This article discusses Obstructive Sleep Apnoea Syndrome (OSAS) and the results of the PREDICT trial in relation to continuous positive airway pressure (CPAP) therapy.

Treating elderly family members with asthma medication

Tracking when medicines were taken and information about how they were taken using the Aerobit Smart inhaler.
Welcome to issue 20 of Innov-age, focusing on the topic of respiratory disease.

As we get older, issues involving the respiratory system become more common. These can range from increased prevalence and exacerbation of long term conditions such as asthma and COPD, to increased likelihood and severity of respiratory infection and influenza, particularly during the winter months. This is due to a combination of reasons, including a weakened immune system, increased vulnerability to cold temperatures, and a declining function of the respiratory system. The combination of these factors can result in severe respiratory problems for the elderly, which often require innovative solutions to offset them.

Leading this issue, the Rt Hon Paul Burstow, introduces the topic and discusses whether technology-enabled interventions can be used to improve quality of life in people suffering from respiratory conditions. Julie Harrison, Project Lead for CityVerve, discusses the role of the Internet of Things (IoT) and how we can use this technology to revolutionise health and social care.

Dr Alison McMillan evaluates CPAP as a treatment for sleep apnoea in older people using results from the PREDICT trial, and Dr Jens Espeland discusses the convergence of technology enabled care.

This issue’s Cochrane Corner is authored by Professor Tracey Howe and Kathryn Simms, and discusses treatments for respiratory conditions including asthma, COPD and respiratory infections.

This issue of Innov-age demonstrates some of the most exciting innovations and current research within the field of respiratory disease, particularly in the context of integrated care for older people, and suggests much more exciting developments in these areas to come in the near future.

To add to this issue, Ali Moiyed, founder of Aerobit Health, gives us insight into how to help the elderly with asthma medication, and Dr Irem Patel discusses integrated care in respiratory conditions.

Dr Jørgen Vestbo, Professor of Respiratory Medicine and honorary consultant at Manchester University NHS Foundation Trust discusses the Manchester respiratory research programme and how it will be used to improve the diagnosis and treatment of common respiratory conditions such as asthma and COPD. Professor John Moore discusses the ERAS+ project, which aims to improve patient recovery and outcomes following major surgery by reducing the incidence of post-operative pulmonary complications.

Julie Harrison, Project Lead for CityVerve, discusses the role of the Internet of Things (IoT) and how we can use this technology to revolutionise health and social care.

To add to this issue, Ali Moiyed, founder of Aerobit Health, gives us insight into how to help the elderly with asthma medication, and Dr Irem Patel discusses integrated care in respiratory conditions.

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Jackie Oldham
Honorary Director, Edward Centre for Healthcare Management Research
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Can cost-effective technology-enabled interventions support people with respiratory conditions to reduce medical emergencies and improve quality of life?

Paul Burstow is a health and care thought leader. He was a Liberal Democrat Care Services Minister between 2010 and 2012 and MP for Sutton and Cheam between 1997 and 2015. He is president of TEC Services Association; the national body for technology enabled care services, and currently chairs the Tavistock & Portman NHS Foundation Trust and national improvement agency and independent charity, the Social Care Institute for Excellence (SCIE). He is Professor of Health & Social Care at City University, London.

Introduction
The idea of monitoring and supporting people’s health at a distance is not new. But it is only in the last 30 years that telehealth or telemedecine has been used more extensively in the UK to provide some form of monitoring or connectivity over distance between parties e.g. clinician and patient, specialist and general practitioner.

In 2014, NHS England said: "Technologies such as telehealth, telecare, telemedecine, telecoaching and self-care apps have the potential to transform the way people engage in and control their own healthcare, empowering them to manage it in a way that is right for them" (NHS England, 2014). Despite this, health care remains slow to embrace service redesign that embeds technology to support self-management.

Long term conditions – a major health & care challenge
More people are living longer with long-term conditions and healthcare costs are continuing to rise whilst public funding remains constrained.

In 2014, Dr Martin McShane from NHS England said (Guardian, 2014): "Looking after the 15.4 million people in England with at least one long-term condition already takes up 70% of the NHS’s £110bn budget – £77bn – as well as £10.9bn of the £15.5bn spent on social care in England".

As regards respiratory conditions:
An estimated 1.2 million people are living with diagnosed Chronic Obstructive Pulmonary Disease (COPD). 30,000 people die of the disease each year (British Lung Foundation, 2017).

There are 5.4 million people living with asthma in the UK. In 2015, 1,468 people died from asthma (Asthma UK, 2017).

Chronic Obstructive Pulmonary Disease (COPD) – a major cause of mortality
People with diagnosed COPD tend to have progressive worsening of their lung capacity. Their quality of life (QoL) becomes reduced as physical and mental health is impacted over time.

A typical telehealth approach to COPD is for the regular transmission via home-based medical devices of clinical metrics (e.g. blood pressure, blood oxygen levels, lung function) in order to alert monitoring staff that patients are starting to deteriorate.

COPD symptoms generally worsen for 3-5 days before an exacerbation needs treatment so there is a small window of opportunity for health practitioners to provide advice, avoid hospitalisation and consider treatment options. With better knowledge and understanding of their conditions, some patients may be better able to respond to symptoms, self-manage their conditions and engage in programmes such as pulmonary rehabilitation.

A 2016 systematic review (Gregersen et al., 2016) considered whether telemedical interventions improved QoL in patients with COPD and concluded that an active element such as coaching or skills training was important. The authors raised questions as to whether these interventions alone should be expected to improve QoL or whether services should be redesigned to ensure that supported self-management is fully integrated into the approach.

In an overview of reviews relating to COPD (Murphy et al., 2017), the authors concluded that self-management supported by telehealth confers significant reductions in healthcare utilization, including hospitalisation and emergency department visits.

In the Danish ‘TeleCare North’ cluster-randomised trial (Udsen et al., 2017), the researchers concluded that telehealthcare is unlikely to be a cost-effective addition to ‘usual care’, if it is offered to all patients with COPD and if the willingness-to-pay threshold values from the National Institute for Health and Care Excellence (NICE) are applied. However, they argued that new ways of working could have impacted on cost-effectiveness.

A recent programme in the NHS (Clarke et al., 2017) found high variations of cost-effectiveness of interventions across two sites with reductions in hospital length of stay. They concluded that cost-effectiveness studies will continue to struggle to provide a definitive answer because outcome measurements are too dependent on factors other than the technology.

In looking at these reviews and recent trials, a number of factors may be influencing the telehealth approach.

Patient factors – Some patients are more likely to engage with programmes. Personal and lifestyle factors are relevant for self-management.

Practitioner factors – health and care professionals need to have appropriate training in protocols and feel confident about working remotely.

Technology factors – Devices and monitoring systems need to be acceptable to everyone involved and also need to be reliable, accurate and cost-effective.

A recent systematic review (Alwashmi et al., 2016) concluded that current literature on the role of smartphones in reducing COPD exacerbations is limited, but they could be useful in future in reducing the number of patients having an exacerbation.

