DEMOS

POTENTIAL LIMITED

THE ECONOMIC COST OF UNCONTROLLED ASTHMA

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The report was commissioned by Sanofi, a pharmaceutical company, but Demos retains editorial control. All views expressed in this report are those of the author and do not necessarily represent the views of, and should not be attributed to, Sanofi

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All errors are of course the authors' own.

Ben Glover
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February 2021

EXECUTIVE SUMMARY

The purpose of this report is to establish a way of thinking about the financial cost of long-term disability in general, and of uncontrolled asthma in particular, that is broader than the arithmetic sum of costs to NHS, disability benefits payments or lost productivity to employers.

Instead it aims to explore the economic impact on patients themselves from being unable to control their asthma – in particular through lower earnings and more limited opportunities to work and study. We find that having uncontrolled asthma is strongly associated with being out of work, and for those in work, with lower earnings. As a result it is also linked to an increased benefits bill, lower taxation revenues and an overall economy that is weaker than it otherwise could be.

Using a subjective outcomes-based definition of uncontrolled asthma, namely asthma that leads to unscheduled or emergency calls on the NHS and which has a substantial and long-term effect on the ability to carry out day-to-day activities, we estimate that:

- People with uncontrolled asthma who are in work earn around £3000 less per year than the average.
- People with uncontrolled asthma are less likely to work (52%) than the average adult (62%)

When these effects are aggregated across the economy, we estimate that every year uncontrolled asthma in the UK is linked to:

- A £2bn loss to the economy due to lower pay.
- A £2.5bn loss to the economy due to lower participation in the labour market.
- A cost of £200m to employers due to time off work.
- An additional cost of £41m to employers due to time off work to care for children suffering from an asthma attack.
- Taxpayer revenues being £1bn lower than they otherwise would have been.
- Direct costs to the NHS and devolved health services of at least £125m from around 87,000 emergency hospital admissions from asthma.
- Direct costs to the UK benefits system of £370m, primarily through supporting people prevented from working due to asthma.

These are financial estimates and so do not include the substantial intangible costs, in terms of lower wellbeing, that are linked to uncontrolled asthma.[1] Neither do we attempt to place a financial cost on asthma-related deaths, except to note that the UK's age-adjusted asthma mortality rate appears higher than that of comparable countries.[2] Moreover they do not include estimates of the costs in each category associated with parallel conditions, or comorbidities, that are linked either to asthma, the side-effects of asthma medication or arise from the same underlying cause.

We therefore **recommend** that government build on the approach outlined in this research to lay before parliament their own annual estimates of the individual, macroeconomic and fiscal impact of people with disabilities being unable to participate in the labour market to the same extent as their peers, including but not limited to uncontrolled asthma.

This would build on important recent work around the disability pay gap undertaken by the ONS[3], and provide sharper policy incentives to take a life-cycle and structural approach to disability and invest in potentially life-changing treatments and support.

1. Upton J, et al. Asthma-specific health-related quality of life of people in Great Britain: a national survey. J Asthma. 2016; 53(9)
2. The Global Asthma Network. The Global Asthma Report 2018. Available from: http://www.globalasthmareport.org/resources/global_asthma_report_2018.pdf
3. Office for National Statistics. Disability pay gaps in the UK: 2018. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/disability/articles/disabilitypaygapsintheuk/latest

In 2019 the government undertook a consultation to explore ways in which people with disability could be supported to stay in work.[4] This is welcome but at the time of writing the government's response to their own consultation has not been forthcoming. Moreover, we feel that by covering all disabilities together it is possibly too generic and so may miss opportunities for a cross-disciplinary approach to tackling the particular economic effects of respiratory disease and the interplay between clinical, educational and workplace interventions.

We therefore additionally **recommend** the establishment of a cross-departmental taskforce of ministers working with NHS England to examine the root causes of inequality in pay and job prospects specifically for people with uncontrolled asthma, in order to determine the necessary policy changes –clinical, legislative, educational and/or welfare support – that are required to narrow that gap for future generations.

Our estimates relate to 2018 - the latest year for which full information is available - and do not take account of the particular vulnerability of people who have asthma during the Covid-19 pandemic.

4. Department for Work and Pensions, Health is everyone's business: proposals to reduce ill health-related job loss (2019). Available from: https://www.gov.uk/government/consultations/health-is-everyones-business-proposals-to-reduce-ill-health-related-job-loss/health-is-everyones-business-proposals-to-reduce-ill-health-related-job-loss

INTRODUCTION

The reduction in the costs of asthma when an individual moves from uncontrolled to controlled symptoms can be considered as a 'preventable' source of costs. Patients' ability to work more productively and better cope with daily life reflects improved clinical management of their asthma.

World Health Organisation Global Asthma Report 2018 [5]

The aim of this work is to establish a way of thinking about the financial cost of long-term disability in general, and the effect of uncontrolled asthma in particular, that is wider than either a consideration of costs and benefits to the NHS or to spending on benefits payments, or even to the costs that fall on employers. Instead it aims to add into that equation the impact on the economic lives of the individual people themselves who suffer from uncontrolled asthma: their opportunity to work and earn as compared to the population as a whole. By doing this, not only do we get a better sense of the lived experience of having asthma symptoms that are not well managed but also, in aggregate, we can get a sense of the missed opportunity for our macroeconomy as a whole.

The premise for this work is that whilst asthma is a condition that takes many different forms, the vast majority of people with asthma should be able to live their lives with it well-managed.[6] If that were the case in practice, then people with asthma should not, in general, experience greater financial hardship, loss of opportunity or higher mortality rates than the rest of the population. To the extent that they do, therefore, this is not only an avoidable reduction in freedom for the individual, but also has avoidable financial costs for society. The purpose of this work is to attempt to quantify that cost for the UK.

Asthma is a type of respiratory disease associated with shortness of breath and wheezing that is caused by inflammation of, and mucus in the airways of the lung. [7] It is commonly treated with corticosteroids taken via inhaler or in tablet form.[8] There are also biologic treatments coming on stream that show promising results but are also considerably more expensive.[9]

NHS data records around 3.6m people in England, 6% of the population, are registered with their GP as having asthma.[10] However the Health Survey for England 2018 suggests a higher prevalence rate: 10% state they have current asthma and 17.5% have ever had asthma diagnosed. Over half of those with current asthma have experienced symptoms in the last 12 months, which the NHS defines as "uncontrolled" asthma.[11] The remainder reported that their asthma symptoms were controlled by medication in that period.[12]

For the purpose of this research, we are concerned with all asthma prevalence that is not sufficiently controlled to enable an individual to lead the same type of economic life as a similar individual who does not have asthma, and we define this as "uncontrolled asthma". In practice people with uncontrolled asthma are therefore those who are constrained from attending school or work when

5. The Global Asthma Network. The Global Asthma Report 2018. Available from: http://www.globalasthmareport.org/resources/global_asthma_report_2018.pdf
6. Asthma UK. The Reality of Asthma Care in the UK: Annual Asthma survey 2018 report. Available from: https://www.asthma.org.uk/578f5bcf/globalassets/get-involved/external-affairs-campaigns/publications/annual-asthma-care-survey/annual-asthma-survey-2018/asthmauk-annual-asthma-survey-2018-v7.pdf
7. NHS. Conditions: Asthma. Available from: https://www.nhs.uk/conditions/asthma/
8. NHS. Treatment: Asthma. Available from: https://www.nhs.uk/conditions/asthma/treatment/
9. Yadav V., Challenges in reimbursement of biologics in severe asthma: a review of health technology assessments. Value in Health 21 (2018) S1-S268. Available from: https://doi.org/10.1016/j.jval.2018.04.1611
10. NHS Digital. Quality and Outcomes Framework: Achievement, Prevalence and Exceptions (Asthma). Available from: https://app.powerbi.com/view?r=eyJrIjoiODliN2M3NTQtOGFjMC00NjMxLTk5ZWMtMjg2MmQ0NDI3Nzk5IiwidCI6IjUwZjYwNzFmLWJiZmUtNDAxYS04ODAzLTY3Mzc0OGU2MjllMiIsImMiOjh9
11. NHS Digital. Health Survey for England 2018 Asthma. Available from: http://healthsurvey.hscic.gov.uk/media/81643/HSE18-Asthma-rep.pdf. This NHS definition is broader than the GINA definition of 'uncontrolled asthma', which includes one or both of the following: Poor symptom control (frequent symptoms or reliever use, activity limited by asthma, night waking due to asthma) or Frequent exacerbations (≥2/year) requiring oral corticosteroids (OCS), or Serious exacerbations (≥1/year) requiring hospitalization. Source: GINA main report 2019, page 6
12. NHS Digital. Health Survey for England 2018 Asthma. Available from: http://healthsurvey.hscic.gov.uk/media/81643/HSE18-Asthma-rep.pdf

compared to other similar people, and/or those who have unscheduled (emergency) calls on their health services. In the sections that follow we estimate the size of this group through exploring the data on respiratory disabilities and non-routine use of healthcare services and the corresponding effect on the economy.

For completeness, it is important to note that there is a separate category of 'severe' asthma, medical definitions of which vary, and there is growing evidence that severe asthma is not simply an extreme version of the milder type of disease.[13] NHS England defines patients with severe asthma as having ongoing daily symptoms despite maximal medical therapy and significant side effects and co-morbidities secondary to their requirement for oral corticosteroids, such that they require specialist services, estimating that this group consists of less than 5% of all people with asthma.[14]

For the purposes of this analysis, however, it is the effect on an individual's daily life that is important. An individual could therefore have a medical diagnosis of 'severe' asthma but not be within scope of this report because their treatment plan was sufficiently effective that their economic lives were no different from their peer group, everything else being equal. However another individual could have a diagnosis of mild or moderate asthma, or lower on the thoracic scale, but still come within the scope of the report because their condition is not effectively controlled, and so has an impact on their work, their studies, or their call on emergency care.

It follows that NHS costs that are incurred in supporting people to live 'normal' lives, such as scheduled GP or consultant appointments and costs of routine medication, are not included as a cost for the purposes of this research, but costs of unscheduled appointments, emergency hospital stays and disability payments are included as costs on the grounds that if the asthma was well-managed, they would be avoided.

The relationship between the costs of controlled and uncontrolled asthma is important. For example, in Finland, a deliberate policy focus to improve asthma management led to overall annual asthma related cost reductions of 14% from 1987 to 2013 and a 72% decline in costs per patient despite a 3-fold increase in the number of patients taking medication regularly and a modest increase in asthma prevalence.[15]

We hope that our conclusions will be of use to policymakers when considering the wider costs of their investment in asthma treatment, and ultimately therefore help to improve the lived experiences of the individuals affected.

