RESPIRATORY DISEASE

JSNA DRAFT Report

This version published in August 2015

Authorised for publication by
This report

This report has been prepared jointly by Knowsley Council, the Clinical Commissioning Group (CCG) and partners of the Knowsley Health and Wellbeing Board (HWB).

Its purpose is to provide an analysis of Respiratory Disease in order to determine the following:

- How much impact does this issue have on local people?
- Can this impact be reduced through local action?
- Can local action reduce health inequalities?
- Will local action on this help address other issues too?

Understanding these things helps the HWB determine the level of priority that this issue should be given in the Borough’s Health and Wellbeing Strategy.

This is one of a series of reports that comprise Knowsley’s Joint Strategic Needs Assessment (JSNA).

Contacts

For information about this report please contact:

Ian Burkinshaw, Research & Intelligence Manager, Knowsley Council

Phone: 0151 443 3067 Email: ian.burkinshaw@knowsley.gov.uk

Further information

For a PDF copy of this report, and other research intelligence products, visit Knowsley Knowledge – the website of Knowsley’s JSNA
Contents

1. Introduction......................................................... 4
   1.1 What the report covers
   1.2 Quality of the data / intelligence

2. Why is Respiratory Disease important............ 5

3. Impact on Knowsley residents....................... 7
   3.1 Current level of need
   3.2 Prescribing

4. Associated risk factors / Contributors.......... 9
   4.1 Mortality
   4.2 Excess Winter Deaths
   4.3 Influenza and vaccinations
   4.4 Smoking

5. Who is most at risk............................................. 16

6. Which areas are most affected...................... 18

7. Current service provision.............................. 20
   7.1 Hospital Activity & Spend

8. How do local residents view the issue............ 24
   8.1 National insight
   8.2 Local insight

9. Evidence of what works elsewhere............... 26

10. Recommendations and implications............... 27

11. Intelligence / Evidence / References.......... 28
RESPIRATORY DISEASE

Introduction

The World Health Organisation defines respiratory diseases as “diseases that affect the air passages, including the nasal passages, the bronchi and the lungs. They range from acute infections, such as pneumonia and bronchitis, to chronic conditions such as asthma and chronic obstructive pulmonary disease”.

Chronic Obstructive Pulmonary Disease (COPD) is the fifth biggest killer disease in the UK, killing approximately 25,000 people a year in England. Premature mortality from COPD in the UK is almost twice as high as the European average (EU-15).

COPD is a lung disease characterised by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible\(^1\). The prevalence of COPD increases with age; it is rare before 35 years of age. It remains the fifth most common cause of death in England and Wales and is the second largest cause of emergency admission in the UK, with one in eight (13,000) emergency admissions to hospital as a result of COPD. One fifth (21%) of bed days used for respiratory disease treatment are due to chronic obstructive lung disease, such that COPD accounts for more than one million 'bed days' each year in hospitals in the UK.

Premature mortality for asthma in the UK is over 1.5 times higher the European average (EU-15). Evidence shows asthma has become more common over the last 30 years possibly as a result of our changing lifestyles, homes with central heating and fitted carpets with little ventilation and diets with fewer fresh foods. The National Asthma Campaign reports there are 5.4 million people in Britain currently receiving treatment for the condition and although deaths from asthma have plateaued to around 1200 deaths a year nationally, it is estimated that 90% of all deaths are associated with preventable factors.

What this report covers

This needs assessment covers a wide range of data relating to people in Knowsley suffering from respiratory disease excluding lung cancer. It presents analyses of the prevalence of long term conditions in Knowsley, relative comparisons with national picture and variations across the borough. Where possible, the analysis looked at the historical trends to see whether needs had increased or decreased over the past year, and whether this was part of a sustained trend.

Data has been analysed at locality level across Knowsley to see whether there were differences in health for different areas of the borough. Overall there were few

---

\(^1\) Chronic obstructive pulmonary disease (COPD) is a lung disease characterised by chronic obstruction of lung airflow that interferes with normal breathing and is not fully reversible. The more familiar terms 'chronic bronchitis' and 'emphysema' are no longer used, but are now included within the COPD diagnosis. COPD is not simply a "smoker's cough" but an under-diagnosed, life-threatening lung disease.
statistically significant variations in 2013/14 when compared to the previous year, this is to be expected given that health changes at the population level are slow moving, and as such, any trends must be treated cautiously.

Why is Respiratory Disease important?

The term respiratory disease covers a range of conditions, but the key areas are asthma, bronchitis, emphysema, and other COPD, and pneumonia. Respiratory disease is one of the key contributing factors to reduced life expectancy in Knowsley and is the third leading cause of death after cancer and cardiovascular disease (heart disease and strokes).

COPD

Chronic Obstructive Pulmonary Disease (COPD) is the name for a collection of lung conditions including chronic bronchitis and emphysema. COPD leads to damaged airways in the lungs. This causes the airways to become narrower, making it difficult for air to move in and out of the lungs.

The most common cause of COPD is smoking\(^2\), and the risk of having COPD increases the more someone smokes and the longer they smoke for. An estimated 86% of deaths from COPD are attributable to smoking. Some rarer causes of COPD include dust, fumes, air pollution and genetic conditions.