Over the last couple of years, NHS England has been developing a Digital Apps Library (NHS England, 2017). The MyCOPD (currently included in the library) can be provided via some NHS services or via a personal license. The tool aims to help people...
manage their COPD independently and reduce reliance on GP and hospital appointments. Clinicians can use myCOPD to check in with their patients remotely, track their condition, update medication and improve their overall care.

In addition, the NHSE Innovation Accelerator Programme (NHSE England, 2017) and Testbed Programme (NHSE England, 2017) are considering respiratory conditions.

**Asthma – large numbers of people affected in the UK**

Because of its portability together with advances in inhaler technology, there is growing interest in the use of smartphones with web tools, apps and text messaging to help support asthma self-management (Morrison et al, 2016).

There are opportunities for technology-enabled care to support people in recognising deterioration in symptoms at an early stage as well as maintaining and reviewing treatments plans.

A recent review (Bonini et al, 2017) looked at novel methods (including m-health, electronic reminders, inhaler trackers) for adherence monitoring in asthma. The collected evidence supports a role for e-health in monitoring and improving inhaler use and treatment adherence in asthma.

A major review of Telehealth Interventions to Support Self-Management of Long-Term Conditions (Hanlon et al, 2017) concluded that benefits were unlikely in mild asthma but that those at higher risk of hospitalisation may benefit.

A number of asthma apps are available, but none are currently featured in the NHS Apps Library. However, a major Asthma Mobile Health Study is currently underway in the United States (Chan et al, 2017) and has reported some early findings.

In a further study on the Digital Asthma Patient (Kikidis et al, 2016), the authors considered that the wave of digital health is continuously growing and promises to transform healthcare and optimise the patients’ experience.

They consider that as technology progresses, and novel sensing components are becoming available, the enhancement of inhalers with a wider range of monitoring capabilities holds the promise to further support and optimise asthma self-management.

**Conclusion – the way forward**

There have been extensive studies covering technology and respiratory diseases including a range of modalities. At this stage there is a sufficient body of evidence to inform investment decisions.

There are a number of factors involved – patient, practitioner, technology – in the potential success of technology-enabled care and these vary considerably across health systems.

With increasing numbers of people with single or multiple long-term conditions, it is essential that research continues, particularly with evidence-based digital health applications that are developed alongside patients and practitioners. This research needs to look to draw more on real-world and real time data as well as considering the impact of service redesign in the deployment of technology.

Adoption of new technologies in health and care has often been slow. Globally health and care systems have been late adopters of technology and slow to redesign service models to accommodate it. The ambitions of the NHS Five Year Forward View for more self management of long term conditions will be thwarted if new technology enabled models of care are left on the test bench because they did not fit with business as usual.

**About TSA**

TSA is the industry body for technology enabled care (TEC) services, representing over 350 organisations including health and social care commissioners, digital health businesses, telecare and telehealth providers, housing associations, emergency services, academics, charities and government bodies.

TSA helps organisations that commission and supply technologies such as telehealth, telecare and telemedicine as well as digital health services including self-care apps, health IT, mHealth, eHealth, smart home technologies, artificial intelligence and internet of things.

This is done by driving up standards, influencing national policy, advising on the commissioning landscape, identifying tender opportunities, providing guidance around TEC procurement, sharing good practice, offering training and organising learning events.

TSA’s vision is to put people in control of their own health, wellbeing and support, keeping them safe, well and independent; giving them and their families peace of mind. TEC is key to this.

**www.tsa-voice.org.uk**

**Learning points**

- Telemedicine can be used to help patients in self-managing their conditions as well as providing a way for healthcare practitioners to check in with patients, reducing hospitalisation, emergency department visits and overall costs
- The telemedicine approach can be influenced by patient, practitioner and technology factors

**References:**

Cityverve – The Internet of Things

Julie, an experienced NHS nurse of 18 years, is currently on secondment as the CityVerve Project Lead for the Health & Social Care Theme, based at Manchester University NHS Foundation Trust. The £10m Manchester CityVerve programme brings together a creative, multi-sector team from across industry, academia and public sector to utilise the power of technology – the Internet of Things (IoT) – to revolutionise and improve health and social care.

Simply put, the IoT is about connecting physical objects with the internet and letting them talk to us, applications and each other, giving us a previously unimagined world of data that can be used to assist with the day-to-day practicalities of providing health and social care across Manchester.

Whether by improving practitioners’ mobility and efficiency or providing patients with the ability to better manage their conditions themselves, the focus is on making the best use of the resources Manchester has.

The Manchester health and social care theme is centred around three projects that explore the use of IoT technology – sensors both inside and outside the home, coupled with a smart phone or tablet apps.

1. Can IoT help people with Chronic Obstructive Pulmonary Disease (COPD) to manage their own condition better?

The COPD project is testing whether the use of a novel co-developed patient-facing app and smart inhaler, in combination with home based sensors (temperature, humidity, movement) and smartphones/tablets can encourage patients to actively self-manage their condition, in partnership with their clinician.

This data is combined with local weather, air quality data and a detailed patient profiling to advise and stimulate the user to undertake activities with beneficial impact on their health and wellbeing.

2. How can a targeted community be encouraged to improve their general health and wellbeing?

The BeeActive app is designed to encourage people to become more active through digitally delivered context-aware “nudges” designed to engender behavioural change. Based on data inputs such as weather, traffic levels, air quality and current location, Manchester are developing a programme for citizens that primarily focuses on them getting out and exploring their city and local environment rather than instructing people to exercise. By motivating residents to progress towards a goal, such as steps taken, distance travelled, or adding gamification elements to encourage participation in challenges, we hope to develop a more effective and engaging way to improve community wellness levels.

The BeeActive app is available for download on Google Play and on the App store.

We are also creating a Personal Wellness Platform, called PlaceCal that aims to tackle social isolation, a significant and health-impacting problem for seniors. This will use technology to make this population aware of activities in local spaces, such as parks, and ways to improve their lifestyles.

3. Will the application of IoT help neighbourhood support teams to deliver a more effective and efficient service?

Last but not least, we are working to deliver a set of fully connected services to neighbourhood support teams using the IoT. This initiative is designed to help improve the way in which we use our neighbourhood support teams to drive efficiencies and effectiveness.

Smart homes – through the use of passive sensors deployed within homes, we will be able to collect baseline data such as air quality and activity levels, to better understand the effects the home environment may have upon peoples’ health and wellbeing.

Smart logistics – Neighbourhood teams today lose valuable time taking biological waste back to base, whilst visits to patients in the community are often wasted when teams don’t have the necessary kit to treat a patient. By piloting a new way for clinical-facing staff to access core equipment outside of their current provision, it is expected that there will be considerable efficiencies made by reducing the need for unplanned return visits to base, the need for repeat visits to homes and even unplanned or unnecessary admissions to hospital.

Smart Video – Intermediate Care provides a short-term inpatient stay for those patients who no longer require an acute hospital bed, but would benefit from therapy input. It is a vital service to ensure patients receive the support they need whilst keeping hospital beds available for acute patients, but cost and limited staff means it is not always feasible to bring the required level of clinical expertise to the bedside of every resident in Intermediate Care or Nursing Home facilities. Video-based decision support can address much of this challenge by providing video consultations to quickly assess patient needs. Bedside carers will be able to access on-demand specialist staff for immediate decision support on wound care, antibiotic prescription, analgesic medication or general medical and therapy care.

