, support and other interventions. As noted above not every individual living in these postal areas is at risk, and other ‘lifestyle types’ within each PCO area may also be at risk.



# Identifying the UK's COPD 'hotspots'

Map 6: COPD 'hotspots' in the UK



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Source: British Lung Foundation 2007



## Greater Glasgow and Clyde

Glasgow is the largest city in Scotland and the third most populous in the UK. Built on the River Clyde in the country's west central lowlands, it was once one of the world's pre-eminent centres of heavy engineering and shipbuilding. Glasgow is still the fourth largest manufacturing centre in the UK but the once dominant industries have been gradually replaced by a mixed economy with strengths in shipbuilding, engineering, food and drink, printing, publishing software development and biotechnology. Today the city has a reputation as a leading European centre for business and commerce.

In the city's Merchant's Centre are homes built from the shells of warehouses which once housed the merchandise of Glasgow's tobacco kings, and areas like this act as a flagship for the city's regeneration. They contrast starkly with areas on the periphery of the city, which contain some of Scotland's most deprived areas. Here there are concrete housing estates, dilapidated tower blocks, huge drug problems, gang rivalry and violent crime.

Greater Glasgow and Clyde CHCP faces the greatest challenge from COPD in the UK. People here are 52 % more likely to be admitted to hospital with COPD than the UK average. More than a third (35 %) of adults in the area are current smokers, the highest of all NHS boards in Scotland.<sup>18</sup>

# Identifying the UK's COPD 'hotspots'

## Lanarkshire

Lanarkshire is in the heart of Scotland's central belt between Edinburgh and Glasgow, an area built on heavy engineering, coal and steel. Although its manufacturing industry is still larger than the Scottish average, employment in manufacturing declined by a third between 1995 and 2004, and is expected to continue to decline in the future.

Improvements have been made in reducing unemployment in recent years, but more than one in seven Lanarkshire residents of working age claim sickness and disability-related benefits. People in the area are less likely to go to university and are more likely not to have any formal qualifications than the Scottish average.<sup>21</sup> 29 % of adults in the Lanarkshire Community Health and Care Partnership area are current smokers, the second highest among NHS boards in Scotland.<sup>22</sup>

Lanarkshire CHCP faces the second greatest challenge from COPD in the UK. People here are 44 % more likely to be admitted to hospital with COPD than the UK average.

Hugh, a 57-year-old retired steel worker, was diagnosed with COPD in March 2005. He'd been admitted to hospital on two previous occasions with a bad cough but didn't know what was wrong with him. Before finding out he had COPD he had been a smoker for 35 years – he says if he had been diagnosed earlier he would have stopped smoking. He

also admits he should have sought help earlier: "I would often suffer from chest pains but kept putting off going to the doctor". He now has oxygen therapy at home and took early retirement in 2002. He hopes to raise awareness about COPD amongst his local community – there's a large number of steel works in the area and a high smoking rate.

## Liverpool

Liverpool is England's fifth most populous city and is celebrating its 800th anniversary in 2007.<sup>23</sup> By the start of the 19th century 40 % of the world's trade passed through Liverpool, but from the mid-1970s onwards Liverpool's docks and traditional manufacturing industries went into sharp decline. In the early 1980s unemployment rates in Liverpool were among the highest in the UK. In recent years, the city's economy has recovered and has experienced growth rates higher than the national average since the mid-nineties.<sup>24</sup>

The city is still in transition, however, and is one of the three most deprived local authority areas in England.<sup>25</sup> Female life expectancy in Liverpool is the lowest in England, and the third lowest for men.<sup>24</sup>

Liverpool PCT faces the greatest challenge from COPD in England, and the third greatest in the UK. People here are 43 % more likely to be admitted to hospital with COPD than the UK average.

Ted is 68 and lives in Liverpool. A year after having multiple bypass surgery he got very breathless while on holiday in Cornwall in 1997. He was taken into hospital and referred to a specialist, who diagnosed him with COPD.