COPD is one of the most common respiratory diseases in the UK. It is estimated that there are over three million people living with the disease in the UK, of which only about 900,000 have been diagnosed. This is because many people who develop symptoms of COPD do not get medical help because they often dismiss their symptoms as a ‘smoker’s cough’. Between 2007-2009 COPD accounted for the majority of chronic lung disease deaths in England (67,253 deaths). The UK mortality rate from respiratory disease is almost double the European average.

COPD mainly affects people over the age of 40 and becomes more common with increasing age, this pattern is also typical in Knowsley. The average age when COPD is formally diagnosed in the UK is around 67 years, nationally it is more common in men than women although this picture is reversed in the Knowsley population with 58% of patients formally diagnosed being women and 42% being male. COPD is treatable, but not curable. Identifying and treating COPD early can slow down the decline in lung function, and so lengthen the period of time in which someone can enjoy an active life. The most important intervention for both preventing and treating COPD is not smoking.

A flare-up, or exacerbation of COPD is one of the most common reasons people seek emergency hospital assistance. It is thought that up to 90% of issues related to COPD are caused directly by smoking, with the remaining issues related to second hand smoke, occupational exposure to smoke and dust particles and genetic factors. This means that most COPD cases are preventable. By encouraging people to quit

smoking and discouraging others from taking it up, there should be a reduction in the number of people developing COPD in later life.

COPD is the second most common cause of emergency admissions to hospital in England and one of the most costly inpatient conditions to be treated by the NHS. Knowsley CCG spends around £17 million per year on problems of the respiratory system, the majority of which is split between secondary care non-elective activity (£7.5 million) and primary care prescribing and pharmaceutical services (£4 million), the remainder (£5.5 million) being spent on elective inpatient and outpatient care. In terms of COPD and conditions relating to COPD the spend within secondary care on emergency admissions was circa £4.2 million (56% of the £7.5m spent on secondary care non-elective activity). The broader economic cost of COPD has been estimated at £3.8bn for lost productivity in the UK economy as a whole. Nationally, 25% of people with COPD are prevented from working due to the disease with at least 20m lost working days a year among men and 3.5m lost days among women every year.

**Asthma**

Asthma is a common, long-term condition that affects the airways in the lungs. Classic symptoms include breathlessness, tightness in the chest, coughing and wheezing.

Asthma differs from COPD in that restrictions to the airflow are largely reversible, whereas in COPD the restriction is only partially reversible as there is permanent damage to the airways. The goal of treatment for patients with asthma is to be free of symptoms, and able to lead a normal, active life. The causes of asthma are not well understood and patients with asthma have different triggers for symptoms, and need to get to know what will provoke their asthma and cause deterioration in their control.

The most common triggers for asthma, some of which can be prevented or avoided, are:

- Cold or warm air
- Exercise
- Allergies e.g. dogs, cats, house dust mites
- Damp housing
- Irritants such as cigarette smoke, fumes, dusty atmospheres
- The common cold

Although Asthma is a condition that generally can be well-managed rather than cured, occupational asthma, where the condition is induced by exposure in the working environment to airborne dusts, vapours or fumes, can sometimes be cured. In these cases it is very important for any link to the workplace to be identified. Nationally, occupational factors account for approximately one in six cases of asthma in working age adults.

It is estimated that nationally, the NHS spends around £1bn a year treating and caring for people with asthma, this figure was reported to be £1.765 million in

Knowsley during 2013/14. In 2009/10, up to 1.1m working days were lost nationally due to breathing or lung problems.

Pneumonia

Given the demographic of the borough and the frailty of the patients suffering from respiratory problems such as COPD there is often the added complication of pneumonia. Pneumonia is an inflammatory condition of the lung and is usually caused by infection with viruses or bacteria, certain drugs and other conditions such as autoimmune diseases – the likelihood of patients already immuno suppressed or suffering exacerbations and contracting pneumonia is high, it is often cited as a co-morbidity amongst COPD patients especially and adds significantly to secondary care spend – circa £2.1M in 2013/14.

Impact on Knowsley residents

Across Knowsley there is a wide variation on mortality rates for respiratory diseases with the most deprived areas of the borough having double the mortality rates compared to the least deprived areas. Historically COPD detection rates have been lower in these more deprived areas.

Preventing respiratory disease and improving the management of respiratory disease will help to reduce inequalities in health. It is a priority contained within the Joint Health and Wellbeing Strategy 2013-16 and is linked to the narrowing the inequality gap goal contained within the strategy for Knowsley. It is a key priority for the local authority and the Clinical Commissioning Group

Current level of need

For 2013/14 GP reported COPD prevalence (the number of people who appear on GP registers with a diagnosis of COPD compared to the total GP practice population) in Knowsley is over double the England rate with approximately 3.5% of the registered population (5,558 people) compared with the England rate of 1.8%.

