Respiratory needs assessment

Spring 2016

Executive summary

This document is a high level review of the published epidemiological data on respiratory disease in Gloucestershire. It has been produced to improve understanding of population health need and inform the work of the respiratory CPG.

The two most prevalent respiratory conditions nationally and locally are COPD and asthma. Both conditions pose a heavy disease burden in terms of NHS resources; patient health outcomes and quality of life.

There are almost 11,000 people recorded on the COPD disease register in the county (a prevalence of 1.7% similar to the national average); and there has been a slight increase in prevalence over the last five years. Gloucestershire's ageing population (and national evidence that more people are being diagnosed at an earlier age) is likely to lead to increased prevalence over time, though in the long term, incidence may be offset by declining smoking rates. Recorded prevalence of COPD is significantly above the CCG average in the Forest of Dean locality; which may reflect increased detection rates or the combination of the locality's older age profile and higher smoking rates.

Modelled estimates suggest that around a third of people with COPD in the county may be undiagnosed; and that in 20% of such cases the disease is likely to be severe or very severe. This highlights the need for effective case finding and diagnosis to avoid the risk of emergency admissions. NHS England suggest that up to 34% of emergency admissions for acute exacerbations are in people whose COPD is undiagnosed.

Asthma is the second most common condition on QOF disease registers after hypertension. Local prevalence is slightly above the national average; with 41,600 patients recorded on local disease registers. QOF only records asthma patients who have received medication in the last 12 months. The implication is that patients with a previous diagnosis of asthma who aren't on the register may not receive regular reviews. Local audit data suggests that only 20% of patients on the disease register have an asthma management/action plan (recommended by NICE). Absence of an action plan has been associated with an increased likelihood of asthma attacks requiring emergency care. There is also room for improvement

locally in the proportion of asthma patients who have received a review in the last 12 months (70% 14/15).

Nationally, around nine in ten admissions for either COPD or asthma are emergency admissions. Locally, there has been an upward trend in emergency admissions for COPD between 2005/06 and 2012/13; while emergency admissions for asthma have fallen over the same period. More recent data is needed to see if both trends have been sustained.

Emergency admissions highlight the importance of optimising self care and secondary prevention in community settings. Overall, across the relevant QOF indicators, the CCG benchmarks well against the national and cluster average for management of COPD and asthma in primary care; however there is variation at practice level and scope for improvement in some indicators (for example in the proportion of COPD patients with a record of FEV1).

Overall there has been a downward trend in early deaths from respiratory disease (the majority of which are attributable to COPD) in the county over the last decade however there are signs of a slight increase in recent years, predominantly driven by an increase in early deaths in men. The highest rate of early deaths from respiratory disease are in Gloucester however the Forest of Dean district has seen an upward trend in early deaths over the last decade, which is worth exploring.

While deprivation and smoking prevalence are likely to be a factor in early deaths, studies also suggest that appropriate provision of medical/treatment interventions, such as pulmonary rehab and non-invasive ventilation, can help reduce premature mortality from COPD. Notably, despite falls in early deaths, the UK still compares poorly to its international comparator groups for both premature mortality from COPD and premature mortality from lower RTIs; suggesting significant room for improvement.

Nationally, over half of all early deaths from respiratory disease are estimated to be preventable (avoidable through public health intervention). Exposure to tobacco smoke is the leading modifiable risk factor for both the development of COPD and asthma; and their exacerbation. While overall smoking prevalence is falling in Gloucestershire, there is still a need to focus both on smoking cessation interventions in areas and groups where prevalence remains high; and the reduction of continued smoking among individuals already diagnosed with a respiratory condition.

In addition to the impact on life expectancy, studies also suggest that chronic respiratory conditions have a significant impact on quality of life and can present social and psychological issues for patients and their carers. NICE recommend that assessment for anxiety and depression should from 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. A national review of the evidence of end of life care for COPD patients also found that patients may have unmet needs with respect to support and information on advanced care planning.

Recommendations

- Consider options for both **systematic and opportunistic case finding** of people likely to be at higher risk of undiagnosed COPD; including a review of NHS England recommendations[1] and previous community outreach initiatives.

- Ensure that **smoking cessation interventions** are embedded within primary and secondary care, with a particular focus on patients with COPD and asthma who continue to smoke. This might include:
    - Provision of in-house smoking cessation services (for example under the PHES);
    - Incorporating referral mechanisms to locally commissioned stop smoking services into care pathways.
    - Providing training in delivering brief advice and interventions.

- Consider **qualitative research** with respiratory patients and their carers to better understand unmet needs with respect to current services and end of life care.

- Review how far the **mental health and socio-psychological needs** of patients with COPD are being addressed within the existing care pathway, including DH recommendations on the involvement of mental health clinicians as part of MDTs. There may be options to look at social needs via social prescribing.

- Work with practices to **optimise management of respiratory patients within primary care**, and understand potential barriers to the delivery of recommended interventions (such as the provision of asthma management plans). This could include the prioritisation of a number of relevant indicators with a view to ensuring all practices reach the CCG or national average (whichever is higher).

- Review **flu immunisation data** for at risk groups and consider interventions to improve uptake.

[1] NHS England (February 2014)

- In line with the Gloucestershire **Health Inequalities** plan, ensure that interventions take into account areas or groups more likely to be vulnerable to poorer health outcomes from respiratory diseases, such as people with mental health issues, and potential barriers to people accessing services or adhering to treatment plans.

- Monitor **trends in premature mortality** from respiratory disease, with a focus on Forest of Dean. Review local practice with respect to NHS England's recommendations on evidence based interventions to reduce COPD premature mortality (provision of non-invasive ventilation, pulmonary rehab, and controlled oxygen use during acute exacerbations).

- While deaths and emergency admissions for asthma remain relatively low, review best practice from the **National Review of Asthma Deaths** on the asthma care pathway to determine whether any local improvements can be made, for example in the proportion of patients with an asthma management plan.

- Review more recent HES data to determine whether the **upward trend in emergency admissions for COPD** through to 2012/13 has been sustained, and consider a deep dive of the data to better understand the underlying drivers. Control limits should be attached to the data to help understand natural variation.

- In conjunction with the Children's CPG, review **emergency admissions rates for lower RTIs in under 19s** to understand possible reasons for the upward trend locally.

Section 1: Introduction

Purpose

1.1 This document presents the findings of review of the national and local data on respiratory disease. It has been produced to improve understanding of population health needs in Gloucestershire and inform the work of the Respiratory Clinical Programme Group (CPG).

Scope

1.2 Respiratory diseases comprise conditions affecting the airways and other structures of the lung.

1.3 This assessment adopts the same scope as the Respiratory CPG; which focuses on all aspects of the adult respiratory disease care pathway from prevention through to palliative

care; with a particular focus on the prevention and management of chronic obstructive pulmonary disease (COPD); asthma and pneumonia.

Note on data sources

1.4 The report largely draws on published data sources, including the Public Health Outcomes Framework (PHOF), Health and Social Care Information Centre (NHSIC) (which incorporates indicators in the CCG Outcome Framework) and the PHE Practice Profiles, which incorporate QOF data.

Section 2: National context – what is the national disease burden from respiratory disease?

2.1 This section outlines the national disease burden from respiratory disease, with a specific focus on COPD and asthma. It provides a context for considering the local situation in Gloucestershire, discussed in section 4.

Burden of respiratory disease –prevalence rates

2.2 Respiratory diseases comprise conditions affecting the airways and other structures of the lung. It encompasses a range of conditions including: inflammatory lung diseases, such as asthma, chronic obstructive pulmonary disease (COPD) and cystic fibrosis; upper respiratory tract infections, such as tonsillitis and laryngitis; lower respiratory tract infections, such as pneumonia and tuberculosis; and occupational lung diseases, such as mesothelioma.

The Respiratory CPG has previously focused on the prevention and management of COPD, asthma and pneumonia. Collectively these conditions pose a heavy disease burden, both in terms of the resource impact on health and social care services, and the impact on patient health and quality of life.[2]

COPD prevalence

2.3 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. This need to provide ongoing support to COPD patients to manage their condition

[2] Department of Health (2011) An outcome strategy for COPD and asthma in England.

has implications for health and social care resources, as well as the patient's quality of life in living with a long term, and in some cases life limiting, condition.

2.4 In 2014, just over 1 million patients in England were recorded as having COPD on QOF disease registers, equivalent to a prevalence of 1.8% (across all ages)[3]. Nationally the recorded prevalence of COPD has shown a slight increase over the last five years, increasing from 1.6% in 2009 to 1.8% in 2014/15. Increases in prevalence may be due to more people being diagnosed at a younger age[4], and improvements in treatment which mean that COPD patients are living longer.

2.5 Prevalence of COPD tends to be higher in men. However evidence suggests that rates of COPD are increasing in women[5]. This may reflect the trajectory of smoking (one of the leading risk factors for COPD) among women which peaked in the 1970s. This has also been linked to a continuing increase in lung cancer incidence among females. [6] There is also some evidence, albeit mixed, suggesting that women may be more susceptible to the effects of tobacco; leading to more severe COPD symptoms.[7] This underlies the importance of smoking cessation interventions aimed at both men and women.

2.6 Prevalence of COPD increases with age. The average age of COPD patients in England is 70 years.[8] While evidence suggests that more people are being diagnosed at an earlier age, the average age of diagnosis is still 65 plus.[9]

2.7 Nationally while recorded prevalence is currently 1.8%, modelled estimates suggest that the true prevalence of COPD is likely to be closer to 2.9%[10]. If the estimate is correct, this means that around a third of people with COPD in England (approximately 570,000 people) are undiagnosed. NHS England cites data to suggest that in 20% of those people whose COPD is undiagnosed the disease is severe or very severe. They go on to estimate that between 10% and 34% of emergency admissions for acute exacerbation of COPD are in

[3] COPD QOF prevalence 2014/15; NHSIC (Practice Profiles PHE)

[4] James et al (2011) Longitudinal changes in the rate and mean age of incidence and prevalence of COPD in the UK, 2000-2009, UCL. Accessed online.

[5] Soriano et al (2000) Recent trends in physician diagnosed COPD in women and men in the UK, *Thorax*, 55, 789-794; Aryal et al (2013) COPD and gender differences: an update, *Translational Research,* 162(4)

[6] Cancer Research UK http://www.cancerresearchuk.org/about-us/cancer-news/press-release/2015-07-01-womens-lung-cancer-cases-hit-20000

[7] Aryal et al (2013); Watson et al (2004) Gender differences in the management and experience of Chronic Obstructive Pulmonary Disease, *Respiratory Medicine,*98.

[8] James et al (2011) Longitudinal changes in the rate and mean age of incidence and prevalence of COPD in the UK, 2000-2009, UCL. Accessed online.

[9] James et al (2011).

[10] 2011 modelled estimate, Practice Profiles PHE

people whose COPD is undiagnosed.[11] Studies suggest that under diagnosis is more common in urban areas.[12]

2.8 The tendency for cases to go undiagnosed has been attributed to a number of factors including: patient's failure to recognise symptoms (which may develop gradually over a long period of time); and a perception among smokers that a cough is 'normal', particularly if their families and friends also smoke and have similar symptoms.[13] This highlights the need for raising awareness of COPD symptoms to encourage earlier presentation.

2.9 NHS England also recommend that local areas carry out both systematic and opportunistic case finding to identify those with undiagnosed COPD, focused on groups likely to be at higher risk.[14] They identify a number of potential approaches, including the use of GP audit tools. The CCG has previously carried out some case finding via community outreach, including the training of the Community Health Trainer service in the use of spirometers. The CPG may wish to review the effectiveness of these initiatives, and explore the potential for future outreach, for example in conjunction with the local NHS Stop Smoking service or community pharmacies.

2.10 In addition to patient factors, a survey of GPs carried out in 2005 also suggested that under-diagnosis may be related to GP behaviour. It found that while GPs were aware of the symptoms of COPD and its diagnosis, this didn't always translate into appropriate investigation and management of symptoms in clinical practice.[15]

2.11 According to QOF data (14/15), 83% of patients registered at Gloucestershire practices diagnosed with COPD after 1st April 2011, have had their diagnosed confirmed by post bronchodilator spirometry, consistent with NICE guidance. [16] While this is in line with the national average, it may still suggest room for improvement, notably in those practices falling below 75% (11 practices).

2.12 Use of spirometry is also important in preventing misdiagnosis of COPD. Data cited by Public Health England, suggests that failure to use post bronchodilator readings may overestimate the prevalence of COPD by as much as 25%, [17] which may lead to inappropriate treatment.

[11] NHS England (February 2014)

[12] Nacul et al (2010) COPD in England: a comparison of expected, model-based prevalence and observed prevalence from general practice data", *Journal of Public Health,* 33(1)

[13] Halpin, D (2011) Improving the management of COPD, BMJ, 342; Department of Health (2011)

[14] NHS England (February 2014)

[15] Halpin, D et al (2007) Confidence and understanding among general practitioners and practice nurses in the UK about diagnosis and management of COPD, Respiratory Medicine, 101, pp.2378-2385.

[16] NICE (June 2010) COPD in over 16s: diagnosis and management, CG101.

[17] PHE Practice Profiles.

2.13 Some studies also report a gender bias in the diagnosis of COPD and the use of spirometry, attributed to the traditional view of COPD as a male disease; the implication being that women are less likely to be identified and diagnosed than men. [18] While there is no evidence to suggest this may be happening in Gloucestershire, it does highlight the importance of spirometry tests in detecting and confirming a diagnosis of COPD in all patients with potential symptoms.

Asthma prevalence

2.14 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.

2.15 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.[19] While some children will outgrow their symptoms, the condition may recur later in adult life.

2.16 Studies[20] suggest that asthma incidence rates may have started to fall, particularly in young children (possibly linked to concerns over over-diagnosis); however lifetime prevalence rates for adults (i.e. the number of adults with an asthma diagnosis at some point during their lifetime) remain high; though many will not require active treatment.

2.17 According to the Department of Health, England has one of the highest prevalence rates of asthma in the world.[21] However it is hard to assess whether this is due to genuine increased need; improved detection and recording; or the flip side, over-diagnosis.[22] Indeed the variable and intermittent nature of asthma can make diagnosis complex.[23]

2.18 QOF only records patients with asthma who have received prescription medication for their asthma in the last 12 months. Nationally in 13/14, there were just over 3.3 million patients currently receiving medication, recorded on asthma disease registers, equivalent to a prevalence of 5.9%.[24] Prevalence has remained broadly the same since 2009/10.

2.19 Based on data from Asthma UK[25], we can estimate that approximately a fifth of the 3.3 million people currently receiving treatment for asthma will be children; and the remaining

[18] Aryal et al (2013); Watson et al (2004).

[19] QOF disease registers, PHE Practice Profiles.

[20] Simpson and Sheikh (2010) Trends in the epidemiology of asthma in England: a national study of 333,294 patients, Journal of the Royal Society of Medicine, 103, pp.98-106.

[21] Department of Health (2011)

[22] Simpson and Sheikh (2010)

[23] NHSIC indicator portal.

[24] QOF asthma registers exclude patients who have had no prescription for asthma drugs during the last 12 months. Such patients may still have a diagnosis of asthma, but may have minimal symptoms not requiring treatment.

[25] http://www.asthma.org.uk/asthma-facts-and-statistics

four-fifths adults. This needs assessment will focus on adult asthma in line with the scope of the Respiratory CPG.

2.20 Modelled estimates suggest that nationally only 65% of people with asthma are recorded on QOF registers, which may suggest an issue with under-diagnosis.[26] However this figure needs to be treated with caution. While some people with the condition may indeed be undiagnosed, asthma is a dynamic condition and can vary in its severity. People with a previous asthma diagnosis may not be on active treatment, and as such may not be recorded on QOF.

2.21 Other studies have also suggested that there may actually be an issue with over-diagnosis of asthma. Studies of adults diagnosed with asthma, cited by NICE, suggest that up to 30% do not have clear evidence of asthma.[27] Clinicians writing in the Archives of Disease in Childhood have also cited evidence from an Australian study to suggest that over diagnosis of asthma is a particular issue in children.[28] In order to help address such issues, NICE are in the process of developing new clinical guidance on the effective diagnosis of asthma.[29] It is recommended that commissioners and clinicians review the guidance once it is finalised, and consider how best to implement in the county.