Ted needs oxygen therapy at home and also has portable oxygen for when he's out of the

house. Having severe hip problems in addition to the lung and heart conditions makes everything worse. He finds it very difficult to walk and gets out of breath easily.

Ted retired from being a joiner in 1999 due to ill health. His wife is now his main carer. Ted was an extremely heavy smoker, smoking 80 a day until he quit in 1993.

## Hull

The old port city of Hull at the mouth of the River Humber was England's biggest port for centuries. It is still a busy seaport but the loss of its fishing industry and the massive recession of the 1990s was a major trauma for the city. In spite of its recovery, Hull suffers from a low skills base and some of the lowest wages in the country, as well as high unemployment. It contains some of the most deprived council estates in England, which house nearly 30 % of the city's population. Almost exactly the same proportion of the population is classified as living in financial hardship.<sup>13</sup>

# Identifying the UK's COPD 'hotspots'

The Hull PCT area faces the second greatest challenge from COPD in England and the highest in Yorkshire and Humberside. People here are 55 % more likely to be admitted to hospital with COPD than the UK average.

At 74, Joan says she is lucky to still be here. She had chest problems throughout her life, but when one morning she started wheezing very badly, she decided to get it checked out. She went to her GP who gave her a lung function test and diagnosed COPD.

She uses short-burst oxygen therapy which offers short-term help when she is particularly breathless, but she still finds it hard to talk or walk. Even a telephone conversation can be difficult. She says: "I can speak on the phone but if it's a bad time and I start coughing, it

gets really embarrassing".

She says COPD has stopped her from living life as she would like to have done. "It stops me travelling and makes me very conscious of the fact that I can't do what others of my age do. People just don't understand COPD and gradually leave you on your own, so it can be a terribly isolating condition".

Joan smoked when she was younger. As she says: "We didn't know how damaging it was all those years ago."

## Sunderland

Sunderland was at one stage the world's biggest shipbuilding town thanks to the wealth generated by Wearside coal and the need to transport it. As traditional industries have declined, electronics, chemicals, and paper manufacture have replaced them. Starting in 1990 the banks of the Wear have seen massive physical regeneration with the creation of housing, retail parks and business centres on former shipbuilding sites.

About 29 % of children live in households dependant on means-tested benefits and men and women living in Sunderland have lower than average life expectancy. About 33 % of adults in Sunderland smoke.<sup>19</sup>

Sunderland PCT faces the sixth greatest challenge from COPD in the UK and the greatest in the North East.

People here are 51 % more likely to be admitted to hospital with COPD than the UK average.



## Manchester

Described as the 'Capital of the North', Manchester is also often seen as the world's first industrialised city and played a central role during the Industrial Revolution. Manchester suffered greatly from the inter-war depression and the underlying structural changes that began to supplant the old industries.

Even though the city is experiencing a period of unprecedented and continued economic growth, it still has high and enduring levels of deprivation and unemployment is a major issue.

Male life expectancy in Manchester is the lowest in England at 72.5 years compared to a national average of 76.9. Women have the second lowest rate in England at 78.3 years compared to 81.1 years.<sup>33</sup>

Manchester PCT faces the fourth greatest challenge from COPD in England and the 6th greatest in the UK. People here are 40% more likely to be admitted to hospital with COPD than the UK average.



Malcolm, 78, was diagnosed with COPD in 2002, but believes he had the condition for much longer than that. His doctors kept saying he had asthma and it wasn't until he saw a specialist that he got his COPD diagnosis.

Malcolm says he has reasonably mild symptoms and his main frustration is that he can't lead the very active life he used to,

Even a bit of gardening gets him puffed out now.

As a young man, Malcolm worked as a boiler-maker and welder in what was a very smoky atmosphere which he thinks may have contributed to his COPD. Malcolm smoked about 30-35 a day from the age of 13, although he quit in 2005. Malcolm's wife also has COPD.