13. NHS England. Specialised Respiratory Services, Adult Asthma (2017). Available from: https://www.england.nhs.uk/wp-content/uploads/2017/04/specialised-respiratory-services-adult-severe-asthma.pdf
14. NHS England. Specialised Respiratory Services, Adult Asthma (2017). Available from: https://www.england.nhs.uk/wp-content/uploads/2017/04/specialised-respiratory-services-adult-severe-asthma.pdf
15. The Global Asthma Network. The Global Asthma Report 2018. Available from: http://www.globalasthmareport.org/resources/global_asthma_report_2018.pdf

METHODOLOGY

This report consists of a series of static estimates designed - where applicable - to update existing academic literature, establish a methodology for thinking about the macroeconomic impact of disability, and provide a sense of the magnitude of first-order effects in order to prompt a policy debate. Where it differs from traditional academic cost of illness studies[16], is that it incorporates an estimate of the aggregate wider impact of uncontrolled asthma on overall levels of income in the economy by comparing data on pay and labour market participation for those with an asthma disability compared to the average.

In this way, it takes on board the guidance of the World Health Organisation around identifying the economic consequences of disease and injury:

> *By focusing on health sector spending and lost labour productivity only, Cost of Illness studies provide only a very partial picture of the true macroeconomic impact of disease, and fail to consider the contribution of depleted capital accumulation, investment in human capital and...diminished economic growth.*[17]

We hope that by prompting a debate, it will lead to resources being made available for more dynamic models that explore the longer-term effect on GDP of individuals being unable to realise their potential in the labour market, alongside direct cost and other effects on the taxpayer.

Each section in this report has been separately calculated, so has its own methodology. Our general approach in each case is to start our analysis with primary UK government sources, including interactive open-source databases provided by NHS Digital, the Office of National Statistics (ONS) and Department of Work and Pensions (DWP), and where applicable health and education data from the devolved administrations. Once these have been undertaken we then conduct a literature review of other estimates, from both academic, commercial and NGO sources, as a sense check to our calculations and to enable us to place our estimates in context where additional information exists that is relevant but harder to quantify.

Our results are order-of-magnitude estimates and where applicable we have stated our assumptions and shown where the main sensitivities lie. Throughout, where there is a choice, or where the evidence was conflicting we have adopted the most conservative assumption. In a number of cases the data is incomplete, or refers to different years. We have therefore scaled our estimates so that they all relate to 2018 (or, in some cases 2018-19).

To perform this analysis we were very reliant on pioneering recent work to quantify the disability pay gap published in late 2019 by the ONS[18] and we would encourage them to continue with this workstream so that the full economic costs of disability can better be understood, providing an incentive for employers and policy makers alike to work harder to take mitigating action. Additionally, we made a bespoke request to the ONS in August 2020 for the hourly pay and hours worked of people who were recorded as having a disability of the respiratory system, on which the analysis of lost incomes relies strongly.

There is an important assumption at the heart of our narrative, namely that there is a degree of causality between having an asthma-related disability and having lower incomes or being less likely to work. The evidence is clear that the two go together: as we will see in section 1, people with an asthma disability have lower incomes and higher rates of economic inactivity than the comparable population as a whole. However without new primary research with the population in question as to the direction of the causality, it remains an assumption that people with an asthma disability face barriers as a result of that disability that mean their economic

16. In the UK the main example of this is Mukherjee, M., Stoddart, A., Gupta, R.P. et al. The epidemiology, healthcare and societal burden and costs of asthma in the UK and its member nations: analyses of standalone and linked national databases. BMC Med 14, 113 (2016). Available from: https://doi.org/10.1186/s12916-016-0657-8. A global systematic review was undertaken by Bahadori, K., Doyle-Waters, M.M., Marra, C. et al. Economic burden of asthma: a systematic review. BMC Pulm Med 9, 24 (2009). Available from: https://doi.org/10.1186/1471-2466-9-24
17. World Health Organization. Guide to identifying the economic consequences of disease and injury (2009). Available from: https://www.who.int/choice/publications/d_economic_impact_guide.pdf
18. Office for National Statistics. Disability pay gaps in the UK: 2018. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/disability/articles/disabilitypaygapsintheuk/2018

participation is less, or at a lower level, than others. We feel that our assumption is justified through the sense of causality in the way that disability itself is defined in the survey data, namely "a physical or mental impairment that has a 'substantial' and 'long-term' negative effect on your ability to do normal daily activities".[19] This income effect, sadly, is present across the spectrum of different types of disabilities, as the ONS disability pay gap survey shows, which also supports the assumption.

However a case can also be made in the case of asthma, that it is the low incomes that have caused the asthma - for example through inadequate, damp, housing - rather than the other way round.[20] Nevertheless regardless of the cause of asthma, it also seems likely that if it is serious enough to cause the sufferer to report it as a disability, it is likely that it has the potential to impact their earning potential in some way even if it is through a lifetime effect of a constrained ability to take advantage of opportunities. It is also the case that, as we discuss at the end of Section 4, asthma sufferers also have other health conditions that may affect their labour market participation, even if they aren't evident in the data. In order to minimise this effect we have been careful to compare the economic lives of people with asthma against the population as a whole rather than against those with no disability.

Our analysis does also not take into account the effect of the Covid-19 pandemic on people with a diagnosis of asthma, and should therefore be considered a 'steady state' estimate, despite its sensitivity to the vibrancy of the labour market. However it is likely that people with an asthma diagnosis will have been substantially affected by the pandemic, both in terms of susceptibility to the disease itself, and in terms of how the seismic disruptions to the labour market have disproportionately affected people with disabilities, in particular increasing the amount of economic inactivity among people who were already vulnerable in the jobs market.

Finally we shared our emerging findings with a small number of external organisations prior to publication for peer review and comment; we are grateful to those who gave freely of their time to do so.

19. GOV.UK. Definition of disability under the Equality Act 2010. Available from: https://www.gov.uk/definition-of-disability-under-equality-act-2010
20. NHS. Can damp and mould affect my health? Available from: https://www.nhs.uk/common-health-questions/lifestyle/can-damp-and-mould-affect-my-health/#:~:text=Yes%2C%20if%20you%20have%20damp,also%20affect%20the%20immune%20system.

SECTION 1
LOSS OF INCOME TO INDIVIDUALS

In this section we consider the aggregate loss of employment income across the economy that is linked to individuals suffering from asthma engaging to a lesser extent in the labour market than the average.

This has two main components, which we look at in turn:

a) working people with asthma, on average, earn less than other people

b) people with asthma are less likely to work than other people.

MECHANISM 1: WORKING PEOPLE WITH ASTHMA EARN LESS THAN OTHERS

The starting point for this analysis is the ONS Annual Population Survey [21], compiled from the quarterly Labour Force Survey[22], that includes information around people's labour market characteristics, including income and hours worked, alongside their disability status.

One of the disability categories that is included as part of this survey is "chest or breathing problems, asthma or bronchitis". Questions are also asked about the length of time the individual has had the impairment, the extent to which it reduces their ability to carry out their day-to-day activities and, for multiple conditions, whether the impairment is their "main" condition. This enables data to be collected for long-term breathing problems - including asthma - where the condition is sufficiently serious to count as a disability under the 2010 Equality Act [23], and for it then to be cross tabulated against other labour market characteristics.

The ONS does not routinely publish this information broken down by specific impairment, only for whether the disability in question is a physical or mental disability. We therefore made a bespoke request to ask for median rates of hourly pay, and numbers of hours worked, for people with an Equality Act 2010 definition of disability of "chest or breathing problems, asthma or bronchitis"; this data was obtained in early September 2020 and is the basis for our analysis.[24] We then compared this with data for the UK as a whole.[25]

As can be seen from the table below, people with a chest or breathing disability including asthma and bronchitis earned a median hourly rate of £10.26 compared to £11.82 for the country as a whole. Both figures relate to 2018, the latest available at the time of writing, are gross pre-tax pay, and exclude self-employed people for which comparable data are not available. The median number of hours worked was, however, the same for both categories at 37 hours per week. Combining the two and scaling up to an annual figure therefore enables us to estimate that a person with a disability linked to chest or breathing problems, asthma or bronchitis earns on average £1,985 less per year than the average employee.

21. Office for National Statistics. Annual population survey (APS) QMI (2012). Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/annualpopulationsurveyapsqmi
22. Office for National Statistics. Labour Force Survey. Available from: https://www.ons.gov.uk/surveys/informationforhouseholdsandindividuals/householdandindividualsurveys/labourforcesurvey
23. GOV.UK. Definition of disability under the Equality Act 2010. Available from: https://www.gov.uk/definition-of-disability-under-equality-act-2010
24. Office for National Statistics. Median pay and hours for disabled people with chest or breathing problems, asthma or bronchitis: UK (2018). Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/disability/adhocs/12195medianpayandhoursfordisabledpeoplewithchestorbreathingproblemsasthmaorbronchitisuk2018
25. Hourly pay for the UK as a whole in 2018 is obtained from the Annual Population Survey, for example as published here: https://www.ethnicity-facts-figures.service.gov.uk/work-pay-and-benefits/pay-and-income/average-hourly-pay/latest. The number of hours worked for the population as a whole was obtained from the Annual Survey of Hours and Earnings via NOMIS, which has a larger sample size but does not collect information around disability. A discussion of the difference between the two sources is here: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/methodologies/aguidetosourcesofdataonearningsandincome

Before relying on this estimate it is important to satisfy ourselves that people with uncontrolled asthma make up a substantial proportion of the total group that we are considering. Although the ONS does not routinely collect data of greater granularity than 'chest or breathing problems, asthma or bronchitis' there are a number of reasons why we consider chronic asthma will make up a large proportion of this group.

First, sufferers of seasonal flu are accounted for elsewhere, and any conditions that last for less than 12 months are excluded by the definition of disability being used. Second, GP data records in England suggest that asthma is by far the most common respiratory condition. In 2018-19 there were 3.6m patients recorded as suffering from asthma; the next most common respiratory condition - chronic obstructive pulmonary disease, or COPD, was recorded as affecting 1.1m patients, with no other respiratory condition in the top twenty.[26]

In addition, a Health Survey for England deep dive into respiratory conditions, whilst slightly out of date (2010), shows that COPD is far more prevalent in people of retirement age, and so is largely out of scope of an income-based analysis, whereas asthma affects all age categories.[27] The same survey also gives a sense of comparative scale: it reported that around 9.5% of the population was either on medication for asthma or had experienced symptoms in the last 12 months but only 2% of the population was on medication for COPD, chronic bronchitis or emphysema, half of whom were over the age of 65.[28]

Taking all this together, for the rest of our analysis we adopt a conservative assumption that around two-thirds of the individuals in the ONS category of having a main health problem affecting their work of 'chest or breathing problems, asthma or bronchitis' have uncontrolled asthma.

