



Out in the cold

Lung disease, the
hidden driver of
NHS winter pressure

December 2017

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Foreword

Out in the cold lays bare the steep rise in lung disease admissions to hospitals in recent years and the effect the seasonal rise in lung disease admissions has on the health service over winter.

If you spoke to nurses and other health professionals throughout the health service, they will all be aware of the increase in lung disease flare-ups over winter. Patients with long standing lung conditions become more prone to exacerbations. We all become more at risk of flu or another respiratory infections, and our children are particularly vulnerable.

All of us want to provide better care and treatment to people with lung disease. Never a national priority, improvements in lung services are often made locally by one or two committed health care professionals. This is not sustainable as we know approximately half of respiratory nurse specialists could retire within the next five years. Some of these improvements are highlighted in this report and are commendable. However, this leaves wide variation in hospital, community, primary and ambulatory care, not only between geographical areas, but within them too.

It is a great shame that lung disease isn't more of a priority within NHS reform. As this report shows, there is much that could be gained from system-wide improvements in respiratory care and treatment. Tackling the burden of lung disease for the winter months, in a timely manner will be better for patients and reduce the pressure on our committed workforce.

Much of this change will be, and should be, driven by nurses. Not just those working in hospitals, but the community teams who provide self-management support, who are often the first port of call for patients when conditions flare-up and are the overlooked wrap around care they need when they come out of hospital. And, of course, it's nurses who will be giving out most of the flu jabs this winter.

I hope this report will be taken seriously by policy makers, commissioners and professionals. We are all concerned about how our NHS will cope over winter: taken together, the recommendations here could give us improvements for the years to come.



Wendy Preston
Head of Nursing Practice, Royal College of Nursing

A winter's tale



For many winter is a magical time of year. For people with lung disease, however, it can be a source of worry and concern. Every winter hospitals and GP surgeries see an influx of people with lung conditions. Cold weather can bring on what people call a flare-up.

People living with lung disease refer to this as a sudden gasping for breath and tightening of the chest that feels like suffocating or drowning. They would rather go straight to hospital than sit at home and fear the worst. Many people never regain the health status they had before their exacerbation. It makes them permanently weaker and more breathless. It can also lead to an accelerated deterioration in their condition.

Over the last seven years lung disease admissions to hospital have risen at over three times the rate of all other conditions.¹ Crucially, we need to recognise that these lung disease admissions are at the heart of our winter pressures.

Our A&Es are under extreme pressure. There are actually more people going to A&E in the summer, but many go home after treatment for physical injuries without needing a bed. The picture changes in winter as proportionally more people who attend need to be admitted for treatment. It is this rise in admissions and the need to find hospital beds during winter that continuously pushes our A&Es into black alert. This wholly predictable seasonal rise is in people being admitted with lung disease. There are almost 80% more respiratory admissions in the winter months of December, January and February than in the warmer spring months of March, April and May.

The most common causes of winter admissions in adults are pneumonia, lower respiratory tract infections (LRTIs), chronic obstructive pulmonary disease (COPD) and, in children under five, it is bronchiolitis. We've known this for years, but have done little to adapt our hospital services to address it.

Lung disease has always had a much larger impact on the health service than most people think. The third most common cause of death, lung disease costs the NHS and patients around £9.9 billion each year.^{2,3}

Sadly, it's working its way up the NHS agenda for the worst reasons. Unlike other major disease areas, our lung disease mortality rate hasn't improved in over a decade. We now have the fourth highest in Europe.^{4,5,6}

Lung disease shows no sign of going away, either. We've often taken comfort in our low smoking rates, but we've failed to realise the increasing proportion of lung conditions which are unrelated to smoking, the long term legacy of former smoking rates, illegal levels of air pollution, and the increasingly important link between ageing and the development of lung conditions. The number of people with COPD is set to increase in the next fifteen years⁷ and asthma rates will remain stable.

As our analysis shows, the only other major cause of admission that peaks during winter months is infectious disease, but the numbers affected are a fraction of those affected by respiratory infections.

This report explores how we can take a more seasonal approach to supporting people with lung disease, reduce unnecessary attendances and admissions, and ultimately improve care and outcomes. We are aware that many of these changes cannot be implemented in time to help with this winter's pressures. Now is the time to talk about the urgent changes we need to make before increased admission times and delayed discharge mean that people are not taken care of in time and lives are needlessly lost.

This is not intended to be a granular roadmap of recommendations. It is the beginning of a much needed discussion.



Penny Woods
CEO

“Cold weather affects most of us, it is almost like having a rope tied tightly round the chest which restricts the ability to breathe in.”

Gerry, who has COPD

Recommendations

To reduce the pressure that lung disease emergencies place on the health system in the short term, we need to:

- Improve our prevention strategy, to reduce general respiratory infections and help people who have an existing lung condition to better manage it themselves and reduce the risk that their condition will flare-up
- Strengthen community care and support outside of hospital, so patients are confident that they do not need to go to emergency departments to get the care they need
- Acknowledge the growing number of unavoidable respiratory admissions in winter, and adapt our hospital services to address this seasonality
- Ensure that people leaving hospital are given consistent and reliable assessment, treatment and follow up in the community to reduce the risk that they'll need to be readmitted to hospital
- NHS England and commissioners need to improve their evaluation of pilots and system reform to better inform future practice. Where there is best practice, more needs to be done to share it consistently across the country.

In the long term, we need a more strategic approach to improving the care and outcomes for the millions of people who have been diagnosed with a lung condition in England. The British Lung Foundation has established a Taskforce for Lung Health to produce a new five year strategy.

This achievable yet high impact strategy will transform outcomes for respiratory disease. The taskforce's recommendations will be developed to inform the next Five Year Forward View, aligning with wider changes in the health service.

The government must formally endorse the taskforce and ensure its recommendations are taken forward as part of the wider strategy for the health services.

We would encourage all interested individuals and organisations to engage with the consultation process throughout 2018, to ensure that we have the most effective strategy possible.

Please contact Lucy Bramwell at lucy.bramwell@blf.org.uk for further information.

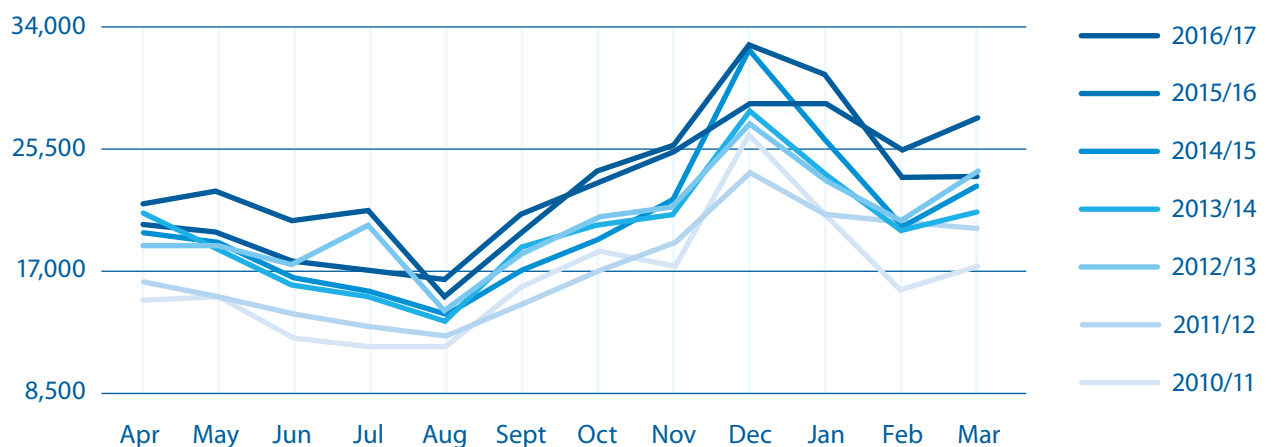
Overview of lung disease and emergency departments

Respiratory disease is unique in its extreme seasonal variation. A systematic winter surge has combined with an overall increase in respiratory admissions to become a severe problem for emergency departments in colder months.