# Identifying the UK's COPD 'hotspots'

## County Durham

County Durham is largely rural, but despite the attractive setting, many of the area's settlements suffer from high levels of deprivation, coupled with severe difficulties in terms of accessing jobs, learning and services. More than 30 % of the county's population live in wards that are among the 10 % most deprived in the country.<sup>29</sup> About a quarter of children live in households dependent on means-tested benefits.<sup>30</sup>

Coal mining used to form the staple industry of County Durham and the county continues to have a strong reliance on the manufacturing sector for employment. About a quarter of the working population is employed in this sector<sup>31</sup> and although this represents a decline, it is still much higher than the national equivalent of about 15 %.<sup>32</sup>

County Durham PCT faces the seventh greatest challenge from COPD in the UK and the second greatest in the North East. People here are 37 % more likely to be admitted to hospital with COPD than the UK average.

## Sandwell

The history of Sandwell in the West Midlands is steeped in coal mining and iron smelting, but unlike other cities manufacturing has remained the dominant sector of employment. Major employers include foundries, as well as engineering and chemical works.

Sandwell is among the most deprived local authority areas in the country. 21 % of residents live in low-income households<sup>20</sup>, and, in general, skill levels are low in the area.<sup>13</sup> Life expectancy remains below the England average by 30 months for men and by 20 months for women. Just under a third of people in Sandwell smoke.<sup>20</sup>

Sandwell PCT faces the eighth greatest challenge from COPD in the UK and the greatest in the Midlands. People here are 47 % more likely to be admitted to hospital with COPD than the UK average.

## South Tyneside

South Tyneside is dominated by the seaside town of South Shields, east of Jarrow, a town built on coal and shipbuilding. Although all the coal mines have now closed and ships are no longer built there, the Tyne is still busy with ship repairs and offshore oil platforms, but light engineering and electronics companies have replaced some of the heavy industry. The area has many problems associated with the decline of traditional local industries. At 7.7 % (Jan 2005 figures) the area has one of the highest rates of unemployment in England.<sup>13</sup>

Over half of the population live in some of the most deprived areas of England.<sup>13</sup>

Life expectancy at birth is significantly lower than the national average and it is estimated that about 33 % of adults smoke compared with an estimated average 26 % for England as a whole.<sup>14</sup>

South Tyneside PCT has a higher proportion of people at risk of future hospital admission with COPD than anywhere else in the UK. People here are 62 % more likely to be admitted to hospital with COPD than the UK average.

Former ship's engineer George had known something was wrong for years but he ignored the fact that he felt more breathless and was finding it much harder to walk upstairs. It wasn't until he was hospitalised in 1993 at the age of 56 that he was diagnosed with COPD. Four years later, at the age of sixty, he was forced to retire due to ill health.

George is now in and out of hospital fairly regularly. Between

January and September 2007 he has been hospitalised on four occasions, each stay lasting around four to six days. After being in hospital he needs 24-hour oxygen at home, although this gradually reduces to about 18 hours a day.

George used to smoke 30 a day, but managed to stop in 1999. He lives with his wife who he describes as his main carer.

# Identifying the UK's COPD 'hotspots'

## Gateshead

Gateshead was badly affected by the decline throughout the 1980s of traditional manufacturing industries, with coal mines, shipyards and steelworks no longer providing much employment. Despite decreases in local unemployment, it is still a poor area, with around a third of residents living in social housing.<sup>13</sup>

Partly because of deprivation and partly due to the types of industry that were recently prevalent, people here consider themselves to be in poorer health than the national average. Not only does this affect primary care provision but also causes a detrimental knock-on effect on the economy through lost days of work and lower productivity.

Gateshead PCT has the sixth highest proportion of people at risk of future hospital admission with COPD in the UK and the second highest in the North East. People here are 54 % more likely to be admitted to hospital with COPD than the national average.

