SAVING YOUR BREATH

How better lung health benefits all of us in Wales

ASTHMA+ LUNG UK
CYMRU

Contents

Foreword

Lung conditions are the third biggest killer in Wales and are one of the biggest cause of winter pressures in the NHS. But despite this, lung conditions like chronic obstructive pulmonary disease (COPD) and asthma continue to be drastically overlooked. As a result, while other large killers such as cardiovascular disease (CVD) and stroke have seen significant progress in recent years, lung health has stood still.

The avoidable mortality rate for CVD has improved by 56% over the last 20 years. But for lung conditions, it has declined by 4%. If lung health had improved at the same rate as CVD, there would now be around 630 fewer deaths each year from lung conditions. Because of this lack of action, more people are now dying from a lung condition in Wales than anywhere in western Europe.

This unequal focus continues. It's a year since the new Quality Statement for Respiratory Disease was published and extraordinarily little progress has been made to implement it. Whilst the Cancer Quality Statement was supported by an Improvement Plan with clear measurable outcomes, the Welsh Government have refused to do the same for lung health.[1]

We only get one set of lungs, so we all must have the tools available to look after them. That is why we are calling for new diagnostic hubs across the country. No cough should be left uninvestigated, no wheeze should be ignored, and no one should be misdiagnosed. When we receive a diagnosis, access to the best treatment should be readily available, whether that is biological drugs for asthma or pulmonary rehabilitation for chronic conditions like COPD.

This report makes it clear that there are also huge savings to be made by improving the diagnosis and treatment of lung disease, both in terms of direct NHS savings and by reducing hospital bed days. These changes would also have a huge positive impact on those living with lung conditions, the majority of whom do not receive best practice care.

If properly implemented, our recommendations would save significantly more (£19.5 million) each and every year, and free up over 5,000 bed days over the winter period.

This kind of immediate practical action is desperately needed. Our blueprint for lung health recommendations provides the evidence base for change, and the details of how to achieve this.

Asthma + Lung UK Cymru will continue to fight for better lung health. 1 in 5 of us will get a lung condition in our lifetime. But thousands are not getting the care they need, causing avoidable problems which cost them and the NHS. This report provides a roadmap for change. What we need now is action.

Joseph Carter
Head of Devolved Nations, Asthma + Lung UK Cymru

Executive summary

Lung disease, including COPD, asthma and pneumonia, is the third leading cause of death in the UK, and places a huge burden on individuals, the NHS and the UK economy. We have the worst death rate from lung disease in western Europe, and hospital admissions for lung conditions have doubled in the last 20 years. Lung conditions, and their burden on the NHS, hit the headlines each and every year as winter pressures mount. But year after year not nearly enough is done to prevent these pressures building up in the first place.

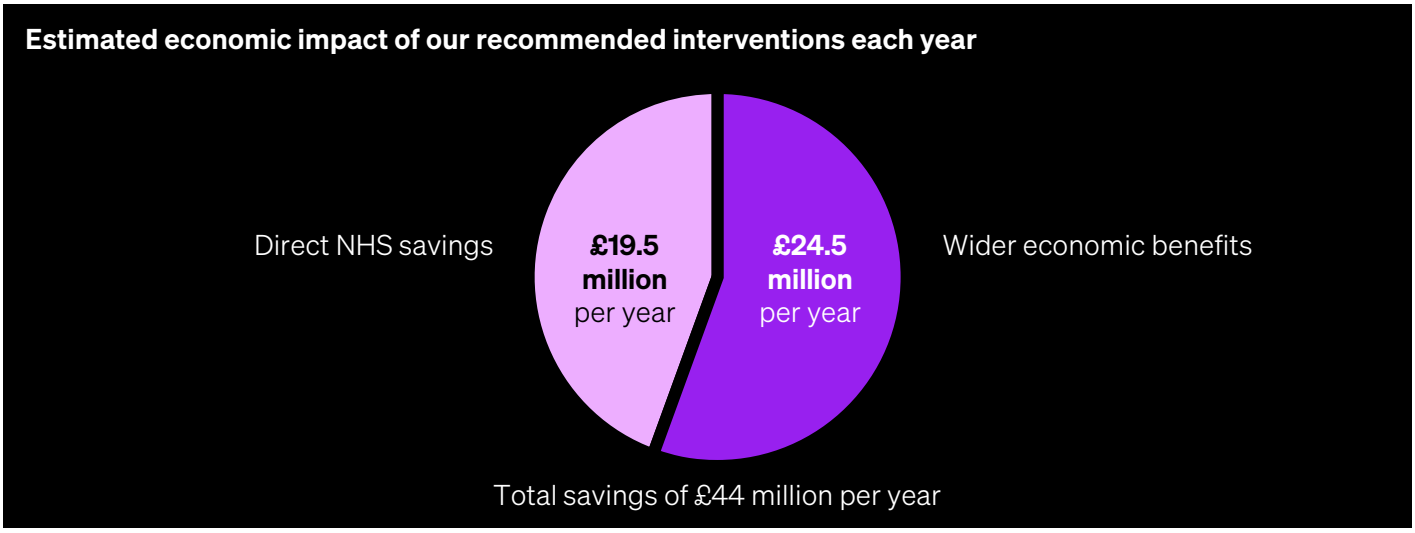
The good news is that we know what works. A significant amount of this burden could be avoided with better prevention and a more effective healthcare response. Asthma + Lung UK commissioned PwC to provide an updated analysis to quantify both the impact of lung conditions, and the positive impact of specific interventions to improve the diagnosis and care for those with asthma and COPD.

This analysis shows that asthma and COPD, the two most prevalent lung conditions:

- cost the NHS in Wales £295 million in direct costs each year, representing 1.3% of total NHS expenditure
- cause wider reductions in productivity due to illness and premature death totalling £477 million a year
- have an overall impact of £772 million on the Welsh economy.

If the three key measures outlined in our blueprint for change were implemented they could:

- save the NHS £19.5 million a year.
- produce a reduction in hospital bed days of just over 14,000 a year, 5,000 over the winter period.
- produce wider economic benefits of £24.5 million a year.



Unless specified otherwise, all data is from a report produced for Asthma + Lung UK by PwC, or our own analysis, outlined in appendix 1.

In addition, these changes would have a considerable wider economic impact by improving productivity and the wellbeing of those affected.

We are trapped in a vicious circle of late diagnosis, limited or incorrect treatments and poor support for people to take the best care of themselves. This leads to avoidable emergency hospital admissions, causing pain for patients and their families and putting a significant, avoidable strain on the NHS.

Our blueprint for lung health aims to break this cycle and put the NHS, and the 1 in 5 people who experience a lung condition, on a path to better, more sustainable health.

Recommendations

Diagnose lung disease early and accurately

Imagine being diagnosed with high blood pressure without anyone actually measuring it. That's what happens for many with lung conditions, with thousands of people across Wales missing out on key diagnostic tests because of disagreements between primary and secondary care about who should deliver services.

