

# Prize Winning Abstracts 2019

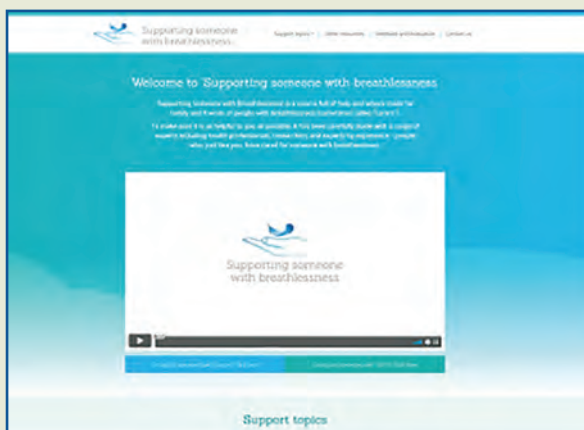
### Overall Winning Conference Abstract - PCRS Conference 2019



#### What informal carers of people living with breathlessness in advanced disease want to learn about “What to expect in the future”

Morag Farquhar, Gail Ewing, Sylvia Barnes  
*University of East Anglia, Norwich, Norfolk*

Morag Farquhar of the University of East Anglia (Norfolk) provided an update on the development of the prototype web-based learning resource ‘Supporting someone with breathless’ aimed at carers of people with breathless. The resource will cover key topics that carers want to learn about in relation to breathlessness: understanding breathlessness; anxiety, panic and breathlessness; managing infections; keeping active; living positively; and what to expect in the future. Content for 5 of the 6 key topics is in place and Morag shared the results of two disease-specific focus groups undertaken to develop content for the final topic – what to expect in the future. Twelve bereaved carers of people with breathlessness due to cancer or COPD identified coping with symptom changes as the patient’s condition worsened, discussing ‘the future’ with others, accessing care and support, administrative tasks, and coping with emotions after the patient’s death, as important areas to be included in this section. Insights from these focus groups has allowed Morag and her team to create sensitive website content, mapped to carers learning needs. Now that the content for all six key topics is available, evaluations are underway to gain clinician, patient and carer feedback on the content and accessibility (self-accessed or via peer-led support groups, clinician-led groups or clinical one-to-ones).



Further information about this learning resource can be obtained from [SNAP.team@uea.ac.uk](mailto:SNAP.team@uea.ac.uk) or through social media (Twitter) @LaB2\_Study.

### Winning Scientific Research Poster Award

#### Blended learning for Primary Care Physicians on Chronic Obstructive Pulmonary Disease (COPD): A feasibility study in Bangladesh

Uzzaman MN, Jackson T, Uddin U, Rowa-Dewar N, Habib GMM, Pinnock H  
*International Centre for Diarrhoeal Disease Research, Bangladesh*

Colleagues from Bangladesh were awarded the Best Scientific Research Poster award this year for their work to develop a blended learning approach to support continuing education for Primary Care Physicians (PCPs) without the need to take valuable time away from their clinical practice. In areas where PCPs are unable to take extended periods away from their clinical practice to ensure their knowledge and skills are up to date across multiple therapeutic areas, a blended learning approach may provide a practical alternative. Dr Uzzaman and colleagues undertook a feasibility study to explore participants perspectives towards a blended learning approach using COPD as a disease model for the education program. Their research demonstrated that PCPs would be willing to participate in a blended learning programme that did not require extended time away from their

practice. This approach will be important to ensure time-pressured PCPs can receive up to date education and training. Patients will also benefit as their PCPs are empowered to provide optimal treatment.

In an era of multi-channel communications, it is important to utilise multiple communications streams to enable and empower all health care professionals to keep up to date with the latest developments in clinical practice and the PCRS congratulate the authors on their encouraging work in this area.

### Winning Best Practice/Service Development Poster Award

#### **Creating a home exercise programme for COPD patients unable to attend pulmonary rehabilitation**

Jayaraajan K, Waheed B  
*Imperial College London*

Despite the proven effectiveness of pulmonary rehabilitation (PR) can help patients with COPD to better manage their symptoms and improve their quality of life, uptake is poor. There appear to be multiple barriers to patients attending and adhering to PR including time constraints, travel and limited self-efficacy to participate in such a programme. As third year medical students, K Jayaraajan and B Waheed witnessed this firsthand during their general practice placement. In response, they developed a home exercise programme that they hoped would at least empower patients unable or unwilling to attend PR to take steps at home to manage their condition with the hope that they would ultimately engage with PR services. The exercise programme was developed in collaboration with physiotherapist colleagues, a patient booklet and accompanying YouTube tutorial was developed to demonstrate a set of low intensity home exercises. A pilot study among 10 patients showed that 8 of them reported that they would use the programme at home. Kingston Health Center has now integrated the programme into their COPD clinical guidance and the effectiveness of the programme will be followed up as more patients are offered this service.