Pneumonia

2.22 Pneumonia is an infection of the lung tissue, which causes inflammation and a build up of fluid. 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. Of these between 22% and 42% will be admitted to hospital, where the mortality rate is between 5% and 14%. More than half of pneumonia-related deaths occur in those over the age of 84.[30] Notably data cited by the British Lung Foundation suggests that the UK performs poorly with respect to pneumonia mortality compared to its EU counterparts.[31] The only European countries with higher mortality rates than the UK are Slovakia and Romania. In 2012, pneumonia accounted for a quarter of all deaths from lung disease in the UK (across all ages); with 96% of deaths occurring in those aged 65 and over.

2.23 According to NICE, at any time 1.5% of hospital inpatients in England have a hospital acquired respiratory infection, more than half of which are hospital-acquired pneumonia and are not associated with intubation. Hospital acquired pneumonia is estimated to

[26] Based on 2008/09 modelled estimate of prevalence; source: Inhale, PHE

[27] National Clinical Guideline Centre (January 2016) Asthma: diagnosis and monitoring of asthma in adults, children and young people, interim finding, commissioned by NICE.

[28] Bush and Fleming (April 2016) Is Asthma over diagnosed? Archives of diseases in childhood, ADC online first.

[29] National Clinical Guideline Centre (January 2016). See also: https://www.nice.org.uk/guidance/indevelopment/gid-cgwave0640

[30] NICE January 2015, Pneumonia overview https://g-care.glos.nhs.uk/pathway/182/resource/1#chapter_853

[31] British Lung Foundation, data taken from Respiratory State of the Nation report.

increase hospital stay by about eight days and had a reported mortality rate that ranges from 30-70%.[32] It is recommended that the CCG review the local data on hospital-acquired pneumonia in Gloucestershire and mortality rates; and if possible benchmark performance.

Burden of respiratory disease –deaths and disability

2.24 Respiratory diseases (excluding lung cancer) accounted for 14.7% of all deaths in England in 2013. Deaths from respiratory conditions are more common with age, accounting for only 6.7% of deaths in those under the age of 65; and rising to 15.7% of deaths in those aged between 75 and 84.[33] The statistics are similar for Gloucestershire, where deaths from respiratory disease account for 14.5% of all deaths.[34]

2.25 Analysis[35] of the national mortality data, suggests that within the broad category of respiratory conditions, pneumonia and acute respiratory infections account for the highest proportion of deaths (across all age groups), followed by chronic lung diseases (predominantly COPD). Asthma accounted for less than 1% of all deaths nationally.

2.26 Nationally, there has been a downward trend in *premature mortality* (deaths under the age of 75) from respiratory disease (excluding lung cancer) since 2000, though the rate has started to level out in recent years (figure 1). The fall is likely to be partly due to declining rates of smoking, but may also be due to improvements in care.

2.27 Nationally premature mortality from respiratory disease remains significantly higher among those living in the most deprived sectors of the population. In 2012-14, the premature mortality rate in the most deprived quintile was over twice that of the least deprived. Premature mortality is also likely to continue to be higher in other sectors of the community where smoking rates remain higher. Inequalities are further discussed in section 3.

2.28 Analysis of mortality data by age group[36], suggests that the main cause of early deaths (under the age of 75) from respiratory conditions is COPD, followed by pneumonia and acute respiratory infections. In contrast, pneumonia and acute respiratory infections account for the highest proportion of deaths from respiratory conditions in over 85s.

2.29 Overall premature mortality from respiratory conditions remains higher in men than women (figure 1); however there is evidence to suggest that nationally a rising proportion of

[32] NICE January 2015, Pneumonia overview https://g-care.glos.nhs.uk/pathway/182/resource/1#chapter_853

[33] End of Life Intelligence Network, PHE data portal

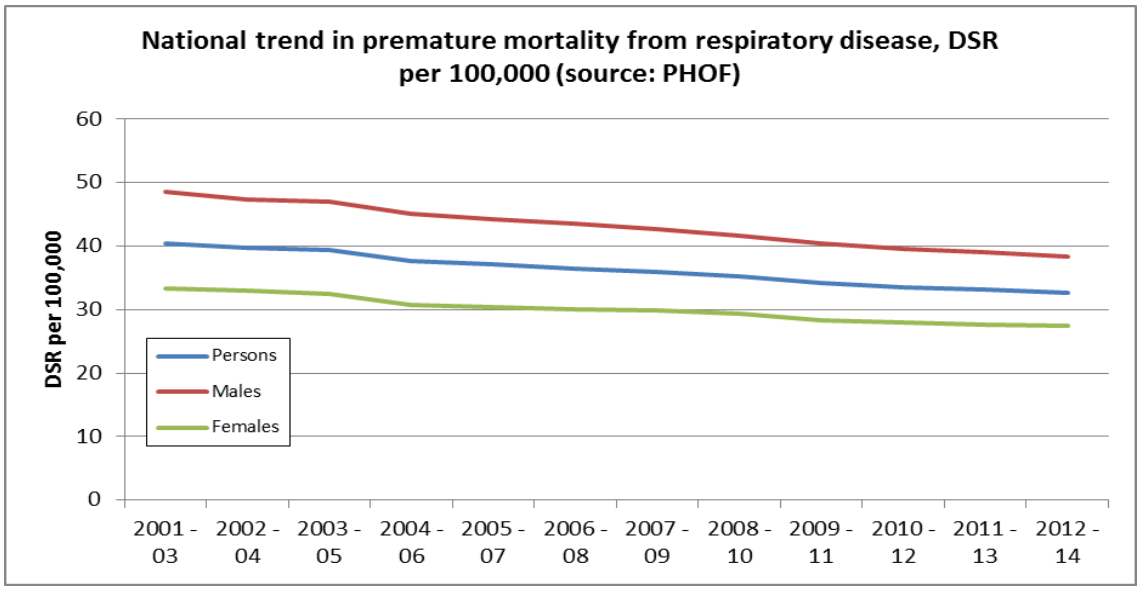
[34] PHE End of Life care data portal

[35] National End of Life care Intelligence Network (June 2011) Deaths from respiratory disease: implications for end of life care in England, NCIN/NHS

[36] National End of Life care Intelligence Network (June 2011) Deaths from respiratory disease: implications for end of life care in England, NCIN/NHS

female deaths are attributable to chronic respiratory diseases, most notably COPD.[37] Again this is likely to reflect patterns of smoking behaviour in women.

Figure 1



2.30 Despite the gains in premature mortality, COPD and lower respiratory infections were still the fourth and fifth leading causes respectively of premature mortality in the UK in 2010. [38] Moreover data from the 2010 Global Burden of Disease study shows that the UK has premature mortality rates from COPD which are significantly above the mean for its international comparator group[39]; with the UK ranked 17th out of 19 countries (1 represents the best performing country, in this instance France). [40] Similarly the UK ranks 18th out of 19 for premature mortality from lower respiratory infections, again significantly above the group average. Both scores indicate scope for improvement in health outcomes for respiratory patients in the UK.

2.31 The corresponding analysis of risk factors in the same study identifies tobacco smoke as the leading factor contributing to the disease burden from chronic respiratory diseases in the UK; highlighting the importance of smoking cessation interventions in improving health outcomes. Indeed nationally, over half of all early deaths from respiratory conditions are classed as preventable (avoidable through public health interventions)[41]; with smoking likely to be the main avoidable risk factor.

[37] ONS (2014) Deaths registered in England and Wales in 2013 http://www.ons.gov.uk/ons/dcp171778_381807.pdf; British Lung Foundation (2005) Femme fatale: the rise and rise of COPD in women, BLF.

[38] Murray *et al* (2013) UK Health Performance: findings of the Global Burden of Disease Study 2010, The Lancet 381; 997-1020.

[39] High income countries with similar or higher levels of health expenditure: the original 15 EU countries plus Australia , Canada and the USA

[40] Murray *et al* (2013) UK Health Performance: findings of the Global Burden of Disease Study 2010, The Lancet 381; 997-1020.

[41] Public Health Outcomes Framework. 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 in the broadest sense.

2.32 Between 2011 and 2013, there was an average of 1,024 deaths a year in England caused by asthma[42]; and the number of deaths has remained relatively static since 2000; averaging at between 1,000 and 1,200 deaths per annum. [43] In 2013, almost three quarters of asthma deaths occurred in those aged 75 plus (27% in those aged under 75).[44]

2.33 While deaths from asthma constitute a relatively small proportion of deaths from respiratory conditions, it is estimated that between 75% and 90% of asthma deaths are associated with preventable factors[45], highlighting the importance of effective management in the community. Asthma mortality locally is further discussed in section 4.

2.34 In addition to the impact on life expectancy, studies also suggest that chronic respiratory conditions have a significant impact on quality of life and can present social, psychological and economic issues for patients and their carers. The level of disability associated with severe COPD also has implications for social care provision. There is evidence to indicate that patients with COPD are more likely to retire early and less likely to be in active employment.[46] Patient's also report feeling less able to engage in social activities.[47]

2.35 Studies have indicated that patients with COPD are more prone to depression or anxiety. One study found that the risk of depression was 2.5 times greater in patients with severe COPD compared to a control group.[48] NICE recommend that assessment and intervention for such conditions should form a routine part of the care planning for COPD patients.[49] The Department of Health also advocate closer working with mental health clinicians in the care of COPD patients, for example as part of MDTs.[50] It would be interesting to ascertain how far both recommendations have been taken up in Gloucestershire, particularly since emotional wellbeing is likely to have a bearing on how well patients manage their condition.

2.36 Notably, the Department of Health also recommend the need for research to build the evidence base around routine assessment of psychological and emotional wellbeing in

[42] NHSIC
[43] Department of Health (2011)
[44] NHSIC
[45] DH (2011); Royal College of Physicians (May 2014) Why asthma still kills: the national review of asthma deaths.
[46] Fletcher et al (2011) COPD uncovered: an international survey of the effects of COPD on a working age population, BMC Public Health, 11: 612;
[47] British Lung Foundation survey, cited in Department of Health (2011)
[48] Van Maren, Bindel, Dekket et al (2002) Risk of depression in patients with COPD and its determinants, *Thorax,* 57, pp.412-416.
[49] NICE Commissioning Guides (October 2011) Services for People with COPD; Tsiligianni et al (2011) Factors that influence disease-specific quality of life or health status in patients with COPD: a systematic review and meta analysis of Pearson correlations, Primary Care Respiratory Journal, 20(3).
[50] Department of Health (2011)

people with asthma, particularly since asthma patients with depression or anxiety are more likely to experience worse asthma symptoms and have poorer health outcomes. [51]

Burden of respiratory disease – hospital admissions

2.37 Emergency admissions for COPD have followed a slight upward trend nationally[52], and according to data cited by the Department of Health, COPD is the second most common cause of emergency admissions to hospital in England.[53] In 14/15, 95% of admissions for COPD in England were emergency admissions.[54] Nationally, the mean length of stay for COPD emergency admissions is 5.9 days (2012/13); and the average cost per admission is £2,288 (2010/11).[55] Nationally, the average age of people admitted for COPD (planned or unplanned) was 64 years, indicating the prevalence of the disease in under 75s.

2.38 Acute exacerbation of COPD is identified as one of the most common reasons for emergency admissions[56]; which highlights issues around how exacerbations are prevented and managed (see also 3.7), As noted previously, NHS England estimate that between 10% and 34% of emergency admissions for acute exacerbation are in people with undiagnosed COPD, emphasising the importance of effective case finding.[57]

2.39 Asthma is also a common cause of attendances at Emergency departments and admissions. In 14/15, 87.5% of admissions for asthma in England were emergency admissions. While these admissions may be appropriate, it may also indicate issues with how the condition is being managed in the community.[58] Nationally, the average age of people admitted for asthma (planned or unplanned) was 35 years, indicating the need for preventative interventions among younger adults.[59] Indeed it has been estimated that 70% of emergency admissions for asthma may have been preventable with appropriate early interventions.[60] The National Review of Asthma Deaths (2014) makes a number of recommendations in this regard, relating to prescribing and medicines use, and the provision of annual reviews and personal action plans for asthma patients.[61]

[51] Department of Health (2011)
[52] Crude rate of emergency admissions for COPD (per 1,000 practice population) 2005/06-2012/13, Inhale portal PHE
[53] Department of Health (2011)
[54] HES data 14/15, NHSIC
[55] PHE INHALE portal
[56] NHS England (February 2014) Resource to support commissioners on reducing premature mortality.
[57] NHS England (February 2014) Resource to support commissioners on reducing premature mortality; NHS England
[58] HES data 14/15, NHSIC
[59] HES data 14/15, NHSIC
[60] Department of Health (2011)
[61] Royal College of Physicians (2015) Why asthma still kills. The national review of asthma deaths.

Costs associated with respiratory conditions

2.40 NHS England Programme Budgeting data indicates that £4.69 billion was spent on treating respiratory conditions within the NHS in England in 2012/13; of which the two largest areas of spend were primary prescribing (31% of spend) and non-elective inpatient admissions i.e. emergency admissions (37% of spend). Less than 5% of spend nationally was in community settings, which may suggest scope to do more for respiratory patients outside of hospital settings, where appropriate. [62]

2.41 Trend data shows a steady increase in NHS expenditure on respiratory conditions over the last decade, from £2.69 billion in 2003/04 to £4.69 billion in 2012/13.[63]

2.42 In addition to the direct costs to the NHS, there are a number of indirect costs arising from respiratory conditions, including those related to loss of productivity; and the informal provision of care for people with the disease.

Section 3: How prevalent are the main risk factors for respiratory disease in the Gloucestershire population?

3.1 An understanding of the risk factors for respiratory disease can help with targeting primary and secondary prevention. This section presents information on the major risk factors for COPD and asthma. It also considers which areas or communities may be more vulnerable to developing respiratory conditions and/or experiencing poorer health outcomes as a result.

Risk factors for COPD

Smoking

3.2 The leading modifiable risk factor for COPD is **exposure to tobacco smoke** (including second-hand or passive smoking). It is estimated that up to 90% of COPD cases are smoking related; and that up to one in four smokers will develop the condition. This underlines the importance of interventions aimed at both reducing smoking uptake in the first place and supporting existing smokers to quit.[64]

3.3 Continued smoking among patients diagnosed with COPD is also a factor in functional decline and the likelihood of exacerbations.[65] NICE recommends that all COPD patients still smoking, *regardless of age*, should be encouraged to stop, and offered help to do so, at

[62] NHS England Programme Budgeting data 12/13

[63] NHS England programme budgeting aggregate data 2003/04-2012/13

[64] NHS Choices

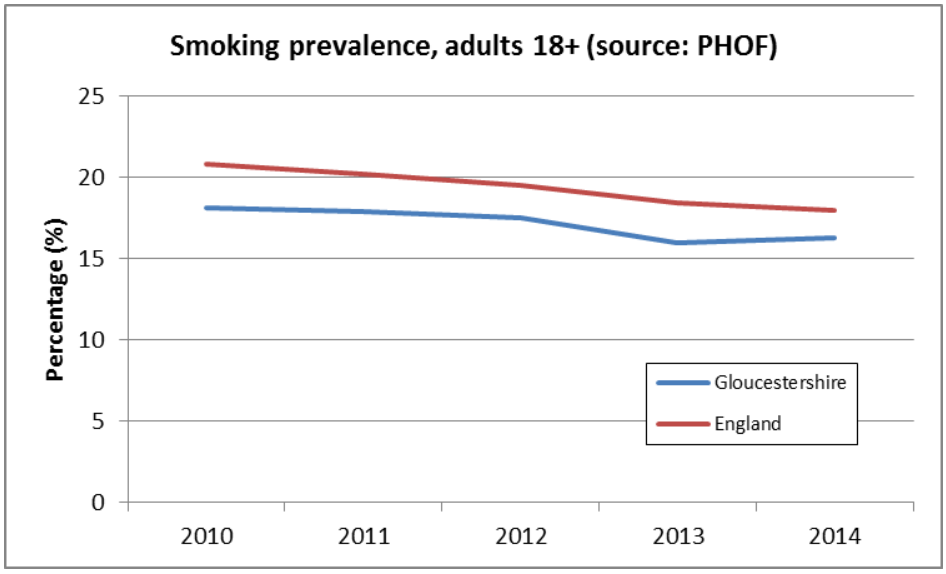
[65] Ramsey and Hobbs (2006) Chronic Obstructive Pulmonary Disease, Risk factors, and Outcome Trials- comparisons with Cardiovascular disease, Proceedings of the American Thoracic Society, vol. 3, pp.635-640.

every opportunity.[66] Commissioners may wish to check that this is happening consistently in Gloucestershire as part of the standard care pathway for COPD patients, and that clinicians in both primary and secondary care, know how to signpost to local smoking cessation services.