In order to produce an economy-wide estimate of the income loss that arises from people with asthma earning less than the average, it is necessary to know how many people we are talking about. Office of National Statistics data for early 2020 suggests there are around a million employed people who reported that they had health problems(s) that limit the kind of paid work they can do and that their main health problem was 'chest or breathing problems, asthma or bronchitis'.[29] Presuming around two-thirds of these suffer from uncontrolled asthma therefore gives a total loss to the economy that comes from working people with asthma earning less than the average of around £2bn annually, as shown in table 1 below.

TABLE 1.
ESTIMATING TOTAL LOSS OF INCOME AMONGST WORKING PEOPLE LINKED TO ASTHMA

Median hourly pay of people with a respiratory disability including asthma (£)*	10.26
Number of hours worked each week by people with a respiratory disability including asthma*	37
Estimated annual pay of people with a respiratory main health problem affecting their work (£)	19,740
Median hourly pay in UK (£)**	11.82
Median number of hours worked each week***	37
Median annual pay of UK workers (£)	22,742
Difference in annual pay (£)	3,001
Number of people with a respiratory main health problem affecting their work in employment****	987,010
Estimated number of people with asthma-related main health problem in work (two-thirds of total with respiratory condition)	661,297
Estimated economy loss of income due to hourly pay gap (£m)	1,985

* Source: Annual Population Survey. ONS ad hoc request 12195. Refers to 2018. 16-64 only.
**Source: ONS Annual Population Survey. Refers to 2018
*** Source: ONS Annual Survey of Hours and Earnings. Refers to 2018. Obtained via NOMIS.
**** Source: ONS ad-hoc request 11766. Refers to January-March 2020.

26. NHS Digital. Quality and Outcomes Framework: Achievement, Prevalence and Exceptions (Asthma). Available from: https://app.powerbi.com/view?r=eyJrIjoiODliN2M3NTQtOGFjMC00NjMxLTk5ZWMtMjg2MmQ0NDI3Nzk5IiwidCI6IjUwZjYwNzFmLWJiZmUtNDAxYS04ODAzLTY3Mzc0OGU2MjllMiIsImMiOjh9
27. NHS Digital. Respiratory symptoms and disease in adults (2010). Available from: https://files.digital.nhs.uk/publicationimport/pub03xxx/pub03023/heal-surv-eng-2010-resp-heal-ch2-symp-adul.pdf
28. NHS Digital. Respiratory symptoms and disease in adults (2010). Available from: https://files.digital.nhs.uk/publicationimport/pub03xxx/pub03023/heal-surv-eng-2010-resp-heal-ch2-symp-adul.pdf
29. This paragraph was amended in March 2021 to correct an error, with consequent amendments for consistency throughout. This data relates to January-March 2020 and so includes the first week of the Covid-19 lockdown. However, in the absence of comparable data for our base year of 2018, and given that employment of people with disabilities had been exhibiting an upward trend between 2018 until early 2020, we presume that it remains a reasonable basis starting point for the purposes of this analysis. Office of National Statistics Current disability and main health problem cross referenced with basic economic activity by sex and age, January to March 2020. Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/adhocs/11766currentdisabilityandmainhealthproblemcrossreferencedwithbasiceconomicactivitybysexandagejanuarytomarch2020

DISCUSSION

The relevance of this analysis to the research question we are considering is that if people with asthma were able to work in the same way as people without asthma we would expect there to be no difference in pay. The fact that there is a difference – as shown in table 1 - suggests that people with asthma have unrealised potential in the labour market, that could be unleashed if there was better control of their symptoms throughout their lives.

In reality there are many different variables that explain an individual's pay in the labour market. However many of these will be internalised in the analysis. For example, a child who misses school due to asthma may get lower exam results, less education and so end up in a lower-paid occupation. Similarly an adult who is spending a large proportion of their time and emotional energy controlling their health may not find it as easy as others to be ambitious at work, or to travel further in search of opportunity.

The Office of National Statistics, in a first analysis of its type, performed a modelling exercise to explore explanatory variables for the pay gap between disabled and non-disabled workers and found the strongest link was occupation type followed by qualifications, supporting a hypothesis that the difference in hourly rates of pay are likely to be structural and deep seated with a cumulative effect over the life of the person affected.[30] This is supported by research conducted by the TUC in 2018: their analysis of Labour Force Survey data suggested that even when disabled people are equally qualified as their non-disabled peers, they still face pay discrimination, with disabled people with a degree-level qualification still earning less than their non-disabled degree level qualified counterparts.[31] In the particular case of asthma, it is also important however to consider alternative channels of causality: it may be that living conditions associated with lower incomes could exacerbate asthma at all stages of life.

There are a number of caveats associated with our estimates. For example if someone suffers from a chest or breathing problem that is sufficiently serious to affect their work but the individual does not identify it as their "main" health issue, then it will not show up in this time series, leading to a possible underestimate of the economic impact of uncontrolled asthma. Our figures are also highly sensitive to the assumption that the working hours and hourly pay for someone with a respiratory disability are the same as those with uncontrolled asthma, and that around two-thirds of the former are made up of the latter. Our estimate is also sensitive to the buoyancy of the labour market. Taken together, given current data availability, however we feel that £2bn is a reasonable order-of-magnitude steady-state estimate of the loss in overall income in the economy that is linked to uncontrolled asthma because of the disability pay gap.

MECHANISM 2: PEOPLE WITH ASTHMA ARE LESS LIKELY TO WORK THAN OTHER PEOPLE

So far, this discussion has looked at the loss of income to individuals, and the economy, that arises from people with breathing difficulties including asthma having lower take-home pay than those without. In this section we consider the aggregate loss in income that arises from being unable to work at all.

We used the same data from the Office of National Statistics Labour Force Survey to explore the differences in employment, unemployment and economic inactivity in people over the age of 16 who reported a main health problem relating to chest and breathing that affected their work compared to the total and those with no disability.[32]

As can be seen from Figure 1 (page 14), people with long-term breathing or chest problems including asthma are less likely to be in employment and more likely to be economically inactive compared to the total population, with an even greater difference when compared to people who had no disability.

In order to quantify the economic effect of these different activity rates, we considered the additional income that would be earned by people who currently have uncontrolled asthma if their participation in the labour market were the same as the population as a whole.

In the first quarter of 2020 there were 1.9 million people over the age of 16 who had a main health problem affecting their work caused by chest or breathing problems, of which 52% were in employment and 46% were economically inactive; the smaller remainder were looking for

30. Office for National Statistics. Disability pay gaps in the UK: 2018, Figure 13. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/disability/articles/disabilitypaygapsintheuk/latest
31. Trades Union Congress. Disability employment and pay gaps 2018. Available from: https://www.tuc.org.uk/sites/default/files/Disabilityemploymentandpaygaps.pdf
32. Office for National Statistics. Current disability and main health problem cross referenced with basic economic activity by sex and age, January to March 2020. Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/adhocs/11766currentdisabilityandmainhealthproblemcrossreferencedwithbasiceconomicactivitybysexandagejanuarytomarch2020

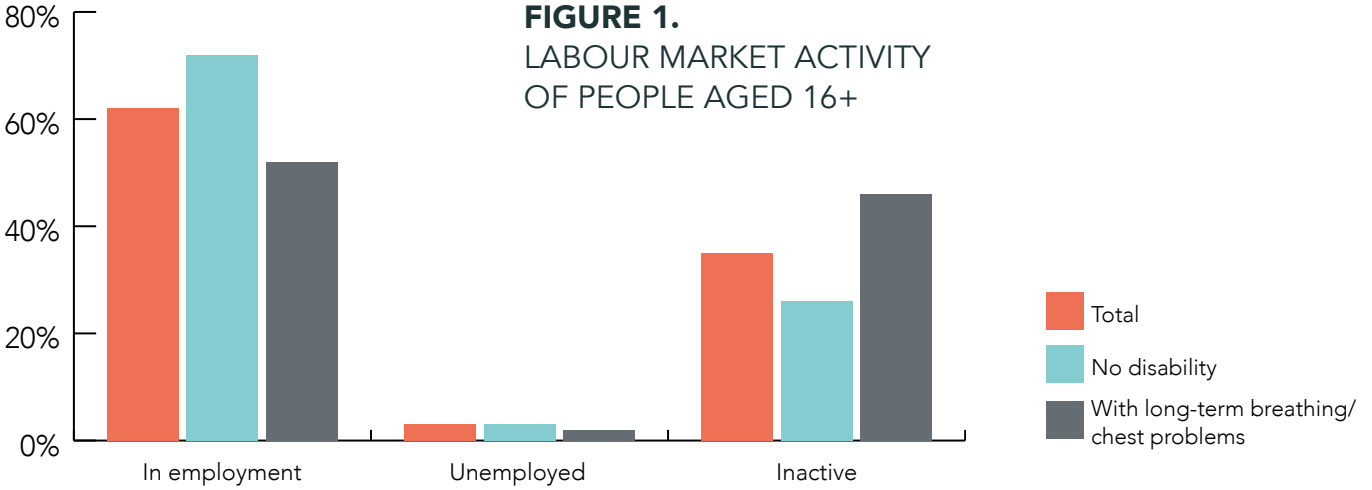


FIGURE 1.
LABOUR MARKET ACTIVITY OF PEOPLE AGED 16+

Source: ONS (2020) Current disability and main health problem cross referenced with basic economic activity by sex and age, January to March 2020. Demos calculations.

work. However for the country as a whole, the equivalent figures are 62% in employment and 35% inactive.[33,34] Presuming, as in the previous section, that two-thirds of people recorded as having a respiratory main health problem have uncontrolled asthma that gives an estimate of around 800,000 economically inactive people with uncontrolled asthma.[35] If the rate of employment of this group were actually the same as that of the population as a whole, then there would be an extra 130,000 people employed.[36]

The amount of additional income that would be earned in the economy then depends on the assumptions around the wages of this cohort.

Taking a conservative assumption that, on average, they work the same number of hours and at the same wage as the current cohort of employed people with a respiratory main health problem, as described in the previous section, that suggests an annual total lost income to the economy from the lower levels of economic participation of people with uncontrolled asthma of the order of £2.5bn, as detailed in the table below. This estimate also presumes that there was no large change in the employment rates of people with respiratory conditions compared to the population as a whole between 2018 and the immediate pre-Covid period of the first quarter of 2020.

