

Respiratory disease

Introduction

This document is a high level review of the published epidemiological information on common respiratory disease and how this relates to the health needs of the East Sussex population. Pulmonary tuberculosis is covered in separate reports from PHE. This report is intended to provide a briefing of respiratory disease in East Sussex as part of the Joint Strategic Needs and Asset Assessment for the county.

Why are respiratory diseases important?

Lung disease in the UK:



Every 5 minutes somebody dies from lung disease in the UK.



About **10,000 people** are **newly diagnosed** every week.

1 in 5

About **one in five people** has ever developed asthma, COPD or another long-term respiratory illness.



Lung disease is responsible for **>700,000 hospital admissions** each year.



Lung disease is responsible for **>6 million inpatient bed-days** each year.

Source: [British Lung Foundation](#)

Burden of disease: prevalence

The two most prevalent respiratory conditions nationally and locally are Chronic Obstructive Pulmonary Disease [COPD] and asthma. Both conditions pose a heavy disease burden in terms of NHS and social care resources, patient health outcomes and quality of life.

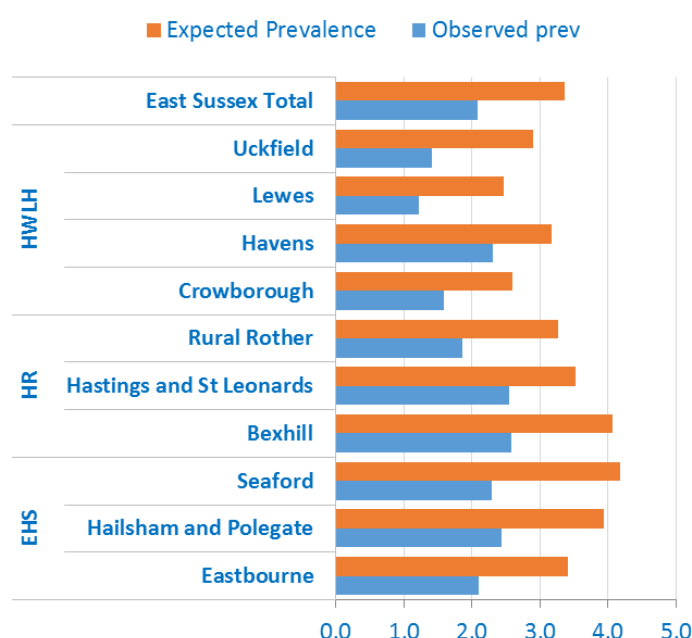
COPD

Chronic obstructive pulmonary disease (COPD) is an umbrella term for a collection of lung diseases, including chronic bronchitis, emphysema and bronchiectasis. COPD is characterised by airflow obstruction or limitation. The airflow obstruction is usually progressive and not fully reversible (unlike asthma). While not curable, the condition is treatable, and early intervention and appropriate management can slow the decline in lung function.

In 2016/17 in East Sussex, COPD observed prevalence varied from: 1.7% (no=2,923) in HWLH CCG, 2.2% (no=4,389) EHS CCG and 2.5% (no=4,246) HR CCG, compared to 1.9% nationally.¹ National risk modelling estimates a COPD prevalence (including undiagnosed cases) of 2.6% for local authorities in England.² Using this model to show estimated prevalence for East Sussex suggests that over a third of people with COPD in East Sussex may be undiagnosed, although this varies by locality (Figure 1).

Differences in recorded prevalence between localities and practices may reflect differences in how patients have presented to their doctor and GP diagnosis rates, as well as the underlying level of respiratory disease in the population.

Figure 1: Recorded (observed) and expected COPD prevalence by CCG and locality (2016/17)



Source: QoF 2016/17; COPD prevalence modelled estimates.²

A proportion of the undiagnosed COPD cases are likely to be severe or very severe. Up to 34% of emergency admissions for acute exacerbations are in people whose COPD is *undiagnosed*, emphasising the importance of effective case finding.³ In the years prior to a diagnosis of COPD people are likely to have consulted in primary care on a number of occasions for lower respiratory tract infections or symptoms.