3.4 As figure 2 shows positively, the overall prevalence of smoking in Gloucestershire is slightly lower than the national average (16.3% compared to 18%). While the rate has fallen in recent years, it is starting to level out, highlighting the need for ongoing action.

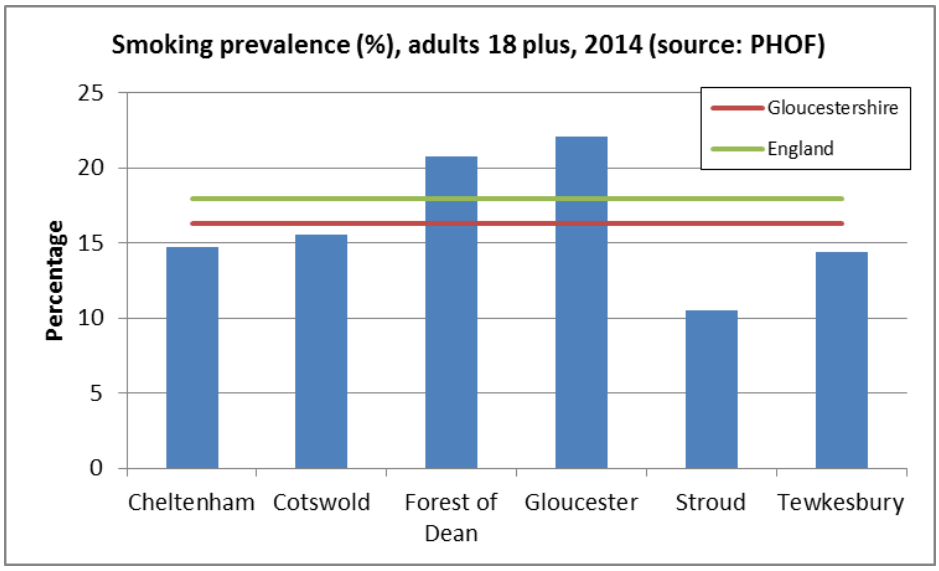
3.5 Smoking rates vary between districts (figure 3) (rising to 22.1% in Gloucester) and by occupational group. Currently almost a third of people employed in routine and manual occupations in the county smoke with the highest rates in the Forest of Dean and Gloucester.

Figure 2



[66] NICE guidelines (CG101) COPD in over 16s: diagnosis and management, June 2010.

Figure 3



3.6 Smoking rates also vary between practices. QOF includes data on estimated smoking prevalence by practice (figure a, appendix A). This highlights variation in smoking rates between practices with prevalence rising to 30% in two practices; compared to an average across all practices of 16%. Commissioners may wish to look at working with practices with higher prevalence levels on targeted smoking cessation interventions.

Other risk factors for COPD include:

- **Fumes and dust:** exposure to certain types of dust and chemicals (commonly at work) including grains, isocyanates, cadmium and coal, has been linked to the development of COPD, even in people who do not smoke. Studies suggest that up to 15% of COPD cases may be attributable to occupational exposures; and that the risk of developing COPD from occupational exposure is greater among smokers.[67] It is recommended that Clinicians consider the potential for occupational exposure as part of the diagnosis of COPD, particularly in non-smokers.

- **Ambient air pollution:** evidence on the role of air pollution and the development of COPD is inconclusive.[68] However, there is stronger evidence to suggest that air pollution can contribute to COPD exacerbations.

[67] Blanc (2012) Occupation and COPD: a brief review, Journal of Asthma, 49; 2-4; Department of Health (2011) Blanc et al (2009), Occupational exposures and the risk of COPD: dusty trades revisited, *Thorax;64:6-12*

[68] Schikowski (2014) Ambient air pollution: a cause of COPD? European Respiratory Journal, 43(1); NHS Choices; Eisner et al (2010) An Official American Thoracic Society Public Policy Statement: Novel Risk Factors and the Global Burden of Chronic Obstructive Pulmonary Disease, American Journal of Respiratory and Critical Care Medicine, 182(5)

Genetic factors: Alpha-antitrypsin deficiency is a rare genetic tendency to develop COPD. It causes COPD in about 1% of people, and COPD usually develops at a younger age, often under 35.

There is also some evidence to suggest that smokers who have brothers and sisters with severe COPD are at greater risk of developing the condition than smokers who do not.

- **Chronic asthma:** there is some evidence to suggest an association between chronic asthma and both chronic airway obstruction and accelerated loss of pulmonary function. Because the former can lead to COPD, it is likely that asthma, with or without additional risk factors, may predispose a person to develop COPD.[69]

Risk factors for COPD exacerbations

3.7 As noted, COPD exacerbations are a key factor in emergency admissions for COPD; and are also the most common cause of death in COPD patients.[70] Understanding potential risk factors for exacerbations may help improve self-care and management, and patient outcomes.

3.8 Studies[71] have highlighted the following risk factors for both exacerbations and the rate of functional decline in COPD patients:

- **previous hospitalisation** for COPD exacerbation. Studies suggest that rehospitalisation rates among COPD patients in the year following a previous hospitalisation are 60%. A Cochrane systematic review[72] has found that pulmonary rehabilitation can reduce readmission rates in patients following acute exacerbation of COPD, as well as health related quality of life. It would be useful to look at provision of pulmonary rehabilitation in the county to determine whether there is adequate coverage for eligible patients.
- **viral infection**, in particular influenza. Studies suggest that the flu vaccination reduces the number of acute exacerbations in patients with COPD; and may also reduce hospitalisations and mortality.[73] Section 5 includes information on uptake of the flu vaccination in the county.
- continued **smoking**.

[69] Eisner at al (2010)

[70] Pulhan et al (2011) Pulmonary rehabilitation following exacerbations of chronic obstructive pulmonary disease, Cochrane systematic review.

[71] Ramsey and Hobbs (2006)

[72] Pulhan et al (2011)

[73] Ramsey and Hobbs (2006); Varkey et al (2009) Prophylactic Vaccinations in Chronic Obstructive Pulmonary Disease: Current Status, Current Opinion in Pulmonary Medicine, 15(2)

- **Low body weight** (specifically a BMI < 20kg/m²) and weight loss. In one study low BMI and weight loss, increased risk of exacerbation by 22% and 24% respectively.[74] Primary care clinicians may wish to consider routine monitoring of weight changes in patients with severe COPD.
- **Breathlessness and FEV1 decline**; underlining the importance of regular review of FEV1 and dsypnoea in COPD patients. Studies suggest that risk of exacerbations among COPD patients increase among those with an FEV1 of < 50% of predicted.[75]

Risk factors for asthma

3.9 Although the precise cause of asthma is unknown, a number of risk factors have been identified. These include:

- A **family history** of asthma or other related allergic conditions (known as atopic conditions) such as eczema, food allergy or hay fever.
- Having **childhood bronchiolitis** (a common childhood lung infection)
- Childhood **exposure to tobacco smoke**, particularly if mothers also smoked during pregnancy. A study by the Royal College of Physicians estimated that prenatal maternal smoking increases the risk of developing asthma in the first two years of life by 90%.[76] Exposure to tobacco smoke can also exacerbate asthma symptoms in children.
- Being **born prematurely** (risk of which increases in mothers who smoke)
- Having **a low birth weight** as a result of restricted growth within the womb (again associated with smoking in pregnancy in some cases).

3.10 Smoking and exposure to second-hand smoke, is one of the leading *modifiable* risk factors for childhood asthma and other respiratory conditions in childhood. Infants whose parents smoke are also more likely to be admitted to hospital for bronchitis and pneumonia during the first year of life. This further underlines the importance of smoking cessation interventions during pregnancy (and in parents of infants and young children); and encouraging all those involved in the care of pregnant women (including midwifery services, health visitors and primary care) or in contact with parents, to signpost or refer to appropriate sources of local support.

3.11 In Gloucestershire, the percentage of women smoking at time of delivery has fallen in recent years, from 14.9% in 2010/11 to 11.2% in 14/15.[77] While this is positive, rates are still

[74] OOstenbrink and Rutten-van Molken (2006) cited in Ramsey and Hobbs (2006)
[75] Ramsey and Hobbs (2006)
[76] RCP (2010) Passive smoking and children. London.
[77] PHOF PHE

likely to be higher among certain groups or communities. National data shows that on average smoking in pregnancy is more prevalent in more deprived communities. Research also suggests that a significant proportion of women (43% in a recent systematic review) will re-start smoking by 6 months postpartum.[78]

3.12 Smoking and exposure to second-hand smoke has also been identified as a trigger in the *exacerbation* of asthma symptoms in both children and adults. Indeed smoking in mild-moderate asthmatics has been shown to increase the frequency of hospital admissions.[79] In a UK wide audit of adult hospital admissions for acute asthma carried out in 2012, a third of those admitted were current smokers, and a further 17% were ex-smokers. [80] This gives an indication of the high prevalence of smoking among asthmatics (smoking prevalence overall in England is 18%) and underlines the importance of incorporating smoking cessation into care plans. Commissioners may wish to check whether this is happening in Gloucestershire. Notably, smoking has also been shown to reduce the efficacy of corticosteroids, one of the most effective treatments for chronic asthma.[81]

3.13 Evidence also suggest that starting smoking as a teenager may increase the risk of persisting asthma.[82] QoF measures whether practices are recording smoking status in young asthmatics (aged 14-19 years). On average in Gloucestershire CCG, 82% of such patients have had their smoking status recorded (14/15); however there is variation across practices.[83] The proportion of young asthmatic patients with a record of smoking status falls below 70% in 13 practices; the implication being that opportunities to offer cessation interventions to patients may be missed.

3.14 Other triggers for the exacerbation of asthma include respiratory tract infections (highlighting the importance of flu vaccination); allergens, including pollen and animal fur; airborne irritants, such as air pollution; and certain medicines, including NSAIDs and beta blockers.

3.15 NICE recommend that all asthma patients have a written personalised action plan, which identifies potential triggers for the patient.[84] A 2015 audit of Gloucestershire practices indicated that only 20% of patients currently on the asthma register had a record of having an asthma action/management plan in the last 12 months.[85] This is notable since

[78] Jones et al (2016) Restarting smoking in the post-partum period after receiving a smoking cessation intervention: a systematic review, Addiction.
[79] Thomson and Chaudhuri (2009) Asthma in smokers: challenges and opportunities, Current Opinion in pulmonary medicine, Jan: 15.
[80] Lindsay and Heaney (2012) Adult asthma audit, Bristish Thoracic Society.
[81] Chalmers et al (2002) Influence of cigarette smoking on inhaled corticosteroid treatment in mild asthma. Thorax, 57.
[82] PHOF
[83] QOF 14/15 PHE Practice Profiles.
[84] NICE quality standard (QS25) Asthma.
[85] Gloucestershire CCG, Audit of Personalised Asthma Action/Management Plans (Q1 2015/16) Summary, PCCAG.

research cited by the Department of Health indicates that's asthma patients without an action plan are four times more likely to have an asthma attack needing emergency hospital care.[86] Commissioners may want to consider how they can work with practices to understand potential barriers to the provision of personal action plans, and how coverage can be improved.

Vulnerable population and health inequalities

3.16 In addition to the risk factors summarised above, 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 individual's accessing services and treatment. It is recommended that uptake and accessibility of local services across population groups is explored through any service mapping or qualitative research with service users.

Deprivation

3.17 Evidence suggests that 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 almost twice as high among those in the most deprived sectors of the population compared to those in the least deprived.[87] Indeed nationally respiratory diseases are one of the primary contributors to the life expectancy gap between those living in the most and least deprived parts of the country.[88]

3.18 There is a similar picture in Gloucestershire; where almost a quarter of the life expectancy gap in females in the county, and 18.5% of the life expectancy gap in males is attributed to respiratory disease (predominantly COPD);[89] the implication being that addressing preventable mortality from respiratory disease, in particular COPD in those living in the most deprived parts of the county should help reduce health inequalities. It should be noted that mortality data does not suggest any clear social gradient in deaths from pneumonia, acute respiratory infection or asthma.[90]

3.19 In terms of overall deprivation rankings (IMD 2015) the county has thirteen neighbourhoods (Lower Super Output Areas) ten in Gloucester and three in Cheltenham, which are amongst the *most deprived 10%* of neighbourhoods in England. Thirty Gloucestershire neighbourhoods rank in the top 20% most deprived areas nationally. Based

[86] Adams (2000) cited in Department of Health (2011)
[87] Public Health Outcome Framework. Under 75 mortality from respiratory diseases by deprivation decile, 2012-14.
[88] PHE segment tool http://www.lho.org.uk/LHO_Topics/Analytic_Tools/Segment/TheSegmentTool.aspx?

[89] PHE segment tool http://www.lho.org.uk/LHO_Topics/Analytic_Tools/Segment/TheSegmentTool.aspx?

[90] National End of Life care Intelligence Network (June 2011)

on the evidence of national studies, it is reasonable to assume that premature mortality from COPD is likely to be higher in these neighbourhoods.

3.20 Figure b (appendix A) shows the deprivation scores for individual General Practices in Gloucestershire. In common with the IMD data at district level, the practices with the highest deprivation scores are in Gloucester locality; followed by Cheltenham and the Forest of Dean.

3.21 The link between deprivation and respiratory disease is likely to be partly due to higher smoking prevalence amongst people in lower socio-economic groups[91]. Indeed in Gloucestershire, there is a positive correlation between a practice's deprivation score and their estimated smoking prevalence; the higher the deprivation score, the higher smoking prevalence among the practice population. This again highlights the importance of targeted smoking cessation interventions.

3.22 People's living and working environment in areas of deprivation may also be a contributory factor. Damp and mouldy homes for example, have been associated with an increased risk of respiratory problems, particularly in children.[92] Notably, COPD also tends to be more prevalent in urban areas[93], which may be partly explained by levels of deprivation and environmental factors, such as air quality (though as noted previously the evidence of the role of air pollution and development of COPD is inconclusive).[94]

Mental health

3.23 People with mental health problems also tend to be more vulnerable to poorer health outcomes. The rate of deaths from respiratory diseases among people in contact with specialist mental health services (i.e. patients with more severe mental illnesses, such as schizophrenia and bipolar disorder) are nearly four times that of the general population.[95]

3.24 There are a number of possible reasons for this. Smoking prevalence tends to be higher among people with mental health problems, particularly those with more severe conditions; which is likely to put them at higher risk of respiratory disease. Studies suggest that smoking prevalence may be as high as 30% among those with depression; and up to 45% among patients with schizophrenia, schizotypal or delusional disorders (compared to an average prevalence of 18%).[96] Commissioners may wish to work with the local mental health trust to look at the provision of tailored smoking cessation interventions for such patients. A joint

[91] Public Health Outcome Framework: smoking prevalence by deprivation decile, England 2014.

[92] Wilkinson (1999) Poor housing and ill health: a summary of research evidence, The Scottish Office.

[93] Nacul et al (2007) Model for estimating the population prevalence of COPD: cross-sectional data from the Health Survey for England, Population Health Metrics, 5(8)

[94] Schikowski (2014) Ambient air pollution: a cause of COPD? European Respiratory Journal, 43(1); NHS Choices; Eisner et al (2010) An Official American Thoracic Society Public Policy Statement: Novel Risk Factors and the Global Burden of Chronic Obstructive Pulmonary Disease, American Journal of Respiratory and Critical Care Medicine, 182(5)

[95] HSCIC (2013) cited by NHS England (online) Reducing mortality for people with serious mental illness:

[96] Royal College of Physicians & Royal College of Psychiatrists (March 2013), Smoking and mental health, London.

report from the Royal College of Physicians and the Royal College of Psychiatrists makes a number of recommendations in this area.[97]

3.25 People with mental health disorders may also face barriers in accessing health care and adhering to care plans, which may lead to delayed treatment and poor disease management. It is important to consider whether sufficient processes are in place to identity and care for the *physical* health needs of people already in contact with mental health services; as well as their mental health needs. Notably, NHS England have committed to explore potential models to improve the testing / screening of mental health patients for physical illness in community and/or acute mental health services.[98]

3.26 As noted previously, a diagnosis of COPD and/or asthma has also been associated with lower level mental health problems, such as depression and anxiety. It is recommended that clinicians consider the emotional and psychological wellbeing of respiratory patients as part of the care planning process and the implications it might have for the patient's ability to manage their condition. There is scope to link this work to the objectives of the local Mental Health and Wellbeing strategy which includes a commitment to improve the mental health of people with physical health issues, such as those with long term conditions.