TABLE 2.
ESTIMATING THE TOTAL LOSS OF INCOME FROM GREATER INACTIVITY LINKED TO ASTHMA

Proportion of population with respiratory disability including asthma who are employed*	52.01%
UK-wide proportion of workforce employed*	62.18%
Number of people with respiratory main health problem*	1,897,895
Estimated number of people with asthma main health problem**	1,265,263
'Excess' numbers not working linked to asthma main health problem***	128,761
Median annual pay of employed worker with respiratory disability in 2018 (from table 1) (£)	19,740
Opportunity loss to economy due to greater economic inactivity linked to asthma in 2018 (£ '000)	2,541

* Source: ONS (2020) Current disability and main health problem cross referenced with basic economic activity by sex and age, January to March 2020. Demos calculations.
**Assumes two-thirds.
***Calculated as (line 2-line 1) multiplied by line 4

33. Office for National Statistics. Current disability and main health problem cross referenced with basic economic activity by sex and age, January to March 2020. Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/adhocs/11766currentdisabilityandmainhealthproblemcrossreferencedwithbasiceconomicactivitybysexandagejanuarytomarch2020
34. This data series includes those of retirement age.
35. Demos calculations
36. Demos calculations.

This is however only an order of magnitude estimate and there are a number of reasons why it should be viewed with caution. First, it is very sensitive to the position of the labour market. Second, as in the previous section, it relies on an assumption that around two-thirds of people recorded as having a respiratory-based main health problem, but unlike the previous section the data includes rates of inactivity of people over the retirement age when the effect of comorbidities and COPD may have more of an impact. Third, there is a misalignment in the available data, as described above: the data on rates of employment comes from the first quarter of 2020, whereas the pay data comes from 2018. Finally, it ignores more complex chains of causality between low income and asthma; those who find it harder to work may be more likely to develop asthma rather than the other way round.

In summary however, using the available data and making the assumptions as detailed in the text we estimate the total loss to the macroeconomy that is linked to uncontrolled asthma, both through the disability pay gap and also because of people with uncontrolled asthma have lower employment rates, was of the order of £4.5bn in 2018.

This is small in the context of an overall economy of £2.1 trillion in 2018, but nevertheless significant when the impact on taxation and of course the wellbeing of the individuals concerned is taken into account, as the next sections will show.

SECTION 2
LOSS OF INCOME TO EMPLOYERS

We saw in the previous section that suffering from uncontrolled asthma is linked to lower incomes - both in terms of their take-home pay for those in work, and also through being less likely to work in the first place.

However there other is another type of income loss to be taken into account that arises from uncontrolled asthma, and that is the loss to employers from time taken off work by team members with asthma, and additionally time taken off work by employed parents when a child has an asthma incident that means they are unable to go to school. In this section we deal with these in turn. In each case we presume that when an individual takes time off from work due to asthma they continue to be paid, such that the time in question can be represented as a direct loss to the employer.[37]

LOSS OF EMPLOYER INCOME DUE TO STAFF SICKNESS FROM ASTHMA

The starting point for estimating the number of sickness days lost due to asthma is the ONS Labour Force Survey which contains a data series around sickness absence in the labour market more generally, broken down by broad condition. In the latest data that is available, which relates to 2018, there were 3.9m working days lost to the broad category of respiratory conditions.[38]

In a comprehensive analysis of the taxpayer costs of asthma undertaken by researchers at the University of Edinburgh – referred to in this report as Mukherjee (2016) – an estimate of 4.1m workdays lost due specifically to asthma symptoms was arrived at using survey data from the 2010 Health Survey for England.[39] That survey has not subsequently been repeated to the same level of detail for respiratory diseases, however we know that in general the sickness absence rate has been fairly flat since 2010 but that absence due to long-term conditions has been slowly declining.[40] In addition, the 95% confidence interval for the Mukherjee estimate of 4.1m was wide at between 3.4m and 4.7m days lost.[41] Taking all of this together, and bearing in mind that in the previous section we worked on the conservative assumption that around two-thirds of serious respiratory conditions could be attributed to asthma, we consider an estimate of 2.6m work days lost due to asthma in 2018 is reasonable for the purposes of this analysis.

Using the estimates of the median hourly pay for a worker with asthma of £10.26 and a 37-hour working week, this then leads to an estimate of the lost income to employers from uncontrolled asthma in the workforce in the region of £200m.

37. Data published by the DHSC and DWP from the Annual Population Survey reports that 86% of employees receive sick pay for a period of sickness absence, most of which is above the statutory minimum. Given that absence due to asthma is typically for a short-term acute episode, it feels reasonable to assume that it is likely to be paid. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817124/health-in-the-workplace-statistics.pdf
38. Office for National Statistics. Sickness absence in the UK labour market: 2018. Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/articles/sicknessabsenceinthelabourmarket/latest
39. Mukherjee, M., Stoddart, A., Gupta, R.P. et al. (2016) The epidemiology, healthcare and societal burden and costs of asthma in the UK and its member nations: analyses of standalone and linked national databases. BMC Med 14, 113. Available from: https://doi.org/10.1186/s12916-016-0657-8
40. Office for National Statistics. Sickness absence in the UK labour market: 2018. Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/articles/sicknessabsenceinthelabourmarket/latest
41. Mukherjee, M., Stoddart, A., Gupta, R.P. et al. (2016) The epidemiology, healthcare and societal burden and costs of asthma in the UK and its member nations: analyses of standalone and linked national databases. BMC Med 14, 113. Available from: https://doi.org/10.1186/s12916-016-0657-8

LOSS OF INCOME TO EMPLOYERS DUE TO CHILD SICKNESS FROM ASTHMA

The losses to employers from uncontrolled asthma are not limited to the lost hours of their employees; they can also arise from team members who are parents having to take paid time off from work to care for an asthma attack in a child.

To explore the magnitude of this effect, we looked at published data on child absenteeism due to illness (excluding scheduled medical appointments) in both England and the devolved governments of the United Kingdom, estimated the proportion of days lost due to asthma and explored the extent to which this would lead parents to take unscheduled time off from work.[42]

There are two main sources of primary data relating to the proportion of total days off from school due to illness caused by asthma. The first is from a detailed survey module in the 2010 Health Survey for England, which asked the question "over the last 12 months, how many days has your asthma/ wheezing/whistling in (your/his/her) chest caused (you/him/her) to be absent from school?".[43] The results were analysed by Mukherjee (2016) and gave an estimate of 2.8m days absent from school due to asthma in 2010 (95% confidence interval 2.6m-3.0m).

Since then, it appears likely that the proportion of school days missed due to asthma has fallen. The most recent Health Survey for England did not ask questions about the number of school days lost, however it did show that the prevalence of wheezing in children fell significantly from 27% who had ever had wheezing in 2010 to 18% in 2018, and from 15% who had had wheezing in the last 12 months in 2010 to 10% in 2018.[44] However in the same time period, the absolute number of children has risen: the number of under 16-year olds rose by 8% between 2009 and 2019 according to the ONS.[45] Scaling the Mukherjee estimate to take account of both of these factors would suggest an estimate of around 1.7m school days lost to asthma in 2018.

The second source of primary data about the causes of school absence due to illness in children comes from available from the commercial company Studybugs, which supported with government and academic funding, is used by around 1,200 schools to streamline parental reporting of their child's absence.[46] Their cumulative data up to August 2020 suggests at least 1.5% of school days lost due to illness are due to asthma.[47] We used data provided by each of the devolved education departments of the UK to obtain an estimate of 40 million total days off school due to sickness as a whole in the UK in 2018-19;[48] 1.5% of this total gives an estimate of around 600,000 school days lost in the UK due to asthma.

However there are a number of reasons why this may be an underestimate. In particular, the schools and families that use the software may not be a representative sample of the demography of the UK as a whole, and the data uses a text analysis of the words that parents use to report symptoms so may not capture all of the ways that parents use to describe their child's symptoms.

Separately, and also using the data supplied by Studybugs between 2014 and 2016, Brighton and Hove City council, working with the Brighton and Sussex Medical School and the data analytics company Epiconcept, estimated that more than one in five children miss school each year due to an asthma-like illness.[49] Given there are around 10m schoolchildren in the UK, this would suggest a higher estimate of at least 2m days lost due to asthma each year.

Looking at the order of magnitude of all of these estimates taken together, we decided it was reasonable for the purpose of this analysis to presume that the total number of child days lost at school due to asthma is of the order of 1.5 million per year.

In order to then obtain a sense of the number of adult working days that are disrupted due to a schoolchild having uncontrolled asthma, we scaled our number by the proportion of children who live

42. This data excludes scheduled medical appointments.
43. NHS. Health Survey for England 2010: Volume 2 Methods and documentation. Available from: https://files.digital.nhs.uk/publicationimport/pub03xxx/pub03023/heal-surv-eng-2010-resp-heal-vol2-meth-rep.pdf
44. NHS Digital. Health Survey for England 2018 Asthma. Available from: http://healthsurvey.hscic.gov.uk/media/81643/HSE18-Asthma-rep.pdf
45. Office for National Statistics. Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2019. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2019estimates
46. Inspire Project, available from: https://everychildisdifferent.org/inspire
47. Personal email to Demos researchers (0.8% of illness reported up to Aug 2020 due to asthma, 0.5% due to wheezing) from Studybugs and analysis published here https://onlinelibrary.wiley.com/doi/10.1111/cea.13589
48. Demos calculations for state primary, secondary and special schools using data from devolved administrations for 2018-19. England: 31.1m days, Scotland 4.6m days; Northern Ireland 2.1m days; Wales 1.9m days
49. University of Brighton. Keeping children with asthma healthy and in school (2016). Available from: https://www.brighton.ac.uk/about-us/news-and-events/news/2016/06-30-keeping-children-with-asthma-healthy-and-in-school.aspx

in a household where all adults work, which the Labour Force Survey estimates to be 62%.[50]

However this then needs to be adjusted for the fact that some parents may be able to work from home, have alternative arrangements in place or not be absent for a whole day. In the absence of primary survey data around the proportion of working parents who are unable to work if their child is off sick due to asthma, we made an assumption that around half of work days would be lost[51] and then used the median average hourly salary in 2018[52] to estimate the financial impact in terms of lost productivity to employers; our estimates are shown below.

Overall, using this method we estimate that the loss to employers from parents having to take some time off to care for an asthmatic child was of the order of £41m in the academic year 2018-19.

This estimate is sensitive to the various estimates and assumptions that are made which we detailed in the paragraphs above. But even if these assumptions are adjusted, it is likely that the cost to employers from child sickness due to asthma is of a smaller order of magnitude than the loss from workers who are themselves uncontrolled asthma sufferers taking time off from work.

Taken together, we estimate that the direct cost to employers from asthma is of the order of £250m annually.