However, prevalence of asthma in Knowsley remains below national levels (5.4% in Knowsley compared to 5.9% nationally). This information is derived from GP patient disease registers as a proportion of the list size and although it gives a good indication of a specific prevalence of a disease area it fails to highlight cases within the community that have yet to be discovered. Figure 1 below details the relative prevalence as recorded by disease reigisters in Knowsley when compared to the England position.
For COPD specifically, Knowsley has the 2\textsuperscript{nd} highest proportion of people on practice registers out of the 211 clinical commissioning groups in England. In some parts of Knowsley, the prevalence is 1.6 times higher than the Knowsley average, however some of our more deprived areas still have relatively low detection rates. Despite this the expected prevalence of COPD in Knowsley is 4.8\%\textsuperscript{4} which indicates that there may be a significant proportion of undiagnosed COPD in Knowsley, potentially up to 2,175 people.\textsuperscript{.}

The hospital emergency admission rate in Knowsley for COPD was 4.7 per 1000 of the registered population, which is statistically significantly higher than the England average admission rate of 2.1 (2013/14 data)\textsuperscript{.}

Whilst recorded prevalence of asthma in Knowsley showed a slight increase in 2013/14 it remains below both the England average (6.04\%) and expected level of prevalence of 6.27\%. Some of this increase in reported diagnosis of asthma may well be a result of patients previously being mis-diagnosis as having COPD, this issue is being addressed through the wider respiratory strategy and partnership working between GP practices throughout the borough and the Community Respiratory Disease Service commissioned by the CCG.

Knowsley CCG has a higher respiratory spend per weighted head of population than is average for England (£113 compared to £89) but generally has much poorer outcomes and a larger volume of potential years of life lost according to programme budgeting data, (SPOT\textsuperscript{5}, 2014 figures).

\textsuperscript{4} Both recorded and expected prevalence of COPD varies widely between areas. In a recent study, the ratio of diagnosed to expected prevalence varied from 0.20 to 0.95, with a mean of 0.52 - Nacul, L et al. (2010). “COPD in England: a comparison of expected, model-based prevalence and observed prevalence from general practice data”, Journal of Public Health, June 2010, pp. 1-9

\textsuperscript{5} http://www.yhpho.org.uk/default.aspx?RID=49488
The table below shows the relative performance of Knowsley clinical commissioning group across a number of respiratory indicators against its peers and England as whole. Of the indicators measured:

- 7 are performing in the worst quartile
- 1 is performing better than the England median
- 1 is performing in the upper quartile
- 3 are in the interquartile range and are not statistically significantly different than the most similar 10 CCGs

Respiratory commissioning for value – respiratory atlas spine chart

<table>
<thead>
<tr>
<th>Indicator Name</th>
<th>Value</th>
<th>Similar 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory - Spend on all secondary care admissions (2011/12)</td>
<td>£3,437</td>
<td>£3,437</td>
</tr>
<tr>
<td>Respiratory - Spend on effective and non-case admissions (2011/12)</td>
<td>£3,437</td>
<td>£3,437</td>
</tr>
<tr>
<td>Respiratory - Spend on non-effective admissions (2011/12)</td>
<td>£2,591</td>
<td>£3,437</td>
</tr>
<tr>
<td>Respiratory - Spend on PHS prescriptions (2011/12)</td>
<td>£2,591</td>
<td>£3,437</td>
</tr>
<tr>
<td>Respiratory - All secondary care admissions (2011/12)</td>
<td>£2,591</td>
<td>£3,437</td>
</tr>
<tr>
<td>Respiratory - Electronic and day-case admissions (2011/12)</td>
<td>£2,591</td>
<td>£3,437</td>
</tr>
<tr>
<td>Respiratory - Non-effective admissions (2011/12)</td>
<td>£2,591</td>
<td>£3,437</td>
</tr>
<tr>
<td>Respiratory - Emergency COPD admissions relative to patients on disease register (2011/12)</td>
<td>£2,591</td>
<td>£3,437</td>
</tr>
<tr>
<td>Respiratory - Mortality from asthma under 75 years (2009-11)</td>
<td>£2,591</td>
<td>£3,437</td>
</tr>
<tr>
<td>Respiratory - Mortality from bronchiolitis and pneumonia and COPD under 75 years (2009-11)</td>
<td>£2,591</td>
<td>£3,437</td>
</tr>
<tr>
<td>Respiratory - Hospitalisations or IP counts as % of COPD prevalent (2011)</td>
<td>£2,591</td>
<td>£3,437</td>
</tr>
</tbody>
</table>

Source: NHS England

Prescribing

Respiratory prescribing accounted for 18.8% of all primary prescribing costs in Knowsley for 2014/15 (£6,719,518 out of £30,872,445). Corticosteroids accounted for 59.9% of this expenditure (£3,030,030), with Bronchodilators making up the majority of the remainder (£1,628,886). The below chart illustrates that Knowsley has significantly higher prescribing costs when standardised per 1,000 population when compared to Cheshire and Merseyside CCGs, and the England average.
Associated risk factors / contributors

Mortality

Overall in 2013, there were 286 deaths in Knowsley from respiratory disease, which accounts for 19% of all deaths during the year. Of these deaths, approximately 28% were under 75 years of age.

The premature mortality rate from respiratory disease in Knowsley between 2011 and 2013 was 58.3 deaths per 100,000 population, significantly higher than England (33.2) and the North West region (43.9). However, although the mortality rate in Knowsley was higher than the Liverpool City Region (50.7) and Knowsley’s Statistical Neighbour Group (54.8), the difference was not statistically significant.