Hospital admissions for lung disease have risen over the past seven years at three times the rate of all admissions generally. Between 2010–11 and 2016–17 the number of annual hospital admissions for respiratory disease increased by 77,142. This is the largest increase in admissions seen in any of the most commonly diagnosed conditions at emergency attendance, including cardiac and gastrointestinal conditions.⁸

In 2016–17 there were 287,789 admissions for respiratory disease. Of these, 87,177 were made in the winter months of December, January and February, which represents 80% more admissions than in the warmer spring months of March, April and May. This annual fluctuation has been repeated over the last seven years of data we reviewed.

Figure 1: Seasonal variation of respiratory disease admissions



Source: Hospital Episode Statistics, NHS Digital.

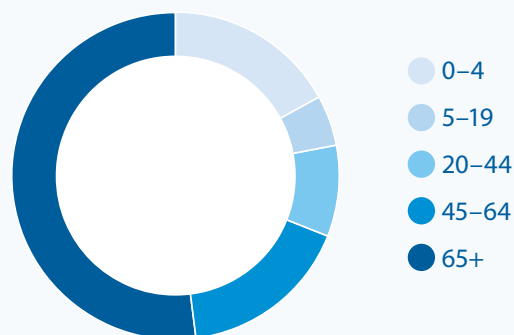
Note: These figures are a count of unplanned accident and emergency department attendances resulting in admissions and a primary diagnosis of respiratory condition in each month for the financial years between 2010–11 and 2016–17.

In winter there is overwhelming pressure on limited specialist clinicians and on emergency departments receiving many of these patients. This is because attendances at emergency departments and admissions to hospitals are not spread evenly across the year for respiratory disease.⁹ In 2015–16, there were 676,079 attendances at emergency departments for respiratory conditions. Of this group, 41.2% of attendances resulted in hospital admission, representing a large proportion of patients coming into hospital through an emergency department.

Our analysis of Hospital Episode Statistics data and information from NHS trusts in England has shown further significant trends in respiratory admissions:

- In 2016–17, respiratory admissions peaked in December at 32,492 – far above the average of 10,652 for the 20 most common disease areas.
- Respiratory admissions in December saw a steep increase of over 35% on the monthly average for the year, which was 23,982.
- The great majority of respiratory admissions are infants and children aged one to four, and older people aged 65 and above (see figure 2). These two groups made up 71% of all respiratory admissions in 2016–17.
- As a disease area, respiratory is behind only cardiac and central nervous system diagnoses for the proportion of emergency attendances who are then admitted to hospital.

Figure 2: Average total respiratory admissions 2010 to 2016 by age group



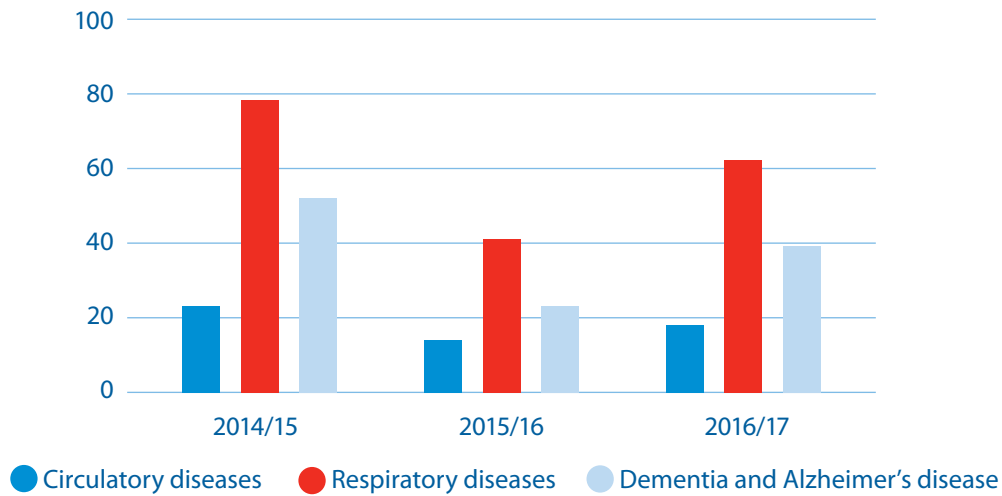
Source: Hospital Episode Statistics, NHS digital.

Notes: This data is based on a count of unplanned accident and emergency attendances resulting in an admission and a primary diagnosis of respiratory condition, tabulated by month and age category for the financial years between 2010–11 and 2016–17.

Additionally, we know that respiratory disease places a significant burden on hospitals and increases mortality rates:

- The Office for National Statistics found that respiratory disease has the greatest seasonal variation of mortality. In 2016–17, 61.9% more people died from a respiratory condition in the winter compared with the non-winter months.¹⁰
- Respiratory conditions were the underlying cause for 36.4% of all excess winter deaths in 2016–17.¹¹ This equates to 12,500 excess winter deaths.¹²
- Pneumonia and COPD account for the greatest proportion of these deaths, but the range of bacterial and viral respiratory pathogens – such as influenza – are also significant.¹³

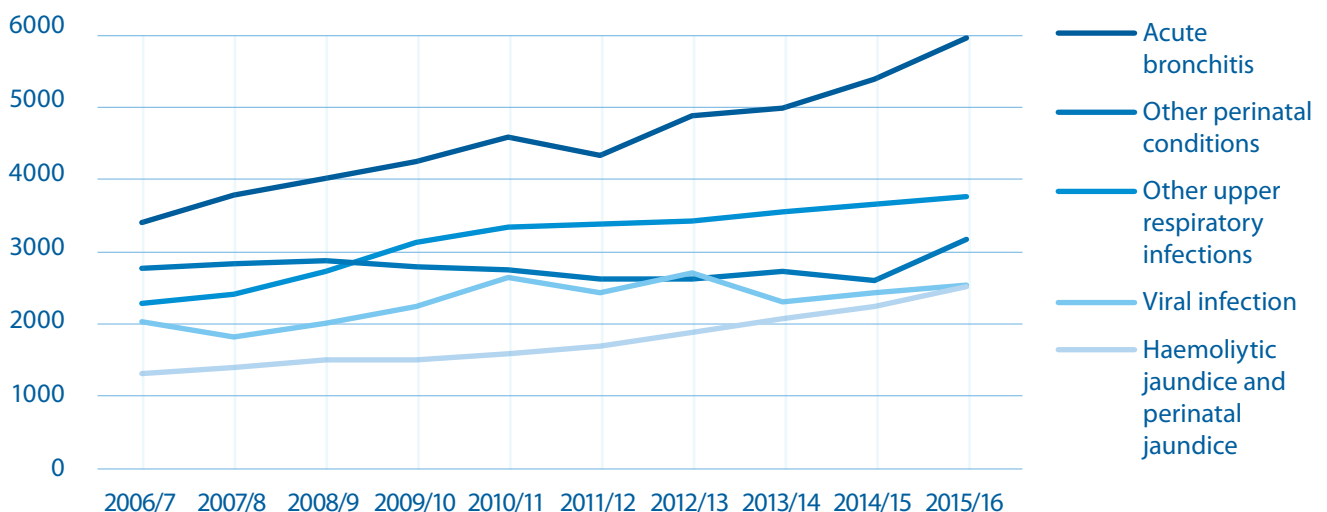
Figure 3: Excess winter mortality index, by underlying cause of death, England and Wales 2014/15–2016/17



Source: Office for National Statistics (2017) *Excess winter mortality in England and Wales, 2016/17 (provisional) and 2015/16.*

Finally, the QualityWatch report on emergency hospital care for children and young people (2017) demonstrated the extent to which emergency admissions for infants are dominated by respiratory. The top three most common conditions diagnosed on emergency admission for infants in 2015/16 were acute bronchitis at 39,122, other perinatal conditions (including diagnoses relating to feeding and respiratory) at 24,848, and other upper respiratory infections (20,940). Most of the admissions recorded under the broad category of 'acute bronchitis' will be for bronchiolitis, a common type of respiratory infection that affects babies and young children. It is notable that admissions for bronchiolitis have risen sharply in recent years.