66-year-old Pat developed asthma when she was just seven years old. Her health deteriorated in 1994 when she went into hospital with a chest infection, but it was another three years before she was diagnosed with COPD. Since 1997, Pat's health has got steadily worse. She went into hospital in January 2007 feeling breathless and unable to stop coughing and thought she

wouldn't survive. It was at this stage that she was put on oxygen for the first time. The past few months have seen some improvements in Pat's condition, with Pat taking part in pulmonary rehabilitation classes and no longer needing oxygen at home.

Pat started smoking at the age of 16, but managed to give up in 1995.





## Barking and Dagenham

Barking and Dagenham is in east London on the north bank of the River Thames, home to low-rise social housing estates for workers employed in manufacturing industries. It is a skilled working-class part of London.

A large proportion of people who live here are skilled manual workers, many based at the Ford motor plant in nearby Dagenham. Income is much higher than the national average, but despite this Barking and Dagenham is ranked 42 out of 354 local authorities in England in terms of average deprivation (where 1 is most deprived).<sup>15</sup>

Barking and Dagenham PCT has the third highest proportion of people at risk of future hospital admission with COPD in the UK and the highest in the London area. People here are 55 % more likely to be admitted to hospital with COPD than the national average.



53-year-old Sue is a former dinner lady who lives in Dagenham. She started having attacks of breathlessness 12 years ago when she was 41, but her doctor told her it was simply down to her age. She had smoked 10 cigarettes a day since she was 15 but had quit in 1993, at the age of 39. After three more years of discomfort, she was eventually referred to a chest clinic where a respiratory nurse diagnosed her with COPD.

Sue was forced to resign from her job due to ill health in November

2005, something she very much regretted as she really enjoyed working at the school and didn't want to stop working. At the start of 2007 she began carrying a portable oxygen cylinder with her when she goes out of the house. She says it has given her a new lease of life and now feels much more independent.

Sue's husband is her main carer and their son and daughter also live with them. Sue says she can do all the housework now, except the vacuuming.

## Nottingham City

Nottingham is one of the biggest manufacturing cities of England, its prosperity founded on the textile, coal and tobacco industries. Nowadays it is changing from an industrial city to one based largely on the service sector, with tourism becoming an increasingly significant part of the local economy.

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Whilst Nottingham has dynamic growth in the centre, and a vibrant, diverse ethnic mix, there are low skills and job prospects in the estates that surround it and some inner-city areas have the highest unemployment in England.

Despite Nottingham's growth, it is the 12th most deprived local authority in the country and the most deprived in the East Midlands. Many families find it hard to break out of the cycle of deprivation.

Nottingham City PCT has a higher proportion of people at risk of future hospital admission with COPD than anywhere else in the East Midlands and the 15th highest in the UK. People here are 40 % more likely to be admitted to hospital with COPD than the UK average.

## Knowsley

Knowsley lies to the east of Liverpool and contains some of the most deprived areas in the UK. The southern part of the area is made up of small residential communities and large Liverpool overspill estates.

Just under a third of Knowsley residents are on means-tested benefits compared to 13 % in England.<sup>17</sup> In the northern parts of the area there are chronic drug and crime problems and long-term unemployment is high.<sup>13</sup> Male life expectancy is 73.9 years (seventh lowest in England) and female life expectancy 78.2 years (fifth lowest in England). Smoking rates are above the average for England.<sup>17</sup>

Knowsley PCT has the fifth highest proportion of people at risk of future hospital admission with COPD in the UK and the highest in the North West of England. People here are 54 % more likely to be admitted to hospital with COPD than the UK average.

Val is 66 and lives in Knowsley. She has had chest problems all her life, including TB as a child, and believes she was misdiagnosed with asthma for years. Val started smoking at 21 and quit this year but admits to still having the odd cigarette. She was diagnosed with COPD in 2004 when her symptoms became more severe following the death of her husband from cancer.

She was made redundant from her job at Littlewoods Pools in 1998, but says she wouldn't be able to work now anyway because of her ill health. She was in and out of hospital last year and had to call an ambulance earlier this year when she woke up unable to breathe.