Between 2001-03 and 2011-13, the premature respiratory disease mortality rate fell by 14% in Knowsley. Over the same period, the absolute gap in the rate between Knowsley and England narrowed by 8%. It is estimated that there were 87 excess premature deaths from respiratory disease in Knowsley between 2011 and 2013 (29 per year) compared to the England death rate. These excess deaths mostly occurred amongst those over 60 years of age.

Source: Office for National Statistics

Knowsley had the 6th highest mortality rate due to respiratory disease in England out of 326 local authority areas between 2011 and 2013. Premature female mortality from respiratory disease was 46.0 deaths per 100,000 population in 2011-13, a decrease of 27% in the 10 years since 2001-03. For males, premature mortality was 72.2 deaths per 100,000 population, representing no real change since 2001-03.
Chronic Obstructive Pulmonary Disease (COPD)

During 2013, in Knowsley there were 132 deaths from COPD, accounting for 46% of respiratory disease deaths. Of these deaths, approximately 31% were under 75 years of age.

Between 2011 and 2013, the premature COPD mortality rate in Knowsley was 35.0 deaths per 100,000 resident population, significantly higher than England (17.5) and the North West Region (23.6). COPD mortality in Knowsley was also higher than the Liverpool City Region (28.7) and Knowsley's Statistical Neighbour Group (30.5), but not significantly so.

Between 2001-03 and 2011-13, the premature COPD mortality rate decreased by 13% in Knowsley. Over the same 10-year period, the absolute gap between Knowsley's premature COPD mortality rate and England's premature COPD mortality rate decreased by 12%. There were 59 excess premature deaths from COPD in Knowsley during 2011-13 (20 per year) compared to the England death rate; the majority of premature deaths occurred over the age of 50 and were particularly high over the age of 70.

Knowsley had the 7th highest premature COPD mortality rate in England, out of 326 local authorities. Premature female mortality from COPD was 32.9 deaths per 100,000 females in 2011-13, a decrease of 11% since 2001-03. Premature male COPD mortality was slightly higher at 37.4 deaths per 100,000 males in the same period, however this represented a reduction of 15% over the previous 10 years.

Pneumonia

During 2013, there were 82 deaths from pneumonia in Knowsley, accounting for 29% of all respiratory deaths. Of these deaths, approximately 23% were under 75 years of age.
In total there were 206 deaths due to pneumonia in Knowsley during 2010-12, approximately 69 per year. This equates to 28.3 deaths per 100,000 during the three-year period, significantly higher than the England rate (23.1) and higher than the North West region (26.2). Over the same three-year period, male mortality from pneumonia in Knowsley was higher than it was for females, 32.1 deaths per 100,000 males compared to 25.8 deaths per 100,000 females, with both rates being comparatively higher than England.

Emergency admissions for Knowsley registered residents with a primary diagnosis of pneumonia from 2012 to 2016 were as follows;

Table X: Knowsley registered residents with a primary diagnosis of pneumonia

<table>
<thead>
<tr>
<th></th>
<th>2012 / 13</th>
<th>2014 / 15</th>
<th>2015 / 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>670</td>
<td>810</td>
<td>271</td>
<td></td>
</tr>
</tbody>
</table>

**Excess winter deaths**

Respiratory disease is a key contributing factor to excess winter deaths. That is the number of deaths occurring over the winter months in excess to those we would expect to see if the same rates were seen throughout the year.

![Figure 7: Excess winter mortality in Knowsley](image)

The chart above, Fig 7, highlights that the number of excess winter deaths (EWD) in Knowsley has varied over the thirteen years since the baseline in 2001/02 where there were 47 extra winter deaths than expected. Incidentally, the highest recorded number of EWD occurred in 2012/13 period (119 EWD occurring in 2012/13) and the lowest occurring in the 2003/4 winter period (31 deaths). Since 2001/02, there has been an average of 63 excess winter deaths per year in Knowsley meaning that the number of EWDs in 2012/13 was 90% above average. Excess mortality in England in 2013/14 coincided with influenza, respiratory syncytial virus (RSV) and cold weather, with an unusually prolonged influenza season and late cold period reported and is the likely cause of the excess mortality in Knowsley during this period.
The Excess Winter Death index, a statistical derivative of actual excess winter deaths and the average of Non Winter Deaths expressed as a percentage shows that the Knowsley index had been below that of England for most of the reporting period and has overtaken it in 2012/13 by 29% - this means that 29% more deaths took place in the winter period in Knowsley than took place in England as a whole. Evidence suggests that there is a strong link between EWDs and colder homes – not just as an impact of any socio-economic deprivation – all of the most vulnerable are at risk if they live in a cold home.

On average over the last 3 years, around 27,000 people died in England over the winter months because of cold weather when compared to other times of the year. Respiratory diseases are responsible for about a third of all these Excess Winter Deaths. In terms of respiratory disease and the correlation with temperature variation (a cold spell during a mild winter – as tends to be the norm in England) then there is a statistically significant rise in respiratory illness approximately 12 days following the cold snap with increases in mortality evidenced.

Figure 9: Excess Winter Death Index

Figure 9 highlights monthly mortality from respiratory disease and mean temperature, as can be seen there are increases in deaths from respiratory disease when the temperature drops. A clear example of this can be seen in November 2010 when the temperature drops below zero there was a significant increase in deaths from respiratory disease.