Figure 4: Emergency admission rates for the five most common conditions for infants, directly standardised rates per 100,000 population aged 0, 2006/07 to 2015/16



Source: Quality Watch (2017) *Focus on: Emergency hospital care for children and young people.*

Recognising the seasonal pressure of lung disease admissions

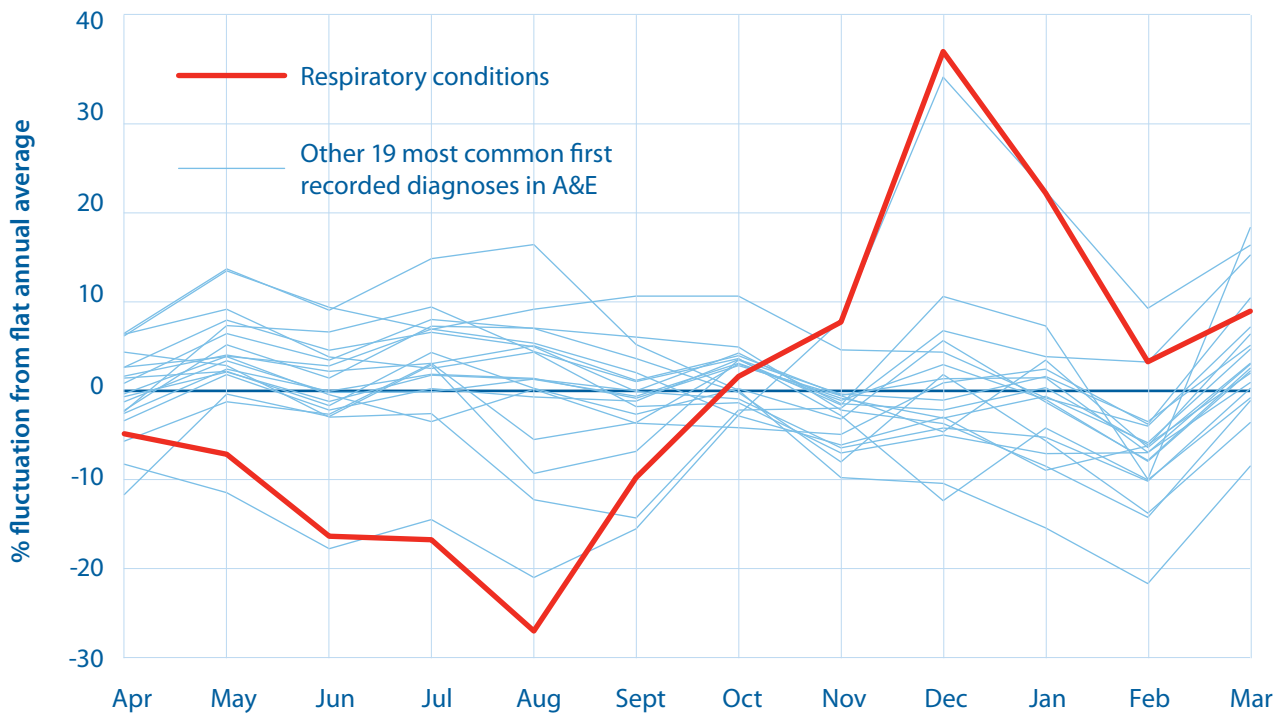
Emergency departments frequently and increasingly hit crisis point during winter months. They are stretched hugely by the increased demand outlined above, in part caused by the seasonal change which brings colder, damper weather plus influenza and other viral outbreaks.¹⁴ The huge contribution of respiratory disease to these crisis situations must be recognised and addressed.

The rise in respiratory admissions combines with various issues to create the tipping point situations we've come to expect in winter. Delayed transfers of care and increased emergency department demand lead to high bed occupancy in hospitals over the colder months. Delayed transfers of care refers to the significant number of beds which remain occupied by patients who are fit to be discharged but cannot leave.¹⁵ High occupancy of beds limits flexibility and responsiveness, and ultimately the resilience of hospitals. Occupancy above the recommended 85% is dangerous for patient safety; but on 25 January 2017, nearly four out of ten trusts had bed occupancy levels over 98%.¹⁶

The number of people needing to be admitted into hospital from emergency departments is significantly higher in winter, while the actual number of attendances at emergency departments drops.¹⁷ In the common situation where hospital wards are unable to accept any more patients for admission, handovers between ambulances and emergency departments lengthen as the hospital struggles to find room, and new patients end up in corridors rather than wards.¹⁸ Increasingly commonly, ambulance diversions are also put in place when hospitals cannot accept any further patients into A&E.¹⁹ Between December 2016 and February 2017, ambulances were turned away from emergency departments almost 500 times and sent to other hospitals.²⁰ This is a near doubling of the number of diversions seen in the previous three years.²¹

Patient flow is therefore gridlocked because extreme strain on capacity makes it impossible for new patients arriving at emergency departments to receive the bed space, treatment or even discharge they need within the four hour target. By the end of 2016–17, the number of attendances seen within four hours or less fell to 81% – the worst level since the introduction of the target.²²

Figure 5. Average fluctuation in monthly admissions over financial years 2010 to 2017



Source: Hospital Episode Statistics, NHS Digital. Acquired through Parliamentary Questions

Note: These figures are based on the average monthly unplanned accident and emergency attendances, resulting in admission, over the financial years 2010–11 to 2016–17. The figures expressed are proportional rise or fall in admissions in each month, for each diagnosis, compared to a flat average if all admissions of that diagnosis were consistent throughout the year.

The 20 most common first recorded diagnoses in A&E are: Diagnosis not classifiable; Dislocation/fracture/joint injury/amputation; Gastrointestinal conditions; Soft tissue inflammation; Sprain/ligament injury; Laceration; Respiratory conditions; Cardiac conditions; Contusion/abrasion; Ophthalmological conditions; Head injury; Nothing abnormal detected; ENT conditions; Urological conditions (inc cystitis); Local infection; Central nervous system conditions (exc stroke); Muscle/tendon injury; Infectious disease; Poisoning (inc overdose); Gynaecological conditions.

The significance of lung disease on winter pressures

We need to better manage lung disease in all parts of the health care system to help prevent the crises outlined above.

While many of us may have an image of emergency departments filled by people with fractures from slippery conditions in winter, this is simply not reflected in the statistics. We've shown that lung disease is almost unique in its high seasonal variation, greater than either heart disease or fractures.^{23,24} Admissions for infectious disease follow a similar seasonal pattern to respiratory, reflecting how the winter environment helps to spread infection through bacteria and viruses linked to both classifications. However, it is worth noting that there were over 3.5 times more respiratory admissions than there were for infectious disease in 2016–17, so infectious diseases will have significantly less impact on the system.

The winter respiratory burden is linked to both patients with flare-ups in existing respiratory conditions such as COPD, and typically seasonal respiratory infections. In young children and infants, bronchitis remains the most common cause for emergency admissions, and is also the second most common condition for admission in all children and young people aged 0–24.²⁵

Both types of condition can be linked to the indoor environment and distribution of infectious illnesses in winter:

- Flu and flu-like illnesses particularly affect older people, children, and those with pre-existing conditions.²⁷ In winter, transmission of viruses is far greater, causing an annual flu season. With an ageing population, it is likely that related emergency admissions will continue the upward trend. Over recent winters, significant levels of excess mortality have been seen, particularly in the elderly.²⁸ In 2016–17, excess mortality peaked for all ages between the second week of November and the end of February.²⁹
- The strong seasonal patterns of hospitalisation shown for COPD is thought to be at least in part linked to the increase in viral infections circulating in cold, damp conditions.³⁰ The most common respiratory virus detected at a COPD exacerbation is the rhinovirus – a main cause of the common cold – which in itself is shown to be more common in winter.³¹ COPD exacerbations are consistently around 50% more likely in winter, and often lead to hospitalisation.³²

Policy background

Both the government and NHS are acutely aware of the winter pressures facing emergency departments. The NHS Outcomes Framework for 2016–17 outlines reducing deaths from respiratory disease as a key indicator and priority area. In October 2017 NHS England unveiled new measures, alongside Public Health England, the Department of Health and NHS Improvement, to increase flu vaccination uptake and implement wider contingency plans to respond to winter pressures. The announcement included increasing the scope of the flu vaccine programme, and setting up a new National Emergency Pressure Panel to provide clinical advice on risks to the system. This follows the secretary of state's announcement for additional funding (£20.7m) to ease pressures on A&E departments ahead of the winter in 2017–18.