Ensuring patients are referred to and empowered to engage with PR is an important component of delivering optimal care for patients with COPD. Overcoming the barriers patients face, both real and perceived, to undertake some form of guided exercise could potentially benefit patients unlikely to attend or adhere to PR services in a healthcare setting. PCRS congratulate the authors on their work to develop a homebased approach which may ultimately overcome some of the barrier's patients face in engaging with guided exercise following a diagnosis of COPD..

### Most Patient centred Poster Award

#### **Exploring Patient Views on IMPLementing IMProved Asthma self-management as RoutTine (IMP2ART) Programme Developed Patient Resource**

Kirstie McClatchey for the IMP2ART programme group  
*University of Edinburgh*

Self-management is an important component of the routine management of chronic conditions. The IMP2ART programme is focused on asthma self-management. As part of the programme, a range of patient-focused materials including asthma review invitation letters, self-management promotion poster and a website to provide patients with information about their condition have been developed. Patient feedback on these materials highlighted the novel nature of the invitation letter in promoting patient ownership of the asthma action plan. Patients offered a number of suggestions for improvement including greater emphasis on the importance of review attendance and inclusion of social support networks on the website. The patient-directed resources will now be integrated into the pilot evaluation of IMP2ART which will include 12 practices initially. A UK-wide trial will follow which will include 144 general practices which will evaluate the impact and cost-effectiveness of the IMP2ART implementation strategy.

PCRS congratulate the IMP2ART group on this important work towards empowering patients with asthma to engage with the management of their own condition and we look forward to the results of the pilot evaluation of the programme as a whole in 2020.

# The top five best practice/service development abstracts

### The winning abstract

#### Home exercise programme improves quality of life for COPD patients

Two third year medical students on placement at the Kingston Health Centre GP practice created a home exercise programme for COPD patients to prevent them from missing out on the benefits of pulmonary rehabilitation (PR).

They realised that the barriers stopping patients attending PR included time constraints, travel issues and limited ability to participate in the programmes.

After liaising with and observing a physiotherapist deliver a PR session with 20 patients, they produced a patient booklet and some accompanying YouTube tutorials to demonstrate what home exercises to perform. Each exercise was kept at a low intensity and recovery tips and positions were explained in order to prevent patients over exerting themselves.

The booklet was further refined following a pilot with 10 patients. After the improvements were made 80% of patients said they would use the programme at home.

GPs in the practice were so impressed with the project that they integrated it into their new COPD clinical guidance.

“We hope that through enabling patients to do the exercises in the comfort of their own home, we will empower and encourage them to be more active, less breathless and more independent. With more time, we hope to measure the efficacy of our intervention by following them through time,” said the students.

#### Why this abstract won

The judges said: “The winning team addressed widely recognised but inadequately tackled inequality in the pulmonary rehabilitation service provision. They demonstrated innovative thinking and dedication to collaborate with a wider health-care team to produce the booklet and supporting videos. Their motivation to help significantly disadvantaged patients is inspiring and certainly deserved the recognition.”

*Creating a home exercise program for COPD patients unable to attend pulmonary rehabilitation  
Imperial College London – Jayaraajan K, Waheed B.*

Abstract ID 169

### Runner Up abstracts

#### The value of FeNO testing in a respiratory hub

FeNO testing is not just about diagnosis, but tailoring the treatment to the patient to give the best individualised care. It also helps to achieve a cost saving and reduces the steroid burden.

This is the conclusion of the Wallsend Respiratory Hub which set out to deliver quality assured spirometry, improve asthma management and assess the value of FeNO testing.

The team also reported that FeNO is a useful tool for behavioural change in patients and prescribers providing an extra piece of the jigsaw and giving confidence about optimising treatment.

Patients were seen for spirometry, FeNO testing, reversibility and offered counselling on inhaler choice and technique. Patients on high-dose inhaled corticosteroids were reviewed to assess the potential for dose reduction.