---

6 An EWM index of 120 shows that there were 120 per cent more deaths in winter compared with the non-winter period.
Influenza vaccination

People with respiratory conditions are a key target group for influenza vaccination. Data from 2012/2013 shows uptake in over 65s has steadily risen over recent years and is very good:

<table>
<thead>
<tr>
<th>Year</th>
<th>2008/09</th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowsley</td>
<td>76.0%</td>
<td>74.2%</td>
<td>76.8%</td>
<td>77.9%</td>
<td>78.2%</td>
</tr>
<tr>
<td>North West</td>
<td>75.0%</td>
<td>73.4%</td>
<td>74.6%</td>
<td>76.7%</td>
<td>75.8%</td>
</tr>
<tr>
<td>England</td>
<td>74.1%</td>
<td>72.4%</td>
<td>72.8%</td>
<td>74.0%</td>
<td>73.4%</td>
</tr>
<tr>
<td>Target</td>
<td>70.0%</td>
<td>70.0%</td>
<td>70.0%</td>
<td>70.0%</td>
<td>75.0%</td>
</tr>
</tbody>
</table>

However, analysis of uptake in under 65s in specific at risk groups shows some areas for improvement. Uptake of the seasonal flu vaccine amongst patients with respiratory disease in 2012/2013 rose from 54.3% in 2011/12 to 58% in 2012/13, indeed uptake of the influenza vaccination in patients diagnosed with COPD was reported to be 80.4% in 2013/14, the same as the previous year. Patients with respiratory conditions represent the largest group at risk from complications from seasonal flu. Fig.11 shows the practice-level variation in uptake in patients with respiratory disease across Knowsley.
Figure 11: Influenza vaccination uptake in those with Respiratory Disease under 65 years

**Smoking**

Adult smoking prevalence in Knowsley is 32% (2012/13) compared to 20%\(^2\) nationally and 28% regionally (Figure 12).

![Bar chart showing smoking prevalence in Knowsley residents by age and gender.](image)

**Figure 12**: Current smokers 2012/13

Female smoking rates in Knowsley are higher than male rates. Smoking prevalence in Knowsley increases with age and reaches a peak in the 45-54 age group (40%). Thereafter prevalence falls and reaches 19% for people aged 65 years of age and older.
There has been a long standing link with smoking prevalence and deprivation, and the same pattern emerges for Knowsley. For instance, 46% of those who rent their accommodation from a housing association in Knowsley currently smoke, compared to 22% of owner occupiers.

According to the Young Persons’ Alcohol and Tobacco Survey (2013), the percentage of young people claiming to smoke in Knowsley is 10%, the same level as in 2011 remaining below the regional average of 15%.

It is now established that second hand tobacco smoke is harmful to those who are exposed to it regularly and is especially harmful to those who are young and those that have a respiratory illness. The 2013 School Health Related Behaviour Survey has highlighted that 44% of year 10 boys and 54% of girls reported that more than one person smoked within their home environment in the past week.

WHO IS MOST AT RISK?

- Gender and age / life stages
   Respiratory disease has a substantial impact on the health of populations at all ages and every level of morbidity. However, the major risk factor for developing many respiratory diseases is smoking or exposure to tobacco smoke. In particular, COPD predominantly affects adults over the age of 40 with a history of smoking.

   In addition, older people, young people, people with chronic conditions, and people with weakened immune systems are especially vulnerable to respiratory diseases such as colds, flu, and pneumonia and as highlighted above in Fig. 12. EWD shows that respiratory disease accounts for fully 1/3rd of excess winter deaths.
Figure 13: COPD diagnosis by Age band and Gender – 2015/16

**Air quality**

Short term exposure to high levels of air pollutants can cause a number of health effects including exacerbation of Asthma & reductions in lung function. Hospital attendances and admissions and mortality from respiratory and cardiovascular disease are also linked to air quality.

Public Health England (PHE) produces estimates of the size of effect of air pollution on mortality in local authority areas in the UK. The intention of this modelling is to raise local awareness and examine the importance of air quality as a factor in local mortality. The modelling suggests that in 2010 around 77 deaths in people aged over 25 in Knowsley were attributable to Particulate Matter PM 2.5 pollutants - around 5.5% of deaths in this age group. Such small particulate matter is produced from tobacco smoke, industrial processes as well as traffic and other forms of transport.

- **Income and deprivation**
  Socioeconomic factors such as poor diet, poor housing conditions, and fuel poverty contribute to the incidence of respiratory diseases and exacerbate these conditions. Other factors such as work related conditions and exposure to outdoor air pollution also play a role in the development and exacerbation of respiratory disease.

- **Ethnicity**

  There is no evidence to suggest that particular ethnic groups are at a greater risk of developing respiratory disease. However, due to the close association with smoking prevalence, individuals from cultures with high smoking rates experience higher rates of respiratory disease.