There are a number of NHS vaccine programmes which help to reduce respiratory infections in winter. The vaccine against pertussis, or whooping cough, which is administered during pregnancy aims to reduce the outbreak of respiratory infections over winter in particular. The pneumococcal vaccine, known as the pneumonia vaccine, for people over 65 similarly protects against potential fatal pneumococcal infections.

Last winter, many hospitals planned to cancel elective operations and appointments. This allowed senior doctors to focus on emergencies and discharging patients who were fit to leave.

However, aside from vaccination programmes and communication campaigns, little is in place to address the respiratory burden specifically. Only ten out of 104 hospital trusts who responded to our requests for information on their 2017–18 winter plans reported intending to assign additional beds for respiratory admissions, which is a key way to ensure respiratory patients receive care from respiratory clinicians.

What can we do to change?

As in most areas of health policy, there is no single, simple solution to improving lung disease outcomes or helping the NHS manage the increasing pressure lung disease causes over winter. However, there are clear steps we can take to improve services and support for patients.

With longer term planning, we could avoid the situation where emergency measures have to be put in place every winter to deal with the entirely predictable increased seasonal demand.

We must revisit our prevention strategy, and the primary and community services which keep conditions stable and stop people sliding down the 'slippery slope' to emergency departments. We need to improve pathways in and out of hospital. However, most critically, we need to ensure the whole health and social care sector recognises the seasonality in lung disease admissions, and takes action to adapt to it.

1. Improving our prevention strategy

Effective prevention is as important for people with a lung condition as it is for the NHS. There are a range of measures which could help diagnose conditions earlier, help people to manage them and reduce the risk of an exacerbation in winter.

Infection control

People with long-term lung conditions who then get flu and/or pneumonia are known to have a more serious illness and are more likely to die as a result of it. Although the effectiveness of vaccinations can vary, they remain the most cost effective intervention for example for people with COPD, and the best population level defence against an outbreak of flu.

Compared with most countries, the UK has a commendably high uptake of the flu vaccine in over 65s. However, the uptake in patients with chronic lung conditions is substantially lower.

“ I regularly use my medication, get the flu jab and I had a pneumonia vaccine. In the past, I have been prescribed preventative antibiotic therapy and these did reduce exacerbations. I also hold emergency antibiotics and oral steroids. I have not had to attend A&E or be hospitalised for emergency respiratory care ”

Margaret, who has COPD

Target group for free NHS vaccine	England uptake 2016–2017
All patients aged 65 years and over	70.5%
All patients under 65 years, in a clinical at-risk group	48.5%
Patients with chronic respiratory disease	48.5%
Patients with chronic heart disease	48.5%
Patients with diabetes	64.7%
Patients with chronic neurological disease	49%
Patients with morbid obesity	30.4%
All two year olds	38.9%
All three year olds	41.5%
All four year olds	33.9%
All children in years one and two	55.1%
All pregnant women	44.9%
Carers (aged under 65 years, not at-risk, not pregnant)	41.9%
Healthcare workers	63.2%

Source: Public Health England (2017), *Seasonal influenza vaccine uptake in GP patients in England: winter season 2016–17*.

We need to do more to address this. Vaccination should be made available as easily as possible. We must also work harder to tackle the unfounded fears and myths, in both the public and some medical professionals, which deter people from having flu jabs.³³ This will ensure people are not taking an unnecessary gamble with their health at the most dangerous time of the year for their condition.

We were delighted to see NHS England, Public Health England, the Department of Health and NHS Improvement unveil a range of measures intended to boost the uptake of flu vaccinations among health and care staff, including those working in care homes. We look forward to seeing the results of this initiative, for patients and staff, and building on them. There is already good evidence that NHS staff influenza vaccination rates can contribute to reduced sickness absence during winter months – a 10% increase in vaccination rates was associated with a 10% fall in sickness absence.³⁴

Given the particular severity of flu for people with lung conditions, we should also ensure that their carers are more actively encouraged to have a vaccination as standard practice to prevent the spread of disease.

Finally, it is worth noting that 15.8% of COPD patients do not receive a flu vaccine either because they have an allergy (this is uncommon) or because they have declined it (this is common). GPs can maximise their financial incentives by ‘exception reporting’ these people and so remove them from the denominator by which they are measured. There is variation in this type of exception reporting between practices, which suggests that some may be doing more than others to ensure their patients take up the vaccine. Given this, we think there is cause to review the scheme.

Early diagnosis

The proportion of people with COPD and lung cancer who are first diagnosed in emergency departments is very concerning and should be addressed.³⁵ More than a third (35%) of lung cancer cases in England are diagnosed after presenting as an emergency; the vast majority are diagnosed at a late stage (87% at stages III or IV).³⁶ Similarly, COPD has one of the highest under-diagnosis rates of all diseases.³⁷ NHS England estimate that around two million people have COPD which remains undiagnosed.³⁸ Recent studies have found that seven per cent of patients admitted to hospital with an exacerbation of COPD did not have a prior diagnosis.³⁹

Evidence shows that addressing COPD as early as possible can lead to reduced mortality, reduced severity of condition, reduced need for costly interventions and medications, and can lead to fewer days of work being lost.⁴⁰

Case study – The British Lung Foundation's Online Breath Test

Since July 2016, the BLF have been using targeted social media advertising to encourage people who feel increasingly out of breath to take an online breath test. Through a series of questions, the test determines the person's score on the Medical Research Council's breathlessness scale. Those with an MRC score of 2 or above are encouraged to see their GP for follow up; those with lower scores are given immediate reassurance.

So far, 330,000 people have taken the test, 70.5% of whom had MRC scores of 2 or above, meaning that they have to walk more slowly than other people because of their breathing. We would encourage Public Health England to consider how their future respiratory symptom awareness campaigns can use this award-winning tool.

Nationally, we are supportive of Public Health England's continued commitment to the Be Clear on Cancer early diagnosis campaign and NHS England's decision to extend the Manchester lung cancer screening pilot to four areas of the country. However, there is more to be done more generally to diagnose lung disease earlier. Health care professionals need to be more responsive to breathlessness in patients.^{41,42} Furthermore, NHS England pilots have shown that local decision-makers could benefit from integrating case finding initiatives with specialist care and diagnosis.

Finally, it is also important to note from the National COPD Hospital Audit in 2015 that 50% of people admitted and diagnosed with COPD did not have spirometric evidence of the condition. There appears to be a risk here that respiratory illness presenting as an emergency may not undergo systematic structured evaluation of cause, due to pressure on beds and the need to discharge quickly, with the most 'convenient' diagnosis being applied at the time. An inaccurate diagnosis for patients can lead to years of inappropriate medical treatment, poor health outcomes and reduced quality of life.

Case study – NHS England breathlessness pilot: Wessex Academic Health Science Network (WAHSN)

In March 2016, NHS IQ concluded a national pilot programme which aimed to improve speed and accuracy of diagnosis in patients experiencing the symptom of breathlessness. The scheme had three sites to test new models of care, all of which showed signs of success. One example is the WAHSN.

The pilot followed three stages of delivery:

- Stage 1. 'High-risk' patients were identified by using a case finding tool called GRASP⁴³ to scan practice records for symptoms associated with breathlessness.
- Stage 2. They were then invited to a 'one-stop shop' clinic based in their local surgery. This clinic bridged the gap between primary and secondary care by bringing in a respiratory consultant, an expert respiratory nurse, a biomedical scientist, specialist registrars and physiologists. Cardiology consultants were also on call to advise. The carousel-style clinic allowed patients to move between rooms over the course of an hour – first having physiological assessments and undergoing various other tests where necessary, then meeting with a respiratory consultant for medical review and diagnosis, and finally receiving support to understand and manage their diagnosis.
- Stage 3. One month on, patients were invited to return to their GP surgery for a 'mentoring' follow-up clinic to discuss their experience, treatment use and condition management.

Feedback from patients was overwhelmingly positive and receiving a definitive diagnosis optimised treatment and reduced anxiety. The scheme saw a reduction in secondary care referrals as teams were able to conduct tests which wouldn't normally be possible because of expertise and equipment (including ECG, spirometry, basic metabolic panel, blood pressure, skin prick testing). Furthermore, the scheme strengthened relationships between primary and secondary care, and spread expertise and understanding.