The analysis conducted by PwC found that:

- If Fractional exhaled nitric oxide (FeNO) were made available to all GPs across Wales, its use could save £6.6 million by optimising asthma treatment.

- An uptake in spirometry testing in primary care to just 40% of eligible patients would result in just over £3 million in direct NHS cost savings in reduced COPD exacerbations, a reduction of 3,420 hospital bed days, of which 1,163 would be winter bed days saved.

In order to realise these changes we want to see:

- **Spirometry restarted across Wales**
  Good lung health and receiving proper care should not be a postcode lottery. To ensure that everyone who needs a diagnostic test gets them in a timely way, we want all health boards to restart spirometry in all parts of Wales. Whether it takes place in primary care or through diagnostic hubs, everyone with a lung condition should be able to access spirometry.

- **Training and equipment**
  Delivering and interpreting spirometry is difficult, so it is important that health care professionals have accredited training and can access support from physiologists.

Keep people healthy and out of hospital

People with lung disease are not getting the support they need to manage their condition and reduce their risk of acute attacks. Self-management is essential for living well with a lung condition, but many do not receive proper instructions on how to use their inhalers effectively.

Our analysis found that:

- Prompting healthcare professionals to review patient use of inhalers would result in savings of almost £500,000 per year, as well as a 70% reduction in hospital bed days amongst people with asthma. Around 40% of this reduction in bed days is likely to occur over the winter months.

In order to achieve these changes, we want to see:

- **Annual reviews for all lung conditions**
  To keep people healthy and out of hospital, we want all those with lung conditions to be given an annual review and medication check every year to support their health and their ability to self-manage their condition. For those with well controlled conditions, it may be appropriate for these reviews to happen via video call, but for those with poorly controlled symptoms, this should be face-to-face.

- **Using patient data to improve their adherence to treatment**
  When conducting an annual review for a patient who uses an inhaler, the clinician should review that patient's inhaler data and the number of refills they use annually, as well as their symptoms and frequency of acute attacks, in order to assess and improve their adherence to treatment and understanding of their condition.

- **Data and monitoring on annual reviews and medication checks**
  GP practices have a vital role to play in keeping people healthy and out of hospital, and they should have time to do this. Primary care needs the resources to spend adequate time to do this well for all patients with long term respiratory conditions, while healthcare practitioners need to appreciate that spending time on this actually plays a key role in reducing demand on healthcare. The focus of the 2022/23 Quality Improvement Framework on green inhalers should provide some incentive to review patients to discuss medications, but annual reviews should take place as core work.

Too many people living with lung conditions are missing out on the treatments they desperately need to live and stay well at home. Current access is limited, patchy and being held back by workforce shortages.

Access to pulmonary rehabilitation (PR) for all those eligible
The benefits of pulmonary rehabilitation to people with COPD and other lung conditions is substantial, both to them and to the NHS. Much more needs to be done to improve provision, uptake and completion rates.

Our analysis found that:

- The expansion of PR would result in £7.7 million of direct NHS savings related to reduced exacerbations, as well as a reduction of 10,500 bed days, 3,500 of which would be saved over the winter period.

In order to realise these changes, we want to see:

- **Every PR service should have a full multi-disciplinary team**
  Too many PR services are reliant on small number of staff. They don't have access to a full multidisciplinary team approach involving a range of key rehabilitation professionals such as occupational therapists, physiotherapists, exercise professionals, dietetic and psychological support. We would like to see every service having access to the full team so that patients can access a full pulmonary rehabilitation experience.

- **Wales should join the Pulmonary Rehabilitation Services Accreditation Scheme (PRSAS)**
  In order to raise standards and improve quality, we would like to see the PRSAS funded in Wales. A nationwide contract would ensure that every PR team can access advice, support, training, and mentoring, and improve the quality of services.

- **The Pulmonary Rehabilitation pathway should be adapted to triage different patients into face-to-face services, virtual services and supported self-management**
  We recommend that technological solutions should be considered to reduce waiting lists and support people with milder lung conditions who are able to benefit from virtual programmes.

We would like to see additional resources committed to this as part of the Quality Statement for Respiratory Disease, where PR should be a key action for improving chronic respiratory conditions post-diagnosis.

- In order to improve uptake, eligible patients should not be offered PR but given a direct referral on an opt-out basis.

Access to biologic drug treatments for those with severe asthma
While severe asthma accounts for only around 5% of the total asthma population, this is still around 9,000 people.[2] Such is the severity of their symptoms that this group is estimated to account for at least half of all economic expenditure on asthma – around £74 million a year.

Biologic drugs are proven to dramatically reduce severe asthma symptoms and exacerbations, and so increasing their use should be a priority in order to reduce costs and improve the health and wellbeing of those with severe asthma.

We want to see health boards provide (or commission) difficult-asthma services for people with severe or uncontrolled disease, which collaborate at national level to ensure consistency of provision and appropriate access to biologic therapy.

Lung conditions are the

3rd biggest killer

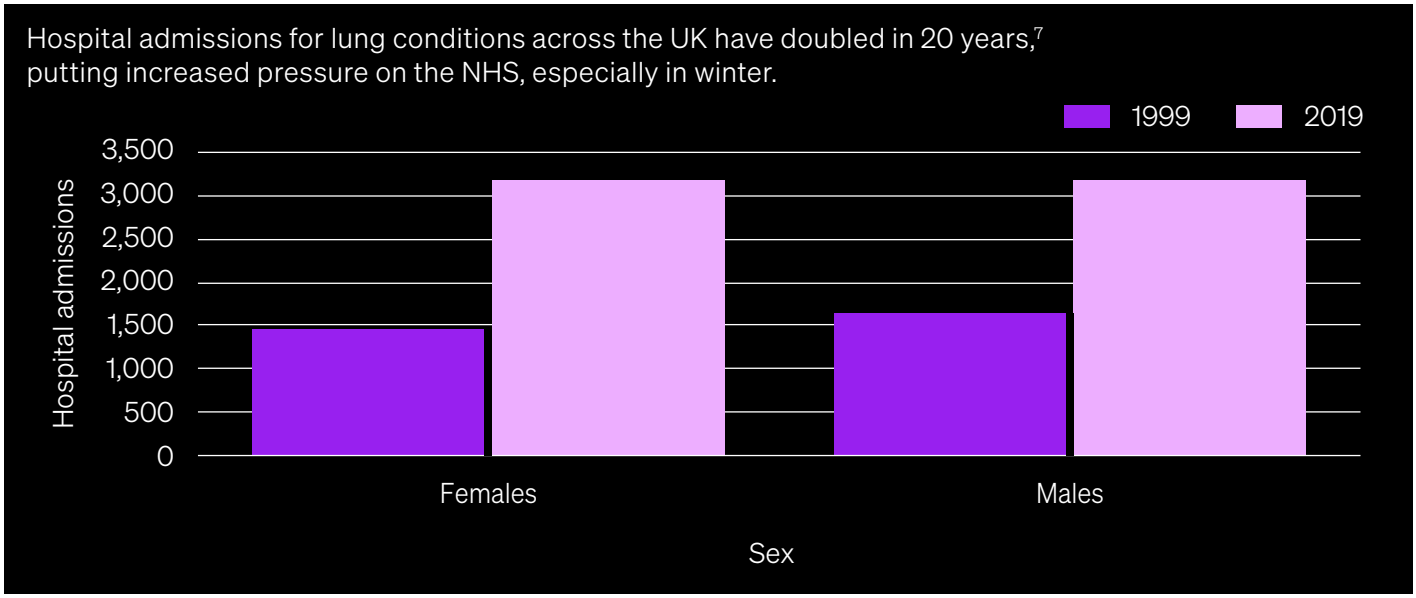
in Wales

Lung health in Wales – where are we now?