Ethnicity

3.27 There is little data on the variation in UK COPD prevalence by ethnicity and the differences tend to disappear once the effects of smoking and deprivation are controlled for.[99] The implication is that on its own ethnicity does not *appear* to be a risk factor for COPD. However, higher rates of smoking among some ethnic communities (notably Bangladeshi and African Caribbean men[100]), and the fact that BME individuals tend to be over-represented among lower socio-economic groups, may mean that some ethnic communities are more likely to experience higher levels of COPD.

3.28 A recent study on the effect of ethnicity on the management of COPD in general practice (based on data from three East London primary care trusts), found that recorded prevalence of COPD was notably higher among the white population, across all age groups.[101] While this could reflect lower rates of prevalence in BME communities, it may

[97] Royal College of Physicians & Royal College of Psychiatrists (March 2013)

[98] NHS England (online) Reducing mortality for people with serious mental illness:

[99] Martin et al (2012) Effect of ethnicity on the prevalence, severity, and management of COPD in general practice, British Journal of General Practice; Nacul et al (2007)

[100] HM Government (2011) Healthy Lives, healthy people: a tobacco control plan for England, London. Milward, D and Karlsen S, Tobacco use among minority ethnic groups and cessation interventions. A Race Equality Foundation briefing paper, May 2011; cited in ASH (September 2011) Tobacco and ethnic minorities factsheet.

[101] Martin et al (2012)

also indicate that people of black and South Asian ethnicity are less likely to present and/or receive a diagnosis of COPD.

3.29 Notably the same study also found that compared to white patients, black patients tended to be on lower levels of prescribed medication for their COPD, regardless of symptoms or severity. The authors suggest that this might be due to differences in health beliefs, which may influence medication use and approaches to self-management. Again commissioners may wish to explore the impact of culture and ethnicity on use of health services and approaches to self-care across both respiratory and other long term conditions.

Section 4: What is the disease burden from respiratory disease in Gloucestershire?

Prevalence of respiratory disease

4.1 QOF provides data on the prevalence of COPD and asthma (all ages) at CCG and practice level. Table 1 shows how the CCG prevalence compares to the national average; and also provides the number of patients with the condition currently recorded on disease registers.

4.2 Based on 14/15 data, the local prevalence of COPD (1.7%) is similar to the national average (1.8%), and the prevalence of asthma (6.6%) is slightly above (6%).[102] Confidence intervals are not provided so it is not possible to determine whether the difference in asthma prevalence is statistically significant. Notably asthma is one of the most prevalent long term conditions on local QOF disease registers after hypertension. A total of 41,610 patients in Gloucestershire were recorded on the asthma disease register in 14/15.[103]

4.3 The QOF register of asthma patients, excludes those who have not received any medication for their asthma in the previous 12 months. Such patients may still have a diagnosis of asthma, but may have minimal symptoms not requiring treatment. The implication of this is that asthma patients who aren't on the register won't necessarily receive regular reviews. It may be worth the CCG exploring how many emergency admissions for asthma were among those patients not on the QOF register as this may provide an indication of how well asthma is being managed in such patients, and whether additional reviews are necessary.

[102] PHE Practice Profiles.
[103] NHSIC

Table 1: Prevalence of COPD and asthma 2014/15 (source: QOF PHE Practice Profiles).

Condition	Number on disease register Gloucestershire	CCG prevalence	National prevalence
COPD	10,848	1.72	1.82
Asthma	41,610	6.58	5.99

4.4 Trend data suggest that the prevalence of asthma in the county has remained relatively static since 2009/10; while the prevalence of COPD has seen a slight increase over the same period; from 1.5% in 2009/10 to 1.7% in 2014/15.[104] It is difficult to project whether the increase is likely to continue. The fact that Gloucestershire has an ageing population may contribute to rising prevalence of COPD; though there is a chance that in the long term this could be offset by falling smoking rates.

4.5 Table 2 shows the variation in recorded prevalence of COPD and asthma at locality level (2014/15 QOF data); and whether the difference (higher or lower) from the CCG average is statistically significant.[105] Figures c and d (appendix A) show the variation at practice level.

Table 2

	CCG	*Cheltenham*	*Forest of Dean*	*Gloucester City*	*North Cotswold*	*South Cotswold*	*Stroud and Berkeley Vale*	*Tewkesbury*
Asthma	6.58%	6.50%	7.43%	6.08%	6.82%	6.82%	6.95%	6.05%
COPD	1.72%	1.68%	2.19%	1.66%	1.65%	1.65%	1.66%	1.64%

Key:
Red = significantly higher than CCG average
Green = significantly lower than CCG average
White = not significantly different to CCG average
Significance based on 95% confidence intervals

4.6 One of the caveats with using QOF data to assess prevalence is that it only captures those who have presented to their GP; received a diagnosis and has this diagnosis recorded. QOF may not therefore be a true reflection of need in the community. The implication is that differences in recorded prevalence between localities and practices may reflect differences in presentation and diagnosis rates; as well as differences in the actual level of the disease in the population.

4.7 At the locality level, recorded prevalence of asthma and COPD is significantly above the CCG average in the Forest of Dean. In the case of COPD this could reflect the combination of the locality's older age profile (QOF data is not age standardised) and higher smoking rates.

[104] QOF, PHE Practice Profiles
[105] Data modelled from QOF PHE Practice Profiles

Asthma prevalence is also significantly above the CCG average in Stroud and Berkeley Vale locality. Again this may reflect increased need in the community, but could also reflect increased diagnosis rates.

4.8 The lower recorded prevalence of asthma in Gloucester City and Tewkesbury localities may reflect lower prevalence in the community, but may also be a sign that potential patients aren't presenting. Given that the Gloucester locality has a younger age profile; one might expect prevalence rates to be closer to the CCG average.

4.9 At the practice level, the variation between practices is less marked for asthma prevalence. However there is notable variation in COPD prevalence across practices, with prevalence rising above 2.5% in a number of practices, and falling below 1% in others (compared to the CCG average of 1.7%). There does not appear to be a strong correlation between a practice's COPD prevalence and estimated smoking prevalence among the practice population; nor is there a strong correlation with the practice's age profile. This might imply that the variance is best explained by differences in rates of presentation and detection.

4.10 QOF data only captures those individuals who have presented to their General Practice and been diagnosed; as such it may not be an accurate representation of the true prevalence of COPD and asthma conditions locally. As noted in section 2, under-diagnosis of respiratory conditions has been identified as a national issue.

4.11 Modelled estimates of the actual prevalence of both COPD and asthma in the community have been calculated by Imperial College London. Applying the estimates to recorded prevalence levels in Gloucestershire suggests that QOF registers only capture 65% of people with COPD, and 70% of people with asthma[106]; the implication being that around a third of people in the county with either condition are undiagnosed.

4.12 While the modelled estimates are a few years old and PHE have noted concerns about the robustness of the modelled data, as discussed in section 2, it may still be worth the CCG reviewing its approach to both case finding and diagnosis, including considering community outreach to pick up individuals who may not attend their GP on a regular basis; and ensuring that all potential diagnoses of COPD are confirmed by spirometry.

4.13 Improving the early diagnosis of COPD is a key theme in the NHS Improvement programme for COPD. They cite studies suggesting that in the two to ten years prior to a diagnosis of COPD; people are likely to have consulted in primary care on multiple occasions for lower respiratory complaints and lower respiratory tract infections, and to have received multiple prescriptions for oral steroids and/or antibiotics. They recommend that practices

[106] PHE Inhale portal

audit information systems to identify patients who have received multiple prescriptions for the later, and consider checking such patients for COPD.[107]

4.14 As noted previously, data suggesting the potential under diagnosis of asthma also needs to be balanced against other studies which suggest that asthma may be over-diagnosed. It is recommended that commissioners and clinicians consider the interim guidelines from NICE on the effective diagnosis of asthma to help ensure that patients with possible symptoms are correctly diagnosed and treated.[108]

Pneumonia

4.15 Pneumonia incidence is not captured on QOF; though it may be possible to extract admissions data from Hospital Episode Statistics. NICE estimate that annually between between 0.5% and 1% of adults will have community-acquired pneumonia, which would be equivalent to between 2,438 and 4,875 cases a year in adults in Gloucestershire. These figures may not take into account cases of hospital-acquired pneumonia which NICE estimate affects 1.5% of hospital inpatients in England at any given time.

Co-morbidities

4.16 The Department of Health has observed that patients with multiple long term conditions (LTCs) are 'becoming the norm rather than the exception.'[109] National data indicates that the while the number of people with one LTC is projected to be relatively stable over the next ten years, the number of people with multiple long term conditions is set to rise from a figure of 1.9 million in 2008 to 2.9 million by 2018.[110]

4.17 Co-morbidities are common in the case of COPD. This is partly due to shared risk factors, such as older age and smoking. Research suggests that the most common co-morbidities with COPD are cardiovascular conditions and lung cancer. Studies have also reported higher prevalence of osteoporosis and depression among COPD patients.[111]

4.18 Data is not currently available on the prevalence and combination of co-morbidities among COPD patients in Gloucestershire; however research carried out in other areas gives some indication of what the local picture may be. The Centre for Health Economics at the

[107] NHS Improvement (August 2012) First steps to improving COPD care, NHS Improvement.

[108] National Clinical Guideline Centre (January 2016) Asthma: diagnosis and monitoring of asthma in adults, children and young people, interim finding, commissioned by NICE.

[109] Department of Health (2014) Co-morbidities: a framework of principles for system-wide action, London

[110] Department of Health (2012) Op.cit.

[111] Cavailles et al (2013) Comorbidities of COPD, European Respiratory Review, 22(130); Franssen and Rochester (2014) Comorbidities in patients with COPD and pulmonary rehabilitation: do they matter? European Respiratory Review, 23(131)

University of York has modelled service utilisation and attendant costs of co-morbidities across the health and social care services for the population of South Somerset.[112] With respect to their findings on COPD, ninety percent of patients with COPD as their main diagnosis had at least one additional condition; while 46% had three or more additional conditions. Perhaps not surprisingly the study found that the more diagnoses recorded, the greater the proportion of costs incurred in inpatient and social care settings.

4.19 The research also looked at common combinations of diseases. The most frequent co-morbidities for those with COPD were hypertension and asthma followed by coronary artery disease, cancer and diabetes. A diagnosis of anxiety was also recorded in some COPD patients.

4.20 Studies suggest that the presence of co-morbidities in patients with COPD is associated with increased risk of hospitalisation, increased healthcare costs and poorer outcomes for the patient.[113] Commissioners may wish to look at how multiple morbidities are currently addressed in patients with COPD and whether there is scope to integrate care pathways.

4.21 In the case of asthma, the South Somerset study found that almost half of patients with asthma had no other chronic condition; 25% had one additional condition; and 13% had at least three additional conditions. Lower rates of co-morbidities among asthma patients may be because asthma is more common in younger adults who are therefore less likely to have age-related LTCs. The most common co-morbidity for asthma patients recorded in the study was hypertension, though this is partly to be expected given that hypertension is the most prevalent LTC nationally.

4.22 Specific studies on asthma co-morbidities have suggested a broad range of co-morbidities among asthma patients; with the most common being upper airway conditions, specifically rhinitis and sinusitis, gastroesophageal reflux disease; and anxiety and depression.[114] There is some evidence to suggest that certain conditions, including rhinitis and anxiety/depression may result in poorer asthma control and management; highlighting the need for clinicians to consider the impact of co-morbidities when caring for asthma patients.

Trends in mortality from respiratory disease in Gloucestershire

4.23 Deaths from respiratory disease accounted for 13.8% of all deaths in the county in

[112] Kasteridis P, Street A, Dolman M, Gallier L, Hudson K, Martin J, Wyer, I (February 2014), The Importance of multimorbidity in explaining utilisation and costs across health and social care settings: Evidence from South Somerset's Symphony Project, Centre for Health Economics, University of York.

[113] Franssen and Rochester (2014)

[114] Boulet and Boulay (2011) Asthma-related co-morbidities, Expert Review of Respiratory medicine, 5:3, 377-393.

2014; 6% of deaths in those aged under the age of 65, increasing to 13% in those aged 65-74 years, and 15.5% in those aged 75-84 years. [115]This is similar to the national picture.

4.24 While the proportion of all deaths attributed to circulatory conditions has fallen relatively sharply since 2004 nationally and locally (from 38% to 27% in 2014) ; the proportion of all deaths from respiratory diseases in the county has seen a slight increase over the same period (from 12% to 13.8%).[116] Based on analysis of the national mortality data[117], we can infer that locally pneumonia and acute respiratory infections are likely to account for the highest proportion of deaths from respiratory conditions (across all age groups), followed by chronic lung diseases (predominantly COPD).

4.25 Premature mortality (defined as deaths in people under the age of 75) is commonly used as a proxy indicator for overall health outcomes; and the effectiveness of prevention and treatment services.

4.26 The Public Health Outcome Framework includes data on premature mortality from respiratory disease (classified by underlying cause of death recorded as ICD codes J00-J99), the primary cause of which, in this age group, is COPD; followed by pneumonia. Asthma deaths (across all age groups) accounted for 24 deaths in Gloucestershire across the three year period 2012-14;[118] the implication being that premature mortality from asthma is likely to account for a very small proportion of total early deaths from respiratory disease.

4.27 Overall Gloucestershire has seen a downward trend in premature mortality from respiratory disease over the last decade, and positively the rate has remained significantly below the national average (figure 4).[119] However, there are signs of an increase in premature mortality in recent years predominantly driven by an increase in premature mortality in men (figure 5). While it is too early to say whether this trend is likely to be sustained, it would be worth monitoring. It is not obvious what factors might lay behind the increase.

4.28 Figure 5 breaks down premature mortality from respiratory disease in Gloucestershire and England by gender. This shows that premature mortality is consistency higher among men, consistent with the national picture.

4.29 While overall, the county has seen a fall in early deaths from respiratory disease over the last decade among both men and women; as noted above, early deaths among men have increased in recent years. The decline in early deaths among females also appears to

[115] PHE End of Life care data portal
[116] PHE End of Life care portals
[117] National End of Life care Intelligence Network (June 2011) Deaths from respiratory disease: implications for end of life care in England, NCIN/NHS
[118] NHSIC
[119] PHOF

have levelled out, suggesting that work may be needed to see a more consistent reduction in early deaths among women.