In the six months following the pilot clinic there was a reduction in the number of exacerbations amongst patients by 93% and a decrease of 100% in their visits to emergency departments. Overall they estimated there were significant cost savings for NHS England on secondary referrals and avoidable admissions (£142 cost of clinic per patient compared to £241 tariff for outpatient appointment).

We would recommend that STPs review this pilot and explore if learning can be adapted to their local service and needs.

Self-management

Self-management is key to improving quality of life for people with lung conditions and reducing exacerbations. It is a highly cost effective intervention. However, the health service often fails to give patients access to self-management tools and programmes, or the support to use them effectively.

For example, people with asthma are four times more likely to end up in hospital with an asthma attack if they don't have an Asthma Action Plan. Despite this, the latest Annual Asthma Survey by Asthma UK (2016) found that 58% of patients still haven't agreed one with a clinician.

Pulmonary rehabilitation should be offered to anyone with COPD with a Medical Research Council (MRC) breathlessness grade of 3 or more. People with COPD who attend pulmonary rehab classes spend 50% less time in hospital, are 26% less likely to be readmitted and have lower levels of related anxiety and depression. However, recent audits have found that two thirds of those eligible aren't referred.

This failure to deliver this NICE-recommended treatment has severe consequences for patients and emergency services. A recent analysis by the Chartered Society of Physiotherapists found that, if everyone eligible in England received a referral for physiotherapy-led pulmonary rehabilitation, we would see in a year:

- A reduction of 1/3 of exacerbations in this patient population. This equates to 150,924 fewer exacerbations, potentially freeing up this number of GP appointments
- 26,633 avoided hospital admissions, leading to
- 106,532 hospital bed days saved.

“ I have the lung condition IPF, and my husband has COPD. We both find the cold affects our breathing by literally taking our breath away.

We are lucky that we have a respiratory support group which was started nine years ago. In that time only two members have been hospitalised for respiratory complications. This shows that support with exercise and visits from professionals in aspects of wellbeing are invaluable. ”

Ann Bennett, who has IPF

CCGs and STPs need to take a lead in commissioning and promoting these NICE-approved aspects of care and ensure that the community services which support them are effectively commissioned.

For further guidance on what effective self-management of COPD looks like, we advise that patients and healthcare professionals look at the British Lung Foundation's self-management pack. All patients should have an Information Standard accredited self-management plan.

Furthermore, we encourage all GPs to check the location and contact details of their nearest Breathe Easy group. The British Lung Foundation supports over 230 of these voluntary groups throughout the UK. These are groups of people with a lung condition – as well as their friends, family and carers – who typically meet once a month, for mutual support, awareness raising and education. You can find your local group at blf.org.uk/support.

Smoking

Stopping smoking is one of the most positive steps smokers with lung conditions can take to improve their health. It is accepted as the only intervention that will slow the rate of lung function decline in conditions such as COPD. Stopping smoking completely is associated with a 43% decreased risk of hospitalisation for smokers with COPD.⁴⁴ Significantly for the health service, it can also reduce the number of flare-ups a smoker might have, improve their recovery time from an exacerbation and decrease risk of further serious respiratory infections.

However, smoking cessation therapies and stop smoking services are under-offered by health professionals and most local authorities have reduced funding for stop smoking services,⁴⁵ despite it being extremely high value care. It's vital that all providers of health care implement relevant NICE guidelines to ensure that all people who are still smoking are consistently offered opportunities and support to quit. This should include acute, maternity and mental health services, as well as primary care.

The lack of stop smoking support isn't just an out-patient issue; fewer than one in ten hospital in-patients who smoke are offered help to quit.⁴⁶ Seventy per cent of smokers who are already attending hospital say they would like to stop, and these patients must be given the right support to help them quit smoking and increase their chances of staying in good health. A hospital best practice tariff for smoking cessation is needed to ensure that this is delivered systematically.

Improving attempts to quit is as much about training health care professionals to be confident and effective in discussing smoking cessation as it is about targeting patients with interventions. We are pleased to see a commitment in the Tobacco Control Plan to provide access to training for all health professionals on smoking cessation.⁴⁷

2. Diversion – Making sure that patients don't slide down an unnecessary 'slippery slope' to emergency departments

People often talk about the 'slippery slope' to emergency departments. This is where patients are moved through the system into emergency departments when in reality they could have been intercepted earlier on, and given better and more timely care outside hospital.

Creating a system that does this can be difficult. We have to ensure that health care professionals outside of hospitals are given decision making support and training so they can be confident in making choices about patient care. Otherwise it will be understandable that they will remain very cautious, not least because severe breathlessness is very distressing and frightening, to patients, carers and even healthcare professionals.

Supporting paramedics

Although often the first medical professionals to reach a patient, paramedics have historically been isolated clinicians. Current incentives encourage them to be risk-averse, so lung disease patients are taken to hospital, rather than starting a treatment pathway.

There are now new systems being piloted which empower paramedics. The London Ambulance Service (LAS) uses a system called *Coordinate My Care (CMC)*,⁴⁸ an NHS service available across all 32 CCGs in London. It was developed to give patients, together with health care professionals who know them well, an opportunity to create a personalised urgent care plan which is shared electronically with other professionals, and can be accessed 24/7 by the LAS, 111 clinicians, out-of-hours GPs and emergency departments.

The care plan is intended to be a 'what to do if...' guide, in order to inform the frontline staff who may not have this expertise or confidence. Urgent care services report that the most useful care plans include a) ceiling of treatment decisions that indicate whether conveyance to hospital is appropriate or not, b) contact details of those professionals and services that know the patient and can give further advice and c) information on the patient's usual functional status and appropriate metrics, to inform the level of concern.

CMC was initially developed as an end of life care plan, but the data fields included are applicable to all urgent care scenarios. Increasingly, care plans are being developed for patients (adults and children) with a wide range of long-term conditions, including lung disease. Currently, 10.8% of care plans are for people with lung cancer, and 6.2% for people with other lung diseases.⁴⁹

Establishing these systems requires sharing patient information and working across primary, community and ambulatory care.

Linking patients to specialist respiratory advice outside of hospital

We welcome NHS England's current reform of the NHS 111 service, which will give 111 staff the option of directing a call to a 24/7 respiratory health team. However, this service is limited by its lack of access to patient records and, as they can't see the patient face to face, it may be difficult for them to make as effective a decision about treatment options as a local GP or respiratory specialist nurse.

There are other ways of ensuring that respiratory expertise is accessible outside of the acute setting. Those areas which have invested in developing community respiratory services have found that they can help in managing exacerbations. For example, Berkshire Health Trust's respiratory community team offer a 'rapid response' service, which can see a patient in their home or in the community within two hours. The development and improvements in the service have shown a significant improvement on the admission rate for those patients with a primary diagnosis of COPD.⁵⁰

Those areas which have integrated respiratory care between hospitals, community and primary care find that it not only enhances care for the patient, but increases knowledge and understanding outside hospital too. This is important for clinicians and for patient confidence.

Care study – Care Integration: Staffordshire and Stoke-on-Trent NHS Partnership Trust

Within the Stafford and Surrounds and Cannock Chase Respiratory and Home Oxygen Service many different aspects of the service work towards enhancing patient care and promoting self-management, which they found has ultimately led to a reduction in hospital admissions.

Hospital respiratory physicians work closely with their services, providing twice-weekly multi-disciplinary meetings within the community, as well as meetings in GP practices. Each meeting is attended by a specialist respiratory physiotherapist, specialist respiratory nurses and their local community-based home oxygen service. It offers the opportunity to discuss complex patients, and deliver a co-ordinated, patient-focused care plan which incorporates palliative care and social services.

In addition to ongoing management, education and support for any respiratory condition, their respiratory teams offer a responsive service to patients who are acutely unwell and need support during an exacerbation. This flexible approach provides care closer to home.

Support from other services such as the community intervention Service enable them to provide a seven day service to wrap around the patient. Incorporated within the service is a community-based pulmonary rehabilitation course which offers a full educational programme as well as the exercise element.