Asthma

Asthma is a long term condition that affects the airways in the lungs. Typical symptoms include breathlessness, tightness of the chest, coughing and wheezing. While the severity of the symptoms can vary, the condition is usually controllable with treatment.

Nationally, asthma is the second most prevalent long term condition on QoF disease registers, after hypertension, and is most common in children and young adults. While some children will outgrow their symptoms, the condition may recur later in adult life. In England the prevalence of asthma was 5.9% in 2016/17. In 2016/17 in East Sussex, asthma observed prevalence varied from: 6% (no=10,163) in HWLH CCG, 6.1% (no=10,262) EHS CCG and 6.6% (no=12,876) HR CCG.⁴

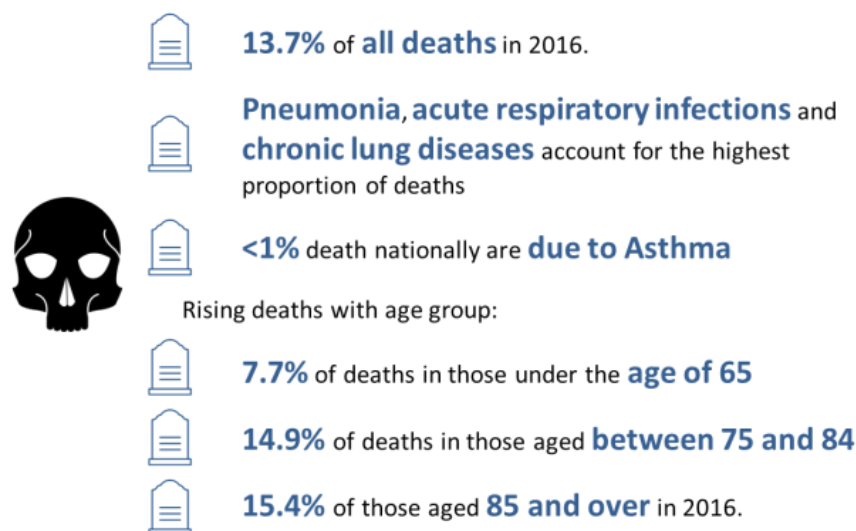
Pneumonia

Pneumonia is an infection of the lung tissue. When a person has pneumonia the air sacs in their lungs become filled with microorganisms, fluid and inflammatory cells and their lungs are not able to work properly. Every year, between 0.5% and 1% of adults will have

community-acquired pneumonia, and it is diagnosed in 5-12% of adults who present to their GP with symptoms of lower respiratory tract infection.⁵

Burden of disease: deaths from respiratory disease

Respiratory diseases (excluding lung cancer) in England:



Source: Public Health England End of Life Care Profile, accessed June 2018

The National Review of Asthma Deaths makes a number of recommendations relating to the provision of annual reviews and personal action plans for asthma patients.⁶ While small in number, the average number of asthma deaths in East Sussex has been increasing in elderly people (aged 65 years and over) between 2011 and 2016 (from an average of 8 per year in 2011-13 to over 17 per year in 2014-16).⁷

Burden of disease: emergency hospital admissions

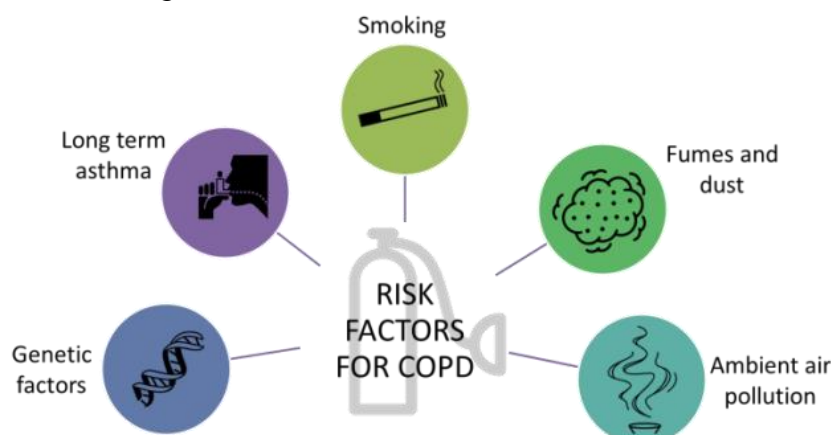
9/10 Nationally, around nine in ten admissions for either COPD or asthma are as emergency admissions.