To learn more about the Cityverve project visit https://cityverve.org.uk/
Manchester's Respiratory Research Programme

Professor Vestbo’s research focuses on chronic obstructive pulmonary disease (COPD) and contribution to the development of international guidelines for the diagnosis and management of COPD. Here, Jørgen shares an insight into Greater Manchester’s exciting respiratory research programme, funded by the NIHR Manchester Biomedical Research Centre (BRC).

Respiratory diseases are the second most common cause of hospital admissions in the UK. COPD is probably the most common lung disease being dealt with, not just in the North West of England, but on a global scale. It is the fourth leading cause of death and it is expected to be the third leading cause of mortality globally in 2025. The Greater Manchester’s BRC respiratory research, covers four areas relating to common conditions:

• COPD
• Improving respiratory symptoms, such as cough and breathlessness
• Asthma
• Severe respiratory infections, including fungal infections

Research will help to reduce disease progression and symptoms for those with respiratory conditions. Many people will be familiar with the term personalised medicine, which takes into account the individual variability in genes, environment, and lifestyle for each person. The P4 medicine strategy, underpinning all of the research funded by the BRC, takes personalised medicine one step further to deliver care which is: Predictive; Preventative; Personalised and empowers patients to Participate in healthcare.

How can COPD be diagnosed and match patients to the right treatment more quickly?

One of the areas being looked at is the development of blood, sputum and breath tests to diagnose COPD and its subtypes.

Plans are also in place to monitor disease progression using advanced lung physiology techniques and imaging, and to identify biomarkers for predicting both progression of COPD and risk of exacerbations (“flare-up”) as well as lung cancer risk in COPD patients. A biomarker is any measurable diagnostic indicator, which can be found in tissue, blood and other bodily fluids, used to assess the risk or presence of disease.

Previous research has demonstrated that COPD progression differs from one individual to another. Work is now underway towards a more targeted approach, which diagnoses the condition earlier and matches an individual to the treatment most likely to work for them.

Effective treatments are lacking for cough and breathlessness, the main symptoms of chronic respiratory disease. What are we doing about this?

Coughing and breathlessness have a significant impact on quality of life for patients affected. Research will help to better understand how changes in the neuronal (nervous system) processing of respiratory sensations contribute to these symptoms and identify new drug targets including:

• developing techniques (immuno-histochemical staining and x-ray imaging) to enable measurement of changes in the neuronal system and better understand the connection with respiratory disease
• studying participant’s responses to airway challenges (e.g. exercise, allergens vs. control) to identify biomarkers and mediators capable of reducing the respiratory response
• identifying patterns of neuronal activation/transmission in respiratory disease and the interactions between sensations evoking cough and breathlessness using functional Magnetic Resonance Imaging (fMRI) and Positron Emission Tomography-magnetic Resonance Imaging (PET/MRI).

How can asthma be better diagnosed and treated?

Over five million people in the UK receive treatment for asthma. However, there are concerns around the accuracy and complexity of existing diagnostic tests, which may result in under and over-diagnosis.

Research will simplify the process for diagnosing asthma and develop biomarkers to predict response and select the most appropriate treatment e.g. exploring the use of exhaled Volatile Organic Compounds (VOCs) and inflammatory cells to diagnose, and the use of an individual’s biological clock to schedule and personalise treatment at a time when it is likely to have the best response.

The role of dendritic cells in initiating an immune response and that of a specific protein which may modulate this allergic response, will also help identify new potential drug targets.

How will the way the diagnosis and treatment of severe respiratory infections be revolutionised?

Research is also focusing on providing more accurate and rapid diagnosis for patients with respiratory infections, resulting from an imbalance of microorganisms (bacteria, fungi and viruses). An increasingly worrying barrier to treating serious fungal infections in the clinic is resistance to antifungal drugs. Techniques to evaluate and improve the ability of molecular methods to detect and track this resistance are being developed.

One condition of particular interest is aspergillosis (disease caused by infection of Aspergillus fungi) which can be challenging to diagnose. Development of genetic markers will spot the signs of aspergillosis in those who are also affected by underlying lung disease. These same tools may also help personalise the treatment offered to each patient.

Learning points:

• Respiratory diseases are the second most often cause of hospital admission in the UK and the fourth leading cause of death requiring considerable research.
• The P4 medicine strategy develops the personalised medicine concept to deliver care which is: Predictive; Preventative; Personalised and empowers patients to Participate in healthcare.
• New technologies to diagnose and monitor disease progress are urgently needed to enhance the P4 medicine approach.
Enhanced Recovery After Surgery Plus ERAS+

Dr John Moore has been instrumental in the development and implementation of the ERAS+ pathway at Manchester University Hospitals NHS Foundation Trust. John was recently awarded the NHS Innovation Accelerator (NIA) Fellowship to roll out ERAS+ across Greater Manchester.

More than 250,000 patients undergo planned major surgery in the UK every year. The incidence of post-operative pulmonary complications (PPCs) affecting the lungs following major surgery is considerably common affecting up to 30% of patients. A diagnosed PPC can increase hospital length of stay by up to 8 days and can significantly impact on a person’s physical and emotional well-being. As a result, delayed recovery from a major operation can affect various aspects of daily life such as health, mobility and overall quality of life.

Over the past 20 years, care pathways for patients undergoing major surgery have been extensively reviewed to improve the quality of care provided to the major surgical patient and ultimately, improve patient recovery. An important consideration for healthcare professionals developing a streamlined care pathway was to provide patients with advice and information on how they can prepare themselves for major surgery and what to expect during the recovery process. **ERAS**, an acronym for Enhanced Recovery After Surgery is a care pathway which was originally developed over 15 years ago for patients undergoing colonic resection. ERAS aims to engage patients to participate in their planned, in-hospital recovery to reduce post-operative complications and facilitate rapid discharge. It encourages patients to play an active role in their own care by making sure they are as healthy as possible before undergoing major surgery. Amongst other advice given, patients are essentially encouraged to eat well, exercise and reduce or give up smoking/alcohol consumption prior to their operation.

Although ERAS has now become a standard of care for patients undergoing elective major surgery, it was recently recognised that despite the high prevalence of PPCs, few elements of the ERAS pathway specifically address reducing these complications.

**Enhanced Recovery After Surgery plus** (ERAS+) is a training programme developed in Greater Manchester and championed by Dr John Moore, Consultant in Anaesthesia and Intensive Care Medicine. ERAS+ is one of seven projects which has recently received a £500,000 award from the Health Foundation. ERAS+ has been recognised as a proven health care intervention and this prestigious award will be used over the next 2.5 years to deliver and extend the benefits of ERAS+ across the UK. ERAS+ teams will work together with a range of organisations to promote and embed changes across the NHS to improve patient outcomes following major surgery.