TABLE 3.
ESTIMATES OF LOSS TO EMPLOYERS FROM ADULTS TAKING TIME TO LOOK AFTER A CHILD WITH ASTHMA

Estimate of school days lost due to asthma ('000)	Number of working adult days affected ('000)*	Adult days off work ('000)**	Total lost output to employer (£'000)
1,500	930	465	40,673

* 62% of children live in a household where all adults work
** Assumes adults will take a day off work in 50% of cases
*** Uses median hourly rate in 2018 of £11.82 and a 37 hour working week

50. Office for National Statistics. Working and workless households in the UK: October to December 2019. Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/workingandworklesshouseholds/octobertodecember2019
51. ONS data in the early stages of the pandemic showed 47% of the population were able to work from home. Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/coronavirusandhomeworkingintheuk/april2020
52. For consistency with the rest of the analysis, we have used the Annual Population Survey estimate of the median hourly wage rate in 2018 of £11.82. Available from: https://www.ethnicity-facts-figures.service.gov.uk/work-pay-and-benefits/pay-and-income/average-hourly-pay/latest

SECTION 3
TAXATION FOREGONE

In the previous sections we looked at the structural cost to the UK economy from uncontrolled asthma sufferers being unable to participate in the labour market in the same way as the population as a whole. We then looked at the specific costs arising to employers from asthma-related sickness amongst employees and dependent children.

Both of these effects will have dynamic impacts on the ability of the government to raise taxation. Generally speaking, a higher level of economic activity in the economy generates higher taxation revenues, due primarily to greater receipts from income tax and corporation tax. Depending on levels of consumer confidence, the government then receives higher levels of VAT receipts on the sales of goods that individuals purchase with the higher incomes that they receive. Those higher levels of sales then generate positive multiplier effects on incomes, and so taxation revenues, throughout the economy.

For the purpose of this analysis, we focus on the primary impact only, to make the point that there is a wider loss to the taxpayer that comes when there is a cohort of the workforce who are constrained in their ability to work because of uncontrolled asthma. This can be done using the results of the previous sections, as follows:

LOST INCOME TAX FROM LOWER WAGES

As described in section 1, our estimate of the median income of a worker with a disability linked to asthma is £19,740. Using the government's taxation ready reckoner, earning this salary would lead to around £2,675 being paid annually in income tax and national insurance.[53] However the median pay of a worker in the country as a whole is £22,742 on which they pay £3,635 in income tax and national insurance, a difference of £960. Given our previous estimate of around two-thirds of a million people in work who have an asthma disability, this gives an estimate of taxation foregone of around £635m that arises from people with asthma having lower opportunities in the labour market than the average.

LOST INCOME TAX FROM GREATER INACTIVITY

Similarly, in section 1 we found that if the rates of employment amongst those people who had a disability linked to asthma were the same as the population as a whole, there would be around 130 thousand additional people in employment. On the (conservative) assumption that these people could earn the same salary as people with an asthma disability who are currently in work (£19,740) then for each person that is out of work, the exchequer misses out on a possible £2,675 of lost income tax and national insurance. Scaling this up by the number of people affected suggests a further estimate of taxation foregone of £344m.

PUBLIC FINANCE EFFECT FROM LOSS OF INCOME TO EMPLOYERS

In section 2 we estimated that the loss of income to employers across the economy due to asthma-related sickness was around £250m. Given that 16% of the workforce is employed in the public sector,[54] there is a direct effect on the public purse from these losses of 16% of £250m, or around £41m.

This leaves a remaining £209m of losses that are incurred by private sector employers. Here we make an assumption that those losses show up as

53. GOV.UK, Estimate your take home pay. Available from: https://www.tax.service.gov.uk/estimate-paye-take-home-pay/your-pay. (Uses current taxation rates)
54. Office for National Statistics. Public sector employment, UK: March 2019. Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/publicsectorpersonnel/bulletins/publicsectoremployment/march2019

lower private sector profits. Given that - in general - corporate profits are taxed at 19%,[55] this means that the amount of taxation foregone through this mechanism is 19% of £209m, namely another £40m.

Taken together we therefore estimate that the cost to government of workplace absence due to asthma or caring for an asthmatic child is around £81m.

Overall therefore we estimate that the cost to the taxpayer, in terms of lower taxation receipts, from the workplace-based effects of uncontrolled asthma as described in sections 1 and 2 is around £1bn annually. Our results from this section are summarised in the table below:

TABLE 4.
ESTIMATING TAXATION FOREGONE FROM UNCONTROLLED ASTHMA

Estimates from section 1	
Median annual salary of worker with asthma	£19,740
on which, income tax and NI paid *(a)*	£2,675.00
Median annual salary of worker - national	£22,742
on which, income tax and NI paid *(b)*	£3,635.32
Number of people with people with uncontrolled asthma in work *(c)*	661,297
Cost of lost working days due to asthma of worker/child *(d)*	£250m
"Excess" non-employment (people) *(e)*	128,761
Taxation foregone from lower wages	
Difference in tax *(b) - (a)*	£960.32
Aggregate tax foregone *£960.32 multiplied by (c)*	£635,056,447
Taxation foregone from greater labour inactivity *(e) multiplied by (a)*	£344,436,545
Taxation foregone through lower private sector profits	
Proportion of employment in public sector *(f)*	16%
Basic rate of corporation tax (g)	19%
Corporation tax foregone from lost profits from lost working days *1-(f) multiplied by (g) multiplied by (d)*	£39.66m
Direct public sector cost of lost days *(d) multiplied by (f)*	£41.25m
Total opportunity cost to exchequer (2018)	**£1,060m**

55. HM Revenue and Customs. Rates and allowances for Corporation Tax (2020). Available from: https://www.gov.uk/government/publications/rates-and-allowances-corporation-tax/rates-and-allowances-corporation-tax

SECTION 4
DIRECT COSTS ON THE ACUTE HEALTH SYSTEM

In 2018-19 we found there were around 89,000 emergency hospital admissions in the UK due to asthma attacks. We estimate the costs of this urgent - unscheduled - care relating to asthma incurred by health services in the UK to be around £125m per year.

In this section we provide an estimate of direct costs to the health services in England and the UK devolved administrations from uncontrolled asthma.

It is important, in this regard, to distinguish between the costs of controlling asthma so that individuals can lead as normal a life as possible, and the costs of the failure to control asthma, namely unscheduled (emergency) interventions and, in extreme cases, hospitalisation.

In line with the premise for this analysis, namely that success comes when people with asthma are able to control it so that their lives are as similar as possible to those without the condition, we focus in this section on the *additional* costs to the health service arising from the failure to control asthma. In this sense, our estimates should therefore be considered as the upper limit of the *avoidable* costs to the health service arising from asthma and not the costs of managing asthma so that individuals can lead as normal a life as possible.

For context, our literature review yielded two substantive previous analyses of the costs associated with asthma on the health services of the UK.

The first, an academic study undertaken at the University of Edinburgh built up the costs to the health services in the constituent parts of the UK through a statistical analysis of primary data.[56] This produced an estimate of direct costs to the NHS from asthma of £965m in 2011-12.[57] Of this, the largest single component (70%) was the cost of prescriptions by GPs and other community services. The total cost of unscheduled care (including emergency hospitalisation) was 14% of the total costs, or around £140m in 2011-12.

56. Mukherjee, M., Stoddart, A., Gupta, R.P. et al. (2016) The epidemiology, healthcare and societal burden and costs of asthma in the UK and its member nations: analyses of standalone and linked national databases. BMC Med 14, 113. Available from: https://doi.org/10.1186/s12916-016-0657-8
57. 95% confidence interval is £946m-£991m

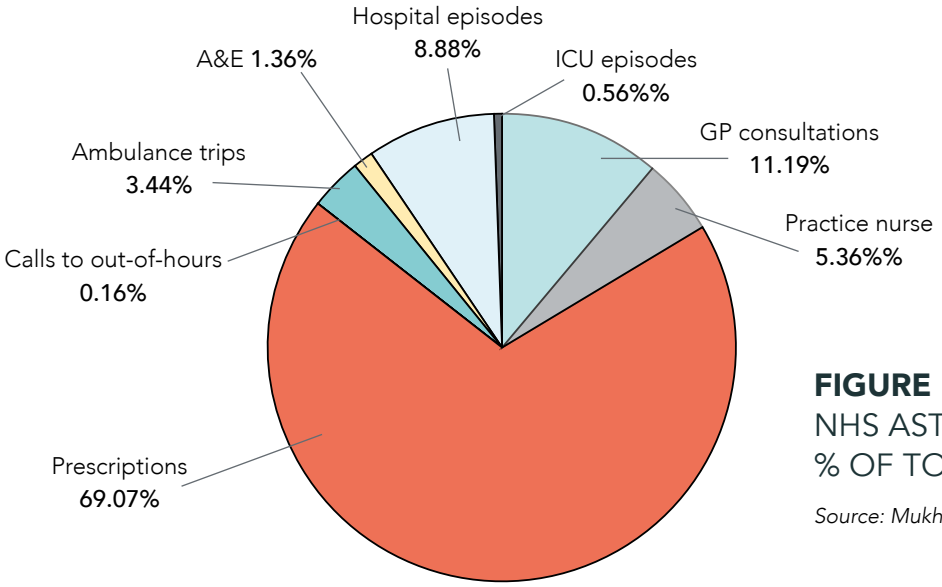


FIGURE 2.
NHS ASTHMA COSTS AS % OF TOTAL (2011-12)

Source: Mukherjee (2016) [58]

The second relevant analysis was undertaken by the British Lung Foundation in conjunction with Pro-Bono Economics which yielded a higher estimate of the total costs to the UK-wide health system of from asthma of £3bn.[59] The starting point for this estimate is published NHS data for spend by disease and clinical commissioning group in England in 2013-14 which captures most categories of spend but excludes the cost of GP consultations themselves and some of the costs of A&E and ambulance spend. This was then scaled to provide a UK-wide estimate and added to separate estimates of (a) private medical expenditure on asthma and (b) a pro-rata estimate of the cost of asthma-related GP consultations based on the proportion of total prescription spend that relates to asthma products to give a £3bn total. The figure of £3bn is also cited by the NHS itself as the direct cost of asthma on the organisation even though its derivation includes private spending, and relates to the whole of the UK rather than England alone.[60]

For our purposes, we propose to exclude the costs of primary care and focus instead on the costs to the NHS of urgent, unscheduled care that can be linked to asthma.

Data on hospital admissions in England for adults and children that are linked to asthma is available for 2017-18 from the NHS Rightcare datapack, designed to support clinical commissioning groups by spreading best practice between different locations. In total there were 74,895 hospital inpatient admissions for asthma in that year in England.[61] In Scotland, there were 6,461 hospital admissions for asthma in 2018-19.[62] The Welsh health authorities combine asthma with other chronic lower respiratory diseases in their official data giving a figure of 12,481 emergency admissions in 2018-19,[63] however this includes seasonal flu; separately NHS Wales suggests there are 4,000 hospital admissions for asthma and that this is higher than the rest of the UK.[64] In Northern Ireland in 2018-19 there were 1,636 hospital admissions where the primary diagnosis was asthma.[65] Taken together this suggests there are around 87,000 emergency hospital admissions in the UK annually that are due to asthma.