Acute exacerbation of COPD is identified as one of the most common reasons for emergency admissions. Emergency admissions highlight the importance of optimising self care and secondary prevention in community settings.

Risk factors for respiratory disease

Risk factors for COPD

The following are risk factors for COPD:



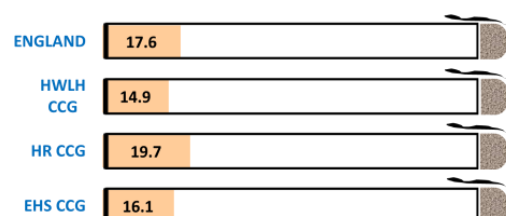
Nationally, over half of all early deaths from respiratory disease are estimated to be preventable (potentially avoidable through public health interventions).

Up to 90%
COPD cases are
smoking related

Up to one in four
smokers will
develop COPD

Exposure to **tobacco smoke** is the leading modifiable risk factor for both the development of COPD and asthma, and their exacerbation.

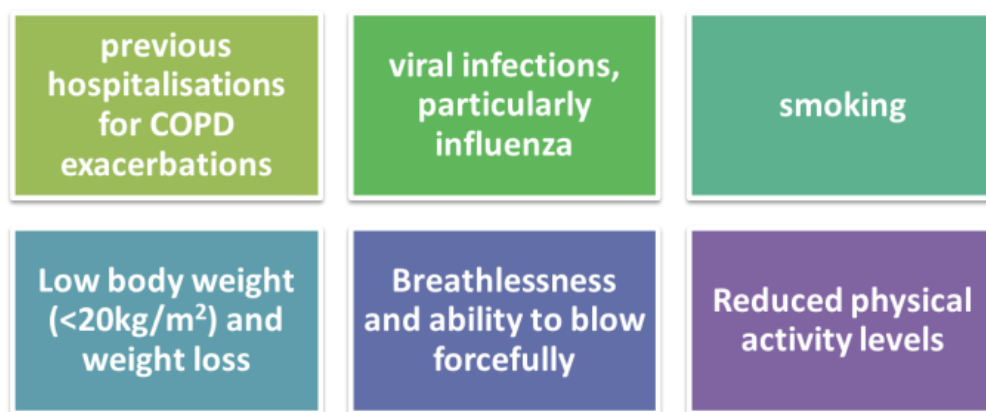
This underlines the importance of interventions aimed at both reducing smoking uptake in the first place and supporting existing smokers to quit. Continued smoking among patients diagnosed with COPD is also a factor in a person's functional decline and the likelihood of COPD exacerbations.



Based on 2016/17 QOF data, the estimated **smoking prevalence in HR CCG is significantly higher** (19.7%) than nationally (17.6%).

Risk factors for repeated episodes of COPD [exacerbations]:

Sixty per cent of primary care patients with COPD report exacerbations of their disease,⁸ associated with more rapid decline in lung function.⁹ Factors predisposing to further COPD exacerbations are^{10,11,12}:

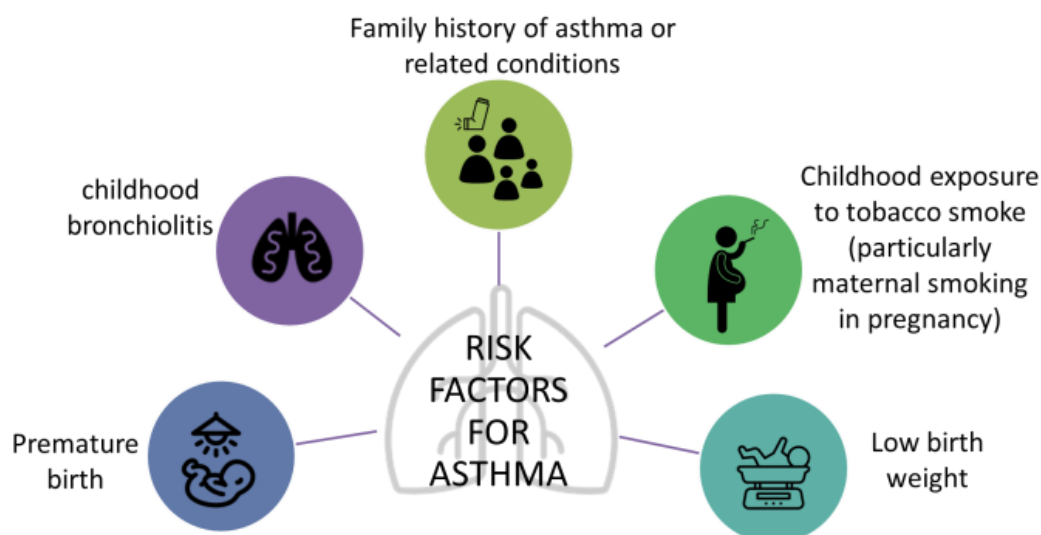


Inhaler treatments have well established efficacy in reducing exacerbations and admissions among patients with moderate and severe COPD, and growing evidence of efficacy in improving clinical outcomes and reducing decline in lung function among patients with more mild impairment.^{13, 14}

Interventions that aim to reduce the severity of exacerbations include prompting early recognition of symptoms and rapid use of antibiotics or corticosteroids, or both, either through seeking a primary care appointment or use of a self treatment rescue drug pack.

Risk factors for asthma:

The following are risk factors for asthma¹⁵:



Local health inequalities

Inequalities in COPD prevalence

There has been a rise in COPD prevalence over the last ten years in East Sussex CCGs, similarly to nationally. COPD prevalence is significantly higher in EHS and HR CCGs. East Sussex's ageing population is likely to lead to further increased prevalence over time (National evidence shows that more people are being diagnosed at an earlier age). In the long term, the rising prevalence may be offset by declining smoking rates.

Inequalities in asthma prevalence

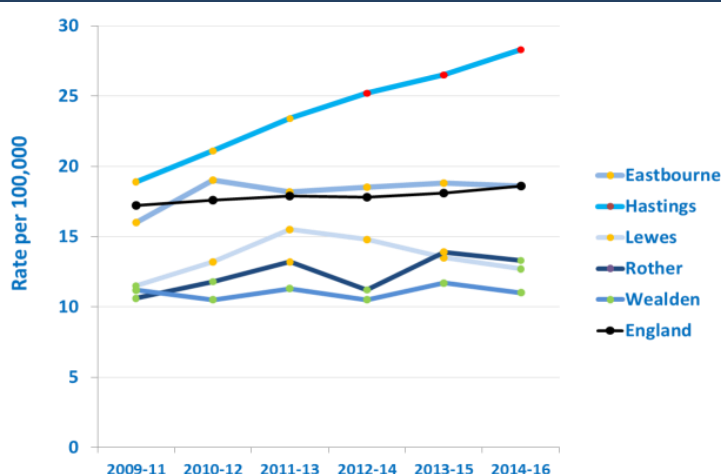
Asthma prevalence is significantly higher in EHS CCG. People with asthma in relatively more deprived areas will be exposed to second hand smoke and air pollutants which will exacerbate their symptoms.¹⁶

Deaths from respiratory disease

Overall in East Sussex, early deaths under 75 from respiratory disease (*and in the categories which are considered preventable*) have been increasing since 2007-9.¹⁷ Between 2014-16, COPD accounted for 86% (248 out of 290) of the premature deaths due to chronic lower respiratory diseases in East Sussex. The East Sussex *under 75 mortality rate* for respiratory disease [considered preventable] for the period 2014-16 was lower at 15.5 per 100,000 than the England rate of 18.6.

However, the rate in Hastings local authority was significantly higher at 28.3 in the period 2014-16. This rate has been increasing since 2009-11.