As part of this endeavour, a mobile phone application and website has been developed to support the implementation of ERAS+. The website provides supportive material for the ERAS+ application as well as comprehensive information on what ERAS+ is and its benefits for major surgical patients. The website also provides access to local council fitness and well-being facilities available to members of the public ensuring training for major surgery can be undertaken no matter where patients are based.

iSAT Health and Desap System Solutions were commissioned to design and build the ERAS+ Mobile Application, due to their previous work with Salford Royal NHS Foundation Trust. Desap specialise in delivering Integrated Smart Device Technology (ISDT) solutions within the health sector. ISDT facilitates the Patient Engagement Process, which is a prerequisite for the communication of the necessary information for patients undergoing major surgery.

Roger Kadama, CEO, iSAT Health & Desap System Solutions said, “The use of our ISDT Platform to build the ERAS+ Mobile App is very important component of delivering an effective Mobile Solution for ERAS+.”

The application can be downloaded on a mobile phone or tablet device and is aimed to support and guide patients when training for major surgery. The application has been designed to prescribe specific activity and training regimes on a daily basis in the weeks leading up to major surgery for patients of varying levels of fitness. The ERAS+ application has been designed to deliver daily notifications and reminders as well as regular progress monitoring reports to
provide an interactive platform for all patients to improve their fitness before surgery.

ERAS+ is an extension to the traditional ERAS pathway as it focuses on minimising the risk of developing PPC’s following major surgery. A specific activity bundle targeting the lungs called ICOUGH forms a major part of this pathway. ICOUGH is an American respiratory care bundle which has been proven to reduce the incidence of PPCs.

The diagram below shows what the acronym ICOUGH stands for:

**Incentive Spirometry**
**Cough**
**Oral care**
**Understanding patient education**
**Get out of bed**
**Head of bed elevated**

Prior to undergoing surgery, patients are encouraged to understand ICOUGH and implement elements of this bundle into their daily lifestyles as part of the ERAS+ pathway. They are provided with an incentive spirometry device to practice taking bigger and deeper breaths regularly. They are also encouraged to bring this device with them to hospital and continue its use throughout their hospital stay, before and following surgery.

Incentive spirometry forms an essential part of ‘training’ for surgery on the ERAS+ programme. The device provides visual feedback to encourage patients to take bigger and deeper breaths. Patients are asked to practice using the spirometer at least 4 times per day ideally 2-4 weeks prior to surgery. Following surgery, patients are once more advised to use the spirometer at least hourly to combat the effects of anaesthetic agents in the lungs and to fully re-expand the lungs following surgery.

Patients are also educated about oral care and how reducing the amount of oral bacteria can minimise the risk of developing a chest infection following surgery. By simply brushing teeth regularly and using a mouthwash before planned surgery can reduce the risks of acquiring a chest infection following major surgery.

Another major element of the ERAS+ programme is to support patients in increasing levels of activity to train for surgery. Improving fitness levels and muscle strength prior to a major operation has been shown to greatly improve recovery. The fitter you are before surgery, the quicker you will mobilise and recover from a major operation. Patients are asked to view major surgery as a significant event in life which they should prepare for by undertaking training activities; similar to an athlete preparing for a sporting event. Based on fitness levels, patients are encouraged to increase the amount of any activity they enjoy which may range from leisurely exercise such as walking and gardening to increasing more strenuous activity such as swimming or cycling.

In order to help patients understand the impact of surgery and how ERAS+ can support them through their surgical journey, patients are encouraged to attend Surgery School prior to their operation. Surgery School essentially teaches patients how to train for surgery and what to expect following surgery. The benefits of exercise and incentive spirometry are explained to patients who are encouraged to bring a relative or friend with them to provide support during their training for, and recovery from major surgery. Surgery School is an excellent opportunity for patients and their family/friends to ask any questions they may have regarding their operation and they also have the opportunity to visit the ward areas they’ll be staying in during their hospital stay. An incentive spirometry device is often provided to patients during Surgery School so they can practice breathing exercises and understand the benefits of ICOUGH.

Since its implementation at Manchester University NHS Foundation Trust, the benefits of ERAS+ have been explored in over 1000 patients. ERAS+ has resulted in a 50% reduction in PPC rates following surgery and an average reduction in hospital length of stay of 3 days.

The multi-disciplinary team at Manchester University NHS Foundation Trust envisage the ERAS+ programme being adopted nationwide across all hospitals in the UK to benefit all major surgical patients.

**Learning points**
- Educating patients about the benefits of training before a major operation will help ensure patients experience a quicker and more effective recovery, with a reduced risk of developing PPCs.
- It is also important to educate patients on the benefits of oral care supporting the prevention of developing a chest infection following surgery.
**Stronger flu vaccine may keep elderly out of hospital**

*Increasing dose of flu vaccine could prevent respiratory infection in frail elderly, study finds*

A recent, large-scale clinical trial in the US found that flu vaccines with 4 times the antigen dose compared to the standard vaccination reduced hospitalisation for respiratory illness in elderly nursing home residents by 12.7%.

The hospitalisation rates for other reasons, including cardiovascular symptoms, were also found to be lower in the group that received the higher dose vaccine.

The elderly make up 90% of influenza related deaths annually, and are susceptible to complications such as respiratory infection; the leading cause of hospital admissions from infectious disease.

To find out more please visit... [https://www.huffingtonpost.com/entry/influenza-vaccine-linked-to-less-hospitalizations-among_us_59773d1ce4b0940189700c93](https://www.huffingtonpost.com/entry/influenza-vaccine-linked-to-less-hospitalizations-among_us_59773d1ce4b0940189700c93)

**Steroid inhalers linked to hard-to-treat infections**

*Treating asthma or Chronic Obstructive Pulmonary Disease (COPD) with steroid inhalers increases bacterial lung infection risk in the elderly*

Older people using steroid inhalers to treat asthma or COPD are at higher risk of contracting hard-to-treat bacterial lung infections, according to a recent study.

Lung infections caused by nontuberculous mycobacteria, a serious, difficult to treat bacterium, known to be resistant to multiple antibiotics, were twice as likely to be diagnosed in patients currently using steroid inhalers, with the risk increasing with prolonged steroid use. Fluticasone steroids were also found to be particularly risky.

Previous research has suggested that this effect may be due to a reduction in immune cells caused by the steroids, hindering their ability to fight infection.


**Upcoming Events...**

*Priorities for improving care for older people in England: funding, service redesign and meeting the demands of an ageing population*

9th March 2018

This seminar will provide a timely opportunity to consider the policy priorities for improving care for older people and meeting the demands of an ageing population in England.

[http://www.westminsterforumprojects.co.uk/conference/older-peoples-services-17](http://www.westminsterforumprojects.co.uk/conference/older-peoples-services-17)

**Age UK for Later Life Conference**

14th March 2018

The conference is a key date for people interested in ageing policy and who are passionate about delivering quality services for older people. The theme for the 2018 conference is ‘A Later Life worth Living’.

[http://www.ageuk.org.uk/professional-resources-home/conferences/forlaterlife/](http://www.ageuk.org.uk/professional-resources-home/conferences/forlaterlife/)

**British Geriatrics Society (BGS) Spring Meeting**

11th April 2018 – 13th April 2018

The BGS Autumn meeting will cover the latest scientific research and the best clinical practice in the care of the older people. The conference will cover core areas of interest to all specialists responsible for the health care of older people in the United Kingdom.