- Lung disease is the third biggest killer in Wales, representing around 15-16% of all deaths prior to the pandemic.[3]
- Across the UK the total cost of lung disease is £13.8 billion.
- Asthma and COPD (the two biggest conditions) cost the NHS in Wales £294 million.
- In addition, wider reductions in productivity due to illness and premature death with these two conditions come to £477 million, making the total impact of these two conditions in Wales £772 million. Lung conditions including COPD, asthma and respiratory infections place a huge burden on the NHS, especially in the winter months where respiratory admissions increase by 80%.[4]
- People in the poorest areas are five times more likely to die from COPD and three times more likely to die from asthma than the richest areas. There is a stronger link between respiratory deaths and deprivation than for any other major disease area.[5]

Despite the huge burden that lung disease places on the NHS and the economy, most lung conditions could be avoided by reducing exposure to risk factors such as tobacco, poor housing, child poverty, air pollution and occupational hazards such as asbestos and other dust, fumes and chemicals. Making it possible for people to adopt a healthy lifestyle and positive lung behaviours such as exercise can also greatly reduce the chances of people developing lung conditions at all stages of their life, while also improving general health and wellbeing.

Shockingly, we have the worst death rate in western Europe for lung conditions, and people in Wales are three times more likely to die from lung disease than in Finland, which has the lowest lung disease death rates in Europe.[6]



Progress to improve our lung health has been extremely slow, and much slower than for other major causes of death such as cardiovascular disease. The avoidable mortality rate is the number of deaths that could be averted either by preventing disease or through effective healthcare. For lung conditions, the avoidable mortality rate declined by 4% on average across Wales over the past 20 years. This pales in comparison to advances made for cardiovascular disease, where the equivalent improvement was 56%.

If the avoidable mortality for lung conditions had improved at the same rate as cardiovascular disease over this period, there would be around 630 fewer deaths from lung conditions now each year (reducing the annual deaths by 13%).

We are trapped in a vicious circle of late diagnosis, a limited number and lack of access to treatments, and poor support for people to take care of themselves. This leads to avoidable emergency hospital admissions, causing pain for patients and their families and putting a significant, avoidable strain on the NHS.

There are a number of key barriers to making progress on lung disease in Wales:

- Awareness of lung conditions and their significant impact is low, both amongst healthcare professionals and the general population.
- Underinvestment means that there are limited treatment options compared with other conditions and the implementation of NICE best practice guidelines is poor. Many people wait years, struggling with breathlessness and limited physical activity, before seeking help from their GP.
- Lung conditions often develop alongside other long-term conditions, such as high blood pressure, narrowing of the arteries (coronary artery disease) and heart failure, as well as anxiety and depression. The effects of these conditions multiply the impact of lung disease but also mean that lung diseases are missed.
- While lung conditions can affect anyone, they are strongly associated with deprivation and social and environmental factors such as smoking, poor housing and exposure to air pollution.

1 in 5 people

in Wales will experience a lung condition

The economic costs of lung conditions

There are many different lung conditions, but grouped together they are the third largest killer in Wales. PwC were commissioned to look at the economic cost of lung conditions across the UK, but were only able to analyse the impact of the two biggest conditions in Wales – asthma and COPD.

The direct cost of lung conditions to the NHS
This includes costs to the NHS that arise from primary care GP visits, secondary care costs which arise from hospitalisations, and non-government expenditure such as out of pocket expenditure and health insurance pay-outs.

The additional indirect costs of lung conditions
This includes costs to productivity due to illness, causing absence from work and premature death, as well as the costs of caregiving from friends or family.

Asthma
Asthma affects the airways that carry air in and out of a person's lungs. People with asthma often have sensitive, inflamed and narrowed airways. This causes symptoms like coughing, wheezing, feeling breathless or a tight chest. It impacts the daily life of people affected, including education and work. People with asthma can experience acute attacks which can cause hospitalisation or be fatal, especially if the condition is poorly controlled.

- Asthma is the most common lung condition in Wales affecting 314,000 people (one in every 10 adults and one in every 9 children).[8]
- Due to a lack of proper investigation, around 30% of those with a diagnosis of asthma may not actually have the condition, while others are missing out on appropriate treatment.[9]
- There are 4,000 hospital admissions and 6,000 bed days for asthma per year in Wales.
- Asthma attacks kill three people in the UK every day, and someone has a potentially life-threatening asthma attack every 10 seconds.[10]

The economic costs of asthma
The updated analysis Asthma + Lung UK Cymru has commissioned from PwC found that **2023 direct asthma costs in Wales come to £84 million**, including all NHS costs, the direct impacts of greenhouse gas emissions (from patient travel, inhaler propellant use and operation of healthcare facilities) and patient travel costs. In addition to this, lost productivity costs account for £184 million a year and the costs associated with reduced quality of life come to £77 million.

Case study

Louise, has asthma and struggles with breathlessness every day and she wants people to take it more seriously.

"I had a bad chest infection when I was 19 and was struggling to breathe, I was told I had asthma and given an inhaler. Years went by and I was still getting out of breath and was given different inhalers. I felt like I was going from pillar to post without any real significant improvement or reason why I was feeling like this."

"In 30 years of living with asthma I have been seen by just one asthma specialist. I asked several times over the years to be referred but nothing ever came of it, and I just relied on self-managing my asthma at home without proper checks. I do feel if you don't have a loud voice, people with asthma are often dismissed and left behind. People say 'it's just asthma' but it can take away someone's life. I just want people to take it more seriously."

"I do believe people with asthma need to be supported more. I am not a person who gives up easily, but asthma does affect my mental health and I often feel frustrated when my lungs stop me doing the things I want to do. The weather and air pollution really affect my breathing, but I am fortunate that I know my triggers and take my inhalers as I should to keep safe and well."

Chronic obstructive pulmonary disease[11]
COPD is the name for a group of conditions where the lungs are damaged by inhaling toxic materials like smoke. It includes chronic bronchitis where the airways are inflamed and emphysema where lung tissue itself is destroyed. In COPD, air cannot get out of the lungs easily because the airflow is obstructed in airways that are narrowed and collapsible. COPD can cause symptoms such as breathlessness, coughing, wheezing or coughing up more phlegm than usual.[12]

People with COPD can experience acute exacerbations which can cause hospitalisation or be fatal, especially if the condition is poorly controlled.