3. Managing additional demand over winter

As our analysis demonstrates, lung disease admissions are seasonal, with a greater proportion coming over winter months. Even if we implement all of the other recommendations in this report, we won't be able to put a complete end to this seasonality. We need to set up our health system to recognise it, plan accordingly and help people with a lung condition prepare.

In primary and community – timing our prevention initiatives, contact with respiratory patients and training

As the health system moves away from incentivising interventions to incentivising outcomes, there is fertile ground for health care professionals in primary care to revise how they adapt their service to recognise the increased risk of an exacerbation over winter.

For example, it has been suggested that primary care could conduct more annual asthma reviews over summer months to ensure patients are prepared for winter. This will require general practice to be more flexible in their availability over summer to ensure that stable patients are seen. They may be less inclined to attend if there isn't a time which suits them and they do not feel unwell.

In addition to supporting patients in advance of winter, this should also free up capacity in winter to handle the great number of people who have exacerbations over this period or have other warning signs such as reliever over-reliance. Overuse of reliever inhalers was a missed opportunity for forewarning of 40% of the total asthma deaths in National Review of Asthma Deaths (NRAD)⁵¹. IT systems in general practice can readily identify overuse of reliever medication and underuse of preventer medication. People with overuse of reliever medication should be identified and assessed as a matter of urgency.

“ Winter always presents a huge challenge for me as a COPD sufferer. As a result I've been admitted to A&E more in this period, especially when I lived in London, most likely because of the 'winter smog'. It's always a terrifying experience because I tend to be more vulnerable, getting infections more frequently. And it feels like my chest tightens more than usual, where I experience severe wheezing, coughing and extreme breathlessness. ”

Kim Lam, who has COPD

There may be a benefit to encouraging a more seasonal approach to the review of COPD patients too. As NICE recommends, all COPD patients with MRC scores of 3 or more should be referred to pulmonary rehabilitation. GPs could review the severity of a patient's breathlessness and disease progression over summer to ensure they are referred onto this scheme before winter. The exercise element of the programme has been shown to reduce admission and re-admission rates, and patients tell us that the education element gives them a better understanding of their condition and the support available in community and primary care. CCGs should drive this forward with their pulmonary rehabilitation provider, to ensure there are places for all eligible patients, so GPs are confident of the service.

Attendance for influenza vaccination at the beginning of October may be a good opportunity to ensure that people with lung disease are prepared for the winter.

For high risk patients, summer months will also be an opportunity to discuss their care preferences, in light of the fact that they are more likely to be placed in a situation in which they are unable to express these choices over winter. For example, health care professionals and patients could use the ReSPECT (Recommended Summary Plan for Emergency Care and Treatment) process, which creates personalised recommendations for a person's clinical care in a future emergency. Community institutions, such as residential care homes, could be asked to take a leading role in ensuring this is done before winter.

Finally, workforce reviews and training should recognise seasonal winter demand. For example, those GP practices upskilling staff in paediatrics may find it useful to plan to do so over winter months, when they will have begun to see an increase in bronchiolitis and other respiratory admissions. Hospitals often cite difficulties in recruiting for respiratory consultant posts, so should ensure that generalists recruited ahead of winter are trained in lung disease.

In hospitals – managing beds

Although much of the discussion around winter pressures focuses on making sure that people avoid unnecessary trips to emergency departments, it is important to recognise that it is not only respiratory attendances that rise in winter, but admissions too. When winter comes, there is a rise in the number of people with lung disease who need to be treated in hospital, and we need to prepare for this. Furthermore, as we know there is little capacity or funding available for a major temporary increase in extra beds over winter, we have to be more nimble in how we manage our current services.

Our wards (respiratory, trauma, etc) for the most part remain in the same configuration throughout the year, even though we know that this seasonal variation is coming. Trusts should review their practice across previous years. If they find that spikes in respiratory admissions have been consistently dealt with by moving patients into other wards then they should consider formalising this adaptation, adding resource in respiratory to support it and managing the service accordingly. Failing to do this risks compromising patient care, outcomes and services.

Elective work is still commonly planned as normal in winter, even though elective beds often provide surge capacity for respiratory admissions. Recognising this, trusts should plan less elective work over the winter months.

Case study – Adapting wards ahead of winter: University Hospital Southampton

Respiratory admissions had regularly taken up more bed capacity than was allocated on their usual respiratory wards over winter months. In previous years, additional capacity had been made available by other divisions in the hospital, who allowed respiratory patients to use their beds, though patients remained under the management of respiratory teams.

For this winter (2017–18) respiratory has been given 18 beds on the trauma and orthopaedic wards for the whole of winter to try to allow for these patients to be looked after as a group all in one place rather than being spread through various wards in the hospital. They will continue to be managed by the respiratory medical teams.

In hospitals – improving pathways and the management of patients

We have to make sure that our pathways of care and patient flow through hospital are as effective as possible. At the moment, hospital pathways for respiratory are not as clear as they are for other major disease areas, such as cardiac.

In addition to pathways, there are some key areas where trusts should aim to improve their service – access to specialist respiratory opinion, admission and discharge information, emergency oxygen and non-invasive ventilation.

We were pleased to see that the new Best Practice Tariff for COPD includes a target that “60% of patients with a primary diagnosis of COPD, admitted for an exacerbation of COPD, receive specialist input to their care within 24 hours of admission”.

A patient’s journey through hospital and into early discharge can be eased with comprehensive information being shared between healthcare professionals and services from the point of admission. Care bundles are a tool to ensure that evidence-based interventions are delivered systematically and there is evidence that they can reduce hospital admissions.⁵² We encourage all trusts to look at the British Thoracic Society’s Best Practice admission bundle for COPD, which has been rolled out by Birmingham Heartlands Hospital and the Royal Liverpool Hospitals.

Emergency oxygen is the most commonly used drug in hospital, between 14 and 18% of patients receive it. It must be prescribed and administered correctly because both too little and too much may have fatal consequences – it is estimated that there are 2,000–4,000 avoidable deaths in the UK each year from oxygen toxicity in COPD.^{53,54} Only 19% of asthmatics are prescribed oxygen on arrival to maintain saturations of 94–98%, despite this being a fundamental aspect of care.⁵⁵ We encourage trusts to follow the lead of the East of England Respiratory Clinical Network, and review their oxygen prescribing policy and emergency oxygen training for staff.

All hospitals should have a clinical lead for their acute non-invasive ventilation (NIV) service, who can drive forward the recommendations from this year’s National Confidential Enquiry into Patient Outcome and Death into NIV.

4. Getting people home again

A comprehensive and effective discharge from hospital can be difficult to deliver over busy winter months, but is essential to minimising the risk that patients will need to return to hospital again. This is particularly true for frail patients with complex needs.

Getting the basics right

Trusts must make sure they're delivering the basic standards of care when discharging respiratory patients. This may require the establishment of new systems.

A recent audit of asthma care in adults and children, performed by the Royal College of Emergency Medicine, was highly critical of the standards of care provided nationally.⁵⁶ On discharge, almost half of asthma patients did not receive oral steroids as per guidelines, less than 1 in 10 people had their inhalers checked and only 8% of people were given written discharge advice.

Similarly, Asthma UK's last Annual Asthma Survey (2016) found that seven out of ten people with asthma who end up in hospital are not given a follow-up appointment with a GP or nurse. This is essential and recommended by NICE to make sure that people with asthma get optimum treatment, and lower their risk of losing control of their symptoms and returning to hospital again.

The National Review of Asthma Deaths revealed 21% of people dying from asthma had an asthma-related A&E attendance within the final 12 months prior to death, with 12% having more than one. Ten per cent died within 28 days of discharge from a previous attendance at hospital.

We need a co-ordinated effort across primary and secondary care to ensure that healthcare professionals are aware of asthma guidelines, within their own institution and beyond. We recommend that the adoption of the British Thoracic Society's acute care bundle is part of this process.⁵⁷

A Best Practice Tariff for COPD has been in place since April 2017. This encourages assessment by a respiratory medic within 24 hours of admission and the provision of a care bundle on discharge. We encourage trusts to review their data to see if they are adapting their service accordingly. The British Thoracic Society has produced best practice guidance for COPD discharge care bundles, and Manchester Royal Infirmary and Musgrove Park Hospital have shared their experience of how they're preparing for the new tariff.⁵⁸

Patients must be supported to take up interventions which will reduce their chances of being readmitted. Conversations about the flu vaccine, smoking cessation, pulmonary rehabilitation and exercise should be routine for clinicians when seeing people with lung disease. For example, post-exacerbation pulmonary rehabilitation is highly effective at reducing readmission and should be made available for all patients going home from hospital within two weeks. This is worth significant investment for reduced costs overall and better outcomes for patients.