The team has not yet gained sufficient data to provide quantitative results yet but have qualitative data in the form of four cases which were presented in this abstract.

The four cases are:

1. In this patient spirometry showed a likely asthma diagnosis. FeNO results were 104ppb and Clenil inhaler was started. On review, FeNO was 20ppb and Montelukast was com-

menced. Further review showed FeNO scores remaining consistently low and ACT (Asthma Control Test) improved. The GP said: "FeNO is a very exciting and new concept to primary care. We found that patients like FeNO and it helps compliance."

2. Normal spirometry in peak flow variability. FeNO score 49 ppb, suggestive of asthma. Clenil inhaler was started and advice given. The nurse said: "This has dramatically changed the way we think about asthma."
3. Patient on high dose Seretide Evohaler but poor compliance. ACT score 21 and FeNO 27ppb. The patient was switched to a high dose Fostair inhaler and was encouraged to use it twice a day. On review the patient's ACT score was 25 and FeNO 19. The ICS dose was reduced to a medium dose.
4. The patient was on a high dose Seretide Accuhaler with an ACT score of 18, FeNO 13. The patient was switched to Duoresp Spiromax and their ICS dose was stepped down. The patient said: "I really like this new test, it's so easy and quick."

*North of England commissioning support (NECS) – Underhill L, Thompson S, Shearer R, McClaren S.*  
Abstract ID 142

nique despite 537 of them having a recent record of good technique. As a result 214 patients were provided with a spacer device and of those patients maintained on their current level of therapy, 301 were recommended a change in inhaler device.

- 41% of patients (466) presented with high levels of symptoms and exacerbations and pharmacists recommended an increase in current pharmacological management for 29% of these patients (135).
- Although a further 29% of patients already had an appropriate level of pharmacological treatment pharmacists recommended a change in device based on inhaler technique or rationalisation of their current regimen.

The abstract concluded that by ensuring patients are prescribed the optimal level of pharmacological treatment in an inhaler device they are best able to use and recommending appropriate non-pharmacological interventions, pharmacist programmes like this can contribute to reducing symptoms and future risk of exacerbations.

*Impact of pharmacist led clinics on the COPD population of Tameside and Glossop.*  
*Imperial College London – Interface Clinical Services – Lewis P, Hughes D, Birchall J, Ramachandran A*  
Abstract ID 157

### Pharmacists can play a key role in COPD care

Pharmacist-led clinics can support practices in improving COPD management through a proactive assessment of all patients with a diagnosis of COPD, this GSK sponsored programme demonstrated.

Interface Clinical Services, an independent clinical services provider, stratified patients in Tameside and Glossop according to recorded symptoms and exacerbations.

At baseline 23% of the COPD population (1171 patients) were recorded as having high levels of both symptoms and exacerbations.

Following discussion with the lead GP in each practice, appropriate patients were invited to the pharmacist-led clinics.

1133 patients from 29 practices were seen in 123 clinics. Pharmacists assessed patients' inhaler technique using an In Check device and symptoms using MRC and CAT test scoring.

Based on these assessments, pharmacists were then able to recommend appropriate pharmacological and nonpharmacological interventions for GP approval.

The outcomes:

- 58% of patients who had their inhaler technique checked in clinic (667) were found to have suboptimal inhaler tech-

### Patient data reveals huge gaps in COPD care

Substantial gaps in the delivery of COPD were revealed by an analysis of five years of data from patients using the British Lung Foundation COPD patient passport.

The patient passport was developed as a resource to help patients with COPD and clinicians to consider the care they have received and to identify essential omissions.

Each patient passport consists of 13 questions relating to key aspects of COPD care including: spirometry confirmation of diagnosis, understanding their diagnosis, support and a written management plan, vaccinations, smoking cessation, physical activity, exercise, eating well, pulmonary rehabilitation, exacerbations, medications, and yearly reviews.

Results:

Data from 41,769 entries completed online between November 2014 and April 2019, showed that:

- Only 24% of patients received support to manage their care and a written action plan
- Only 53% could spot the signs of an acute exacerbation
- Only 34% had discussed pulmonary rehabilitation.
- A quarter did not receive a flu vaccination

# Primary Care Respiratory Update

- One third of COPD smokers were not offered support to quit smoking.
- Only 80% of patients had a spirometry confirmed diagnosis, and knew the importance of being active and eating well.
- Most patients remained stable over time or got slightly worse.
- Only checking of inhaler technique had improved, though remaining poor with only about two thirds giving a positive response in 2019.