Figure 2: Preventable mortality (under 75) by Local Authority



Source: Public Health Outcomes Framework

The trend in Hastings LA is of concern with an estimated 24 deaths considered preventable per year between 2014 and 2016. The other districts and boroughs in East Sussex do not show this trend.

Excess Winter Deaths [EWDs]

Excess winter deaths are defined as the number of additional deaths that occur during the winter months (December to March) compared to the number that would be expected based on the average number of deaths during non-winter months. The majority of EWDs occur in those aged 75 and over, with the highest number among females aged 85 and over. There is a significant seasonal effect in all age mortality from respiratory disease. This is the leading underlying cause of EWDs.

Provisional data for East Sussex for the period 2016/17 show that excess winter deaths:

were **similar to England** and the South East region

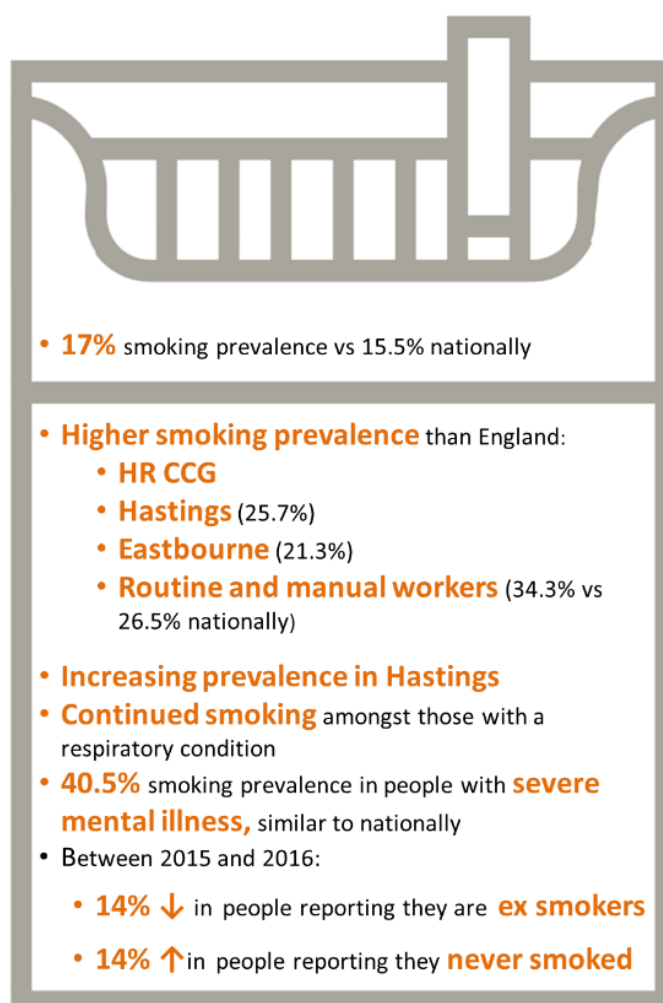
- were relatively higher in Eastbourne, Hastings and Rother local authorities

- were considerably higher than 2015/16, although not as high as in 2014/15.

Local risk factors

Local risk factor prevalence

While overall **smoking prevalence is falling in East Sussex CCGs since 2013/14, in line with trends in England**, there is still a need to focus both on smoking cessation interventions in some areas:

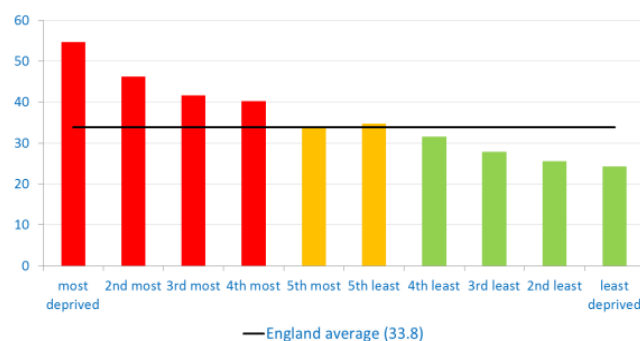


In addition to smoking, there are other factors which can impact on an individual's likelihood of developing a respiratory disease and their health outcomes, including economic disadvantage and mental ill health. These same factors can also act as a barrier to individuals accessing services and treatment.