The convergence of Technology Enabled Care (TEC): Interoperability between Technology Enabled Care (Telehealth) and Big Data in respiratory care

Jens Espeland is a specialist in General Medicine and Public Health and holds a Masters in Health Management from the University of Oslo. He has extensive experience as a General Practitioner and Public Health Officer in a large Norwegian municipality. He is co-founder and Chief Medical Officer of Dignio A/S who have developed a comprehensive TEC platform and methodology for remote care.

TEC is often used as a “catch-all” phrase for any combination of Remote Patient Monitoring, Telehealth, Telecare and Telemedicine.

Remote Patient Monitoring involves the use of connected medical devices, which encourage the patient to monitor and manage their own vital signs and clinical symptoms, on a regular basis, to detect and prevent any deterioration in their health and achieve better understanding of their own illness.

Patients with multiple long-term conditions, such as respiratory disorders, can experience deterioration in their health at any time. The challenge is to detect deterioration early and initiate necessary treatment. Remote monitoring and communication using secure connected devices provides clinicians and health care professionals with a real-time view of a patient, enabling them to detect problems, diagnose the cause and divert them from unscheduled hospital admission. The patient’s access to all measurements and communication gives them important knowledge about their own illness and important preventive actions.

There is a wide range of connected devices, from automated pill dispensers, Bluetooth pulsoxymeter, spirometer and scales which even non-technically literate patients are comfortable using. The data generated uses secure store-and-forward technology to transmit data from multiple devices to a secure TeleHealth platform providing a holistic view of the patient on that day and display trend information over selected periods of time.

Risk stratification and organization of the incoming data by modern TEC platforms enables health care professionals to review and interpret the stream of incoming data from devices, clinical feedback and patient communication enabling clinicians to prioritise action options and response based on the context.

Respiratory diseases and patient management programs are ideal for TeleHealth delivered services. Respiratory nurses and clinicians are well qualified to provide TEC to their patients because of their high knowledge of and “hands on” approach to respiratory disease conditions.

Educating patients about their condition, by using the TEC platform on a daily basis, is critical to the success of any TeleHealth project. It includes helping patients to develop self-managements skills by using telecare, teaching them how to recognise symptoms, modifying their behaviour, engaging with their condition and discovering which triggers lead to acute exacerbations.

Chronic obstructive pulmonary disease (COPD) is a growing challenge for all parts of the health service. COPD is predicted to become the fifth most frequent cause of disability. It is the second largest source of emergency hospital admissions, triggering in excess of one million bed days and is responsible for 21% of all respiratory beds each year in the UK. It has been estimated that these admissions account for 54% of the U.K. total £800m spent on COPD.

In 2007 the British Lung Foundation estimated around 75% of COPD cases are currently undiagnosed, and a large percentage of non-sufferers remain unaware of the condition. It follows that a modern TeleHealth solution for this cohort of patients could generate massive amounts of high quality data. The amount of context rich data, especially from a cohort of patients with a high degree of co-morbidity, can significantly reduce patient deterioration and demonstrate a real impact on patient outcomes.

A recent trial undertaken by the city of Oslo in Norway, involving a cohort of 172 patients has produced verifiable results, which indicate a positive outcome for this group of seriously ill patients (VIS, 2016).

32% Fewer hospital admissions
42% Reduction in outpatient consultations
39% Decrease in hospital bed days
59% Less home nursing

With health providers facing having to do more things for more people for longer with fewer resources the positive outcome from Technology Enabled Care is important. This provides new opportunities for patients, health professionals and health providers.

COPD health data can be collected, monitored and analysed to shape personalized health care programmes and predictive interventions. Many areas of respiratory research and care would improve with better big data analytics: epidemiology, clinical trials, genomics, health insurance, operations and patient care.

All of the data being generated from these studies will provide new insights, leading to advances in COPD patient care practices, health care operations and disease and drug monitoring.

Learning points
- Remote monitoring of respiratory patients can help to prevent escalation of symptoms and subsequent hospitalisation
- Telehealth has the potential for patients to self-manage their conditions and prevent exacerbations
- Telehealth can be used to gather large volumes of data both for biomedical research and for improving patient outcomes

References:
How to Help Elderly Family Members with Their Asthma Medication

An engineer at heart and entrepreneur by trade, Ali Moiyed has made a career of fulfilling customer need through exciting new technology. Some of his most exciting business endeavours include PrimaLink, VendPoll and AccessPay. These ventures have taught Ali that one must first identify gaps in the market in order to innovate and disrupt in the modern technological business ecosystem. He believes in starting a business relationship with trust and in the necessity of making mistakes, as well as results based harmonious leadership. Ali is always open to re-connecting, and to making new business connections to anyone with a creative mind-set.

If you’ve got an elderly family member who has to take regular medication, you’ll know how important it is for them to take their medication on time and correctly. It’s often hard because you can’t keep an eye on them all the time, and you have to trust them to adhere to their medication when you’re not around. Are they going to take the full dosage? Will they remember to take it at exactly the right time?

As we get older, it becomes more challenging to remember to take medication on time, particularly if you suffer from asthma, and you need to use your inhaler frequently. Also, sadly, some elderly patients get to a point where they are unable to continue to be responsible for taking their medication, or they need loved ones to constantly remind them, which can be quite challenging.

When it comes to asthma medication, it’s vital that it’s taken properly and regularly. In fact, improper inhaler technique is associated with poor asthma control and frequent emergency department visits.

But what if there was a smart solution? It’s almost impossible to keep an eye on when an elderly family member takes their asthma medication, but a smart inhaler can solve this issue. It can send updates via an app on not only when an inhaler is used, but the effectiveness of the technique.

Persuading older family members to take their asthma medication can often be difficult. Sometimes they feel that they are doing well enough to not require such frequent doses, and occasionally they become less interested in looking after their own health and wellbeing. Having a device to remind them might just give them the push they need, and help get them into a routine.

Tracking when medicines were taken
What a lot of family members struggle with is wondering whether elderly family members have even taken their medication at all, and how many doses they might be missing.

Aerobit uses smart inhaler tracking technology to report exactly when medication is taken, so those overseeing a patient will be alerted if a dose is missed. With asthma especially, this can be lifesaving. This smart inhaler is often used for children who struggle to settle into a routine and understand how to take their medication, but it’s equally as useful for adults.

Also, crucially, it keeps family members and carers in the loop with progress by sharing critical health data. Alerts are also sent to the patient’s smartphone, which tells them when they need to take their medication. Or if an elderly person doesn’t use smartphones, it can send a text message to a phone.

Information about how they were taken
A common issue with asthma medication in particular, is taking the medication properly. Lots of people aren’t aware that they’re using an incorrect technique. If the medicine isn’t inhaled properly, it doesn’t reach the lungs and help where it’s needed most.
The Aerobit smart inhaler device measures the quality of each dose. So one will know if an elderly family member hasn’t taken their asthma medication properly, and could be at risk. It also syncs data with the app and healthcare providers via Bluetooth.