However the associated costs of these admissions are not recorded. Instead, the most recent data on the cost of unscheduled hospital admissions linked to asthma is that used by the British Lung

58. Mukherjee, M., Stoddart, A., Gupta, R.P. et al. (2016) The epidemiology, healthcare and societal burden and costs of asthma in the UK and its member nations: analyses of standalone and linked national databases. BMC Med 14, 113. Available from: https://doi.org/10.1186/s12916-016-0657-8
59. British Lung Foundation. Estimating the economic burden of respiratory illness in the UK (2017). Available from: https://cdn.shopify.com/s/files/1/0221/4446/files/PC-1601_-_Economic_burden_report_FINAL_8cdaba2a-589a-4a49-bd14-f45d66167795.pdf?13095010944508481 69&_ga=2.119563912.1885374643.1605572909-399579897.1604598676
60. NHS England. Respiratory Disease. Available from: https://www.england.nhs.uk/ourwork/clinical-policy/respiratory-disease/ Based on British Lung Foundation/Pro Bono Economics estimate https://www.probonoeconomics.com/sites/default/files/files/British%20Lung%20Foundation%20full%20report%2015032017_0.pdf
61. NHS England Right Care data packs, Data line RESP1718-SUS011 and RESP1718-SUS012. Available from: https://www.england.nhs.uk/rightcare/products/ccg-data-packs/where-to-look-packs/ The same source gives a figure for spend on asthma prescribing in primary care in England of £637,759,083 in 2017-18, 15% higher than the corresponding estimate for 2011-12 from Mukherjee (2016) (Data line RESP1718-PRES03C in https://www.england.nhs.uk/rightcare/products/ccg-data-packs/where-to-look-packs/ [numerator, column I, row 15490 datafile]
62. Public Health Scotland. Acute hospital activity and NHS beds information (annual). Available from: https://beta.isdscotland.org/find-publications-and-data/health-services/hospital-care/acute-hospital-activity-and-nhs-beds-information-annual/
63. NHS Wales. Annual PEDW Data Tables (2018). Available from: http://www.infoandstats.wales.nhs.uk/page.cfm?orgid=869&pid=41010&subjectlist=Primary+Diagnosis+Summary&patientcoverlist=Welsh+Providers&period=2018&keyword=&action=Search
64. NHS Wales, Asthma. Available from: https://www.wales.nhs.uk/ourservices/unscheduledcareconditions/asthma#:~:text=In%20Wales%2C%20in%20adults%20there,anywhere%20else%20in%20the%20UK
65. Northern Ireland Department of Health. Acute episode based activity downloadable data 2018/19. Available from: https://www.health-ni.gov.uk/publications/acute-episode-based-activity-downloadable-data-201819

Foundation/Pro-Bono Economics report which relates to 2013-14.[66] We accessed the raw dataset and aggregate the spend lines across all CCGs in England that were associated with asthma and obtained the following results:

TABLE 5.
NHS SPEND ON ASTHMA 2013-14

Spend Category	£ '000
Primary (GP) prescribing	684,717
Unscheduled admissions & other urgent care	55,054
Critical care	8,768
Other secondary (hospital) care	8,650
Community care	7,883
End-of-life care	7
Running costs	18,756
Total	**783,835**

Source: NHS CCG Programme Budget Benchmarking Tool. Excludes GP consultation costs, A&E and ambulance costs. Authors' calculations.

As reported in Mukherjee (2016), the largest single spend category is primary prescribing. However this analysis showed that the cost to the NHS in England from unscheduled admissions and other urgent care is £55.1m with a further £8.8m arising from hospital critical care costs relating to asthma.[67]

This data excludes A&E and ambulance costs relating to asthma attacks which Mukherjee showed were of the order of 50% of the cost of unscheduled hospital visits.[68] Adding this in gives an estimate for 2013-14 of the urgent costs of uncontrolled asthma to be of the order of around £95m for England. Obtaining comparable costs for the devolved administrations is not a straightforward matter; we therefore used the same coefficient as Mukherjee to scale to the UK, producing an estimate of £117m[69] in 2013-14. We then uprated this to 2018-19 prices to produce a current estimate of £125m.[70]

DISCUSSION

On the presumption that asthma is a disease that it should be possible to control, our analysis suggests that the avoidable costs to the NHS from failing to control the disease, in terms of unscheduled admissions and emergency care, amount to over hundred million pounds.

Better management of asthma would be expected to lead to a reduction in these costs: a global systematic review of the economic costs of asthma found a wide variation in the relative size of the cost of medication when compared to the cost of hospitalisation on different healthcare systems, suggesting that the cost of acute care falls when more resources are available to invest in routine management of the disease through primary care.[71]

66. NHS England. 2013-14 CCG Programme Budgeting Benchmarking Tool. Available from: https://www.england.nhs.uk/wp-content/uploads/2015/06/13-14-ccg-prog-bug-benchmarking-tool.xlsm
67. Mukherjee, M., Stoddart, A., Gupta, R.P. et al. (2016) The epidemiology, healthcare and societal burden and costs of asthma in the UK and its member nations: analyses of standalone and linked national databases. BMC Med 14, 113. Available from: https://doi.org/10.1186/s12916-016-0657-8
68. Mukherjee, M., Stoddart, A., Gupta, R.P. et al. (2016) The epidemiology, healthcare and societal burden and costs of asthma in the UK and its member nations: analyses of standalone and linked national databases. BMC Med 14, 113. Available from: https://doi.org/10.1186/s12916-016-0657-8
69. We used Mukherjee (2016) to estimate an England to UK scale factor for urgent asthma care of 1.255
70. From 2015-16 calculated from NHS Cost Inflation Index from the Personal Social Services Research Unit of the University of Kent from 2015-16 (0.35%, 2.12%, 1.16%, 2.3%) available as item V15 at Unit Costs of Health and Social Care 2019 | PSSRU. The uprater for 2014-15 is 0.9%, from the discontinued Hospital Community Health Services inflation index, available at http://www.info.doh.gov.uk/doh/finman.nsf/af3d43e36a4c8f8500256722005b77f8/360a47827991d10a80258036002d8d9f/$FILE/2015.16%20Pay%20&%20Price%20series.xlsx
71. Bahadori, K., Doyle-Waters, M.M., Marra, C. et al. Economic burden of asthma: a systematic review. BMC Pulm Med 9, 24 (2009). Available from: https://doi.org/10.1186/1471-2466-9-24

It is likely that our cost is an underestimate, for two reasons. The first reason is that patients with uncontrolled asthma may suffer from a number of other diseases, or comorbidities, which may themselves lead to additional health service spending and/or hospital acute episodes, for both adults and children. For example, there is evidence that some types of asthma can be thought of as one manifestation of an underlying syndrome[72] or multi-organ systemic disease[73] linked to type-2 inflammation.

The second reason that our cost is an underestimate is that our analysis does not include the costs of treating conditions that arise from the side effects from frequent use of oral corticosteroids. The NHS England guidance note on specialised respiratory services for adult severe asthma states that the majority of patients with severe asthma use oral corticosteroids frequently; academic studies suggest the proportion of patients with severe asthma who have used oral corticosteroids daily for over six months is over 60%.[74,75] Since these side effects include diabetes, serious infection, hypertension and other psychiatric conditions including depression, cataracts and glaucoma, osteoporosis, osteopenia and bone fractures, skin disease, reflux oesophagitis and dyspeptic disorders, non-alcoholic fatty liver disease, cardiovascular disease and hypercholesterolemia, chronic kidney disease, sleep disorder and obesity,[76,77,78] the costs to the NHS from treating them may not be characterised as an asthma-related cost even though they have occurred as a side-effect of an asthma-related treatment. There is evidence that these risks are present even at low doses of OCS use and for patients who have discontinued OCS use.[79,80]

It is important to state that our estimates of the direct NHS costs do not include the cost of scheduled care and medication in order to bring the disease under control, which are likely to be substantial and are well-documented.[81] Instead the purpose of this section is to consider the magnitude of avoidable costs, that could be saved if that control was obtained.

72. NHS England. Specialised Respiratory Services, Adult Asthma (2017). Available from: https://www.england.nhs.uk/wp-content/uploads/2017/04/specialised-respiratory-services-adult-severe-asthma.pdf
73. Darlenski R, et al. Atopic dermatitis as a systemic disease. Clin Dermatol. 2014;32(3):409-413. doi:10.1016/j.clindermatol.2013.11.07
74. NHS England. Specialised Respiratory Services, Adult Asthma (2017). Available from: https://www.england.nhs.uk/wp-content/uploads/2017/04/specialised-respiratory-services-adult-severe-asthma.pdf
75. Barnes, Neil et al. Effectiveness of omalizumab in severe allergic asthma: a retrospective UK real-world study. The Journal of asthma : official journal of the Association for the Care of Asthma vol. 50,5 (2013): 529-36. doi:10.3109/02770903.2013.790419
76. NHS England. Specialised Respiratory Services, Adult Asthma (2017). Available from: https://www.england.nhs.uk/wp-content/uploads/2017/04/specialised-respiratory-services-adult-severe-asthma.pdf
77. Sweeney J, et al, on behalf of the British Thoracic Society Difficult Asthma Network. Comorbidity in severe asthma requiring systemic corticosteroid therapy: cross-sectional data from the Optimum Patient Care Research Database and the British Thoracic Difficult Asthma Registry Thorax 2016;71
78. Bloechliger M, et al. Adverse events profile of oral corticosteroids among asthma patients in the UK: cohort study with a nested case-control analysis. Respir Res. 2018;19(1):75. doi:10.1186/s12931-018-0742-y
79. Woo-Jung Song. Future Risks in Patients with Severe Asthma Allergy Asthma Immunol Res. 2019 Nov; 11(6) doi: 10.4168/aair.2019.11.6.763
80. Bloechliger M, Reinau D, Spoendlin J, et al. Adverse events profile of oral corticosteroids among asthma patients in the UK: cohort study with a nested case-control analysis. Respir Res. 2018;19(1):75 doi:10.1186/s12931-018-0742-y
81. See for example, Bahadori, K., et al. Economic burden of asthma: a systematic review. BMC Pulm Med 9, 24 (2009). Available from: https://doi.org/10.1186/1471-2466-9-24 and O'Neill S, et al. The cost of treating severe refractory asthma in the UK: an economic analysis from the British Thoracic Society Difficult Asthma RegistryThorax 2015;70. Available from: https://thorax.bmj.com/content/70/4/376.full#ref-4

SECTION 5
DIRECT COSTS ON THE BENEFITS SYSTEM

In this section we look at the direct costs of uncontrolled asthma to the taxpayer through the mechanism of health-related benefits payments.