Figure 4

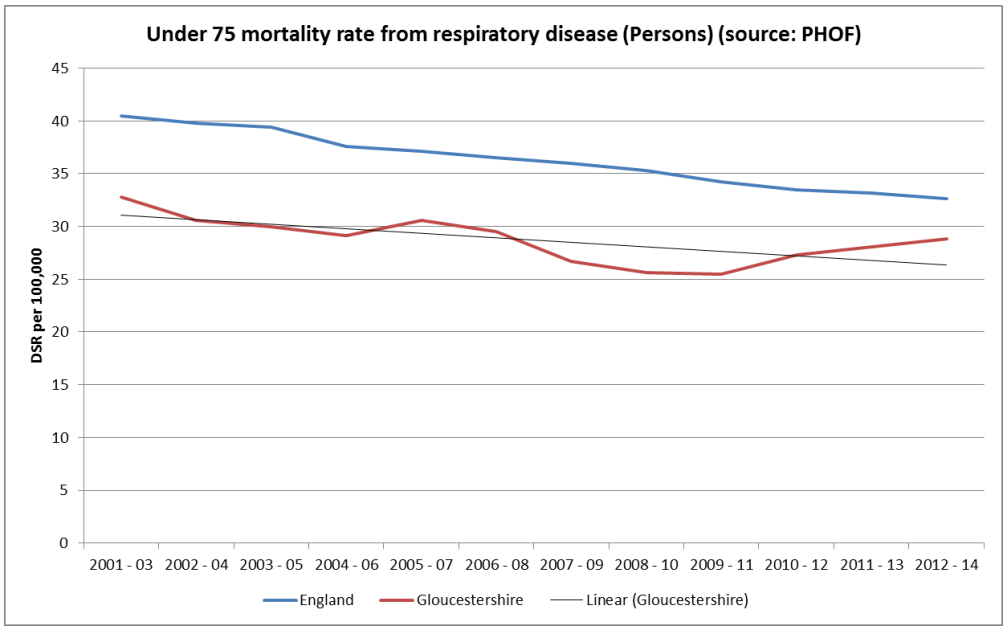
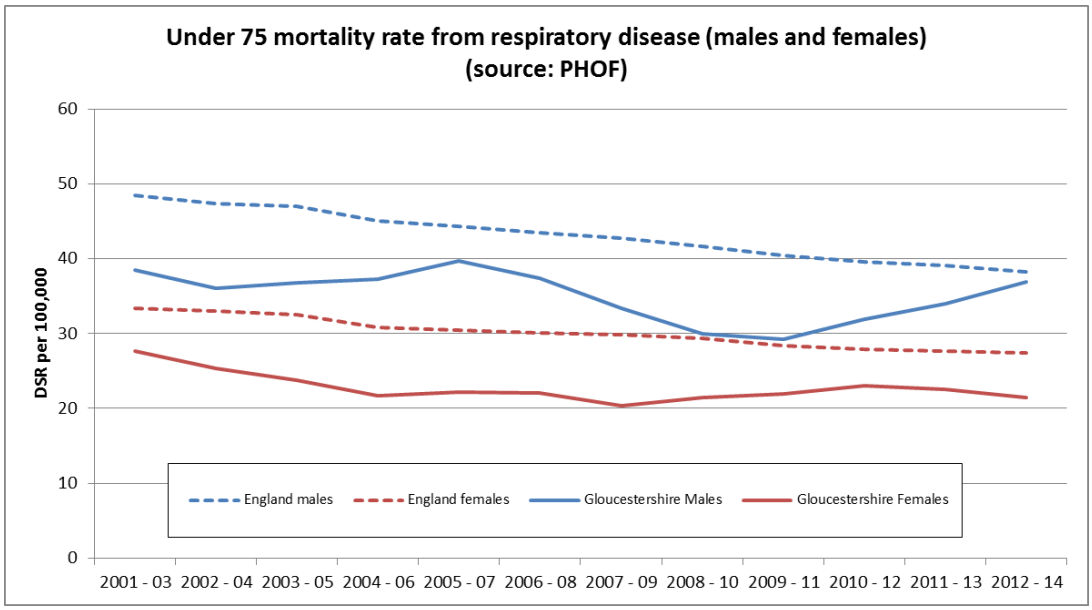


Figure 5



4.30 At the district level, premature mortality from respiratory disease (2012-14) is significantly better than the national average in Cotswold and Stroud; and in line with the national average in Cheltenham, Forest of Dean, Gloucester, and Tewkesbury.[120] The highest

[120] PHOF

rate of premature mortality in both men and women is in Gloucester (figures 6 and 7). This may relate to a number of factors, including higher prevalence of lifestyle risk factors, specifically smoking (see section 3) which may lead to more severe respiratory disease at an earlier age; deprivation levels in the district (a known factor in premature mortality), and access to and availability of appropriate treatment and care. However it is important to note that in neither case is the Gloucester rate significantly different from the national or county average.

Figure 6

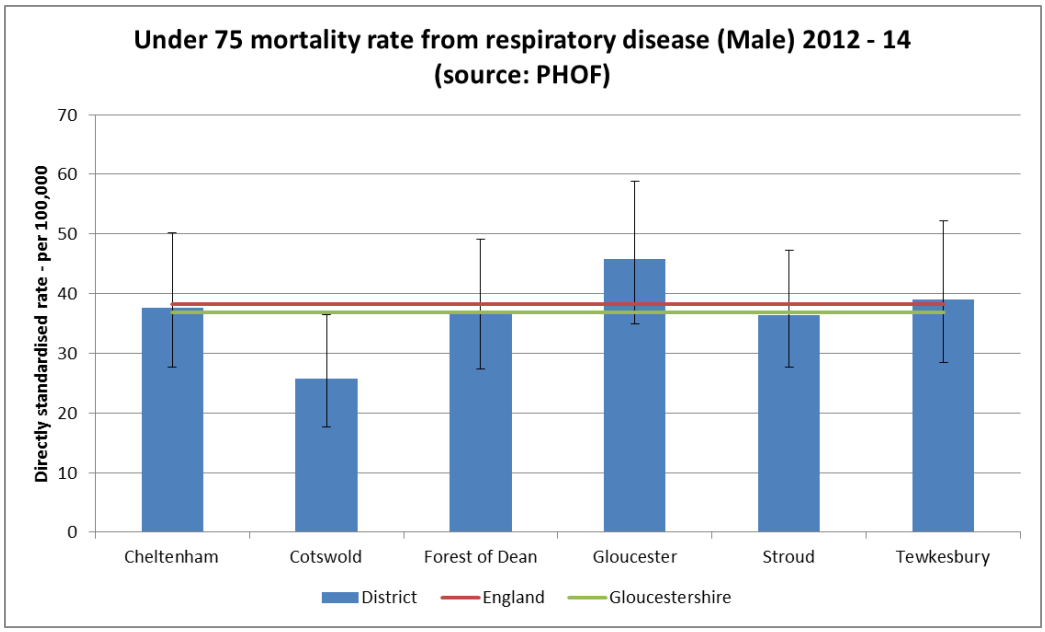
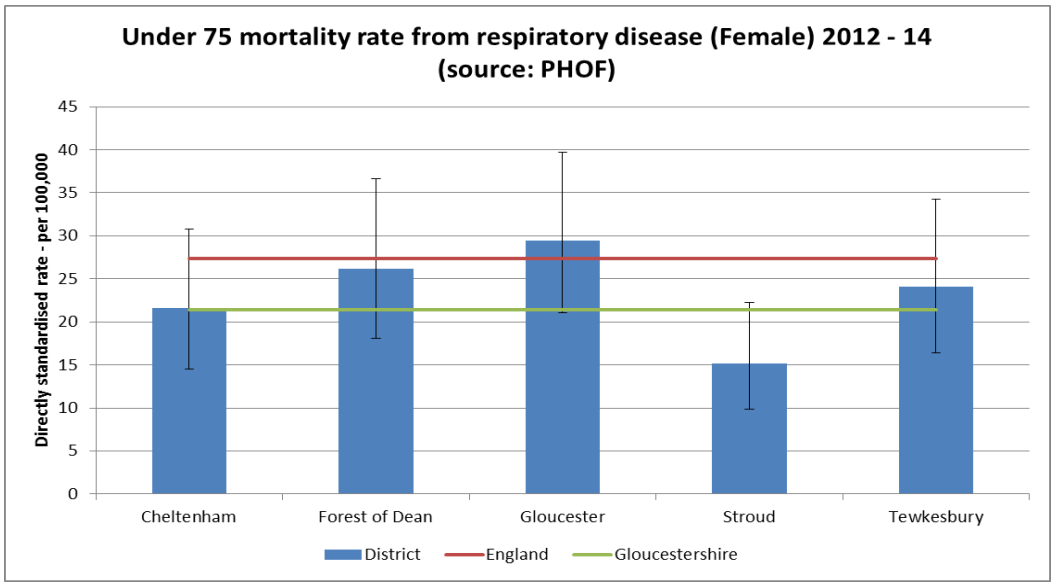


Figure 7



4.31 All districts (including Gloucester- figure 8) have seen a downward trend in premature mortality from respiratory disease over the last decade, apart from the Forest of Dean

(figure 9). The upward trend is largely driven by early respiratory deaths in men. However it is again important to note that the district rate remains in line with the national and county average.

4.32 It is also worth noting that Tewkesbury district has seen an increase in under 75 deaths from respiratory disease in recent years (figure 10) and is now above the county average (though the difference is not statistically significant). While this is not necessarily a cause for concern; the trend may still be worth monitoring. The relatively low number of early deaths from respiratory disease at district level means that fluctuations in the mortality rate are common.

4.33 While mortality *rates* can give an indication of relative need across districts to help with resource allocation, it is also helpful to consider the *number* of early deaths at district level as an indication of activity. Figure 11 shows the number of premature deaths from respiratory disease by district across a three year period. Gloucester district saw the highest number of deaths (103, equivalent to an average of 34 deaths a year); followed by Forest of Dean (83 deaths, equivalent to an average of 28 deaths a year).