- More than 82,000 people are diagnosed with COPD, but many people remain undiagnosed or misdiagnosed having asthma.[13]
- Treating COPD costs the NHS £211 million a year, and COPD is the second largest cause of emergency hospital admissions.[14]
- COPD causes 1,800 deaths and 12,000 emergency hospital admissions every year.

Although the severity of symptoms with COPD can vary, COPD can impact a person's life and impose restrictions on their way of life in many ways. 31% of those with COPD who responded to our 2023 Life with a Lung Condition survey had given up work because of their breathlessness, and many others reduce their working hours, retire, or die earlier than those without the condition.[15]

The economic costs of COPD
The PwC analysis found that **2023 direct COPD costs in Wales come to £211 million**, including all NHS costs, the direct impacts of greenhouse gas emissions (from patient travel, inhaler use and operation of healthcare facilities) and patient travel costs. COPD exacerbations alone cost the NHS just under £75 million a year. In addition to this, lost productivity costs account for £94 million a year and the costs associated with reduced quality of life come to £122 million.

1 person

every minute

is diagnosed with a lung condition in the UK

Case study

Pauline Williams, was diagnosed with COPD in 2014 after struggling to breathe for nearly 8 years. She explained living all those years without being diagnosed was a “physical and emotional rollercoaster.”

“I struggled to breathe for nearly 8 years before being diagnosed with COPD. It was a physical and emotional rollercoaster.”

“One day I was struggling to take a deep breath, it frightened me so much, I went to A&E. After hours of waiting, I was finally seen by a nurse who said it was down to a chest infection. I was given antibiotics and made to feel that I was wasting their time.”

“Years went by, and I struggled climbing the stairs and got out of breath doing the simplest of tasks. In 2014, I finally had enough and insisted on further checks to rule out anything serious. I was sent for x-rays and lung health checks; they all came back fine. I was so confused; it was a physical and emotional rollercoaster. It took a locum doctor to suggest a lung function test, and this changed everything. I finally got the answers I needed. I was so relieved to have a proper diagnosis.”

“I was offered Pulmonary Rehabilitation, which is an exercise class to help you keep fit. It helped so much; I can’t recommend this enough. I am concerned about access to this service in Wales. Everyone with COPD should be offered this but feel not everyone is aware of it and it seems like it’s a postcode lottery.”

“People need to be made more aware of COPD and if they have the same symptoms I did, maybe they would be diagnosed more quickly or be better prepared to deal with it. I have a wonderful supportive family and two brilliant dogs who help keep me active. To live well with COPD, you need the right information, diagnosis and treatment and receive this all at the right time.”

More details about these and other lung conditions can be found on the health advice pages on our website: Conditions | Asthma + Lung UK (**asthmaandlung.org.uk/conditions**)

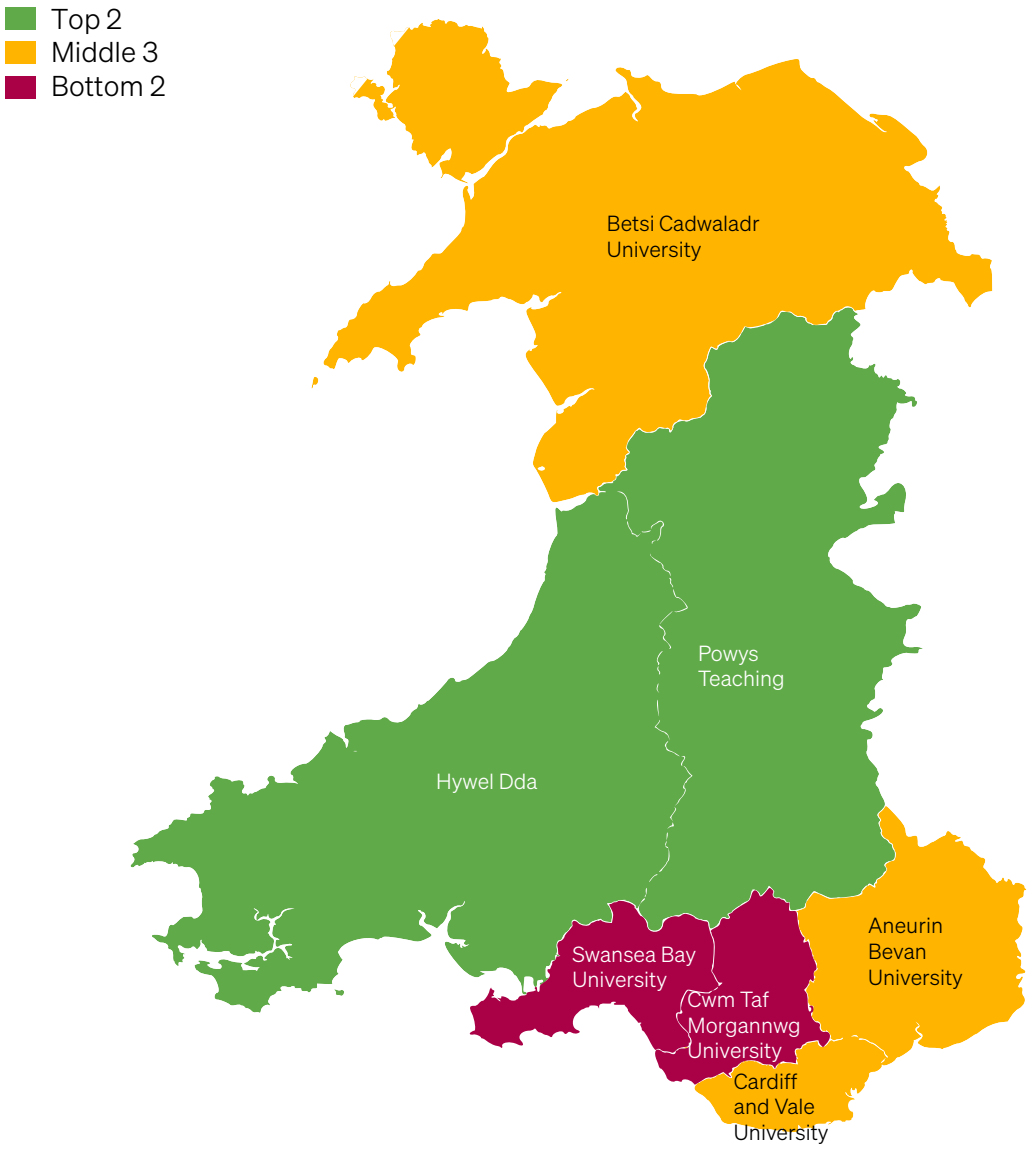
Where do lung conditions have the greatest impact?

As can be seen on the maps presented here, there is a stark urban-rural divide in respiratory outcomes in Wales.[16] The most deprived health boards have much higher emergency hospital admissions and death rates for respiratory disease when compared to the least deprived, rural health boards.

People living in the most deprived communities are exposed to far more of the risk factors for developing lung conditions and are far more likely to be admitted to hospital and die from a lung condition than those in the least deprived communities.