- **Co-morbidities**
  - People with mental health problems
Some figures suggest a great proportion of cross over with other long term conditions (most likely due to shared risk factors eg smoking – heart disease)

- **Smokers: Chronic Obstructive Pulmonary Disease**
  People that smoke, especially long term heavy smokers are at the greatest risk of developing respiratory disease. It has been estimated that 10-20% of smokers develop COPD, rising to 30-40% of smokers who have smoked for over 25 years. (Lokke et al 2006)

**WHICH AREAS OF THE BOROUGH ARE MOST AFFECTED?**

Due to changes in Health & Social care policy in relation to data sharing and access to patient level data then demographic segmentation and profiling at neighbourhood, ward or partnership level is not possible at this time. Incidence and prevalence by ‘Neighbourhood’ can however be analysed.

The charts below detail GP practice prevalence of COPD and Asthma and variation to the England average.

![COPD Prevalence by Practice - 2015/16](image)

*Figure 14: COPD diagnosis prevalence by practice 2015/16*
A Neighbourhub is a collection of practices based upon their geographical location within the borough. The charts below detail the distribution of COPD and Asthma incidence by Neighbourhub groupings of practices. The Neighbourhub with the largest prevalence of COPD is the Kirkby group which accounts for 28% of the borough’s incidence and roughly a third of the borough’s population. Halewood Neighbourhub is reported to have 3.3% prevalence which is the lowest of the groupings and accounts for 22% of the incidence split with all but one of the groups practices having prevalence lower than that of the borough as a whole.
Figure 17: Asthma prevalence & split by neighbourhub 2015/16

Current service provision and action

Hospital Activity and Spend

In 2014/15, Knowsley spent approximately £6,504,000 on emergency admissions for adults due to respiratory conditions, with the top 2 singular reasons for admission being pneumonia and COPD. This accounts for 14% of all emergency admissions for that year – the number of adult respiratory admissions has shown average growth over the last three years of approximately 10% each year although average Length of Stay of these admissions over the same period has typically decreased by around 1 day.

<table>
<thead>
<tr>
<th>Diagnosis Category</th>
<th>Cost</th>
<th>Spells</th>
<th>Avg stay (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>£148,854</td>
<td>141</td>
<td>2.0</td>
</tr>
<tr>
<td>Lobar atypical Pneumonia</td>
<td>£2,769,699</td>
<td>980</td>
<td>8.0</td>
</tr>
<tr>
<td>COPD</td>
<td>£1,492,488</td>
<td>750</td>
<td>4.6</td>
</tr>
<tr>
<td>Unspecified acute lower respiratory infections</td>
<td>£496,939</td>
<td>309</td>
<td>8.0</td>
</tr>
<tr>
<td>Other respiratory conditions</td>
<td>£1,596,069</td>
<td>786</td>
<td>5.4</td>
</tr>
<tr>
<td>Grand Total</td>
<td>£6,504,049</td>
<td>2966</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Figure 18: Top 5 reasons for emergency respiratory admissions for Knowsley registered patients 2014/15
In addition to the picture of increased admissions, respiratory conditions accounted for £273,789 of activity in A&E attendances, as well as £212,466 in Walk-in centre attendances. This increase in spend circa 16% is mirrored in acute conversions to admissions, although is not the total picture as one of the borough’s main acute providers does not record AED presenting complaint so the true cost is likely to be higher.

Elective admissions for the treatment and management of respiratory conditions accounted for £429,673 in 2014/15, a downturn on the previous year of 16%. Outpatient Department attendances accounted for a further £923,942 in 2014/15 which was a decrease of around 6% on the previous year.
Care for patients with respiratory disease is via a number of routes; primary care, including general practice, community service provision, secondary and tertiary care. Given the high numbers of residents expected to be diagnosed (current undiagnosed gap) and the observed trends of activity it is likely that this provision will be faced with increased demand and resource implication.

For many respiratory diseases, especially Asthma and COPD, early diagnosis and effective treatment and management have a positive impact on long term health outcomes. Therefore it is essential that:

1. The public and professionals are aware of symptoms of respiratory disease;
2. Individuals with suspected respiratory disease are encouraged to access early diagnostic and treatment services;
3. Good disease management is promoted and people are empowered to use self-care techniques;
4. Healthcare professionals are able to offer effective treatment and support individuals in managing their condition

The current pattern of service utilisation, featuring as it does high spend for non-elective treatment, is not the most cost effective and there are opportunities to improve outcomes for patients whilst reducing costs, these include;

1. Ensuring a more systematic evidence based approach to care management in primary care in line with NICE guidance and identified local areas of need
2. Further developing accessible community based respiratory services;
3. Establishing alternative assessment and treatment services which are able to offer alternatives to emergency hospital admission for this group of patients.
4. Smoking cessation services / tobacco control initiatives

**Current service provision**

**Community Respiratory Disease Service**

During 2015 Knowsley CCG procured a Consultant led Community Respiratory Disease service which will build on the on the successes of the previous Community COPD model to include a far broader range of respiratory conditions, including Asthma and other obstructive and restrictive conditions.

The service commenced on 2nd November 2015 and will expand to include the full range of respiratory conditions appropriate to community management by June 2016. At the heart of the new service are clinics delivered by specialist respiratory consultants, who will provide timely diagnosis and disease staging for a broad range of conditions. From there, patients are:
Referred into to a basket of additional physical and mental health components, contained within the Service, tailored to their individual needs

Provided with access to immediate, telephone-based clinical support from trained nurses, available 24 hours a day

Able to access the ‘Rapid Response Service’, a team of respiratory nurses and physiotherapists who are able to visit the patient at home where needed, within two hours. This service supports exacerbating patients in particular, helping to manage their exacerbation locally and rapidly, minimising the need for acute hospital attendance unless deemed clinically necessary.