The researchers conclude: “There is little evidence that there has been improvement over five years covered by the data. This highlights the need for new approaches if the ambition set out in the NHS Long Term plan are to be met.”

*The quality of COPD patient care-outcomes from the British Lung Foundation patient passport National heart and Lung Institute, Imperial College London*  
Philip K EJ, Gaduzo S, Rogers J, Laffan M, Hopkinson N  
Abstract ID 152

## Respiratory group tackles social isolation

A ‘Lungs for Life’ group, an asset based clinic, has shown how to fulfil a need for social support and connection in people with advanced respiratory disease.

Developed by the Derby ImpACT + team, the informal group meets for two hours each week. The main activity is chatting over refreshments. They often play the ‘ungame’ (used in group therapy as a means of encouraging deeper conversations) or choose a topic to discuss. Occasionally there are craft

activities such as cake decorating or mug painting and outside speakers who discuss issues such as benefits or disability living information.

Results:

The group initially met fortnightly from December 2018 and then weekly from March 2019. The numbers of attendees (patients and carers) vary each week from 6 to 16 plus staff. The mean patient age is 72 years (range 58 to 81) with a 1:1 male: female ratio, 7 patients attend with a relative/carer.

The outcomes:

- All respondents reported an improvement in their well-being/life quality as a result of the group.
- When asked ‘what is the main benefit of the group for you?’ Most attendees replied that it was having social interaction with people who have similar lung conditions. One respondent explained that the group enabled them to feel ‘normal’: ‘I’m on oxygen and no one stares at me. I can start up a nebuliser and not feel conscious.’
- Attendees often seek medical advice from staff.
- Some patients were invited but did not attend. Common barriers appear to be lack of transport, low mood/anxiety, or feeling too fatigued.

The group has ambitions to develop similar groups in other areas of southern Derbyshire.

*Respiratory Advanced Care - the Derby ImpACT + Asset Based Clinic – ‘Lungs4Life’ University Hospitals of Derby and Burton NHS Foundation Trust*  
Aldridge R, Kidder S, Spendlove R, Smith S, Evans R, Subramanian D, Lowry G.  
Abstract ID 173



## Affiliated Groups

Working together to make a real difference in respiratory care



### PCRS is here to help you with

- Support and resources to help you get started and develop a new group
- An affiliation scheme offering enhanced credibility and support for your group from a national network
- A regular newsletter packed with ideas to help support your group
- An annual meeting for Group leaders to support personal and collective respiratory development in your area
- Free PCRS membership for leaders of an affiliated local group

Find out about our affiliated groups by visiting <https://pcrs-uk.org/affiliated-groups>

# Appendix 1 – Key learning points as provided by speakers

## The plenaries

### Fit for the future: optimising respiratory care within the next 10 years of the NHS

Carol Stonham, PCRS Executive Chair and Senior Nurse Practitioner Respiratory Gloucestershire CCG led the debate with the panel: Mike McKeivitt, Director of Patient Services, British Lung Foundation, Deirdre Siddaway, Respiratory Nurse Specialist, The Ixworth Surgery, Darush Attar-Zadeh, Respiratory Lead Pharmacist, Barnet CCG, London Procurement Partnership and Katherine Hickman, PCRS Executive Vice Chair, GP Low Moor Medical Practice and Respiratory Lead for Bradford and Leeds.

Please see pages 13 for stream highlights.

#### Key points:

- The NHS Long Term Plan published in January gave respiratory care a national focus for the first time
- This means there is the potential to reshape future respiratory services and improve care
- PCRS and delegates can play a role in bringing about improvements in their localities and primary care networks in services such as pulmonary rehabilitation, smoking cessation, self care, social prescribing and community activation and new initiatives such as group consultations.

### Managing Breathlessness: the Breathing, Thinking, Functioning Approach

Speaker: Anna Spathis, Consultant in Palliative Medicine at Addenbrooke's Hospital, Cambridge.

#### Learning points:

- Many patients continue to experience distressing breathlessness, even after optimisation of the underlying lung or heart condition.
- Chronic breathlessness can be inadvertently worsened by vicious cycles of emotional and behavioural responses.
- The Breathing, Thinking, Functioning clinical framework describes three predominant vicious cycles; it can facilitate symptom management by helping patients make sense of the symptom, and by suggesting the most relevant non-pharmacological management approaches.