Finally, when proposing and exploring new initiatives to enhance patient discharge, we recommend that these don't only involve those in primary and community care, but patients, carers and social workers as well. The health service overall can only deliver post-exacerbation care if they have the capacity in place in primary and community care. We need all parts of the health system to work together if we want to ensure that patients don't fall between services.

Recognising multi-morbidities

The prevalence of multi-morbidity is rising across the UK.⁵⁹ It is common for people with conditions like COPD to have other medical conditions such as coronary heart disease, diabetes and depression.⁶⁰

However, there is evidence to suggest that we aren't properly accounting for this. The COPD audit found that 43% of patients admitted to hospital for treatment of COPD were readmitted in the three months following discharge. A worrying increase from 33% in 2008. Although COPD was the most common cause of readmission, there was a significant number of older patients coming back because of a different condition. Discharge needs to address all of a patient's health needs.

Spotlight on paediatrics and bronchiolitis

The regular increase in respiratory admissions on paediatric wards over winter has long been understood, and in many ways paediatric units are leaders in the health service in their adaptability to it. However, we need to recognise that there is increasing pressure on paediatric units. Infants and children have different care needs and, as our analysis found, we need to address the challenging increase in bronchiolitis admissions.

Much of this pressure could be eased by the development of decision support that would improve care across conditions. We need to look at how primary care staff can access the paediatric expertise in the emergency care and acute setting. GPs should have an assigned paediatric consultant that they have contact details for and can call for decision support.

Children with respiratory conditions also stand to benefit from the investment in community nursing, ambulatory care and integration that should be taking place throughout the NHS. Edinburgh Royal Hospital for Sick Children, Nottingham University Hospitals NHS Trust, Bart's and the London NHS Trust, and Alder Hay Children's Hospital have all found that investment in respiratory community and physiotherapy teams have significantly reduced hospital admissions.⁶¹

Respiratory conditions can often cause anxiety for parents and, as these examples have shown, services which have the capacity to provide a rapid response (for example, by having next day home visits) benefit from a fall in admissions. Capacity isn't just an increase in staff numbers, but also training. For example, community nurses performing nasogastric feeding in the community reduce pressures in hospitals.

GP practices should be aware of the community children's nurses in their areas and have confidence in their ability to manage acutely ill children at home. Similarly, hospital teams should ensure that the pathway of care between community and hospital is clear so that children can benefit from enhanced supported discharge.

Addressing the rise in bronchiolitis admissions

Our analysis suggests that the most marked change in paediatric admissions over the last five years has been the increase in bronchiolitis in the under 5s.

More could be done to target the parents of children who are at increased risk ahead of winter. We should explore how the messages and advice of the 'more than a cold' campaign can be better promoted.

This can be championed alongside improvements to the pathway of care in and out of hospital. With clear pathways, we can make sure that parents are given consistent advice by healthcare professionals. Consistent advice, coupled with support in the community, should help reduce admissions.

It may also be time to revisit the oxygen saturation levels which are considered safe in order to discharge a child home. An oxygen saturation level of 92% is one of the key markers in deciding when to discharge a child from hospital. However, there is some evidence to suggest that we could discharge children safely with lower saturations than we have historically.⁶² We suggest that this should be explored in more detail by NICE.

Finally, health care professionals should note that the NICE guideline for bronchiolitis identified that there is no evidence for the benefits of medicines (including oral steroids) for children with bronchiolitis under one. Health care professionals should stop prescribing these medicines unnecessarily.

Conclusion – the future for lung disease

In the long term, we need a more strategic approach to improving the care and outcomes of the millions of people who have been diagnosed with a lung disease in England.

Lung disease has been relatively neglected in health policy and service development. As a consequence, we've had ten years of stagnating outcomes, and now have one of the highest premature mortality rates for lung disease in Europe.

The Cancer and Mental Health Strategies are already transforming care in their respective fields. Lung disease needs this level of attention if we are to end our poor track record in patient outcomes.

That's why the British Lung Foundation have established a taskforce to produce a five year strategy for lung health. We ask the Government to formally endorse the taskforce and ensure that Department of Health officials engage with the consultation to ensure that the subsequent respiratory strategy aligns with the wider agenda for the health service.

Similarly, we encourage all interested individuals and organisations to engage with the consultation process throughout 2018 to ensure that we have the most effective strategy possible.

Please contact Lucy Bramwell at lucy.bramwell@blf.org.uk for further information.

Methodology

The new analysis presented in this report uses Hospital Episode Statistics data on hospital admissions from 2010–11 to 2016–17. Requests for this data were submitted through parliamentary questions, and tabled in October and November 2017. We would like to thank the following MPs for their support in requesting this, and additional policy information: Alex Cunningham MP; Andrew Selous MP; Ben Bradley MP; Diana Johnson MP; George Howarth MP; Grahame Morris MP; Henry Bellingham MP; Jim Shannon MP; Julie Elliott MP; Kate Green MP; Mike Kane MP; Paul Blomfield MP; Dr Paul Williams MP; Sharon Hodgson MP; Stephen McPartland MP; Thelma Walker MP; Tom Brake MP.

We also use data collected from NHS trusts in England and NHS Digital, through the Freedom of Information Act. Requests to trusts were submitted under the Freedom of Information Act between 29 September 2017 and 9 October 2017. Responses received after the 20 working day guideline were accepted until 8 November 2017.

We used the 20 most common first recorded diagnoses on attendance at emergency department (2015–16) as comparators within this report, as defined by the Hospital Episode Statistics data. These diagnosis areas are: (i) dislocation, fracture, joint injury or amputation; (ii) gastrointestinal condition; (iii) soft tissue inflammation; (iv) sprain/ligament injury; (v) laceration; (vi) respiratory condition; (vii) cardiac condition; (viii) head injury; (ix) ear, nose or throat condition; (x) urological condition; (xi) central nervous system condition; (xii) muscle or tendon injury; (xiii) infectious disease; (xiv) poisoning, including overdose; (xv) gynaecological condition; (xvi) local infection; (xvii) contusion or abrasion; (xviii) ophthalmological condition; (xix) nothing abnormal detected; (xx) not classifiable.

A roundtable was held in September 2017 to bring stakeholders together around the topic of rising emergency admissions for lung disease. We would like to thank the following people for contributing to the roundtable discussions:

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Hospital and advisor to the Primary Care Respiratory Society

Emily Arkell Head of health policy, Royal College
of Paediatricians and Child Health

Gordon Miles Chief executive, Royal College of Emergency Medicine

Joanne King Advanced nurse practitioner in acute medicine, Frimley
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Throughout the report use of the terms 'winter' and 'colder months' generally refers to the period between October and March, unless otherwise stated.