Offered access to a broad range of other clinical, social and charity sector support services to help them live happier, healthier, longer lives

Supported to leave the acute hospital setting as soon as it is clinically appropriate for them to be supported at home, via a dedicated Early Supported Discharge service

Provided with specialist respiratory input at palliative and End of Life stage, helping avoid unnecessary admissions and working to ensure an Advanced Care Planning preferences are respected

Whilst for many patients a natural “diagnosis – treat – follow up” pathway will be followed the service also support patients who access the service at any stage of the pathway (for example, a patient with an existing diagnosis of asthma who would benefit from chest physiotherapy or rehabilitation)

**Smoking**

Current initiatives in relation to tobacco control and smoking cessation are described in more detail within the Smoking chapter of this Joint Strategic Needs Assessment.

**Health Homes and Air Quality**

Current initiatives in relation to these two areas is described in more detail within the Health Protection chapter of this Joint Strategic Needs Assessment.

**Inhaler Technique Project**

National research has demonstrated that over 9 out of 10 people do not know how to take their respiratory inhaler correctly. This could potentially lead to some respiratory conditions such as asthma and COPD not being controlled as well as it could be. In January 2015 a time limited, three month Inhaler Technique Project was launched in Knowsley which mirrored similar campaigns across the country.

18 local pharmacies opportunistically offered patients the opportunity of an inhaler technique review on collection of their prescription, with follow up review a month later. Participating pharmacists undertook extra specialist training in order to ensure
their own skills were at an appropriate level and be able to provide patients with appropriate expert advice.

Outcomes of the project have demonstrated that local Pharmacies are ideally placed to engage with respiratory patients. The project also highlighted the importance of ‘Make Every Contact Count’ as a significant percentage of the participants were smokers at initial review, and yet accepted referral to smoking cessation services when offered.

Commissioners are currently giving further consideration to these outcomes with a view to consideration of longer term opportunities to support respiratory patients through local pharmacy services.

**HOW DO RESIDENTS, COMMUNITIES AND STAKEHOLDERS VIEW THIS ISSUE?**

**National insight**

The National Outcomes Strategy for respiratory disease (DOH, 2011) undertook research to discover what the public, people with COPD and Asthma, their carers, and clinicians want from services. The below findings are taken from the strategy document.

The general public concluded that their needs are for:
- Information and advice on how to reduce their risk of respiratory disease;
- Timely access to services which can help them reduce their risk of respiratory disease or of making it worse;
- Information on the symptoms and signs of respiratory disease to help them seek help early;
- The reassurance that if they or their relatives develop respiratory disease they have rapid access to high quality services that can meet their immediate healthcare need.

People with COPD and Asthma and their carers want:
- Timely access to comprehensive quality assured assessment and diagnostic services;
- Information related to their condition and how it is managed to be available to all practitioners involved in their care irrespective of the setting;
- Access to reliable information about their condition which sets out all the options so that they can make choices which are appropriate for them;
- Easy access to comprehensive information about the services available to them and the outcomes achieved by these services;
- To be empowered to make choices about their care where these are clinically appropriate and to be supported in decision making to the extent that they wish;
- To know that they will receive the support they need whilst living with their condition and to be supported to remain in work and play an active role in society and local communities;
- To be treated as a whole person, often with a range of other conditions;
To know that everyone involved in their care has the necessary skills, training and expertise and be reassured that everyone involved in their care will work effectively together, so that their care will feel seamless even when delivered in different locations;

To be able to access specialist services without delay should they need to do so; and to be assisted where necessary to remain at home;

To know that if they are approaching the end of life their preferences for care will be discussed with them and every effort will be made to meet their needs and their preferences;

To be treated as a whole to enable them to fully undertake activities of daily living and for the care providers to act as one team.

Health and social care professionals want:

• The training, support and information they need to deliver high quality care and deliver good outcomes;

• To work in a service which is well managed, so that their time is used effectively and so that care is streamlined for people with COPD and Asthma;

• To be able to compare the outcomes they achieve with those achieved elsewhere in this country and in other countries;

• To be free to make the choices which they feel will benefit their patients the most;

• To be recognised for the specialist skills and knowledge that they possess and for this to be fully utilised to deliver better outcomes for people;

• To be able to work across traditional boundaries of care and to be supported to be innovative and to deliver care differently;

• To have information about the people they care for, that is shared and easily accessible across the whole health system;

• To be supported in creating the evidence on which models of care needs to be based.

Local insight

The Knowsley Joint Health and Wellbeing Strategy (2013-16) produced by the CCG and Local Authority identifies respiratory disease and smoking as one of four priorities for health and wellbeing in the Borough. Likewise, respiratory disease is a priority area identified in the Clinical Commissioning Group commissioning plan.