Val lives alone, but relies on her friends and children to help her.

## Blaenau Gwent

Blaenau Gwent was built on coal and steel, along the contours of the Welsh valleys. The area has suffered major economic difficulties for a number of years and has never fully recovered from the demise of the coalfields in the 1980s. The closure of the Corus steelworks plant in Ebbw Vale has also had a big impact on local employment.

The vast majority of Blaenau Gwent's 72,000 residents live in areas which are in the top 25 % of deprived areas in Wales.<sup>16</sup> It has the highest rate of unemployment in Wales and long-term unemployment is well above the UK average.<sup>13</sup>

Blaenau Gwent LHB has the fourth highest proportion of people at risk of future hospital admission with COPD in the UK and the highest in Wales. People here are 54 % more likely to be admitted to hospital with COPD than the UK average.

## Belfast

Shipbuilding and the linen trade have historically formed the key elements of Belfast's economy. By the time the Titanic was built there in 1912, the capital of Northern Ireland boasted the world's largest shipyard.

Like many UK cities dependent on traditional heavy industry, Belfast suffered serious decline from the 1960s onwards. The city's financial problems were exacerbated greatly in the 1970s and 1980s by 'The Troubles'. However, the IRA Ceasefire in 1994 and the signing of the Good Friday Agreement in 1998 have given businesses increased confidence to invest in Belfast. This has led to a period of sustained economic growth and large-scale redevelopment of the city centre.

Belfast's prospects now look bright. Unemployment levels are below both the Northern Ireland and UK average and the number of tourists visiting the city has shot up.

Despite this, Belfast has eight of the 10 most deprived wards in Northern Ireland.<sup>26</sup> The city also has nine of the 10 worst wards in the region in relation to health deprivation.<sup>26</sup>

Belfast's Eastern Health and Social Care Trust has the highest proportion of people at risk of future hospital admission with COPD in Northern Ireland. People here are 24 % more likely to be admitted to hospital with COPD than the UK average.

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## Bristol

Bristol has a strong industrial and maritime history. The 18th Century port, once the second biggest in the country, has moved to the Bristol Channel coast at Avonmouth and Portbury and the city centre docks have been regenerated. In more recent years, the economy has been built on the aerospace industry with financial services, electronics, light industry being common areas of low paid occupation.

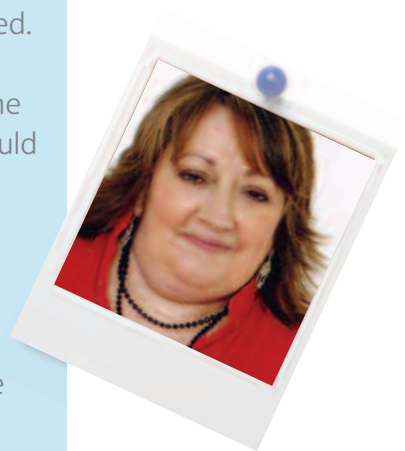
Bristol has the third highest per-capita GDP in the country after London and Nottingham, but despite this its unemployment rate is above the national average.<sup>28</sup>

Bristol PCT has the highest proportion of people at risk of future hospital admission with COPD in the South West.

Lyn, 50, has had lung problems since she was 13 when she contracted pneumonia. She was continually on antibiotics but didn't know that she had COPD until she changed her GP in June 2003 when she was told she had end stage disease.

Lyn first suspected something was wrong when she started getting more and more breathless on a daily basis and developed lots of chest infections. She was told her asthma was getting worse and

feels that she was misdiagnosed. "From what I can gather, I've had COPD since the 1980s", she says. "I feel strongly that I should have been told. By the time I knew anything about it, it was too late." Lyn gave up her job as a factory worker and cleaner and is cared for by her husband and family. These days she can't wash or dress herself, is on oxygen therapy for most of the time and has lost count of the number of times she has been admitted to hospital as an emergency.