**When medication is missed**
The consequences of drug noncompliance may be serious in older patients, according to a study by Salzman C (1995). Estimates of the extent of noncompliance in the elderly vary, ranging from 40% to a high of 75%.

Issues that arise from elderly patients not taking medication, especially asthma medication can on occasion be more serious than with younger people. Their immune system isn’t as strong, and any illnesses that arise from not taking medication can be more serious and occasionally, fatal.

Another reason why older people tend to forget to take medication is because they may be taking several types of medication at any one time. As people age, they may experience a variety of ongoing health concerns, and get prescribed all sorts of confusing medications; as many as 25% of older people take at least three drugs.

Research has shown that using three or more drugs a day puts elderly people at particular risk of poor compliance (Bracewell, et al 2010). With the smart inhaler, patients get reminders and have a set schedule to take their asthma medication, which means they’re less likely to forget. Plus, if they are taking a myriad of other medications, they can clearly distinguish how and when to use their inhaler.

**What if asthma medication is being overused?**
In research by Salzman (1995), three common forms of drug treatment noncompliance are found in the elderly: overuse and abuse, forgetting, and alteration of schedules and doses. This is something a lot of people don’t think of. Whilst their main concern is usually worrying about loved ones taking enough medication, some older people actually end up taking too much of their medication. This is often because people mistakenly believe that taking more of a certain drug will help them recover quicker. When it comes to asthma medication, it’s so important to take medication at the right times and exactly the right dosage. The smart inhaler provides a solution to this as it will alert carers if a patient is using their inhaler too much.

It’s clear that the use of smart technology can assist with medical adherence, especially in older patients. In the case of the smart inhaler, it can help save costs for places like care homes because it sends people to remind patients when to take medicines. It can identify who has missed their medication and remind them to take it by an alert or sending someone to assist with administration.

For more information about the Aerobit Smart inhaler visit their website at: [https://www.aerobithealth.com/](https://www.aerobithealth.com/)

**Learning points**
- Proper inhaler technique is necessary for good asthma control and for avoiding hospital visits, however this can be difficult for older patients
- The Aerobit smart inhaler device solves this problem by sending updates to relatives or carers about when and how the inhaler is used
- The inhaler can also provide alerts to the patients if any doses are missed, reducing the risk of complications arising from poor compliance

**References**

Integrated Respiratory Care

Dr Patel trained in London and undertook postgraduate research into mechanisms of COPD exacerbations at the London Chest Hospital. Her specialist and research interests include COPD, respiratory infection, respiratory failure and the development and delivery of pathways of care for patients with chronic respiratory disease. She works closely with local Clinical Commissioning Groups and Local Care Networks to inform local respiratory strategy.

Dr Patel was a member of the London Respiratory Network from 2013-2016 and co-lead of the London Clinical Oxygen Network until 2016. On a national level she was involved in the development of competency frameworks to support the National COPD Strategy and has worked as Clinical Adviser and Steering Group member for a number of NHS Improvement COPD and Asthma projects. She is a clinical advisor to the British Lung Foundation and has served on the BTS Council and Education and Training Committees. Dr Patel is Associate Editor of the Primary Care Respiratory Journal.

Background:

Atul Gawande, author of “The Checklist Manifesto; How to Get Things Right”, states that:

“medicine’s complexity has exceeded our individual capabilities as doctors… we are all specialists now, even primary care doctors...the public’s experience is that we have amazing clinicians and technologies…. but little consistent sense that they come together to provide an actual system of care, from start to finish, for people….” (Atul, 2011).

Providing a system of care for people with long term conditions, which delivers value based outcomes that matter to patients as people (Porter, 2011), is an increasing challenge for health and social care organisations. Integrated care is a response to this challenge.

Recent decades have seen a steady rise in acute hospital admissions, coupled with issues of increasing longevity, multiple morbidity and frailty. When asked, patients and their carers say that they want coordinated care, a known point of contact, to be involved in decisions relating to them, to have planned transitions of care and to be supported at home (National Voices, 2012). Patients with one or more long term conditions, many of whom are over 65 need a model of care which is responsive in the acute setting but also encompasses supported self-management, enhanced communication, partnerships of care, accessible specialist care, convenient follow up and palliative care. The evidence is that primary, secondary, social care or community services working alone cannot address these needs. Concern around poor cohesion and silo-working amongst the multiple agencies involved in health and social care has led to a number of initiatives to strengthen community resources and to move “from hospitals to health systems”. (Hussain & Dornhorst, 2015 & The Kings Fund, 2015). This requires a rethinking of traditional boundaries and roles, with professionals of different backgrounds and skills, frequently employed by different organisations, working together in a coordinated way.

Integrated care involves a move from reactive, disease specific care to a more proactive patient-centred and population focused approach. The aim is to organise care around the patient, such that people receive the right care from the most appropriate professional, at the optimal time and in the optimal environment. Timely access to specialist care is a central tenet of this approach, but integrated care encompasses a broader definition of specialist care and provides opportunities for innovative approaches to focus on the wider health needs of a local population, many of whom are over 65.

Integrated care for respiratory conditions:

Respiratory disease is multi-faceted and affects one in 5 people in the UK; there are over 30 different lung conditions, many of which are long term conditions. These account for significant disability adjusted life years and as such are increasingly prevalent in the older population. Older people have a higher prevalence of exposure to risk factors for lung disease, such as smoking, air pollution and work
related lung damage. Therefore, respiratory disease accounts for a significant and growing part of the global chronic disease health burden. There were 9.5 million deaths due to respiratory disease globally in 2008. Respiratory disease is the third leading cause of death in the UK, with 80,000 deaths nationally in 2012, including 23,000 deaths a year due to COPD alone, but not including lung cancer, which kills an additional 35,000 people each year. Substantial and rising amounts of healthcare expenditure and resources are directed at managing lung conditions, and yet access to care, patient outcomes and patient experience are highly variable (NHS Right Care and Eastern Region Public Health Observatory, 2012).

Breathlessness is a commonly shared symptom which overlaps with many other conditions including cardiovascular and systemic disease, and therefore diagnosis of respiratory disease can be difficult or may be delayed, particularly in the older population. Respiratory symptoms are highly prevalent in people over 65 with 64% of non-smokers, 70% of ex-smokers and 80% of current smokers over this age reporting symptoms. Up to 6 million people suffer from COPD or asthma in the UK however misdiagnosis, late diagnosis and inappropriate long term management of airways disease continue to pose challenges. Lung cancer survival rates in the UK trail those in Europe over to 1.5 million people may have sleep apnoea in the UK, although far fewer are currently diagnosed. Pneumonia, COPD and asthma are amongst the most frequent causes of acute admission to hospital, however not all patients see a respiratory specialist as part of their care and many are discharged only to be readmitted. Respiratory inhalers are among the costliest drugs to the health economy in the UK, with exponential rises in their prescription in recent years; however, there are significant gaps in their evidence-based use and increasing concern about potential overuse, harm and waste. For all of these reasons, integrated respiratory care has risen to prominence as a means of both enhancing the care of the individual patient with a lung condition as well as improving outcomes for a population of people with respiratory disease.