The map below shows a ranking of respiratory hospital admissions and deaths for the 7 Health Boards in Wales. Please see appendix 1 for a detailed ranking of the Health Boards by respiratory admissions and mortality.

Health Board ranking
Based on respiratory admission + death rates



Deprived communities face the biggest barriers to good lung health

There are a range of reasons why those from the poorest communities have the worst lung health, including smoking, poor housing, air pollution and access to NHS services.

- Tobacco smoking is the biggest cause of preventable illness and death in the Wales.[17] Two out of three people who continue to smoke will die from a smoking related disease. It is estimated to cause one in four cancer deaths and is well established as a leading cause of lung conditions including COPD, pneumonia, and obstructive sleep apnoea.

- Whilst smoking rates have broadly declined over the past 50 years, they remain disproportionately high in certain communities. In 2021, smoking was 3.4 times more prevalent among people in the lowest decile of the index of multiple deprivation compared to least deprived decile in Wales.[18] Those caught up in this highly addictive, intergenerational cycle need more support to quit tobacco.

- Poorer housing is intricately linked to lung conditions. Indoor pollutants, including mould, damp, dust, dirt, or gases in the air, have been linked to lung conditions like asthma, COPD and lung cancer.

- Higher exposure to air pollution.[19] Long term exposure increases the likelihood of developing lung conditions and negatively impacts those with existing conditions.

- Those working in occupations that have increased rates of lung conditions due to exposure to chemicals, dust and fumes, including factory work and cleaning.

- GP practices in more deprived areas have fewer doctors, are relatively underfunded, and perform less well on a range of indicators compared with practices in wealthier areas.[20]

Wales has the

worst death rate

for lung conditions in western Europe

Our blueprint for better lung health

Our recommendations will help improve the diagnosis of lung conditions, and once diagnosed help people to better manage their condition and stay out of hospital. Doing this is better for everyone – for those with lung conditions and for the NHS, which will have more capacity to deal with other issues.

Impact: total cost savings

The combined impact of the four measures outlined below comes to:

- total NHS savings of £19.5 million a year
- a total reduction in hospital bed days of 15,000, of which 5,000 would be over the winter period
- wider economic benefits of £24.5 million a year in improved productivity.

How these figures were calculated:

We asked PwC to model the impact of the following interventions:

- increasing the availability of FeNO for use in asthma diagnosis
- increasing the use of spirometry to diagnose COPD
- improving ongoing care for those with asthma
- increasing access to pulmonary rehabilitation for all those eligible.

Diagnosing lung disease early and accurately

Those struggling with breathlessness often wait years for a formal diagnosis. Some will never receive one at all, or receive an incorrect diagnosis. In part this is because many do not understand the key symptoms, and society doesn't take breathlessness seriously or consider lung problems as worthy of attention as other diseases. But even once in contact with healthcare professionals, diagnosis is still too slow. Things were bad before the pandemic, and since COVID-19, the situation has gone from bad to worse.

Imagine being diagnosed with high blood pressure without anyone actually measuring it. That's what happens for many with lung conditions, who are given a diagnosis based on a conversation with their GP but without any testing. When this happens, the chances of being given an incorrect diagnosis are much higher, meaning that people miss out on the care they need.

Under-diagnosis can lead to people having untreated inflammation, putting them at risk of asthma symptoms and asthma attacks, for example. Overdiagnosis means that people are getting medications they do not need, with the chance of negative side effects and at a cost to the NHS.

Key lung diagnostic tests
There are significant costs associated with both routine care and exacerbations in asthma, so reducing the likelihood of exacerbations and unscheduled care (including secondary care) greatly diminishes the cost of asthma and COPD on the NHS. Getting a timely and accurate diagnosis is key to this.

What is spirometry?[21]
Spirometry is a lung function test which measures lung capacity, how much air someone can breathe out in one forced breath and how fast they can empty their lungs.[22] It is mandated by NICE guidelines for the diagnosis of both COPD and asthma.[23,24] Spirometry is often done alongside a bronchodilator reversibility test (BDR), to show if and how much a person's airways improve with bronchodilator medicines.

What is FeNO testing?[25]
FeNO stands for fractional exhaled nitric oxide. FeNO is a test that measures the levels of nitric oxide in someone's breath and is suitable for adults and most children over five. An elevated level of nitric oxide when they breathe out can be a sign that they have inflamed airways, due to asthma. As such, a FeNO test is used to help diagnose asthma, alongside taking a medical history, and other tests such as spirometry or peak flow tests.

Although NICE guidelines for the diagnosis of asthma[26] recommend FeNO testing, it is not widely available in Wales with only 0.5% of adults with asthma recorded as having the test.[27]

Lung function tests in the NHS
NICE guidelines indicate that spirometry should be performed for any diagnosis of either asthma or COPD, but we know that this is often not the case. We also know that FeNO is not widely used, despite being recommended by NICE.

Spirometry was paused in primary care during the pandemic leading to a collapse in the number of people having an accurate diagnosis of COPD. The Wales primary care clinical audit 2020 recorded 11.5% of people with COPD receiving 'gold standard' diagnostic post-bronchodilator spirometry in the last 2 years, yet by 2021, this had fallen to 1.9%.[28] Many others would have been given a diagnosis without a test. This means that they may be on medications that they do not need and that may cause them harm and are missing out on treatments for the true causes of their symptoms. If around half of cancer cases went undiagnosed or misdiagnosed it would be a national scandal, but this is exactly what has happened with COPD.

Two years on, many areas have still not restarted spirometry, although no comprehensive data is available on this issue (which is itself part of the problem). This unequal situation is primarily a result of funding pressures: spirometry is not specifically required within the GP contract. This leads to disputes between primary and secondary care about whose responsibility it is to deliver it.

The 2021 Quality Statement for Respiratory Disease includes two attributes focussed on spirometry:

- New COPD patients, and those already on a COPD register, have coded evidence in the clinical record of spirometry, performed by an appropriately trained healthcare professional.

- Spirometry should be available to patients over the age of 12 in primary or community care and results should be available to all relevant clinical teams through the Welsh Clinical Portal and independent contractor systems.[29]

Whilst we welcome the inclusion of spirometry in the quality statement, there is still a question mark as to where it should be delivered and how it is funded.

Delivering spirometry and FeNO in diagnostic hubs helps deliver additional diagnostic capacity by providing quicker and more convenient access to diagnostic testing for patients. Diagnostic hubs operated well in 2021 in Aneurin Bevan and Swansea Bay UHBs, whilst mobile hubs were used in Cwm Taf Morgannwg and Hywel Dda UHBs. However, the funding was only short-term, and most services were stopped due to health boards wanting primary care to provide spirometry themselves.

For more details and case studies on ways that local NHS areas in Wales and across the UK have made progress offering diagnostic lung testing please see our recent report.[30]

The impact of increasing the availability of FeNO for use in asthma diagnosis
PwC analysed the impacts expanding the availability of FeNO to clinicians in order to support the more accurate diagnosis of asthma. FeNO is currently available in around 50% of GP practices and they found that **if it were made available to all GPs across Wales its use could save almost £6.6 million by optimising asthma diagnosis and treatment**.