## Southampton

Southampton is the largest city in the South East region outside London. It has always been strongly connected with maritime history and the docks have long been a major employer in the city. Other traditional industries include grain milling.

Poverty in Southampton is higher than the England average, with over 30,000 people dependent on means-tested benefits. Estimated smoking rates are above the England average, with almost one in three adults smoking.<sup>27</sup>

Southampton PCT has the highest proportion of people at risk of future hospital admission with COPD in the South Central region.



Annette is 65 and lives in Southampton and was diagnosed with COPD at the age of 45. Her mum and brother, who have both now passed away, also had COPD, which meant she was probably more aware of lung disease than most people. Some of her nephews and nieces also needed oxygen from birth.

Annette believes her COPD was picked up right away although her diagnosis involved a very frightening situation. She was playing squash when her lungs, in her words, "gave up". She was taken to hospital and diagnosed with COPD.

Her doctors say the COPD was caught at an early stage, which

influenced Annette's lifestyle choices. She quit her 15-a-day smoking habit (she started at the age of 15) when she found out she had COPD, which has helped. The worst thing for Annette is that she can no longer pursue the hobbies she loved – she says she still misses it a lot. "Squash, badminton, jogging, swimming – you name it, I did it, but I can't anymore," Annette says.

Annette doesn't need oxygen, but has a nebuliser and three inhalers. She took early retirement at 50 when one of her lungs burst. Prior to that she'd been working as a computer programmer in what was often a very smoky atmosphere.

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## Peterborough

Peterborough became an industrial centre following the opening of the Great Northern Railway's main line from London to York in 1850. Vast local clay deposits coupled with readily available transportation meant that for much of the twentieth century the area was the UK's leading producer of bricks. After the 1970s, service sector companies ended the dominance of manufacturers as employers. Peterborough has significantly more routine and semi-routine workers than the national average and also substantially fewer professional or managerial workers.<sup>13</sup>

A quarter of Peterborough's population would be classed as being in financial hardship and unemployment is a big issue in the city. It also has a large number of ethnic minority residents, who make up around 16% of the population. South Asians form the biggest segment, but people from Eastern European countries who recently joined the EU, especially Poland, are also thought to be concentrated there.<sup>13</sup>

Peterborough PCT has the highest proportion of people at risk of future hospital admission with COPD in the East of England region.

## Medway

The North Kent town of Medway is steeped in maritime and military history. Service sector industries now account for nearly three-quarters of all jobs and growth in the financial and business sectors has been especially significant but manufacturing is still important to the local economy.

North Kent has an above average proportion of its workforce who are poorly qualified and Medway as a whole is the largest conurbation in Europe without its own university.<sup>13</sup>

Medway PCT has the highest proportion of people at risk of future hospital admission with COPD in the South East coast area.





# Conclusions

There are an estimated 2.8 million people in the UK who have undiagnosed Chronic Obstructive Pulmonary Disease (COPD). Without diagnosis and care, those with the early stages of the disease are likely to progress to having a more severe form of the disease. At present most people in the UK are diagnosed with the severe form of the disease.

Those with severe COPD find that their lives are extremely restricted. They are often unable to work and rely on family and friends to care for them. They can find themselves unable to breathe, an extremely frightening experience, which often leads to hospitalisation.

The cost to the NHS of caring for people with COPD is huge. Most of the £490 million pounds a year it spends on COPD is on the provision of care in hospital. The cost to the NHS of caring for people with severe COPD is currently approximately nine times that of the cost of caring for people with mild COPD.

A lack of awareness of COPD amongst the public and health professionals, together with the stigma attached to a smoking related lung disease has led to COPD being neglected by health service planners. Awareness-raising, smoking cessation services, diagnosis, treatment and care are in urgent need of improvement.