### Grand Round: Get Moving on diagnosis – interactive case study discussion

Chaired by Iain Small, GP, Peterhead Health Centre and Associate Medical Director for Primary Care in NHS Grampian, Editor of Primary Care Respiratory Update

This interactive session discussed three interesting cases with an expert panel comprising: Binita Kane, Consultant Chest Physician, Manchester University NHS Foundation Trust, Neil Jackson, PCRS Lay Patient Representative, Ruth de Vos, Specialist Respiratory Physiotherapist, Queen Alexandra Hospital, Portsmouth and Val Gerrard, Advanced Nurse Practitioner in general practice, North Norfolk. The session considered what might be causing the patient's symptoms and discussed how healthcare professionals could be doing things better

#### Learning points:

- Asthma and allergic rhinitis commonly coexist - always think of a single airway
- Asthma normally responds well to asthma treatment. If it doesn't respond the chances are it isn't asthma

## Clinical stream

### Managing cough and cough as a diagnostic symptom

Speaker: Kevin Gruffydd-Jones, GP, Box, Wiltshire, RCGP Respiratory Lead

#### Delegates learned:

- The causes of chronic cough in adults
- How to diagnose and manage chronic cough in primary care
- When to suspect pertussis, upper airway cough syndrome, bronchiectasis, gastro-oesophageal disease, chronic hypersensitivity/refractory cough
- When to refer

### Respiratory related allergy

Speaker: Elizabeth Angier, portfolio GP, Clinical Director Primary Care West Hampshire CCG Wessex

#### Delegates learned the importance of:

- Taking an allergy focused clinical history
- The ability to recognise anaphylaxis
- Understanding the links between rhinitis and asthma

# Primary Care Respiratory Update

- Optimising asthma control in patients with anaphylaxis
- Understanding of when to do allergy tests and how to interpret them

## Respiratory disease in the context of comorbidities and ageing,

Speaker: Chris Dyer, Consultant geriatrician, Royal United Hospitals NHS Foundation Trust, Bath

### Learning points:

- One in four people with COPD are frail
- Patients with moderate frailty should receive a comprehensive geriatric assessment
- Co-morbidities such as depression, osteoporosis and heart failure are more common in COPD
- Pulmonary rehabilitation can be suitable for some patients with frailty (must be able to walk 5m and comply)
- Rationalise treatment in frail patients and consider medication concordance

## COPD Management: When all that glitters is not GOLD nor is it even NICE

Wendy Preston, Head of Nursing Practice, Royal College of Nursing, Consultant Nurse, George Eliot Hospital, Nuneaton, Warwickshire and Vincent Mak, Consultant Physician in Respiratory Integrated Care, Imperial College Healthcare NHS trust, London, Clinical Director Respiratory Clinical Network - NHSE London, discussed some current concepts about COPD so as to understand treatment choices. It described pharmacological treatment options in various recent guidelines highlighting the differences and similarities and discussed how to choose between the guidelines

### Learning points:

- COPD is not a single disease
- Severity of FEV1 does not accurately predict symptoms or quality-of-life and is not useful to determine drug treatment
- Patients can be classified according to the predominant symptom (phenotype)
- Not all COPD patients will benefit from inhaled corticosteroids
- Using the PCRS treatment approach is simple and recommends review before initiation of inhaled steroids

## Journal overload

Speaker: Steve Holmes, GP and PCRS education lead

### Learning points:

- To be aware of papers published in 2019 that challenge respiratory thinking
- To consider some ways in which research papers can be easily analysed.

- To be aware of some non respiratory papers that impact significantly on our patients and the way should practice

## SABA Guardians- creating the followers – SABA over-reliance – the bottom up approach

Speakers: Darush Attar-Zadeh, Respiratory Lead Pharmacist Barnet CCG, RightBreathe Pharmacist, Barnet CCG, London Procurement Partnership. Katherine Hickman, PCRS Executive Vice Chair, GP and respiratory lead for Bradford and Leeds

### Delegates learned:

- Why Asthma Right Care (ARC) is needed and how to become an ARC follower.
- How to identify patients who are at risk of SABA over-reliance/dependence.
- How to start the conversation about SABA over-reliance (patients and clinicians)
- How to utilise the ARC resources in primary care and community pharmacy e.g. asthma slide rule
- What communication skills to use around use of inhaled corticosteroids 'Balance model'

## Service development steam

### Respiratory service design for the hardly reached and seldom heard

This session gave delegates an insight into some innovative ways of helping these patients who often don't receive a structured respiratory review and have nobody in their corner to fight for them.