These savings would come from a reduction in misdiagnosis, meaning that patients who do not actually have asthma would not be given medications, and also because patients diagnosed with FeNO incur lower maintenance costs through more tailored prescriptions. All these savings would be recovered by the NHS.

The impact of increasing the use of spirometry to diagnose COPD
PwC analysed the impacts of expanding the availability of spirometry testing in order to support increased accurate diagnosis of COPD. An uptake in spirometry testing to 40% of eligible patients in primary care was assumed, in line with the NACAP recommendation of having 40% of COPD patients receiving a diagnosis by April 2023.

The analysis found that this would **result in over £3 million in direct NHS cost savings related to reduced exacerbations**, with this achieved by patients receiving an accurate diagnosis and then given appropriate treatment. This reduction in exacerbations, with it hospital activity, would result in **a reduction of 3,420 hospital bed days, of which 1,163 would be winter bed days saved**.

This scenario would also produce £84,000 in productivity savings as a result of correctly diagnosed patients receiving effective treatment, meaning that they are able to continue work.

Recommendation

Fully funded diagnostic testing – To ensure that everyone who needs a diagnostic test gets them in a timely way, we want all health boards to restart spirometry in all parts of Wales. Whether it takes place in primary care or through diagnostic hubs, everyone with a lung condition should be able to access spirometry.

Over

twice as many

people die of lung conditions over winter than during the summer

Keeping people healthy and out of hospital

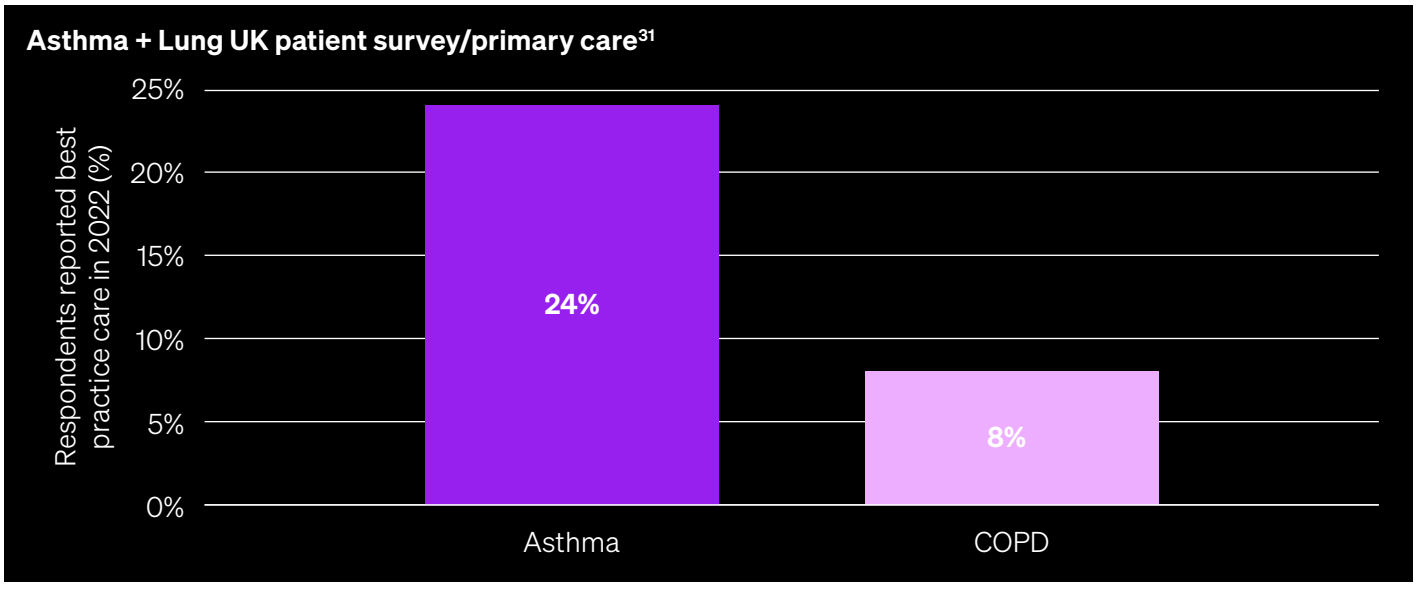
Each year the NHS faces significant challenges over the winter months, and lung conditions play a significant role in driving this annual surge in demand. This increase is down to two factors: the annual winter increase in infections and viruses, and the fact that the cold weather causes those with existing lung disease to struggle more. The more that we can do to keep them healthy throughout the year, the less likely they are to experience problems over the winter.

What happens to hospital admissions for lung conditions over the winter?
Between 2019-2022, average winter asthma hospital admissions were 136% higher than summer admissions, while for COPD, winter admissions were 83% greater. This demonstrates the role that lung conditions play in placing additional demand on the NHS over the winter months. However, much of this burden is preventable with best practice diagnosis and care.

Yet despite the huge burden that these admissions place on the NHS, we know that with the right help and support, the vast majority of people with lung conditions will learn to live with and manage their condition successfully.

We know that most people with lung conditions aren't being well supported to manage their condition, and as a result far more people than necessary end up in hospital. We want to see improved help and support for those with lung conditions to improve their quality of life and to reduce this demand on the NHS, especially over the winter.

Avoiding exacerbations and hospitalisations
We know from our patient surveys that patients who receive best practice COPD care as recommended by NICE report fewer exacerbations and are better able to self-manage their condition. However, the majority of those with a diagnosed lung condition do not receive best practice ongoing care, meaning that there is a huge opportunity to reduce hospital demand by better supporting patients post diagnosis.



Best practice is defined as:

- For COPD: those receiving the 'five fundamentals' of COPD care as outlined by NICE (smoking cessation, vaccinations, self-management plans, pulmonary rehabilitation, identification and optimisation of multimorbidity).

- For asthma: those receiving an annual asthma review, inhaler technique check and written action plan.

It is well known that many of those with asthma do not use their inhaler effectively as they have not been properly taught how to do this, and do not receive an annual inhaler technique check. This can lead to poorly controlled asthma which in turn leads to unplanned primary and secondary care use, the prescribing of oral corticosteroids, and in some cases, death.

This is why annual reviews and inhaler checks are so important, both for patients and the NHS. While it makes sense for this data to be used at an annual review, it could also be used proactively to identify those with poor condition management and address this at any point. Good asthma control is associated with fewer exacerbations, a lower usage of secondary care and lower all round costs.

The impact of improving ongoing care for those with asthma
In order to assess what impact the better use of inhalers could have, PwC analysed the impact of a change in guidelines to encourage GPs to look at a patient's inhaler refill data and use this to routinely monitor and improve a patients inhaler use. We also view the delivery of an inhaler technique check as a key part of this process, with both being delivered as part of an annual review which all patients should receive.