Figure 8

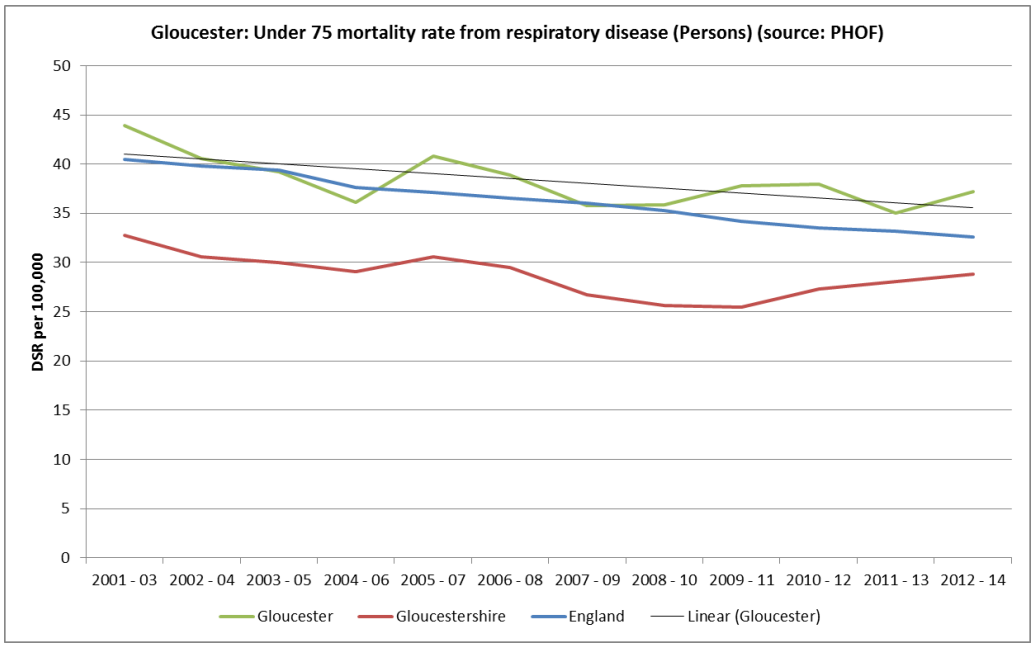


Figure 9

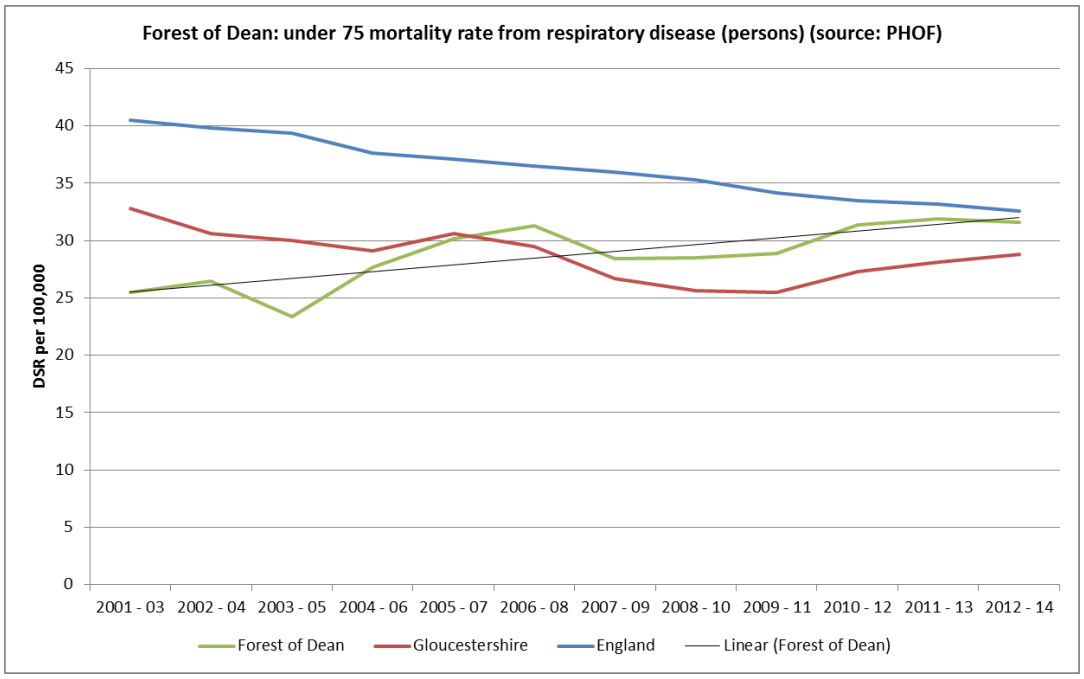


Figure 10

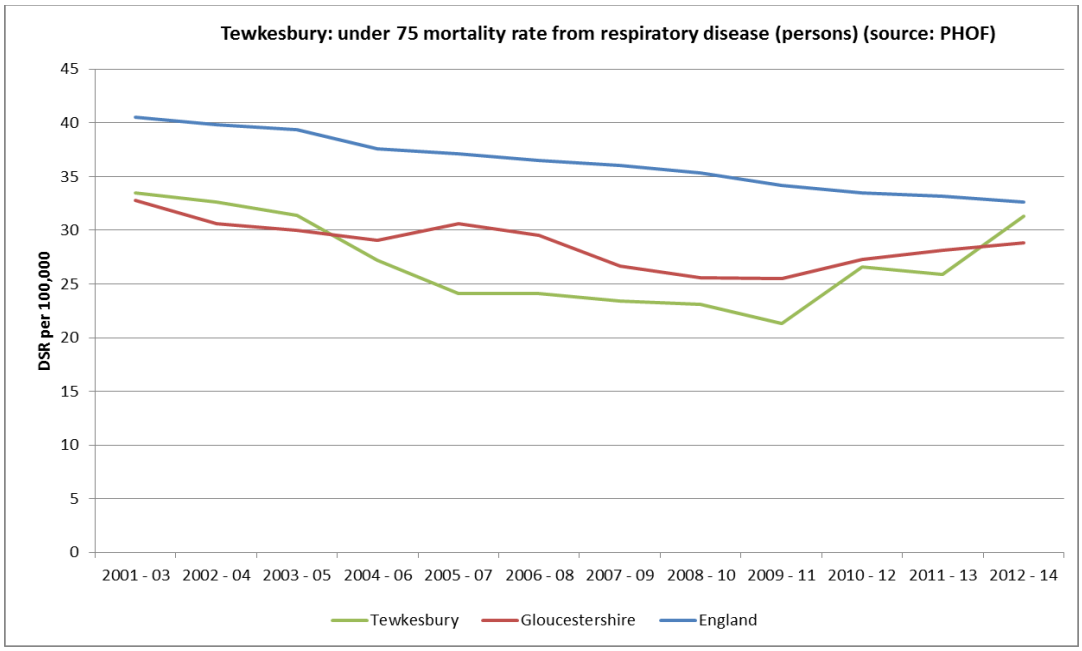
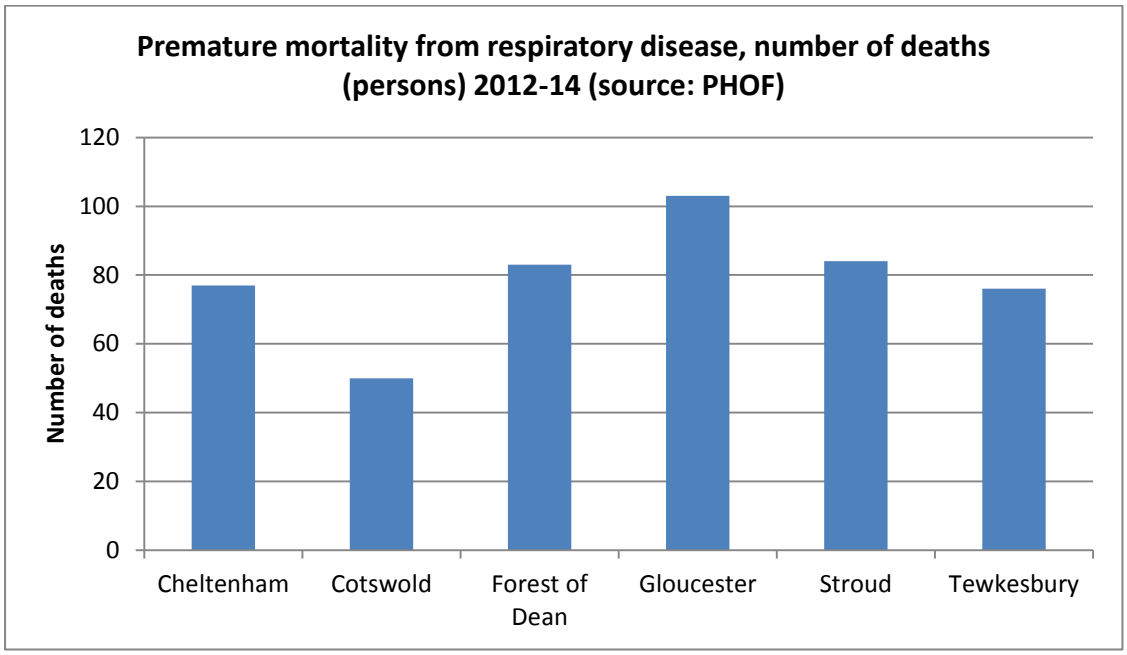
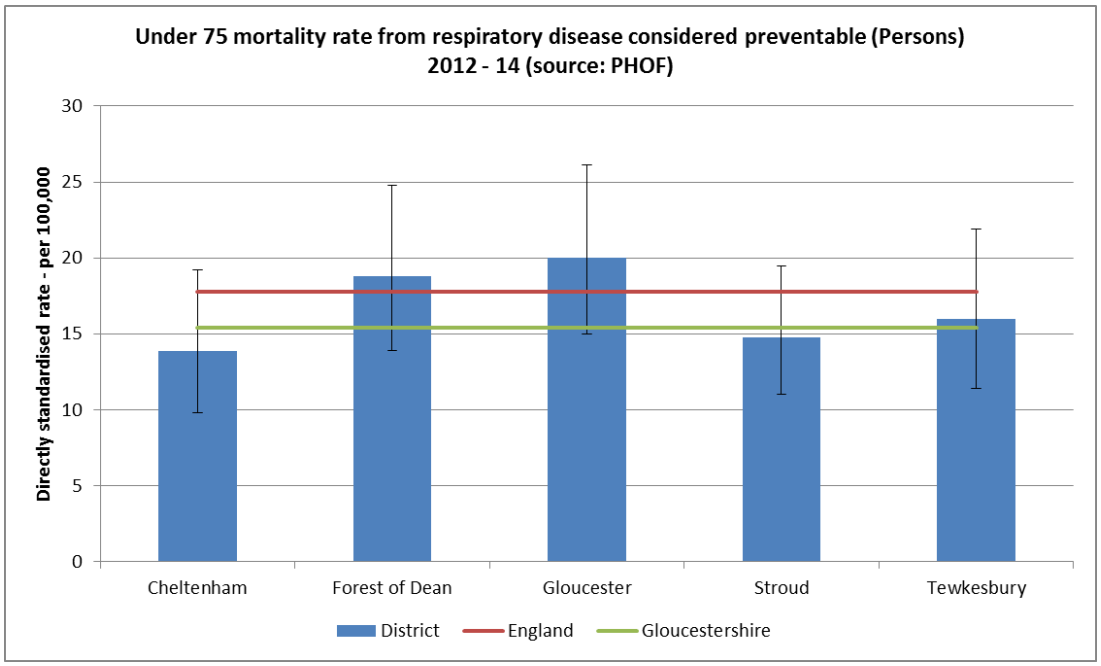


Figure 11



4.30 The Public Health Outcome Framework also provides data on *preventable* mortality from respiratory disease (figure 12). 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) in the broadest sense. Gloucester district experienced the highest rate of potentially preventable deaths from respiratory disease in 2012-14 (equivalent to 54 deaths which could have been prevented); followed by the Forest of Dean. This is likely to partly relate to smoking rates in both districts (see section 3); underlining the potential gains from smoking cessation interventions in these districts.

Figure 12



4.31 With respect to medical/treatment interventions, NHS England has identified a number of interventions which evidence suggests can reduce premature mortality from COPD[121], specifically:

- provision of **non-invasive ventilation (NIV)** for patients who develop type 2 respiratory failure (with a number needed to treat of eight to save one life);
- provision of **pulmonary rehabilitation** after admission for acute exacerbation of COPD (with a number needed to treat of six to save one life).
- provision of ***controlled* oxygen** to minimise risk of toxicity during acute exacerbations. High dose oxygen (>35%) is contraindicated in people with COPD due to the risk of respiratory failure.

In the case of all three recommendations, NHS England cites evidence to suggest variation and inconsistency in their delivery across CCGs indicating scope for improvement in the care pathway. It is recommended that Gloucestershire CCG consider the evidence base for the interventions and look at local provision to see if there might be opportunities for improvement.

Mortality from asthma

4.32 Asthma deaths (across all age groups) accounted for 24 deaths in Gloucestershire

[121] NHS England (February 2014) A resource to support commissioners in setting a level of ambition on reducing premature mortality (COPD)

across the three year period 2012-14; of which a total of 3 deaths occurred in those aged 5 to 44 years.[122] Nationally the highest rate of deaths from asthma occurs in those aged 75 plus; and it is reasonable to assume that there is likely to be a similar picture in Gloucestershire.

4.33 Overall there has been a downward trend in asthma deaths in the county over the last twenty years and the county rate remains below the national average.[123] It is however interesting to note that comparisons of international asthma death rates for 5- to 34-year-olds during 2001–10 showed that the UK asthma mortality is one of the highest in Europe.[124]

4.34 Previous national reports into asthma deaths have suggested that avoidable factors may play a part in as many as three quarters of cases of asthma death. A national review of 195 asthma deaths occurring between February 2012 and January 2013 (published in May 2014)[125] makes a number of recommendations aimed at reducing asthma mortality , including:

- the provision of written guidance in the form of a **personal asthma action plan** for all asthma patients (to include details off triggers, current treatment and what to do in an emergency);
- **structured review** by a healthcare professional, at least annually, for all asthma patients (to include an assessment of recent asthma control and inhaler technique);
- **follow-up arrangements** to be put in place for all patients following an attendance or admission for an asthma attack;
- **referral to a specialist asthma service** for all patients who have required more than two course of systemic corticosteroids in the previous 12 months;
- Steps to address **inappropriate prescribing** of LABA bronchodilator inhalers and reliever medication; and under-prescribing of preventer inhalers.

4.35 With respect to the first recommendation, as noted previously, audit data (15/16) suggests that only 20% of asthma patients on disease registers in Gloucestershire are recorded as having an asthma action/management plan in the last 12 months.[126] QOF data also suggest room for improvement with respect to the provision of annual reviews for asthma patients, with only 68.7% of patients having received an annual review.[127] The CCG may wish to look at how it can work with primary care to increase the proportion of asthma

[122] NHSIC

[123] NHSIC

[124] Royal College of Physicians (May 2014) Why asthma still kills? The National Review of asthma deaths.

[125] Royal College of Physicians (May 2014)

[126] PCCAG Audit of Personalised Asthma Action/Management Plans (Q1 2015/16) Summary

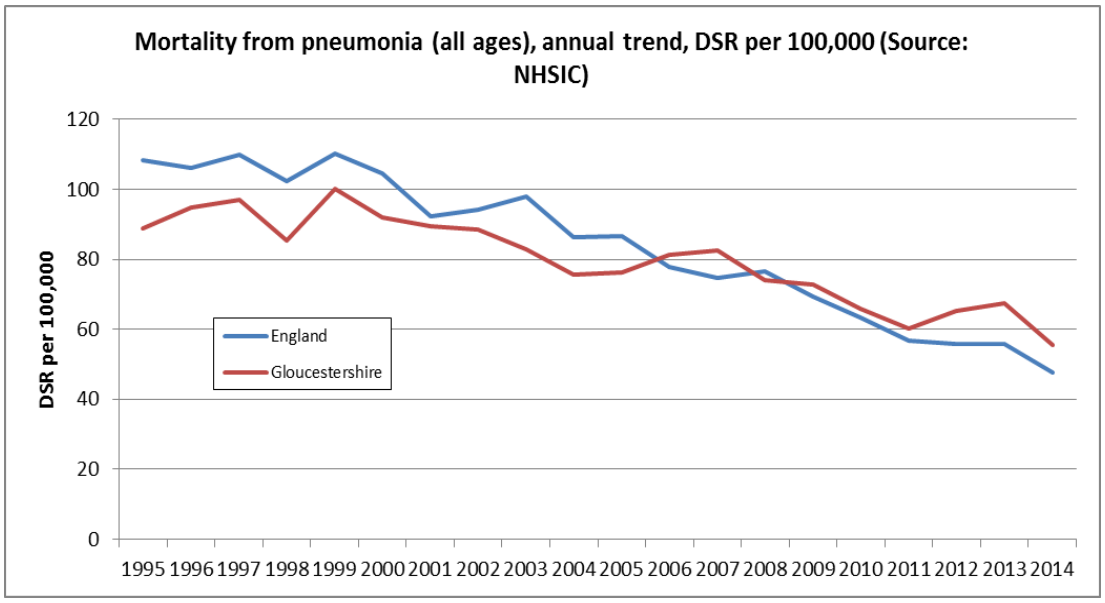
[127] PHE Practice Profiles (14/15)

patients receiving an annual review and in receipt of a personal action plan. It may also wish to consider the review's recommendations on prescribing and the care pathway for patients following an asthma attack.

Mortality from pneumonia

4.36 Mortality from pneumonia in the county has fallen over the last two decades; in line with the national trend (figure 13). In 2014, there were 364 deaths attributed to pneumonia in the county, of which 322 occurred in those aged 75 and over. In recent years the county rate has been slightly above the national rate, though confidence intervals are not provided so it is not possible to determine whether the difference is statistically significant.

Figure 13



Excess winter deaths

4.37 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.

4.38 There is a significant seasonal affect in all age mortality from respiratory disease; and it is recommended that commissioners take this into account when service planning. Respiratory disease is the leading underlying cause of EWDs. In 14/15, a third of EWDs were attributed to respiratory diseases; and 78% more people died from respiratory diseases in

the winter, compared with the non-winter period.[128] Pneumonia accounted for the largest proportion of these deaths. It is important to note that EWDs were particularly high in 2014/15. In 2013/14 there were 30% more respiratory disease deaths in the winter compared with the non-winter period.

4.39 Overall there has been an upward trend in the EWD ratio in the county over the last decade, though Gloucestershire remains in line with the national average (figure 14)[129]. Across the three year period (August 2011-July 2014) there were a total of 875 excess deaths in the winter months; 544 of which occurred in those aged 85 plus. Assuming that Gloucestershire follows the national trend, we can infer that the majority of these deaths are likely to have been from pneumonia.

4.40 Over the three year period (August 2011- July 2014) the highest ratio of excess winter deaths was in Cheltenham (equating to 229 deaths), followed by Tewkesbury (153 deaths) (figure 15). However EWDs in all districts are in line with the national average.

4.41 There are a number of factors which contribute to EWDs including the diseases circulating in the community, such as seasonal flu; the complications of which are a particular risk for those with underlying health conditions or the elderly. This underlines the importance of increasing local uptake of the flu immunisation among 'at risk' groups and those over age of 65 (see section 5).

4.42 Evidence suggests that temperature explains only a small amount of the variance in winter mortality and high levels of EWDs can occur during relatively mild winters. However cold homes have been identified as a contributory factor; and commissioners may want to consider how to work with partners to implement the recommendations on this in NICE's 2015 guidance on the prevention of excess winter mortality.[130]

[128] ONS (November 2015) Excess Winter Mortality in England and Wales (14/15).
[129] PHOF
[130] NICE (March 2015) Extra winter deaths and illnesses and the health risks associated with cold homes, NICE guidance NG6.

Figure 14

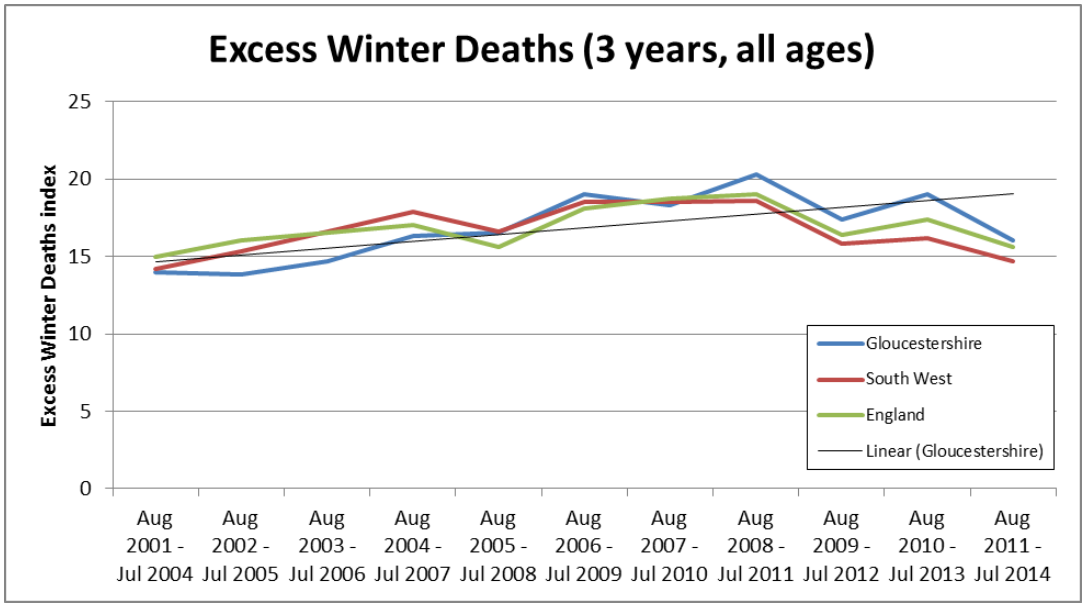
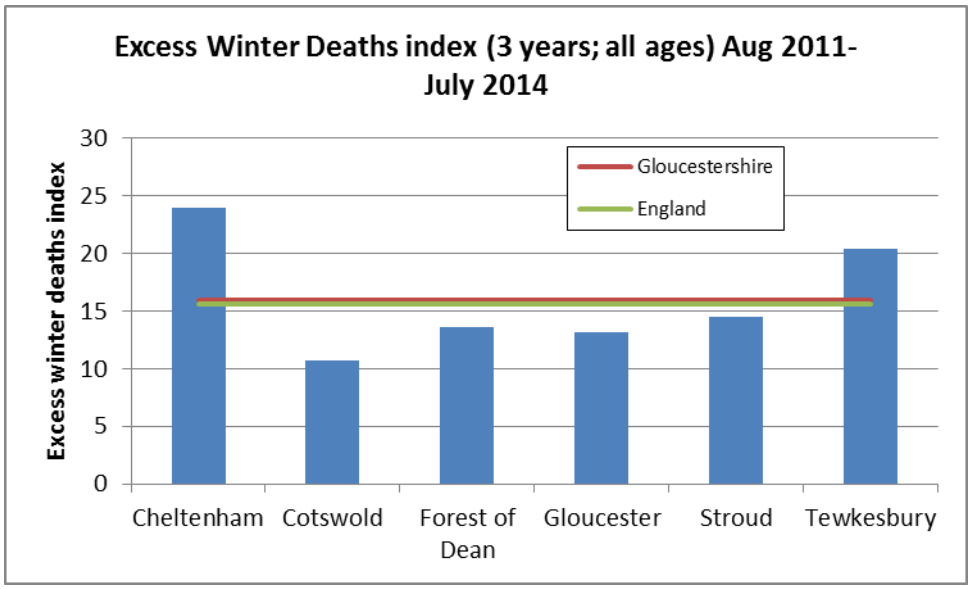


Figure 15



Estimated expenditure on respiratory conditions

4.43 The NHS England Programme Budgeting Benchmarking tool provides spend by CCG for individual programmes of care and care settings. The tool includes spend on the programme budgeting category 'problems of the respiratory system' which includes obstructive airways disease and asthma. The latest published data covers 2013/14. It would be preferable to analyse more recent data were it to be available.