This report identifies specific communities most at risk of future hospital admission with COPD. By extenuation, these are the areas likely to face the greatest challenge from COPD, both undiagnosed and established. Within these communities, 1.9 million people live in postcode areas at high risk of COPD admissions.

These 1.9 million people are clustered in some of the most deprived areas of the UK. In Scotland they include Greater Glasgow and Lanarkshire. In England they include ex-industrial and inner city areas in the North East, North West and Yorkshire and Humberside; pockets of deprivation in otherwise affluent areas such as Barking & Dagenham in London; and areas with disproportionately high populations of older people including the South Coast of England and East Anglia. In Wales they include Blaenau Gwent and ex-mining towns along the Welsh valleys. In Northern Ireland they include Belfast and Londonderry. Many of these areas have high and enduring levels of deprivation and associated unemployment.



Those at risk are in the main people living in deprived inner city areas on low incomes; people in former industrial heartlands who either once worked in factories, steelworks, dockyards and mines or who are still working in a factory or manufacturing job of some kind; and people in provincial cities in low-paid semi-skilled jobs or unemployed. These findings illustrate the huge health inequalities in the UK today.

Using the above data, the British Lung Foundation (BLF) has identified COPD 'hotspot' areas, ensuring that the top COPD 'hotspot' in every nation and English Strategic Health Authority was included in the list. It should be noted that these findings are not an indication of the quality of COPD service provision in any PCO area.

Given that the difference between the average cost of treating people with mild COPD and severe COPD is approximately £1,150 per person per year<sup>6</sup>, the cost to the NHS of not reaching, diagnosing and caring for the 2.8 'missing millions' with COPD, could be a potential £3.22 billion. The cost to the individuals at risk is a chronic lung disease which, instead of being managed and treated well, costs them years of active life and eventually their lives.

# Recommendations

In the light of information published in this report the British Lung Foundation is making the following eight recommendations for future action by policy makers and health and social care planners.

1. The British Lung Foundation (BLF) urges all four UK Governments to provide information to the public about the importance of lung health.
2. The BLF urges all four UK Governments and health care planners to work with it to reach and engage people at risk of COPD to improve awareness, diagnosis, treatment and care of people with the disease, to improve the quality of their lives, and to reduce emergency hospital admissions.
3. Targeted health campaigns are needed to raise awareness of COPD in the 'hotspot' areas, including, where appropriate, radio and TV advertising, direct mail and telephone cold-calling. These should also include schools' educational programmes aimed at reaching the children of those at risk of COPD and joint awareness campaigns with supermarkets, pharmacists and leisure outlets.
4. Smoking cessation services should proactively target smokers to provide long-term support for people who want to stop, with follow-up interventions beyond the current four-week period, in the 'hotspot' areas. Target audiences should include teenagers, with smoking cessation services tailored to their needs.
5. Breathing tests should be offered in all communities as well as in GP surgeries and pharmacies in the 'hotspot' areas. These could take place in mobile vans, shopping centres, leisure centres, supermarkets and schools.
6. The BLF urges all smokers over 35 years of age to have regular spirometry tests to ensure COPD is diagnosed at the earliest possible stage.
7. GP surgeries and pharmacists in 'hotspot' areas should ensure those providing spirometry testing are appropriately trained according to national guidelines and that equipment meets national standards.
8. People identified as having severe COPD by their GP should have their diagnosis confirmed by a lung specialist within six weeks. They should be given high quality information and support at every suitable stage of their treatment and care and be signposted to other organisations that can offer information and support. Patient support groups should be established in all the 'hotspot' areas.

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# The British Lung Foundation

The British Lung Foundation is the only UK charity working for everyone affected by lung disease.

- We **support** people affected by lung disease through the individual challenges they will face. Support is the focus of many of our activities, including our nationwide network of Breathe Easy support groups.
- We **help** people to understand their condition. We do this by providing comprehensive and clear information on paper, on the web and on the telephone.
- And we work for positive **change** in lung health. We do this by campaigning, raising awareness and funding world-class research.

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