This analysis found that such a change **would result in savings of just under £475,000 a year across Wales**. These savings would be achieved as a result of more uncontrolled asthma patients gaining control over their condition because of better inhaler use, after being given greater help and guidance by a healthcare professional.

This change could reduce the number of non-severe asthmatics struggling as a result of poor inhaler use by 45%, thereby significantly reducing their cost to the NHS while improving their quality of life and productivity. In addition, £16 million would be achieved in indirect costs such as improved productivity from this patient group, who would become significantly more economically active as a result of better health.

This intervention would **lead to reduction in unscheduled visits to primary and emergency care, and a 70% reduction in hospital bed days amongst asthmatics**, as shifting someone from poor control into good control means they are less likely to have an exacerbation and require care in hospital. Around 40% of this reduction in bed days are likely to occur over the winter months, helping to alleviate pressure on the NHS during this busy period.

As NICE guidelines state that all those with either asthma or COPD should have an annual review with a healthcare professional, and these healthcare professionals should already be able to access patient inhaler refill data, this intervention should be cost neutral to implement. Yet our patient surveys suggests that this is not being done routinely.

Avoiding readmissions to hospital
In 2017/18, the last full year for which figures are available, national 30 and 90-day readmission rates for COPD were 19.5% and 34.3% respectively,[32] while other research has found that approximately 40% of COPD patients with exacerbations are re-admitted or die within 90 days of discharge.[33]

These shocking figures mean that high numbers of patients are leaving hospital only to come back and increase demand shortly afterwards. It is known that resource constraints, lack of staff engagement and knowledge, and complexity of the COPD population are some of the key barriers inhibiting effective implementation of discharge bundles of care, which include a package of evidence-based measures that are known to reduce the risk of readmission.[34]

This serious issue will only be solved by improving basic care within hospitals, such as the implementation of discharge bundles, along within improving access to pulmonary rehabilitation (see section below) in order to better support patients.

Recommendations

- **Annual reviews for all lung conditions** – We want all those with lung conditions to be given an annual review and medication check every year to support their health and their ability to self-manage their condition.

- For those with well controlled conditions it may be appropriate for these reviews to happen via video call, but for those with poorly controlled symptoms this should be face-to-face. Those who experience poor control, including exacerbations, unscheduled care or overuse of reliever medication, should be called in for a proactive review and medication check.

- **Using patient data to improve their adherence to treatment** – When conducting an annual review for a patient who uses an inhaler, the clinician should review that patient's inhaler data and the number of refills they use annually in order to assess and improve their adherence to treatment. This process should include observation and optimisation of inhaler technique for each inhaler used by the patient.

- **Data and monitoring on annual reviews and medication checks** – The implementation of annual reviews and medication checks should continue to be monitored through the primary care respiratory audits.

- **Reducing hospital readmission** – National work to reduce hospital readmission rates (e.g. sharing best practice discharge bundles of care and fully implementing NICE asthma quality statement 25 on following up those who have received emergency care) in order to help reduce hospital demand, especially over the winter months.

Providing treatments that works

Too many people living with lung conditions are missing out on the treatments they desperately need to live and stay well at home. Current access is limited, patchy and being held back by workforce shortages.

Access to pulmonary rehabilitation for all those eligible
Pulmonary rehabilitation (PR) is a physical exercise and education programme, primarily used for those with COPD and conditions such as idiopathic pulmonary fibrosis. It helps keep people's lungs heathy and is delivered in a group setting by healthcare professionals including physiotherapists, nurses and occupational therapists.[35]

90% of those who complete a PR programme report higher activity levels and an improved quality of life. Evidence has shown that PR:

- improves people's mobility and capacity to walk further, while reducing fatigue when carrying out day-to-day activities[36]
- supports better self management, provides positive mental health impacts and good opportunities for peer-to peer support
- reduces both moderate and severe exacerbations leading to fewer hospitalisations
- is proven to be cost-effective, and is substantially below the NICE threshold for cost effectiveness.[37,38]

This makes PR an important treatment and is essential in helping people manage their lung condition well. NICE guidelines state that all those at 3 or above on the MRC breathlessness scale[39] should be offered PR as one of the five fundamentals of COPD care.[40]

One study found that completion of PR led to a 22.5% reduction in moderate exacerbations per year and a 46% reduction in severe exacerbations in a year.[41] With exacerbations making up the majority of COPD costs, this makes PR an essential tool in reducing the economic burden of the disease in addition to improving the quality of life for those with the condition.

Current provision of PR in Wales
Unfortunately, despite its effectiveness, access to PR is extremely limited. Our Life with a Lung Condition survey 2023 found that only 40% of eligible COPD respondents in Wales had received PR while only 22% have been offered PR.[42]

In November 2022 we published the results of a review of pulmonary rehabilitation services and found that many people were waiting 2-3 years for PR. Hywel Dda, Cardiff and Vale, and Betsi Cadwaladr UHBs had the highest waiting lists between 2 and 3 years. Hywel Dda estimate their waiting list is 160 weeks, whilst Cardiff and Vale are at 104 weeks. Due to the size of health board Betsi Cadwaladr split their PR service into 3 and the waiting lists vary from 48 in East and 50 in West, to 160 weeks in Central.[43]

This collapse in referrals to pulmonary rehabilitation is illustrated in the 2021 Wales primary care clinical audit which showed that only 5.6% of adults with COPD with moderate to severe COPD had been referred to PR in the past 3 years, whilst in 2020 the audit showed that 56.4% had been referred in the past 3 years.[44]

The impact of increasing access to PR for all those eligible
PwC analysed the impacts of expanding the availability of PR to all those eligible. Current referral rates to PR were assumed to be 13.8% and completion rates were assumed to be 4.3%, making the completion rate of the referral population 31%. The analysis assumed an increase in referral rates to 80% and completion rates within the referral population to 50%.

This expansion of PR was found to result in £7.7 million of direct NHS savings related to reduced exacerbations, as well as a reduction of 10,500 bed days, 3,500 of which would be saved over the winter period.

In addition, this change would result in productivity saving of just under £259,000 as a result of those with better controlled COPD becoming more economically active.

These figures strongly support the already well established fact that PR is an extremely cost-effective intervention.

Recommendations

- **Every PR service should have a full multi-disciplinary team** – Too many PR services are reliant on small number of staff. They don't have access to a full multidisciplinary team approach involving a range of key rehabilitation professionals such as occupational therapists, physiotherapists, exercise professionals, dietetic and psychological support. We would like to see every service having access to the full team so that patients can access a full pulmonary rehabilitation experience.
- **Wales should join the Pulmonary Rehabilitation Services Accreditation Scheme (PRSAS)** – In order to raise standards and improve quality, we would like to see RHIG funding the PRSAS in Wales. A nationwide contract would ensure that every PR team can access advice, support, training, and mentoring, and improve the quality of services.
- **The Pulmonary Rehabilitation pathway should be adapted to triage different patients into face-to-face services, virtual services and supported self-management** – We recommend that technological solutions should be considered to reduce waiting lists and supporter people with milder lung conditions who are able to benefit from virtual programmes.