Much of the rationale for and evidence behind integrated respiratory care currently focuses on patients with chronic obstructive pulmonary disease (COPD) (Nici & ZuWallack, 2012). COPD is projected to become the third leading cause of death globally by 2030 and affects up to 20% of people over 70. COPD accounts for one fifth of all hospital admissions in people aged over 75 years and healthcare costs are 2.5 times higher for this population than age matched controls without COPD. Many of the physiological changes seen in COPD are related to an accelerated process of lung ageing, and there is also the risk that people with lung function which is “normal” for their age could be labelled with having COPD and given medications which they do not need, thereby adding to the burden of polypharmacy and risks of possible side effects.

Implementation of a chronic care model (Wagner, 1998) in the care of patients with COPD has been shown to improve patient outcomes and reduce hospital admissions by up to 30% (Kruis et al., 2013). Components of this model include (Adams et al., 2007 & Steuten et al., 2009):

- Patient education and supported self-management including pulmonary rehabilitation
- Decision support systems including guidelines and staff education
- Bundles of care e.g. the COPD Discharge Bundle (Hopkinson et al., 2011)
- Clinical information e.g. disease registers, and information sharing
- Advanced access for patients to knowledgeable health care providers including admission avoidance and hospital at home schemes

This approach should not be limited to the care of patients with COPD. Integrated respiratory care aims to bring these evidence based components of care together in a patient centred structured model and can be considered for a number of lung conditions including asthma, bronchiectasis, interstitial lung disease, respiratory failure and sleep disordered breathing. The British Thoracic Society defines integrated respiratory care as “the best possible care for the patient, delivered by the most suitable health professional, at the optimal time, in the most suitable setting” and states that “secondary care specialists should be more aware of our responsibility for the welfare of populations, not just the patient before us….most management of disease is in the community and it is no longer acceptable to squirrel away knowledge in hospitals” (British Thoracic Society, 2014). An important aspect of this model therefore includes respiratory specialists (consultants, physiotherapists, specialist nurses, lung function technicians) working together continued on next page
across hospital and community, and linking with generic teams. To enable this, multidisciplinary members of an integrated team must develop new knowledge and skills around long term conditions management and collaborative care planning. Roles for respiratory specialists working in this way can include:

- Working with medical admission units and hospital at home teams to oversee admission avoidance and supported discharge schemes
- Working with primary care teams to support accurate diagnosis, quality assured spirometry and evidence based long term management of respiratory disease
- Supporting evidence based treatment of tobacco dependence for sick smokers
- Supporting and coordinating responsible respiratory prescribing across a locality
- Overseeing and delivering home oxygen assessment and review services
- Delivering comprehensive pulmonary rehabilitation
- Overseeing domiciliary ventilatory support and sleep services in the community
- Supporting assessment and management of patients with complex breathlessness in the community, working with colleagues in cardiology, psychology and others
- Working with others to support patients with respiratory disease at the end of life
- Acting as a learning resource to support respiratory knowledge and skills amongst colleagues in the community (primary care, district nursing, community pharmacy)

Primary care clinicians and teams are of course key to integrated respiratory care and specific roles can operate either within an individual practice, or across a locality. These may include respiratory leadership and championing respiratory health, overseeing referral pathways through triage and peer to peer support, supporting respiratory competencies, or facilitating different providers to work innovatively together through commissioning.

The combination of interventions which define the optimal model of integrated respiratory care are likely to depend on local disease prevalence, resources and need. These challenges are not unique to respiratory medicine, and there are inevitable synergies with the organisation for care for other long term conditions which cluster together and share common risk factors, e.g. cardiovascular disease, as well as joint working with colleagues with in other specialties e.g. gerontology and diabetes. Future research needs to focus on exploring the key components of new models of care in different settings and the benefits that these can bring to patients, clinicians and the healthcare system.

**Learning points**

- Integrated care is essential to deliver patient-centred care which considers multiple long-term conditions, particularly in the elderly
- Integrated respiratory care can improve patient outcomes and reduce hospital admissions
- Multidisciplinary teams including respiratory specialists are essential for the delivery of integrated respiratory care to patients

**References:**


Evaluation of continuous positive airway pressure (CPAP) in older people with obstructive sleep apnoea syndrome – The PREDICT trial

Alison is a Consultant Respiratory and General Physician, and runs the sleep service in East North Hertfordshire NHS trust. She completed a period of clinical research in the academic unit of Sleep and Ventilation, National Heart and Lung Institute, Royal Brompton Hospital, Imperial College London. Her research focused on evaluating CPAP therapy in older people with obstructive sleep apnoea and her area of interest continues to be the application of CPAP therapy in specialist populations including the elderly. She is also a member of the British Sleep Society executive committee.

Obstructive sleep apnoea syndrome (OSAS) is a common condition in which the walls of the throat repeatedly relax during sleep, blocking the airway for a few seconds, which disrupts sleep and makes some people sleepier in the daytime. There is accumulating evidence that OSAS is associated with high blood pressure and possible increased risk of heart attack, stroke and impairment in functional outcomes.

OSAS is the third most common respiratory disorder, after asthma and chronic obstructive pulmonary disease. In its severe form it affects from 2–4% of middle-aged people (Young et al. 1993). In older people, the prevalence is much greater, with up to 20% of older people having OSAS (Young et al. 2002) although the prevalence may vary due to the population studied and how the condition is formally diagnosed.

OSAS can be treated with continuous positive airway pressure (CPAP), which splints open the airway, thereby normalising breathing while asleep.

A previous report by the National Institute for Health and Care Excellence (McDaid et al. 2009) concluded that CPAP is clinically effective at reducing sleepiness and is a cost-effective treatment for OSAS in middle-aged people. However, the beneficial effects of CPAP may not be generalised across age groups including older people. This may be because older patients with OSAS appear to experience less daytime sleepiness (Morrell at al. 2012) or may have other medical causes for sleepiness and hence it may be more difficult to ascertain which symptoms are related to OSAS. Additionally, it cannot be assumed that older people with OSAS will have the same consequences as those in younger populations. It is not known what is considered physiological or pathological in terms of the severity of OSAS in this population and it was unclear how current evidence for treatment to the extremes of age or frail elderly should be applied.

The PREDICT trial (McMillan et al. 2014) was designed to address this question and was funded by the National Institute of Health Research. 278 people with newly diagnosed OSAS aged 65 years and above were recruited from 14 sleep centres throughout the UK. Patients were randomised to receive either CPAP therapy or usual care for 12 months. Daytime sleepiness, and many other variables including weight, blood pressure, blood tests and mobility were measured. Additionally, patients completed questionnaires capturing their mood, memory and quality of life and recorded any side effects of CPAP treatment. Treatment costs over the 12 month period were recorded. Overall 231 (83%) patients completed the trial and the average age was 71 years.

The results showed that older patients with OSAS treated with CPAP had significantly less daytime sleepiness than those who did not receive CPAP. The effect of treatment was greatest in patients who were sleepier or had high CPAP use. A comparison of the costs of treatment suggested CPAP meet the usual criteria for being funded by the NHS.