Deprivation

People in lower socio-economic groups who develop respiratory diseases are more likely to die early. Nationally, the rate of premature mortality from respiratory diseases is more than twice as high among those in the most deprived sectors of the population compared to those in the least deprived.¹⁸

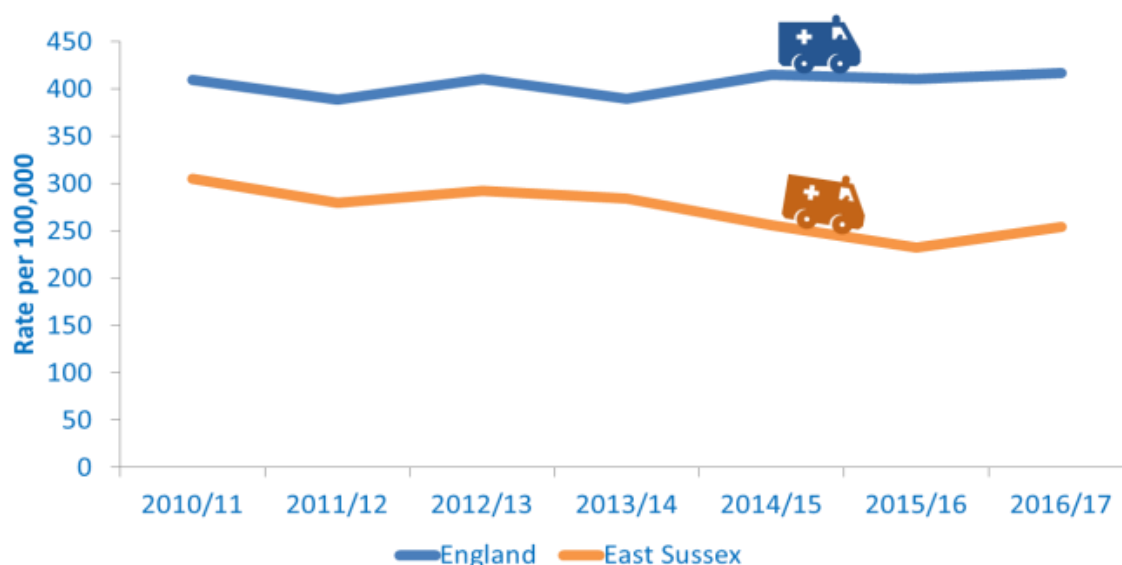
Figure 3: Under 75 mortality rate from respiratory disease, rate per 100,000 by deprivation quintile



Source: Public Health England, based on ONS data

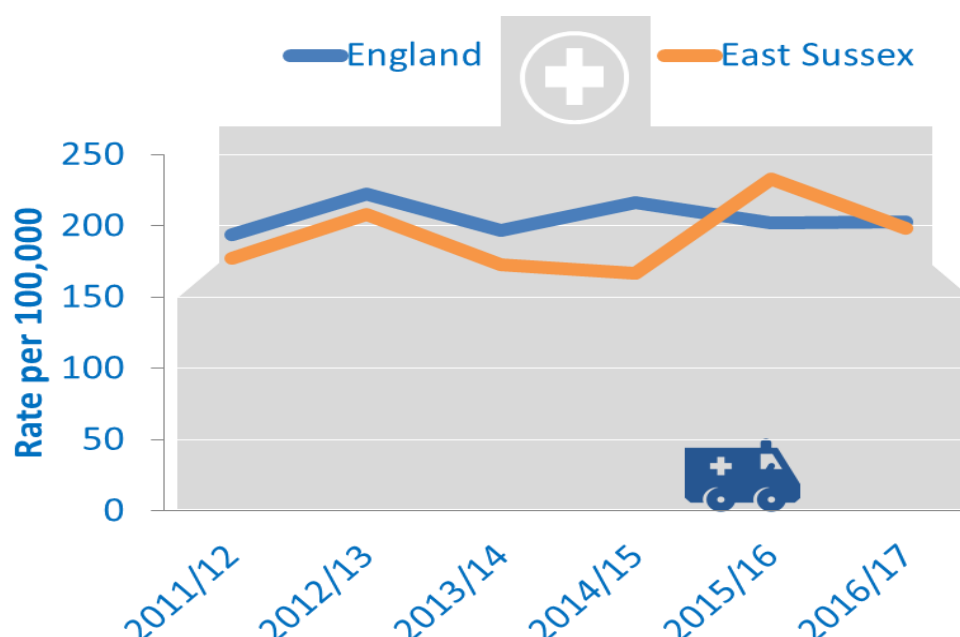
Local hospital attendances and admissions for COPD and asthma