4.44 Gloucestershire CCG's total expenditure on 'problems of the respiratory system' in 2013/14 was £44 million; a reduction from £53.4 million in 2012/13. The categories into which spend is allocated have been updated in 2013/14 which makes direct comparisons with the previous year difficult, but some of the largest reductions on the previous years spend appear to have occurred in 'primary prescribing' and in 'unscheduled care: A&E'.

4.45 Excluding the budget category 'other'; respiratory problems were the fifth highest area of spend in 2013/14; the highest being 'mental health disorders; and 'problems of the musculoskeletal system'. The highest area of spend within respiratory problems was on 'unscheduled care – non elective admissions' which accounted for over a third (37%) of total expenditure; followed by primary prescribing, 29% of total expenditure.

Figure 16 shows how the spend breaks down across care settings/activities

4.46 Figure 17 shows how local spend on 'respiratory conditions' benchmarks with the ONS cluster average. Overall local spend is broadly in line with the cluster average across all care settings; however the CCG spends slightly more of its respiratory budget on unscheduled care than its cluster group; and slightly less on elective and day cases.

Figure 16

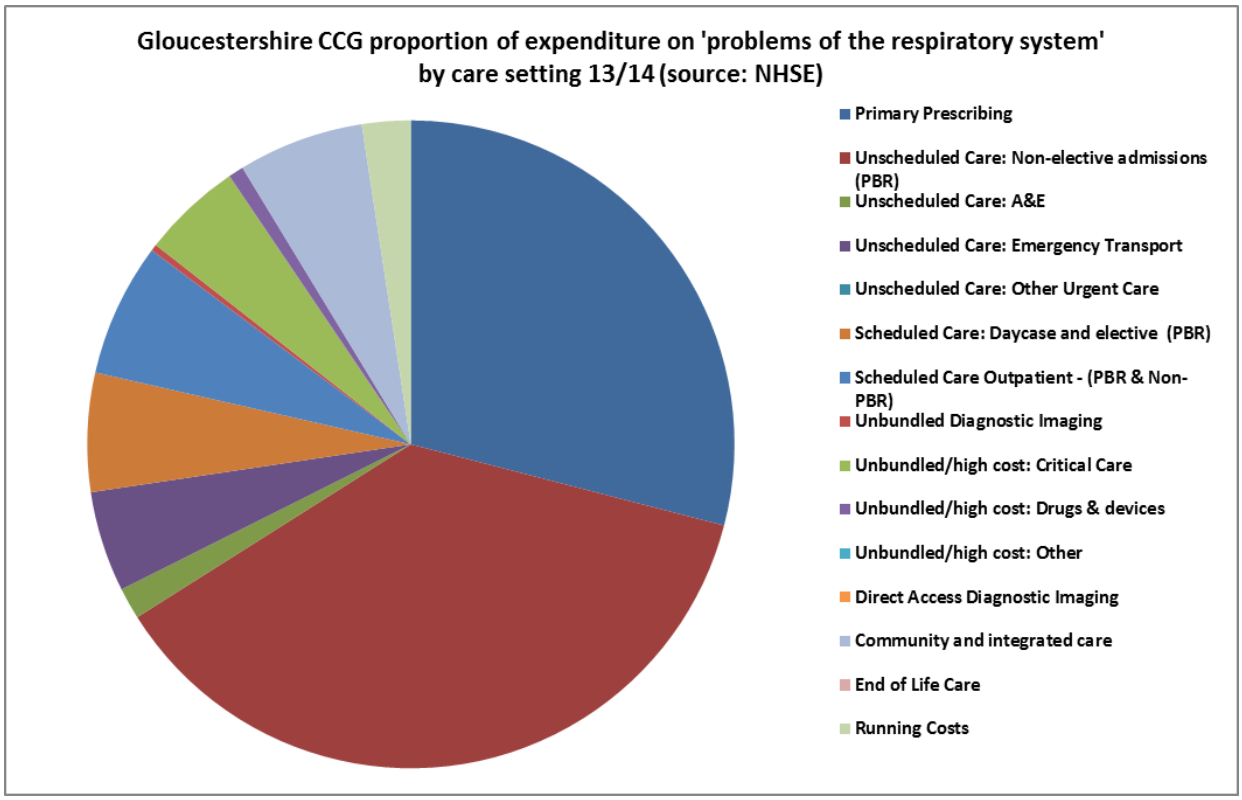
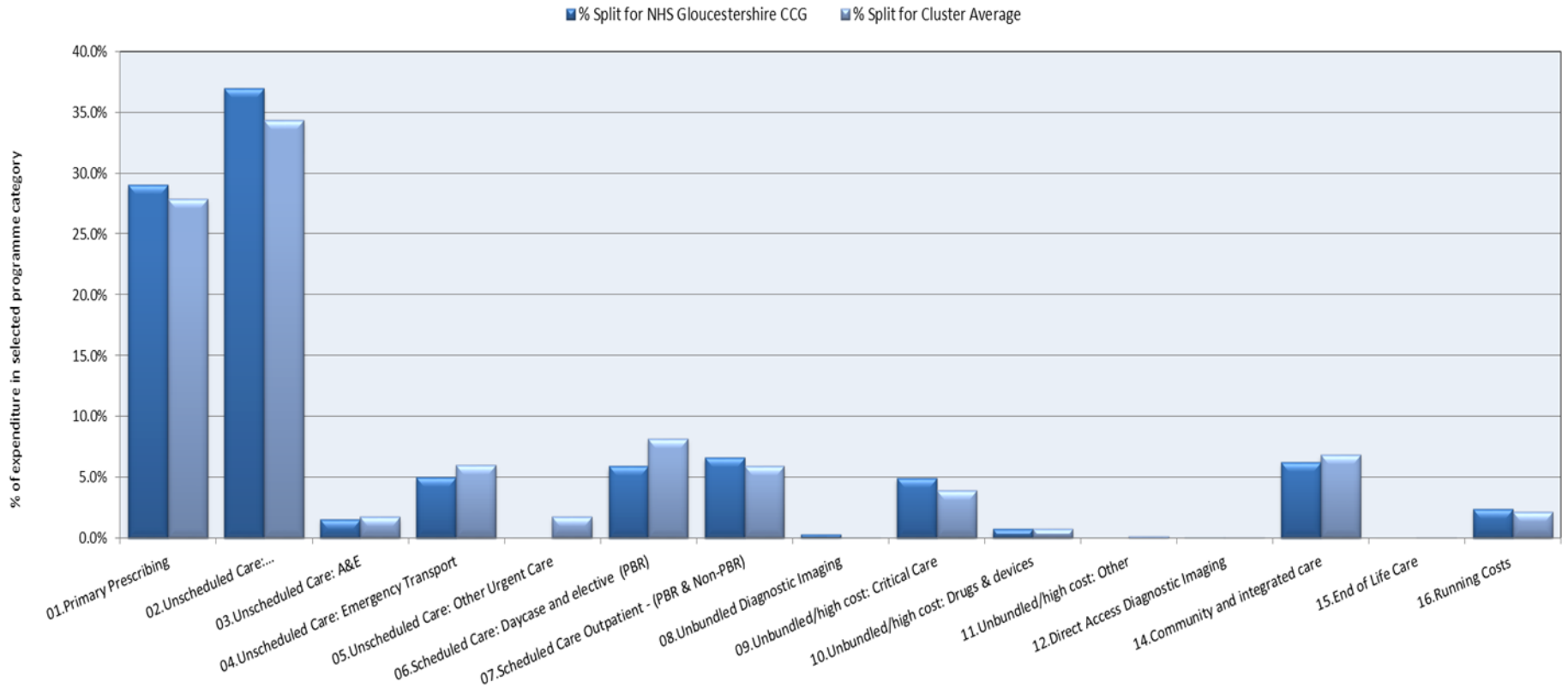

Gloucestershire CCG proportion of expenditure on 'problems of the respiratory system' by care setting 13/14 (source: NHSE)
Primary Prescribing
Unscheduled Care: Non-elective admissions (PBR)
Unscheduled Care: A&E
Unscheduled Care: Emergency Transport
Unscheduled Care: Other Urgent Care
Scheduled Care: Daycase and elective (PBR)
Scheduled Care Outpatient - (PBR & Non-PBR)
Unbundled Diagnostic Imaging
Unbundled/high cost: Critical Care
Unbundled/high cost: Drugs & devices
Unbundled/high cost: Other
Direct Access Diagnostic Imaging
Community and integrated care
End of Life Care
Running Costs

Figure 17 Gloucestershire CCG proportion of spend on 'Problems of the respiratory system' by care settings (13/14) benchmarked with its cluster average (source: NHSE).



Section 5: Management & prevention of respiratory conditions

Primary care - Care processes and treatment indicators – QOF

5.1 There are a number of clinical indicators recorded in QOF which provide an indication of how well respiratory conditions are being managed in primary care. The QOF data for Gloucestershire practices can be accessed online via the PHE Practice Profiles.

5.2 Overall across the relevant QOF indicators (14/15 data) for COPD and asthma Gloucestershire CCG benchmarks in line with the national average and the average of its 'cluster' CCG comparator group (figure 18)[131]. However while the county is not falling behind, there is still potential to increase the proportion of patients who receive the relevant intervention, examples include:

- proportion of asthma patients who have received an **asthma review** in the last 12 months; currently 68.7%; and

- proportion of COPD patients for whom there is a **record of FEV1** having been assessed in the last 12 months; currently 74%.

Both interventions are recommended by NICE as part of the standard care and management of patients with COPD and/or asthma.[132]

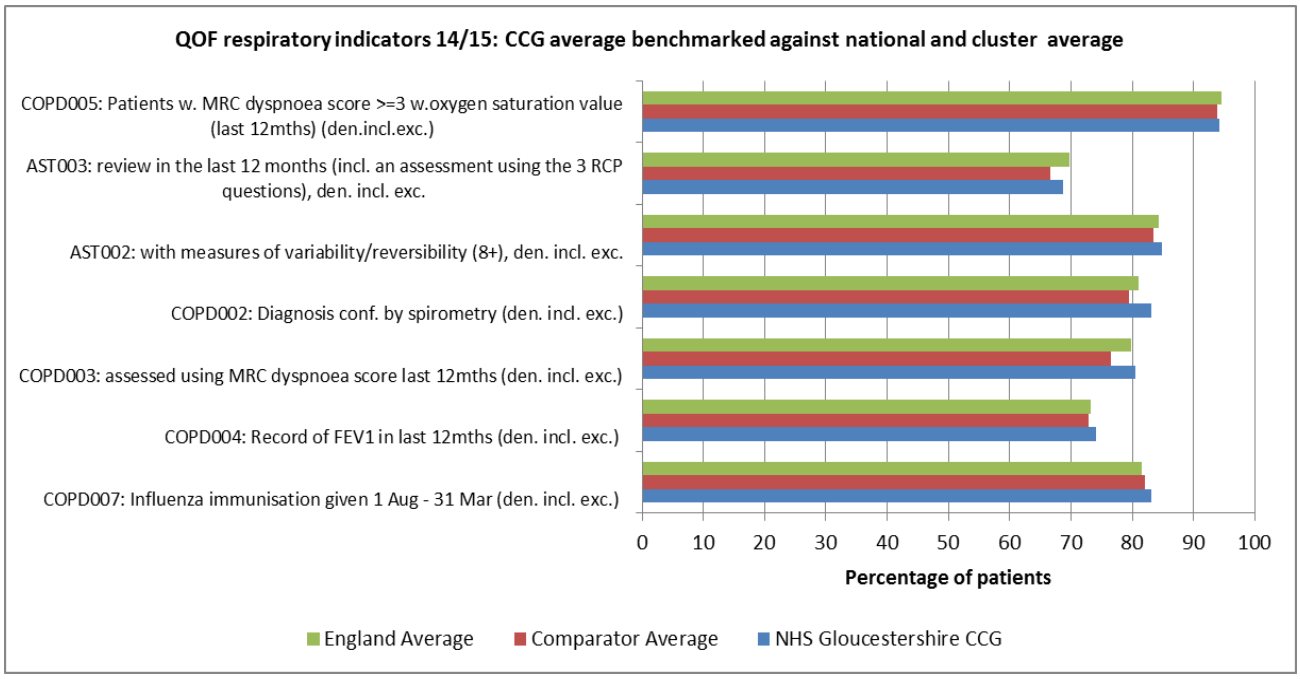
5.3 Whilst not recorded in QOF, as noted previously, there is also scope for improvement in the proportion of asthma patients with an asthma action/management plan; with audit data (15/16) suggesting that only 20% of asthma patients in Gloucestershire have such a plan.[133]

[131] The 10 most similar CCGs to NHSG CCG are W Hampshire CCG, Somerset CCG, Wiltshire CCG, S Derbyshire CCG, Kernow CCG, E and N Hertfordshire CCG, Ipswich & E Suffolk CG, Mid Essex CCG, Nene CCG and W Kent CCG. This comparator group is used in both the NHSE CVD profiles and the Commissioning for Value packs. The methodology used is available at: http://www.england.nhs.uk/resources/resources-for-ccgs/comm-for-value/

[132] Asthma NICE quality standard QS25, February 2013, NICE; COPD in over 16s: diagnosis and management NICE clinical guidance CG101, June 2010, NICE.

[133] PCCAG Audit of Personalised Asthma Action/Management Plans (Q1 2015/16) Summary

Figure 18



Practice variation

5.4 The average value for the CCG will not pick up variations in the delivery of interventions at the practice level. The proportion of asthma patients who have had a review in the last 12 months for example, falls below 60% in seven Gloucestershire practices; and a total of fourteen practices are significantly below the national average (69.7%) for this indicator. The proportion of COPD patients who have a record of FEV1 in the last 12 months is significantly below the national average (73%) in nine practices.[134]

5.5 Commissioners may wish to consider working with primary care to better understand trends in practice variation. This might include prioritising a number of COPD and asthma QOF indicators with a view to ensuring all practices reach the CCG or national average (depending which is higher).

Figures e,f and g (appendix A) show practice performance against a number of relevant QOF indicators.

Smoking cessation

5.6 Smoking is the leading risk factor for chronic respiratory disease; by implication reducing the number of people smoking in the county should have a significant impact on the overall disease burden. Evidence also suggests that stopping smoking among patients already

[134] PHE Practice Profiles

diagnosed with COPD and/or asthma reduces exacerbations. NICE recommends that all COPD patients still smoking, *regardless of age*, should be encouraged to stop, and offered help to do so, at every opportunity.[135]

5.7 Gloucestershire County Council commission a county-wide NHS Stop Smoking Service which offers free support to smokers to quit. In 14/15, the service achieved a quit rate of 58%, above the national average of 51%. The service also has specific targets for the number of quitters (measured at 4 weeks) achieved amongst people being treated for mental health conditions and those from areas of deprivation (including those in routine and manual occupations). The service met both targets in 14/15. Reducing smoking prevalence amongst both groups is particularly relevant given the increased risk of respiratory disease in areas of deprivation, and in individuals with mental health conditions (see 3.6).

5.8 Primary care can also play a role in providing cessation advice or treatment to smokers, and/or signposting them to relevant local services. QOF records whether practices have a record of such support being offered to smokers registered at the practice (indicator SMOK004). CCG wide, positively 86.5% of smokers were recorded as having received this 'offer' in the last 24 months; in line with the national average of 14/15.[136] However there is variation at practice level; with the proportion of smokers who have been offered cessation support falling significantly below the national average (85.8%) in 20 practices.