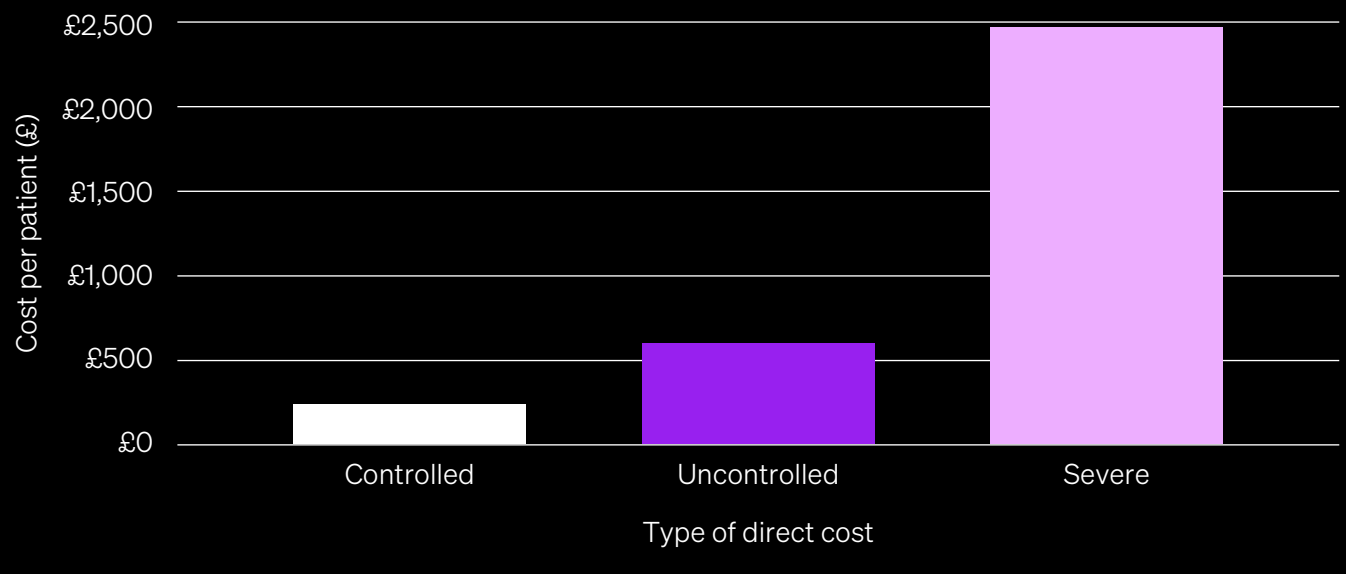
Access to biologic drug treatments for those with severe asthma

Severe asthma is a distinct condition which has an extremely significant impact on those affected. Over half of those with severe asthma have uncontrolled symptoms,[45] and many have to wait years receiving poor care before making any progress towards controlling their symptoms. This group also run the risk of serious side effects from extended periods on high dose steroid-based medication. While severe asthmatics tend to make up only around 5% of the total asthma population, such is the severity of their symptoms that this group is estimated to account for at least half of all economic expenditure on asthma.[46]

The analysis carried out by PwC found that costs for severe asthma patients were on average £2,477 per year, compared to £611 for non-severe asthmatics – just over 300% more.

While severe asthma accounts for only around 5% of the total asthma population, this is still over 9,000 people.[47] Such is the severity of their symptoms that this group is estimated to account for at least half of all economic expenditure on asthma – around £74 million a year.

Total per patient direct costs by controlled and uncontrolled non-severe asthma and severe asthma in 2023 (£)



Biologics can dramatically reduce the symptoms and number of exacerbations patients with severe asthma experience, and therefore significantly reduce the number of emergency admissions for respiratory care. Research demonstrates that biologics can reduce exacerbations by over 50%,[48] and our own 2020 patient survey found that 64% of severe asthma patients on biologics experienced reduced symptoms and 43% of these patients experienced reduced hospital admissions.[49]

However, despite their effectiveness, only small numbers of those with severe asthma are able to access these life-changing biologic treatments. Around three quarters of those with severe asthma are not currently receiving biologics,[50] and even after being referred to a specialist, the average waiting time before being initiated onto biologics is over a year.[51]

Recommendation

Health boards should provide (or commission) difficult-asthma services for people with severe or uncontrolled disease, which collaborate at national level to ensure consistency of provision and appropriate access to biologic therapy. NICE should develop a single comprehensive severe asthma guideline which makes clear how patients with suspected severe asthma can be recognised and referred to specialist care.

1 person

every 5 minutes

dies from a lung condition in the UK

Conclusion

Lung health in Wales is in crisis. Despite costing the health service a huge amount, people are diagnosed late, do not receive the treatment they are entitled to, and far too often, end up in hospital acutely ill as a result. Much of this suffering could be prevented with consistent delivery of care in line with existing clinical guidelines.

We cannot solve these problems overnight, but the solutions are clear, and evidence based. Our analysis shows they will save the NHS money and bed days, as well as benefitting the wider economy. We know what will work, but we need the will to do it.

One year on from the publishing of the Quality Statement for Respiratory Disease, things have not improved and it is unclear what benefit the NHS Wales Executive will make. The Welsh Government must take this report seriously and implement our blueprint for change urgently. The hundreds of thousands of us living with a lung condition, and the many more who will develop one in future, deserve no less.

We're calling on politicians to act now!

About this report

This report was written by Joseph Carter and Jon Foster, based on a technical report prepared by PwC and analysis carried out by Asthma and Lung UK. Data sources are listed in appendix 1.

Special thanks to Sarah MacFadyen, Laura Williamson, Henry Gregg, Anna Francis, Andrew Cumella, Andy Whittamore and Nick Hopkinson for their help in drafting this report.

Appendix 1: Data sources

1. The technical report produced by PwC upon which this report is based can be found **here**.

2. Respiratory emergency hospital admission age-standardised rates per 100,000 in 2020/21 were obtained from HealthMapsWales. (www.healthmapswales.wales.nhs.uk/data-catalog-explorer) for Local Health Boards. These were ranked from lowest to highest to create the map.

3. Respiratory mortality age-standardised rates per 100,000 in 2021 were obtained from HealthMapsWales for Local Health Boards (ICD-10 codes J00-J99) (www.healthmapswales.wales.nhs.uk/data-catalog-explorer). These were ranked from lowest to highest to create the map.

4. To create the map of Local Health Board ranking by respiratory admissions and death rates, the average of both the respiratory admission rate rank and the respiratory death rate rank was taken. This average rank for each Local Health Board was then ranked to provide an overall rank.

Rank (1 is best)	Local Health Board	Respiratory admissions (per 100,000)	Respiratory deaths (per 100,000)
1	Powys	897.1	95.9
2	Hywel Dda	1125.6	97.6
3	Betsi Cadwaladr	1370.1	108.0
4	Cardiff + Vale	1245.0	111.7
5	Aneurin Bevan	1092.0	118.5
6	Swansea Bay	1162.8	122.9
7	Cwm Taf Morgannwg	1594.9	134.9

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