Emergency hospital admissions for COPD in East Sussex, 2010/11 to 2016/17



Source: PHE Local tobacco control profiles

The East Sussex trend in emergency admissions for COPD between 2010/11 and 2016/17 shows a slight decrease, which contrasts with an increase nationally over the same time period.



Hospital admissions for asthma (under 19 years), 2011/12 to 2016/17

Source: PHE Fingertips

Asthma is also a common cause of attendances at A&E departments and medical admissions. The East Sussex trend in emergency admissions rate for asthma in under 19s between 2011/12 and 2016/17 shows some variation and is now the same as the England rate.

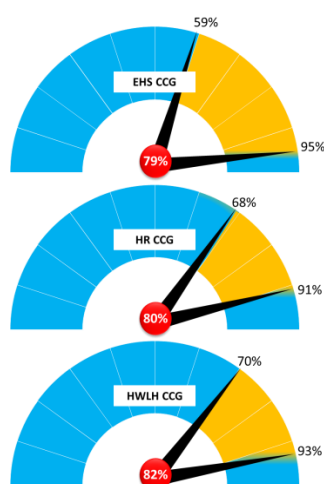
Local management of respiratory disease in primary care

Overall, how well the East Sussex CCGs benchmark against national averages for the management of COPD and asthma indicators in primary care can be seen in [PHE national General Practice Profiles](#). There is variation at practice level and scope for improvement (for example in the proportion of *COPD patients with a record of FEV1* in HWLH) and annual review of asthma management in all three CCGs. There is significantly higher exception rate reporting compared to England in all three CCGs for both COPD and asthma indicators which merits further explanation.

COPD management in primary care

The proportion of :

- COPD cases on the practice COPD register confirmed by spirometry (a measure of lung function) in 2016/17 was similar to the England value (81%) in all three CCGs [COPD2]. The variation in confirming COPD diagnosis at practice level in 2016/17 is:



Source: PHE national general practice profiles

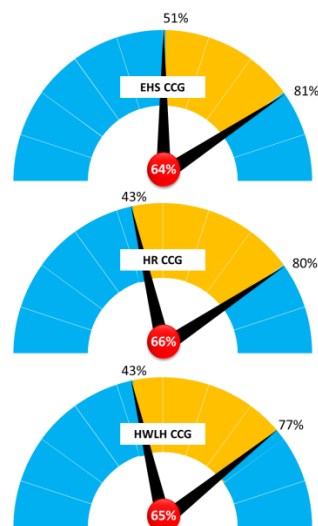
- COPD patients having been assessed using the MRC shortness of breath (dyspnoea) score within the past 12 months [COPD 003] were lower in EHS and HWLH CCGs, and similar to England in HR CCG in 2016/17. Patients with mild dyspnoea represent 38% to 54% of diagnosed COPD patients in primary care.¹⁹ This is likely to increase with case finding initiatives to identify disease in people with symptoms.²⁰
- COPD patients with a routine measure to monitor their degree of airways obstruction (a record of their FEV1) in the last 12 months [indicator COPD 004] was significantly lower in HWLH CCG. The proportions of COPD patients receiving 'flu immunisations were similar to England in HR and HWLH CCGs, and an even higher proportion in EHS CCG.

Many components of self management interventions could promote better health and prevent disease progression in the early stages of COPD. Smoking is a major cause of COPD, and smoking cessation has been shown to be beneficial in maintaining better lung function and in slowing disease progression across all severity levels.^{9,21} The offer of support for smoking related diseases is shown by the indicator SMOK 005.