There are a number of different benefits that uncontrolled asthma sufferers are entitled to, depending on the severity of their condition and the impact this has on their ability to work, their mobility and the need for care.[82] An extra level of complexity is then added into the system through policy changes which migrate claimants from different systems - for example from Incapacity Benefit to Employment and Support Allowance, and from Disability Living Allowance to Personal Independence Payments.[83] On top of that, while newer benefits record health information for the specific category of asthma, the older systems record health information for the broader category of 'diseases of the respiratory system'.

We accessed the Stat-Xplore database of the Department for Work and Pensions[84] and obtained the number of benefit claimants for each category where the health condition listed was asthma or, where that was not available, a respiratory condition. We accessed data for May 2018, representing the mid-point of our base year. We also obtained the average (mean) weekly payment per claimant, enabling the overall cost to the DWP to be calculated on a weekly basis and then scaled up to an annual figure. Where the subcategory of asthma was not provided, to ensure consistency with the assumptions made in the other sections of this report, we estimated that two-thirds of those claiming for a broader respiratory condition were uncontrolled asthma sufferers. The results are in table 3 on page 26.

As can be seen, our estimate of the costs to the benefits system from uncontrolled asthma is around £370m in 2018. The driving factor is the cost of employment and support allowance (ESA), which accounts for around two-thirds of the total.[85] ESA is a benefit paid to people of working age who have a disability or health condition that affects whether or how they can work.[86] That this is a substantive number is consistent with the analysis in section 1 that showed how people with uncontrolled asthma were more likely to be economically inactive in the labour market, however it is smaller than the numbers in that section, suggesting that many of those with an asthma-related disability are not claiming work-related benefits.

There are a number of assumptions in this calculation: we have assumed that basing an annual estimate on mid-year data is reasonable, and - as before - we have estimated what proportion of

82. Asthma UK. Benefits and severe asthma. Available from: https://www.asthma.org.uk/advice/severe-asthma/making-life-easier-with-severe-asthma/benefits-severe-asthma/
83. See for example, Government Incapacity Benefit, available from: https://www.gov.uk/incapacity-benefit and Personal Independence Payment, available from: https://www.gov.uk/pip
84. Department for Work and Pensions. Stat Xplore Database. Available from: https://stat-xplore.dwp.gov.uk/webapi/jsf/login.xhtml
85. Previous estimates such as Mukherjee (2016) only looked at DLA and did not include the costs of ESA or its predecessor, incapacity benefit.
86. GOV.UK. Employment and Support Allowance. Available from: https://www.gov.uk/employment-support-allowance

those people suffering from a respiratory condition have uncontrolled asthma. It was possible to obtain data from a later period in time, however we wanted to maintain consistency with the rest of the analysis by focusing on 2018. Since then, employment rates continued their steady rise until the impact of the Covid-19 crisis from March 2020.[87] Neither do our calculations include the departmental costs of administering the benefits in question.

TABLE 6.
DIRECT DWP BENEFITS COSTS OF UNCONTROLLED ASTHMA, 2018

	Number of asthma claimants (May 2018)	Average weekly payment May 2018 (£)	Total weekly payments May 2018 (£)	Estimated annual 2018 (£'000)
Disability Living Allowance	14,049	90.30	1,268,625	65,968
Personal Independence Payments	11,501	98.34	1,131,008	58,812
Employment and Support Allowance	37,064*	124.77	4,624,475	240,473
Incapacity benefit/severe disablement	671*	42.29	28,362	1,475
			Total	**366,728**

* Two-thirds of the number of claimants in the published category of "Diseases of the Respiratory System"

Source: DWP via Stat-Xplore

87. Office for National Statistics. Employment in the UK: October 2020. Available from: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/employmentintheuk/october2020

SECTION 6
WELLBEING AND MORTALITY

For the purpose of this report we do not attempt to put a price tag on the negative psychological impact of uncontrolled asthma, or the premature deaths that are linked to asthma. The evidence, however, is that both are significant.

WELLBEING

A starting point is UK-wide data on wellbeing broken down by whether an individual has a physical or mental disability, published by the Office of National Statistics.[88] This shows consistently lower scores for happiness, life satisfaction and whether people feel the things they do in life are 'worthwhile', and higher levels of general anxiety, for those with physical impairments compared to non-disabled people. The wellbeing scores are lower the greater the impact of the disability on the ability of respondents to carry out day-to-day activities. The data source is the Annual Population Survey and so includes in the definition of physical disability the category of chest or breathing problems including asthma.[89]

Similar conclusions can be drawn from studies that look specifically at how quality of life scores vary depending on the extent to which a patient's asthma is controlled. For example, Upton (2016) shows that a sample of UK patients with uncontrolled asthma demonstrated significantly higher disease-related scores from breathlessness, mood disturbance, social disruption and health concerns related to asthma than people with controlled asthma.[90]

Outside the UK, there are many similar examples of a connection between uncontrolled asthma and low wellbeing; for example:

A study of asthma patients in France and Germany by Doz (2013) found that the prevalence of depression is higher among people with uncontrolled asthma than controlled or partially controlled asthma.[91]

A separate European study involving 900 asthmatics aged 20 to 44 years demonstrated that patients with higher scores on an asthma-severity scale had significantly lower wellbeing scores than patients with less experience of uncontrolled asthma attacks (Siroux 2008).[92]

Data from a US survey study found lower mental (and physical) health for adult patients with uncontrolled asthma when compared to controlled patients, and both scores were lower than the average for the US adult population (Williams 2009).[93]

Finally, large-scale analyses from the National Health and Wellness surveys in both the US (Lee 2018)[94] and Europe (Demoly 2012)[95] demonstrate that patients with uncontrolled asthma demonstrate significantly lower mental health scores than those with controlled asthma.

88. Office for National Statistics. Dataset on Disability and wellbeing, table 6. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/disability/datasets/disabilityandwellbeing
89. Office for National Statistics. Dataset on Disability and wellbeing, table 6. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/disability/datasets/disabilityandwellbeing
90. Upton J, et al. Asthma-specific health-related quality of life of people in Great Britain: a national survey. J Asthma. 2016;53(9)
91. Doz, M, et al. The association between asthma control, health care costs, and quality of life in France and Spain. BMC Pulm Med 13, 15 (2013). Available from: https://doi.org/10.1186/1471-2466-13-15
92. Siroux V, et al. Quality-of-life and asthma-severity in general population asthmatics: results of the ECRHS II study. Allergy. 2008;63(5).
93. Williams SA, et al. Association between asthma control and health care utilization, work productivity loss and health-related quality of life. J Occup Environ Med. 2009;51(7).
94. Lee LK, et al. Asthma control and disease burden in patients with asthma and allergic comorbidities. J Asthma. 2018;55(2).
95. Demoly P, et al. Repeated cross-sectional survey of patient-reported asthma control in Europe in the past 5 years. Eur Respir Rev. 2012;21.

TYPE OF TREATMENT

There is also some indication in the literature that oral corticosteriod (OCS) use in itself may be linked to worse mental health outcomes. A cross-sectional observational study in over 7,000 UK patients with severe asthma showed that wellbeing scores were significantly lower in the severe, OCS-dependent asthma cohort compared to the severe, non-OCS-dependent cohort (Sweeney (2016).[96] Similarly an analysis of the US Medical Expenditure Panel Survey by Sullivan (2017) found a link between long-term OCS use and lower health-related quality of life scores.[97]

MORTALITY

In 2014 the Royal College of Physicians published the results of its National Review of Asthma Deaths,[98] the most detailed study to date into the circumstances surrounding deaths attributed to asthma. By looking at the patient records and family circumstances of people who had died of asthma in 2012-13, they identified factors that could have avoided death in relation to the health professional's implementation of asthma guidelines in around half (46%) of cases; a similarly large proportion (58%) of the deaths occurred in patients who were only being treated for mild or moderate asthma suggesting that "many patients who were treated as having mild or moderate asthma had poorly controlled undertreated asthma, rather than truly mild or moderate disease".

As a result their recommendations included, amongst others, that every NHS hospital and general practice should have a designated, named clinical lead for asthma services, and that patients should be referred to a specialist asthma service if they require regular corticosteroids to keep their asthma under control.[99]

In the light of this report, we used the Office of National Statistics data access service NOMIS to explore data on the number of people who have died in the UK where the stated reason was asthma since 2013.[100] We found that asthma was listed as the cause of death for 1,280 people in 2019 of which the vast majority (84%) were aged 65 or over. This gave an age-standardised mortality rate[101] of 2.21 which has not shown a particular trend since 2013, as the charts below show.

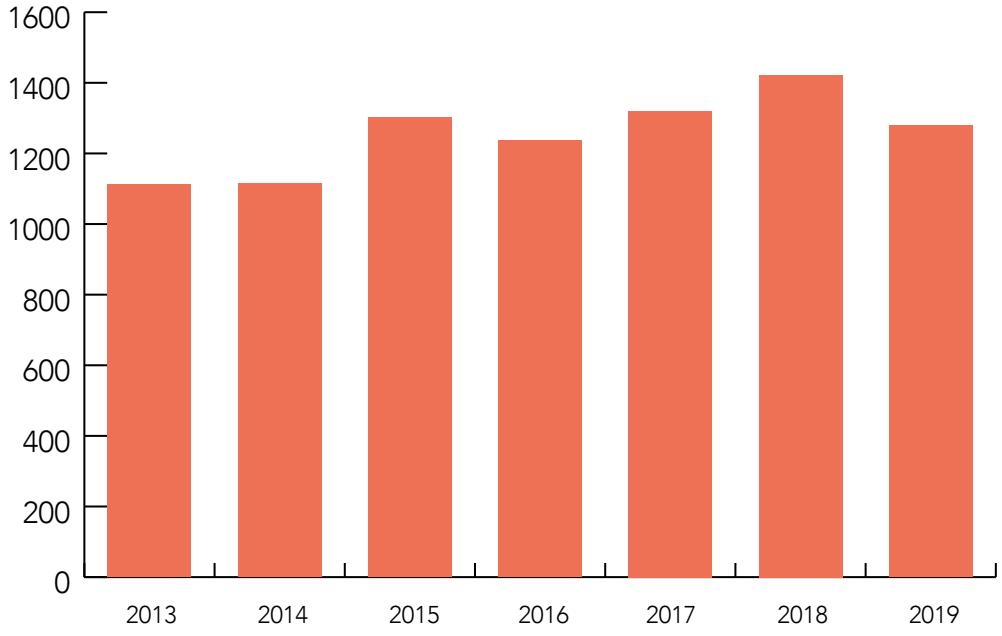


FIGURE 3.
UK DEATHS FROM ASTHMA

Source: NOMIS.[102]
Demos calculations.