A consultation was undertaken with patients, carers, the general public and wider stakeholders including GP’s and practice nurses about the current level of service and was well attended. The feedback obtained was summarised to identify what matters most to those people who provided their views and this was used to feed into the re-development of a new community respiratory service model. Key issues that emerged were:

• Little or no prior knowledge of the disease and risk factors associated with COPD before diagnosis;

• Significant physical and emotional impact of the disease;

• Support and information from GPs and other health professionals is sometimes limited (very common theme);
• Education programmes and information on services and facilities available to help people with self-management of their disease were highly valued, though not all patients were aware of what was available;
• Support groups and networks are valuable for information exchange and emotional wellbeing;
• More services should be community based/led;
• Facilities made available at home to facilitate self-care;
• Assistive technology had not been widely experienced, but was mostly seen as beneficial where used;
• Help with transport;
• Need more awareness and easy access to support mechanisms;

Evidence suggests that these groups are not engaging with primary care prevention initiatives. Anecdotally, these groups tend to have a more fatalistic view of healthy life expectancy and lower aspirations for living a healthy life. They are less likely to recognise symptoms of disease early and/or act quickly to access treatment. Subsequently people with respiratory disease living in the most deprived areas of Knowsley are more likely to experience chronic disease which, potentially, is not managed well.

**Evidence of what works locally and elsewhere**

For many respiratory diseases, especially Asthma and COPD, early diagnosis and effective treatment and management have a positive impact on long term health outcomes. Therefore it is essential that:

1. The public and professionals are aware of symptoms of respiratory disease;

2. Individuals with suspected respiratory disease are encouraged to access early diagnostic and treatment services;

3. Good disease management is promoted and people are empowered to use self-care techniques;

4. Healthcare professionals are able to offer effective treatment and support individuals in managing their condition.

In 2011, the national institute for health and clinical excellence (NICE) produced a quality standard to improve the assessment, diagnosis and management of COPD in adults. This quality standard consists of 13 concise and measurable statements based on existing guidance that are designed to improve the quality of care for people with COPD. The 13 statements contained in the standard cover: diagnosis, management, therapies, smoking cessation, oxygen therapy, hospital care, rehabilitation and palliative care.

In 2013, NICE produced a similar quality standard to improve the diagnosis and treatment of Asthma in adults, young people and children aged 12-months and over. The 11 statements in the standard cover: diagnosis, personalised action plans, inhaler technique, review, Asthma control, assessing severity, follow-up in primary care, and difficult and acute Asthma.
The quality standard for COPD should be considered together in conjunction with the national strategy entitled *An Outcomes Strategy for COPD and Asthma in England* (Dept of Health July 2001) and associated guidance. The Outcomes Strategy has a broader scope that also includes prevention, case finding, early detection and organisation of care. It sets out a vision for future services that is likely to require a significant change in emphasis for public health and NHS services. It is intended to improve the quality of care for people with suspected COPD as well as those with a confirmed diagnosis. As part of this focus, it recommends piloting certain interventions and strategies to determine the best ways of delivering different models of care.

Both the quality standard and the Outcomes Strategy, and commissioning guidance associated with them, should be used by commissioners to make improvements in the full range of COPD services.

**Recommendations / Implications**

As the development of COPD is most commonly linked to tobacco smoking, programmes of work that aim to reduce the numbers of people who start smoking and support smokers who wish to stop smoking are very important in reducing the impact of respiratory conditions on the population of Knowsley.

People with COPD often have one or more other long-term conditions, so their care, including self-care, needs to be managed holistically rather than along individual traditional singular disease pathways.

Objectives for improving health and reducing premature mortality from COPD and Asthma are the same as those set out in the national outcomes strategy for COPD and Asthma in England – all of which are relevant for Knowsley. They are:

- **Improve the respiratory health and wellbeing of all communities and minimise inequalities between communities.**

- **Reduce the number of people who develop COPD by ensuring they are aware of the importance of good lung health and wellbeing, with risk factors understood, avoided or minimised, and proactively address health inequalities.**

- **Focus on decreasing smoking rates.**

- **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.**

- **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.**

- **Ensure that people with COPD, across all social groups, receive safe and effective care, which minimises progression, enhances recovery and promotes independence.**
Ensure that people with Asthma, across all social groups, are free of symptoms because of prompt and accurate diagnosis, shared decision making regarding treatment, and on-going support as they self-manage their own condition. This will reduce need for unscheduled health care and reduce risk of death.

In 2013/14, exception rates for QoF reporting in terms of COPD within Knowsley were amongst the lowest quintile in the country with 10% of the disease register being excepted from QoF. This compares favourably with the England average of 12.8% and the North West position of 13.8%. However, analysis shows that those people excepted from QoF continue to utilise secondary care and as such efforts need to be reinvigorated to ensure these patients engage with primary care.
Intelligence and Evidence

1. Spend and Outcomes tool (SPOT)
3. Nice Asthma Quality standards 2013
4. British Thoracic Society Adult Asthma Audit
5. Deaths from respiratory disease - implications for end of life care in England
6. DH 2011: An Outcomes Strategy for Chronic Obstructive Pulmonary Disease (COPD) and Asthma:
7. Quality outcomes framework 2013/14
8. APHO COPD prevalence rates / estimates
9. Area Health Profiles
10. Atlas of variation
11. CCG tools
12. Healthwatch Knowsley
13. Mortality from Emphysema, bronchitis and COPD
14. Smoking cessation guidelines (NICE)