Conclusion

The results of the PREDICT trial confirmed that CPAP therapy reduces the symptoms of excessive daytime sleepiness in older patients with OSAS, as it does in middle-aged populations, and that these clinical benefits are associated with reduction in health care utilisation.

Prior to the PREDICT trial very little information was available for clinicians and health care professionals regarding the best way to treat OSAS in older people, and even less information was available on how CPAP impacted on quality of life and the cost-effectiveness in this population. Based on these findings it is recommended that CPAP should be offered routinely to older patients with OSAS, additionally it is a cost effective treatment for the NHS (McMillan et al. 2015). Future research should focus on how best to optimize CPAP delivery in this age group.

Learning points

- Obstructive Sleep Apnoea Syndrome (OSAS) is relatively common in older people and can cause problems such as daytime sleepiness
- Continuous Positive Airway Pressure (CPAP) is a treatment in which the walls of the throat is held open during sleep to allow normal breathing
- Continuous Positive Airway Pressure (CPAP) has shown to reduce and improve quality of life in older Obstructive Sleep Apnoea Syndrome (OSAS) patients, whilst being cost effective for the NHS

References:


Combined Inhaler use in chronic obstructive pulmonary disease
People who are prescribed a combined inhaler (corticosteroid and long-acting beta-2-agonist) are 25% less likely to have a flare-up of their chronic obstructive pulmonary disease. Evidence shows people who take combined inhalers demonstrate small improvements in their quality of life, symptoms related to chronic obstructive pulmonary disease and their breathing tests. However, these improvements may not have been very noticeable to them.

Bronchiectasis
Bronchiectasis is a long-term respiratory disease that is commonly associated with a troublesome cough productive of mucous (or chronic wet cough in children) and recurrent flare-ups (exacerbations) due to lung infections. A Cochrane review in 2015 which summarised nine previous reviews looked at what treatments are effective for these patients.

Taking prescribed long term antibiotics has been shown to cause a reduction in sputum production, the rate of flare-ups and the likelihood of requiring hospitalisation. Patients who have been prescribed inhaled corticosteroids for their bronchiectasis have showed an improvement in their lung function, however this effect is small and not clinically relevant. Airway clearance techniques which were taught by physiotherapists to help keep the airways clear of sputum has been shown to improve patient’s quality of life.

A further review in 2009 supports the use of the Pneumococcal vaccine (a vaccine for pneumonia) for patients with bronchiectasis.

Respiratory Infections
Upper Respiratory Tract Infections include the common cold and inflammation of the trachea and larynx, with symptoms including fever, cough, pain and headaches. Most acute Upper Respiratory Tract Infection are caused by viral infections and usually resolve after three to seven days.

Probiotics for preventing acute upper respiratory tract infections
There is increasing consumption of probiotics (live microorganisms), probiotics were found to be better than placebo in reducing the number of participants experiencing episodes of acute Upper Respiratory Tract Infections by about 47%. However the quality of the evidence is low or very low mainly due to poorly conducted studies.

Saline nose spray for acute upper respiratory tract infections
Saline nose spray is often employed as an additional treatment for people with upper respiratory tract infection symptoms. Participants showed significant reductions in a number of symptoms, including nasal secretions, sore throat, nasal breathing score and nasal obstruction, as well as reduced use of additional nasal decongestant medications. Minor nasal discomfort and/or irritation was the only side effect reported by a minority of participants. However the evidence for the saline nose spray is of low quality.

Physical interventions to interrupt or reduce the spread of respiratory virus infections
While respiratory viruses usually only cause minor disease, they can cause epidemics. Approximately 10% to 15% of people worldwide contract influenza annually, this rises up 50% during major epidemics. The spread of respiratory virus can be reduced by hygiene measures (such as handwashing), particularly around younger children, it can also reduce transmission from children to other household members. Implementing barriers to transmission, such as isolation, and hygienic measures (wearing masks, gloves and gowns) can be effective in containing respiratory virus epidemics or in hospital wards.

Influenza vaccinations
Influenza (flu) is a contagious respiratory illness caused by flu viruses. It can cause mild to severe illness, and at times can lead to death. The flu is different from a cold and usually comes on suddenly. Many health systems recommend influenza vaccination of older people. However, vaccination uptake varies across countries, socioeconomic and health-risk groups.

References:


What is your current position and what was your career path that took you there?
I am President of the TEC Services Association (TSA), the national body for technology enabled care (TEC) services and have a portfolio of non-executive and academic roles in the NHS and social care. I served as the MP for Sutton & Cheam for 18 years during which time I served in the Coalition Government as Minister of State for Care Services where I held responsibility for a wide brief including technology enabled care.

What challenges do you face in your current position and which has been the greatest one?
The biggest challenge is helping NHS and social care commissioners to take evidence-informed decisions to include TEC in redesigned services. There is already sufficient actionable evidence to deploy TEC services at scale for a range of long term conditions and frailty. The benefits are peace of mind for families, greater independence and self-care for people and reduced rates of unplanned admission to, and length of stay in, hospital.

What experience has influenced your career the most?
While leading a research project for the think tank Demos on the future of residential care, I visited a university campus in Boston, USA. While waiting in the café for the Vice Principal I was struck by the lively chatter of a group of students. They were talking about the courses they had enrolled on. The students were in their 80s and they lived in a retirement village on the campus. That taught me there is a lot of stigma and self-stigma about ageing.

In your opinion, what are the top three issues affecting the care of older people?
• Lack of planning for later life;
• Lack of understanding that care is not free like the NHS; and
• A fragile care market.

What changes in elderly care do you anticipate in the next few years?
I think there are three trends in care that will impact over the next few years. First, the adoption of asset based community approaches to supporting people to remain resilient and independent. Second, incorporation of consumer selected devices such voice interactive technology, for example Amazon Echo, smart fridges and other household appliances into bundles of TEC. Third, recognition of the critical role of housing in supporting people in their later lives.

What do you enjoy doing when you are not working?
I love cooking and I enjoy walking with my wife Mary and our dog Indy in the Surrey Hills.

What do you do in a typical working day?
There is no such thing.

If you were stranded on a desert island what would be your one luxury?
A full wine cellar.

What do you anticipate in elderly care in the next few years?
I think there are three trends in care that will impact over the next few years. First, the adoption of asset based community approaches to supporting people to remain resilient and independent. Second, incorporation of consumer selected devices such voice interactive technology, for example Amazon Echo, smart fridges and other household appliances into bundles of TEC. Third, recognition of the critical role of housing in supporting people in their later lives.

What advice would you give to someone contemplating following in your footsteps?
Find a passion.
In our next quarterly issue of Innov-age we will be looking at obesity and older people.

It is commonly known that being obese brings a multitude of health problems, including diabetes, heart disease and cancer. Carrying excessive weight can severely impact the quality of life in elderly people who may already be frail and at risk for reduced physical ability. Despite this, the prevalence of obesity in adults continues to rise, with the likelihood of requiring social care tripled in severely obese individuals.