5.9 QOF also records whether patients who smoke who are on certain disease registers, including COPD and asthma, have been offered support/treatment to quit (SMOK005). The CCG average for 14/15 was 94%, in line with the national average.[137] While the variation at practice level is less marked (the vast majority of practices offer smoking cessation support to at least nine out of ten of their patients with LTCs), eleven practices are significantly below the national average for this indicator.

5.10 While overall practices appear to perform well with respect to offering smokers cessation advice, there may still be scope to explore whether more can be done to enable primary care professionals to support smokers to quit, particularly since smoking rates remain above the CCG average in a number of practices (see figure a, appendix A1).

5.11 There is also a Public Health Enhanced Service (PHES) covering provision of stop smoking services within primary care. Practices who sign up to the PHES receive remuneration for each smoker within the practice who sets a quit date, and for successful quits at four weeks.

[135] NICE guidelines (CG101) COPD in over 16s: diagnosis and management, June 2010.
[136] PHE Practice Profiles
[137] PHE Practice Profiles

5.12 A total of 74 Gloucestershire practices were signed up to the smoking cessation PHES in 14/15. Across these practices, 2,455 smokers set quit dates during 14/15; of these 1,268 went on to quit at four weeks, equivalent to an average quit rate of 52%.[138] Looked at as a proportion of the total estimated number of smokers (aged 15 plus) registered at the PHES practices (QOF 13/14), 3% of smokers set quit dates under the PHES and 1.6% quit. The data would suggest scope to work with practices signed up to the PHES to understand potential barriers to referring smokers to a specialist adviser with a view to increasing activity.

Flu vaccination

5.13 People with respiratory conditions are more at risk of severe complications and hospitalisation if they develop flu. Immunisation against seasonal flu is recommended for patients with chronic respiratory disease, including severe asthma, chronic obstructive pulmonary disease (COPD) or bronchitis.

5.14 Flu also has the potential to cause respiratory complications, notably pneumonia in other 'at risk groups', and for this reason the vaccine is also recommended for adults aged 65 and over, individuals with other underlying medical conditions, and individuals who are immunocompromised.

5.15 Overall, uptake of flu vaccine among over 65s in the county has seen a slight fall in recent years from 75% in 2010/11 to 74% in 2014/15.[139] While the fall is relatively small, arguably we would hope to see uptake increasing. The national 'ambition' set by the Department of Health is for all areas to achieve 75% uptake.

5.16 Uptake among individuals in clinically 'at risk' groups has also declined from 53.6% in 2010/11 to 49.5% in 2014/15.[140] While local uptake trends are broadly in line with the national and regional average, there is still significant scope to increase uptake from current levels. Positively, QOF data shows that 83% of patients on the COPD register received the flu vaccination in 2014/15. [141]

[138] Data taken from Public Health PHES Activity Tracker 14/15.
[139] Public Health Outcome Framework.
[140] Public Health Outcome Framework.
[141] COPD007; Practice Profiles PHE

Section 6: Secondary care of respiratory conditions

6.1 The Public Health England *Ihhale* portal (Interactive health atlas of lung conditions in England) contains a number of indicators looking at the use of secondary care by patients with COPD or asthma. While this provides an indication of health care usage, commissioners may want to consider sourcing more up to date data on hospital attendances and admissions.

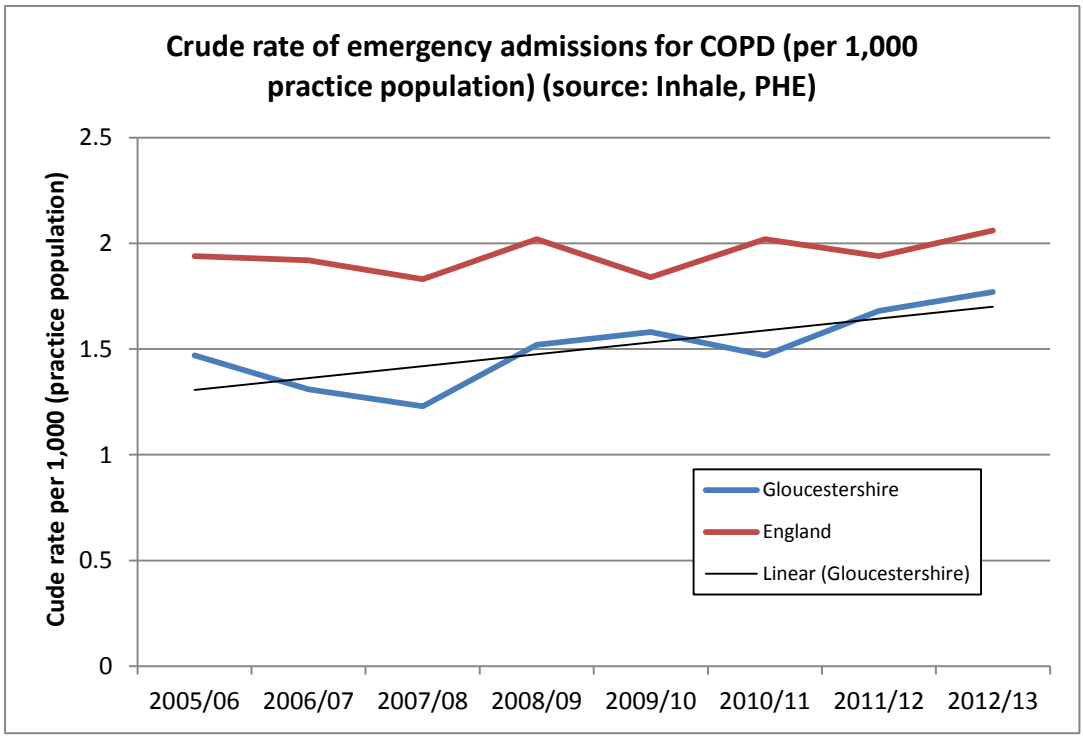
6.2 In 2012/13, there were 1,097 emergency admissions for COPD in the county. While the county rate remains significantly below the national average, overall there has been an upward trend in the rate of emergency admissions for COPD in Gloucestershire in recent years (figure 19).[142] It is recommended that more recent data is obtained to see if this trend has been sustained. Commissioners may also wish to explore any variation in emergency admissions at practice level (bearing in mind the age profile of the practice), and check whether completion of the recommended care processes for COPD patients in primary care is associated with a lower rate of emergency admissions.

Notably, data cited by NHS England estimates that nationally between 10% and 34% of emergency admissions for acute exacerbation of COPD are in people whose COPD is undiagnosed[143]; which highlights the importance of case finding.

[142] Inhale portal

[143] NHS England (February 2014) Overview of potential to reduce lives lost from COPD.

Figure 19

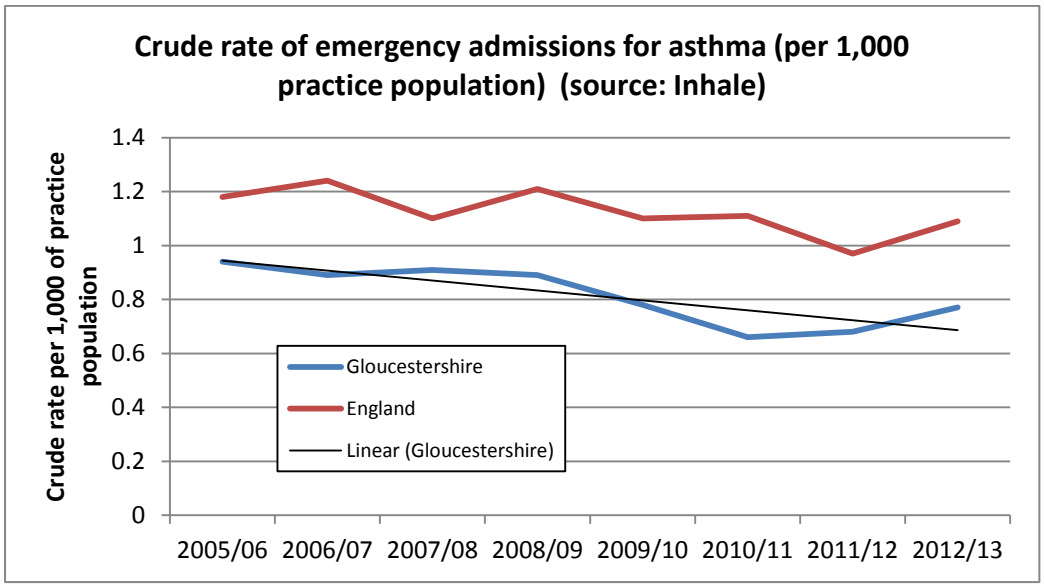


6.3 The mean length of stay (LOS) for COPD emergency admissions in the county was 6.8 days in 2012/13.[144] While the local LOS has fallen since 2006/08 it is still slightly above the national average of 5.9 days.

6.4 The rate of emergency admissions for asthma (all ages) have followed a downward trend since 2005/06 (figure 20). There has been a slight increase over the last two years (for which data is publicly available) through again more recent data is needed to see if this trend has been sustained. The relatively small number of admissions (474 in 2012/13) means that some fluctuation in the rate may be expected.

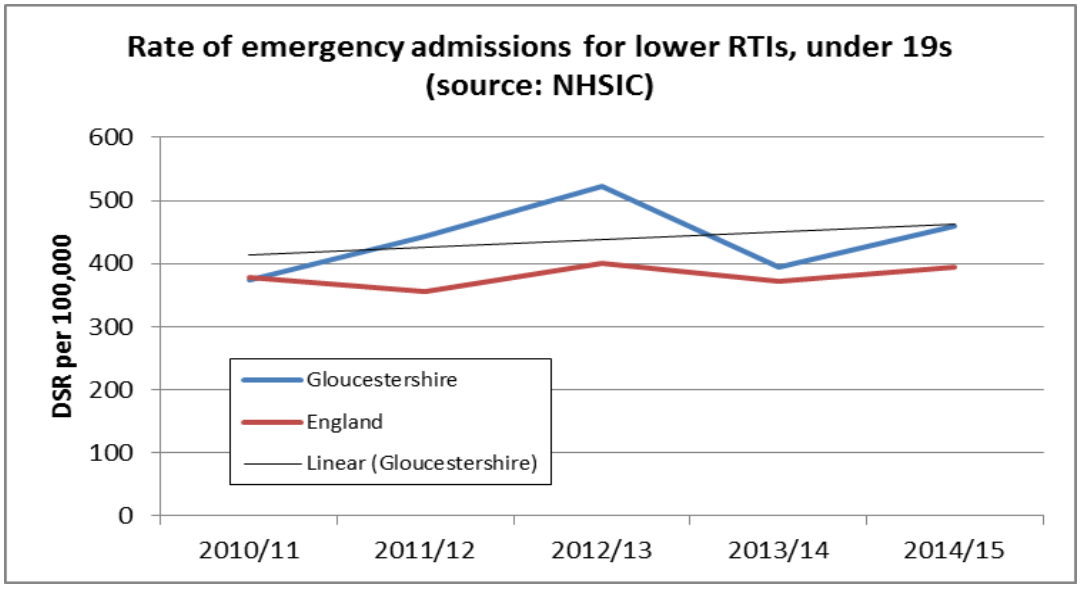
[144] Inhale portal

Figure 20



6.5 While this needs assessment is focused on adults, it is also worth nothing that emergency admissions for children (18 and under) with lower respiratory tract infections in the county have been significantly above the national average for three of the last four years (figure 21).[145] Commissioners may wish to consider a deep dive on this data to understand more about what might be driving higher admissions in the county.

Figure 21



[145] NHSIC

Section 7: Health outcomes

7.1 This section considers local performance against relevant indicators with the Public Health Outcome Framework and CCG Outcome Framework. The Outcome Frameworks provide comparative performance data and can help identify opportunities for improvement.

Public Health Outcome Framework (PHOF)

7.2 The Public Health Outcome Framework (PHOF) contains a number of indicators relevant to respiratory disease. A summary of local performance against these indicators has been outlined previously and is not repeated here; however links to the relevant paragraphs are provided.

- smoking prevalence (3.2)
- maternal smoking at time of delivery (3.11)
- percentage of eligible adults who have received the flu vaccination (5.13)
- under 75 mortality rate from respiratory disease (4.23).

Clinical Commissioning Group Outcome Framework (14/15)

7.3 The CCG outcome framework also includes a number of outcome measures of relevance.

7.4 **Premature mortality from respiratory disease** has been summarised previously at paragraph 4.22. While the overall trend locally is downward, and remains below the national average, there are signs of a slight increase in recent years which is worth monitoring.

7.5 The CCG outcome framework (CCGOF) also measures **maternal smoking at delivery** (see paragraph 3.11). Exposure to parental smoking has been associated with respiratory conditions in childhood. Positively the percentage of women smoking at time of delivery in the county has fallen in recent years, but is still just over one in ten. Moreover studies suggest that nationally up to 43% may start smoking again within 6 months.[146]

7.6 The CCG's performance with respect to the rate of **emergency admissions for lower RTIs in under 19s** has been previously discussed (paragraph 6.5). The CCG may wish to carry out a deep dive to explore why admissions have been significantly above the national average for three of the last four years to understand whether more could be done in community settings to prevent such admissions.

[146] Jones et al (2016)

7.7 The CCG outcome framework also contains indicators to measure the **health related quality of life for people with long term conditions**; and the **proportion of people who feel supported to manage their conditions**. While it is not possible to extract the data for patients with respiratory conditions, nevertheless the measures do provide an indication of support for people with LTCs, including chronic asthma and COPD. Positively Gloucestershire CCG ranks in the top quartile of all CCGs on both measures; and above the mean for their cluster group. The CCG may wish to consider qualitative research with COPD and asthma patients to gain a better understanding of their experiences with the current care pathway.

End of life care

7.8 A review of the evidence of end of life care for COPD patients[147] found that patients with advanced COPD often report poor quality of life, which has been attributed to both the physical symptoms of the disease and its impact on the patient's psychological wellbeing. Patients with advanced COPD are often housebound, which may contribute to social isolation. The same review also highlighted the significant impact on carers of patients with COPD.

7.9 The review also highlighted the tendency for care of patients with advanced COPD to focus on the management of acute exacerbation; the implication being that services were oriented toward reactive crisis management rather than ongoing support.[148] There was also some evidence to suggest that patients' information needs about issues relating to advance care planning and end of life care, such as prognosis, are not being met; and while the majority of patients want to have these discussions they are not always being given the opportunity to do so.[149] Commissioners may wish to consider qualitative research with COPD patients in Gloucestershire, their carers and clinicians to explore some of these issues and ascertain whether improvements are needed. There is scope to link this to the planned end of life care needs assessment. Commissioners may also wish to explore whether there is good access to general and specialist palliative care services locally for people with COPD, as part of any future service mapping.

7.10 In terms of place of death, national data suggests that of the main causes of death in England, respiratory diseases (excluding lung cancer) are the 'underlying cause of death' category for which the highest proportion of patients die in hospital and the lowest

[147] Spathis and Booth (2008) End of life care in chronic obstructive pulmonary disease: in search of a good death, International Journal of COPD; 3(1), pp.11-29.
[148] Skilbeck et al (1998); Brumley (2002) cited in Spathis and Booth (2008)
[149] Spathis and Booth (2008)

proportion die in their own residence.[150] This also appears to be the case in Gloucestershire. In 2011-13, 61% of deaths from respiratory disease occurred in hospital; 22% in care homes and 16% at home.[151]

7.11 It is worth noting research carried out on behalf of the 'National End of Life Care Intelligence network' which indicated that the majority of people (two thirds of respondents in the South West region) would prefer to die at home.[152] Hospitals and care homes were the least preferred places of death. However as people age, while dying at home still remains the preferred option, the preference to die in a hospice also increases, particularly in those aged 75 plus.

7.12 While it may not be possible for more respiratory patients to die in the community, again commissioners may wish to consider how patient choice regarding place of death and other aspects of advanced care planning are being taken into account; and explore how palliative care might be extended at home and in hospices.

[150] National End of Life care Intelligence Network (June 2011) Deaths from respiratory disease: implications for end of life care in England, NCIN/NHS

[151] PHE End of Life care data portal

[152] Gomes, B et al (August 2011) Local preferences and place of death in regions within England 2010, National End of Life Care Intelligence Network, London.