References

- 1 Total increase of finished admission episodes – 11.1%.
Total increase of respiratory admissions – 36.6%
- 2 British Lung Foundation (2016) *Battle for Breath*
- 3 British Lung Foundation (2017) *The battle for breath: The economic burden of lung disease in the UK*
- 4 British Lung Foundation (2016) *Battle for Breath*
- 5 Public Health England (2017) *Health Profile for England* 4.2 Figure 6; 4.3 Figure 7
- 6 Public Health England (Nov 2017) *Longer Lives summary*
- 7 McLean S et al. 'Projecting the COPD population and costs in England and Scotland: 2011 to 2030'. *Sci. Rep.* 6, 31893; doi: 10.1038/srep31893 (2016)
- 8 Hospital Episode Statistics show an annual rise in admissions from October to February.
- 9 Hospital Episode Statistics show an annual rise in admissions from October to February.
- 10 Office for National Statistics (2017). Excess winter mortality in England and Wales, 2016/17 (Provisional) and 2015/16 (final)
- 11 Office for National Statistics (2016). Excess winter mortality in England and Wales, 2015/16 (Provisional) and 2014/15 (final). Office for National Statistics (2017). Excess winter mortality in England and Wales, 2016/17 (Provisional) and 2015/16 (final)
- 12 Ibid
- 13 Ibid
- 14 British Medical Association (2016) Beating the effects of winter pressures: briefing paper.
- 15 The Guardian (2017) NHS warns of dangerous beds shortage this winter. Available at: <https://www.theguardian.com/society/2017/sep/02/nhs-warns-of-dangerous-beds-shortage-this-winter> [Last accessed 10 October 2017].
- 16 Nuffield Trust (2016) Winter insight: briefing 1, winter beds pressures.
- 17 The Kings Fund (2017) 'What's going on in A&E? The key questions answered'. Available at: <https://www.kingsfund.org.uk/projects/urgent-emergency-care/urgent-and-emergency-care-mythbusters> [Last accessed 10 November 2017].
- 18 Nuffield Trust (2016) Winter insight: briefing 1, winter beds pressures.
- 19 Nuffield Trust (2017) Winter insight: briefing 3, the ambulance service.
- 20 Ibid
- 21 Ibid
- 22 QualityWatch (2017) A&E waiting times. Available at: <http://www.qualitywatch.org.uk/indicator/ae-waiting-times> [Last accessed 14 November 2017].
- 23 British Medical Association (2016) Beating the effects of winter pressures: briefing paper.
- 24 British Thoracic Society (2016) Investment in specialist 'lung teams' working across NHS could 'significantly reduce' pressures on health service in winter. Available at: <https://www.brit-thoracic.org.uk/pressmedia/2016/investment-in-specialist-lung-teams-working-across-nhs-could-significantly-reduce-pressures-on-health-service-in-winter/> [Last accessed 10 October 2017].
- 25 Quality Watch (2017) Focus on: emergency hospital care for children and young people.

- 26 British Medical Association (2016) Beating the effects of winter pressures: briefing paper.
- 27 Ibid
- 28 PHE (2017) Surveillance of influenza and other respiratory viruses in the UK 2016–17.
- 29 Ibid
- 30 Donaldson G, Wedzicha J (2014) 'The causes and consequences of seasonal variation in COPD exacerbations'. *International Journal of Chronic Obstructive Pulmonary Disease* (9).
- 31 Ibid
- 32 Donaldson G, Wedzicha J (2006). COPD exacerbations – 1: epidemiology (2).
- 33 Shrikrishna D, Williams S, Restrict L, Hopkinson NS 'Influenza vaccination for NHS Staff: attitudes and uptake'. *BMJ Open Resp Res* 2015 2:e000079.doi:10.1136/bmjresp-2015-000079
- 34 Pereira M, Williams S, Restrict L, Cullinan P, Hopkinson NS. 'Healthcare worker influenza vaccination is associated with reduced sickness absence: an ecological study'. *Clin Med* 2017
- 35 The recent Royal College of Physicians audit found seven per cent of patients admitted to hospital with an exacerbation of COPD did not have a prior diagnosis.
- 36 National Cancer Intelligence Network. *Routes to Diagnosis 2006-2013* (2016)
- 37 Luis Nacul, Michael Soljak, Edgar Samarasundera, Nicholas S Hopkinson, Eliana Lacerda, Tejal Indulkar, Julian Flowers, Hannah Walford, Azeem Majeed, 'COPD in England: a comparison of expected, model-based prevalence and observed prevalence from general practice data' *Journal of Public Health*, Volume 33, Issue 1, 1 (2011); 108–116
- 38 NHS England (2017) *The NHS England Innovation and Technology Tariff 2017 to 2019 Technical notes*
- 39 Royal College of Physicians (2016) *COPD Audit: Primary Care*
- 40 Welte T, Volgelmeier C, Papi A, *COPD: Early diagnosis and treatment to slow disease progression* *Int J Clin Pract.* 2015 Mar;69(3):336–49. doi: 10.1111/ijcp.12522. Epub 2014 Oct 31.
- 41 Aitsi-Selmi A, Hopkinson NS. 'Breathlessness, physical activity and sustainability of healthcare'. *Eur Respir J.* 2015 (45):284–5
- 42 Hopkinson NS, Baxter N on behalf of the London Respiratory Network. 'Breathing SPACE – a practical approach to the breathless patient'. *NPJ Prim Care Respir Med.* 2017 Dec;27(1):5. doi: 10.1038/s41533-016-0006-6. Epub 2017 Jan 30.
- 43 GRASP is accessible online at: <http://www.nhs.uk/8631.aspx>
- 44 Godtfredsen NS, V. 'Risk of hospital admission for COPD following smoking cessation and reduction: A Danish population study'. *Thorax* 2002; 57(11):01.
- 45 Cancer Research UK, Action on Smoking and Health (2016) *Cutting down: The reality of budget cuts to local tobacco control*
- 46 British Thoracic Society (2016) *Smoking cessation: policy and practice in NHS hospitals*
- 47 For further information on smoking cessation training, please visit the National Centre for Smoking Cessation and Training website – www.ncsct.co.uk
- 48 Georgina Jones, David Whitmore 'Coordinate My Care from the perspective of the London Ambulance Service' *London Journal of Primary Care* (2013)
- 49 Data provided by Coordinate My Care
- 50 Berkshire West Community Respiratory Service (2014) *Annual Report*
- 51 Royal College of Physicians (2015) *Why asthma still kills: The National Review of Asthma Deaths*

- 52 Lavery AA, Elkin SL, Watt HC, Millett C, Restrict LJ, Williams S, Bell D, Hopkinson NS. 'Impact of a COPD discharge care bundle on readmissions following admission with acute exacerbation: interrupted time series analysis' PLoSone 2015 13;10(2):e0116187 doi: 10.1371/journal.pone.0116187
- 53 Hopkinson NS, Englebrechtsen C, Cooley N, Kennie K, Lim M, Woodcock T, Lavery AA, Wilson S, Elkin SL, Caneja C, Falzon C, Burgess H, Bell D, Lai D. 'Designing and implementing a COPD discharge care bundle'. Thorax 2012 (67) 90-92
- 54 Lianne Jongepier 'Saving lives –improving the prescription, administration and management of oxygen' (2014) Respiratory Futures (accessed Nov 2017): <http://www.respiratoryfutures.org.uk/regions-and-nations/east-of-england/announcements/saving-lives-improving-the-prescription-administration-and-management-of-oxygen/>
- 55 Royal College of Emergency Medicine (2017) *Moderate and acute severe asthma: clinical audit 2016/17*
- 56 Royal College of Emergency Medicine (2017) *Moderate and acute severe asthma: clinical audit 2016/17*
- 57 More information on the BTS care bundle can be found at <https://www.brit-thoracic.org.uk/standards-of-care/quality-improvement/care-bundle-for-asthma/>
- 58 Respiratory Futures, (accessed Nov 2017) 'Case study: preparing for the COPD Best Practice Tariff – <http://www.respiratoryfutures.org.uk/features/preparing-for-the-copd-best-practice-tariff-manchester-royal-infirmary/>
- 59 The Royal College of General Practitioners (2016) *Responding to the needs of patients with multimorbidity: A vision for general practice*
- 60 Barnett K, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. (2012). 'Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross sectional study'. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/22579043>
- 61 Association of Paediatric Child Physiotherapists (2017), *Commissioning Tool for Community Paediatric Respiratory Physiotherapy Posts*
- 62 Dr Steve Cunningham, PhD, Aryelly Rodriguez, MSc, Tim Adams, MBChB, Kathleen A Boyd, PhD, Isabella Butcher, PhD, Beth Enderby, MD, Morag MacLean, PhD, Jonathan McCormick, MD, James Y Paton, MD, Fiona Wee, BSc, Huw Thomas, FRCPC, Kay Riding, MSc, Steve W Turner, MD, Chris Williams, MB Ch, Emma McIntosh, PhD, Prof Steff C Lewis, PhD for the Bronchiolitis of Infancy Discharge Study (BIDS) group, *Oxygen saturation targets in infants with bronchiolitis (BIDS): a double-blind, randomised, equivalence trial* The Lancet Volume 386, No. 9998 (12 September 2015) p1041–1048



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