Asthma management in primary care

The proportion of :

- patients on the practice asthma register who have received a formal review of their asthma in the past 12 months [Asthma 003] are significantly lower for all three CCGs compared to England (70.5%). The 2016/17 range of variation in asthma care at individual practice level is:



Source: PHE national general practice profiles

- cases with a record of airway variability /reversibility [Asthma 002] is significantly lower than England in EHS and HR CCGs and similar in HWLH. There is less recording of smoking status in the past 12 months in young people with asthma [Asthma 004] compared to England. 22

Mental health and respiratory disease

In addition to the impact on life expectancy, chronic respiratory conditions have a significant impact on quality of life and present social and psychological issues for patients and their carers. NICE recommend that assessment for anxiety and depression should form a routine part of care planning for COPD patients, particularly since emotional wellbeing is likely to have a bearing on how well patients manage [their condition](#).

Link to main evidence sources

- Public Health England has produced an online tool for respiratory data [INHALE](#).
- National GP practice profiles cover [respiratory disease](#).

1 Public Health England (accessed June 2018) Quality Outcome Framework GP practice profiles: respiratory disease

2 <https://rpubs.com/jflowers/222186>

3 NHS England (February 2014) Resource to support commissioners on reducing premature mortality; NHS England

4 Public Health England (accessed June 2018) Quality Outcome Framework GP practice profiles: respiratory disease

5 <https://www.bmj.com/content/349/bmj.g6722>

6 Royal College of Physicians (May 2014) Why asthma still kills: the national review of asthma deaths NRAD.

7 Primary Care Mortality Database (2018). Data are for East Sussex residents by year of death registration

8 Adab P et al. (2017) Cohort Profile: The Birmingham Chronic Obstructive Pulmonary Disease (COPD) Cohort Study. *Int J Epidemiology*

9 Dransfield MT et al. (2017) COPDGene Investigators. Acute Exacerbations and Lung Function Loss in Smokers with and without Chronic Obstructive Pulmonary Disease. *Am J Respir Crit Care Med*

10 Gimeno-Santos E et al. (2014) PROactive consortium . Determinants and outcomes of physical activity in patients with COPD: a systematic review. *Thorax*

11 Vaes AW et al. (2014) Changes in physical activity and all-cause mortality in COPD. *Eur Respir J*

12 Watz H, Waschki B, Meyer T, Magnussen H. (2009) Physical activity in patients with COPD. *Eur Respir J*

13 Vogelmeier C, Fabbri LM, Rabe KF, et al. (2013) Effect of tiotropium vs. salmeterol on exacerbations: GOLD II and maintenance therapy naïve patients. *Respir Med*

14 Zhou Y, Zhong NS, Li X, et al. (2017) Tiotropium in Early-Stage Chronic Obstructive Pulmonary Disease. *N Engl J Med*

15 RCP (2010) Passive smoking and children. London.

16 Royal College of Physicians (2016) The air that we breathe

17 A death is considered preventable if, in the light of understanding of the determinants of health at time of death, the death could have been avoided by public health interventions as opposed to medical/treatments interventions

18 Public Health Outcome Framework. Under 75 mortality from respiratory diseases by deprivation decile, 2014-16.

19 P, Fitzmaurice DA, Dickens AP, et al. (2017) Cohort Profile: The Birmingham Chronic Obstructive Pulmonary Disease (COPD) Cohort Study. *Int J Epidemiol*

20 Jordan RE, Adab P, Sitch A, et al. (2016) *Targeted case finding for chronic obstructive pulmonary disease versus routine practice in primary care (TargetCOPD): a cluster-randomised controlled trial. Lancet Respir Med*

21 Anthonisen NR, Connett JE, Kiley JP, et al. (1994) *Effects of smoking intervention and the use of an inhaled anticholinergic bronchodilator on the rate of decline of FEV1. The Lung Health Study. JAMA*

22 <https://www.guidelinesinpractice.co.uk/respiratory/asthma-annual-reviews-should-include-rcp-three-questions/335905.article>