96. Sweeney J, et al. Comorbidity in severe asthma requiring systemic corticosteroid therapy: cross-sectional data from the Optimum Patient Care Research Database and the British Thoracic Difficult Asthma Registry. Thorax. 2016;71.
97. Sullivan PW, et al. Health-related quality of life associated with systemic corticosteroids. Qual Life Res. 2017;26(4) doi:10.1007/s11136-016-1435-y
98. Levy ML, et al. Confidential Enquiry report. London: Royal College of Physicians (2014) Why asthma still kills: The National Review of Asthma Deaths (NRAD). Available from: www.rcplondon.ac.uk/sites/default/files/why-asthma-still-kills-full-report.pdf
99. Levy ML, et al. Confidential Enquiry report. London: Royal College of Physicians (2014) Why asthma still kills: The National Review of Asthma Deaths (NRAD). Available from: www.rcplondon.ac.uk/sites/default/files/why-asthma-still-kills-full-report.pdf
100. NOMIS Official Labour Market Statistics. Cause of death ICM-10 codes J45-J46. Available from: https://www.nomisweb.co.uk/.
101. The age-standardized mortality rate is a weighted average of the age-specific mortality rates per 100 000 person
102. NOMIS Official Labour Market Statistics. Available from: https://www.nomisweb.co.uk/

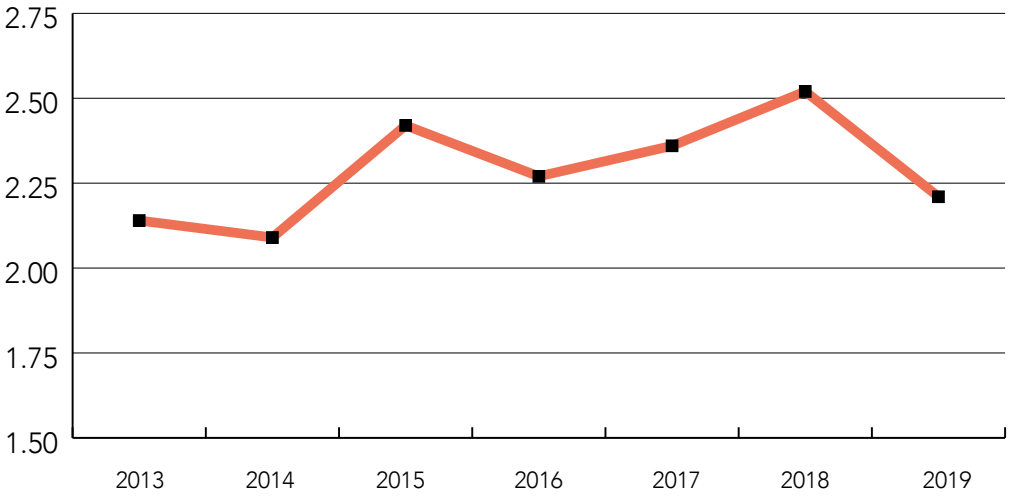
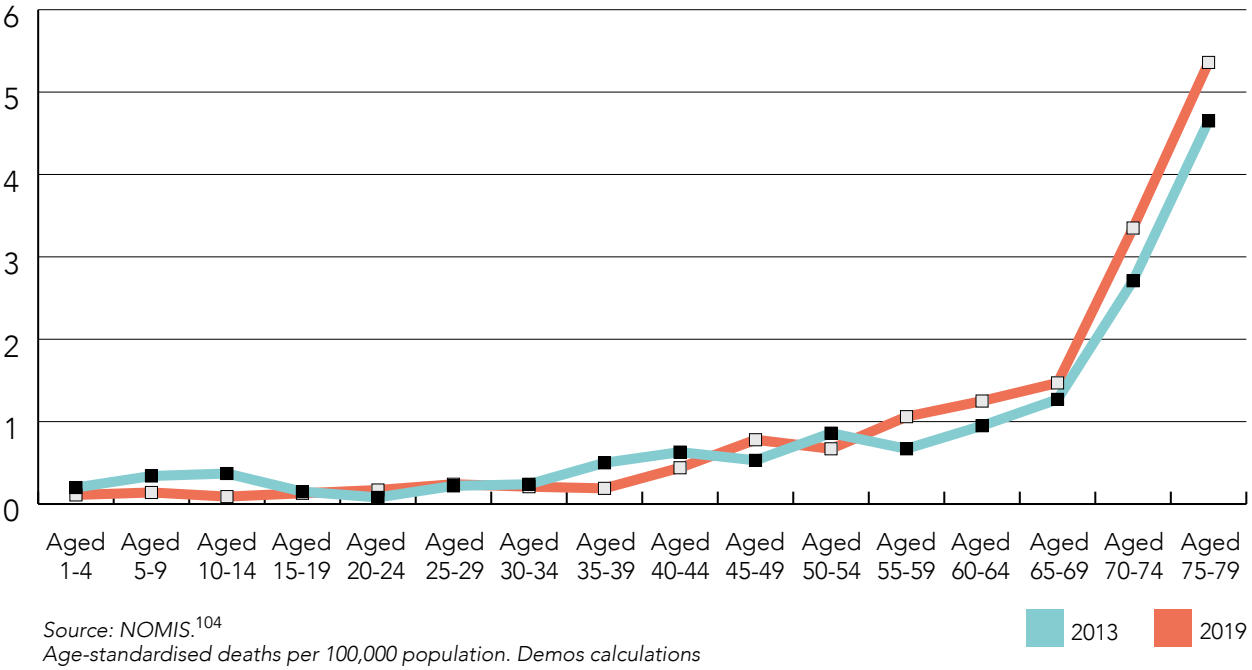


FIGURE 4.
UK ASTHMA DEATHS: AGE STANDARDISED MORTALITY RATE 2013-2019

Source: NOMIS.[103]
Demos calculations.

Looking more closely at the age profile of deaths from asthma between 2013 and 2019 suggests that mortality rate for younger people is a little lower in 2019 than it was in 2013, as shown in the graph below, suggesting that there may have been some reduction in the risk of dying from asthma for younger people in recent years.

FIGURE 5.
UK ASTHMA MORTALITY RATES BY AGE, 2013 AND 2019



Source: NOMIS.[104]
Age-standardised deaths per 100,000 population. Demos calculations

103. NOMIS Official Labour Market Statistics. Available from: https://www.nomisweb.co.uk/
104. NOMIS Official Labour Market Statistics. Available from: https://www.nomisweb.co.uk/

There does exist a methodology for ascribing an economic value to premature deaths, linked to an assessment of the years of working life that are lost.[105] However given that the number of deaths of people of working age are low, and the possible inappropriateness of attempting to place an economic value on life, this does not feel like a meaningful exercise.

However it does appear likely that the UK can make more progress in reducing asthma mortality rates: the reported mortality rate in the US from asthma is less than half that in the UK, at 1.05 per 100,000 population in 2018[106] and data from the World Health Organisation (up to 2015) shows that the UK's mortality rate from asthma is near the bottom of the league in higher-income countries, worse than France, Germany, Italy, Ireland and Spain.[107]

Academic studies suggest, perhaps unsurprisingly, that controlling asthma reduces death: patients with uncontrolled severe asthma had an increased risk of all-cause mortality compared with both the normal population and compared to patients with well-controlled severe asthma.[108,109]

The conclusion that can be drawn from this section is that ensuring all cases of asthma are well controlled can reduce the mortality rate of death from asthma, and there is scope for the UK to improve its performance in this regard.

105. See for example, Rice, D P et al. "The economic costs of illness: a replication and update." Health care financing review vol. 7,1 (1985). Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4191510/
106. Centers for Disease Control and Prevention. Most Recent National Asthma Data (2018). Available from: https://www.cdc.gov/asthma/most_recent_national_asthma_data.htm
107. The Global Asthma Network. The Global Asthma Report 2018. Available from: http://www.globalasthmareport.org/resources/global_asthma_report_2018.pdf
108. Fernandes AG, et al. Risk factors for death in patients with severe asthma. J Bras Pneumol. 2014;40(4).
109. Omachi TA, et al. Risk factors for death in adults with severe asthma. Asthma Immunol. 2008;101(2).

CONCLUSION

The UK government currently commits considerable cash outlays to support people to control their asthma, primarily through prescription medication.[110] However there are also direct costs incurred as a result of uncontrolled asthma, notably disability payments and acute (hospital) healthcare costs.[111]

What our analysis has shown is that there is a third category of costs that needs to be taken into consideration, namely the opportunity cost of missing out on the potential for higher incomes in the economy, with associated taxpayer revenues, that comes from people with asthma being unable to engage in the labour market in the same way as other people. There is also a negative effect on company profits and public sector budgets from working days being lost due to asthma episodes.

Our estimates are indicative, and particularly sensitive to macroeconomic changes in the labour market. However the headline result is clear: as a society we have a wider shared interest in supporting people with asthma to live 'normal' economic lives, over and above the imperative to minimise suffering for the individuals affected.

We therefore recommend that government build on the approach outlined in this research to lay before parliament their own annual estimates of the individual, macroeconomic and fiscal impact of people with disabilities being unable to participate in the labour market to the same extent as their peers, including but not limited to uncontrolled asthma.

This would build on the important work on the disability pay gap undertaken recently by the ONS, and provide sharper policy incentives to take a life-cycle and structural approach to disability and invest in potentially life-changing treatments and support.

In 2019 the government undertook a consultation to explore ways in which people with disability could be supported to stay in work.[112] This is welcome but the government's response to the consultation has not been forthcoming. Moreover, we feel that by covering all disabilities together it is possibly too generic and so may miss opportunities for a cross-disciplinary approach to tackling the particular economic effects of respiratory disease and the interplay between clinical, educational and workplace interventions.

We therefore additionally **recommend** the establishment of a cross-departmental taskforce of ministers working with NHS England to examine the root causes of inequality in pay and job prospects specifically for people with uncontrolled asthma, in order to determine the necessary policy changes –clinical, legislative, educational and/or welfare support – that are required to narrow that gap for future generations.

110. See Section 4
111. See Section 4
112. Department for Work and Pensions, Health is everyone's business: proposals to reduce ill health-related job loss (2019). Available from: https://www.gov.uk/government/consultations/health-is-everyones-business-proposals-to-reduce-ill-health-related-job-loss/health-is-everyones-business-proposals-to-reduce-ill-health-related-job-loss

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