- Sukhi Sandhu, TB Clinical Nurse Specialist, Frimley Health NHS Trust talked about TB which is much more common in the homeless drug users and prison populations. She explained how to find these patients, overcome the barriers and engage them with therapy.
- Charlotte Slaughter, Assistant Clinical Psychologist, Berkshire Healthcare NHS Foundation Trust (East) described how to help housebound patients with COPD who struggle with anxiety and depression. CBT can help.
- Tracy Pollard, Nurse Manager, Inclusion Healthcare, Specialist Practitioner and Non-medical Prescriber in a GP practice, gave a presentation on tackling influenza in the homeless population. In these patients rates of smoking and comorbidities are high and their vaccination rates differ from the general population with similar comorbidities.
- Chris Allen, Consultant Clinical Psychologist, Berkshire NHS Foundation Trust, discussed the service he runs which helps people with COPD, particularly those who are housebound or live in a care home, who have high levels of anxiety.

He explained how he identifies these patients, the referral process, what criteria he uses to assess anxiety levels in the patient and the interventions such as CBT that he uses to help patients manage their breathlessness and associated anxiety and depression.

### Key points:

- Cost-savings can be made if people are able to self-manage and therefore use services less
- Integrating physical and psychological care for COPD patients is the way forward

### Respiratory care and the NHS Long Term Plan

Speaker: Daryl Freeman, Associate Director in Primary Care, GP Older People's Medicine, Norfolk Community Health and Care

### This session enabled delegates to:

- Understand how NHS Right Care enables the delivery of the Long-Term Plan and other NHS priorities
- Appreciate the breadth of data available
- Understand the role of delivery partners within right care NHS Right Care
- Be aware of the PCRS Respiratory Framework

### The allied health care professional embedded in the respiratory pathway – making the most of the available skills

Speaker: Raj Gill, General Practice Physician Associate with a special interest in respiratory medicine and partner at the Swiss Cottage surgery in North Central London

### Key learning points:

- Definition of the physician associate
- Training of physician associate
- Key duties of physician associate
- Limitations and regulation of the role
- Impact of physician associates on respiratory care

Mark Bilby, Advanced Paramedic Specialist Practitioner, Watton Medical Practice, explained the role of allied health professionals, physician associates, support staff and the multidisciplinary team in primary care.

### Making time for comprehensive respiratory care using the group consultation

Speaker: Alison Manson, Group Consultations - national training lead, BSLM. Katherine Hickman, PCRS Executive Vice Chair, GP and respiratory lead for Bradford and Leeds

### Learning points:

- Understand what group consultations are and how they can

- support you to deliver high quality routine care more efficiently
- Know the benefits of group consultations for you, your patients and your practice
- Hear from patients and colleagues who have experienced group consultations
- Review the 6 critical success factors to get you started

### Respiratory diagnostic service design – The PCRS way

Speaker: Noel Baxter, PCRS policy lead

### Delegates learned the importance of:

- Taking a view on whether you want a COPD and asthma diagnosis service or a respiratory symptom diagnosis service.
- Planning and prioritising for those not diagnosed, those diagnosed incorrectly and the backlog.
- Being able to think differently about who can do this work and what local structures you have that could support it
- Being able to make the case to your commissioner and clinician directors to do things differently
- Knowing that we want your contribution and how to contact us to do that!

## Workshops

### Helping people to change

Katherine Hickman, PCRS Executive Vice Chair, GP and respiratory lead for Bradford and Leeds, introduced Dr BJ Fogg's behaviour change model, Tiny Habits® which works on the principle of creating a new habit by anchoring it to a behaviour such as getting out of bed that someone normally does every day in their life. This could be used to help patients to remember to take their ICS once or twice a day. Once this behaviour change has been achieved it should be celebrated.

### Using the Right Breathe App

Speaker: Darush Attar-Zadeh, pharmacist based in the community and primary care, specialising in the field of treating tobacco dependency and Asthma Right Care.

### Delegates learned:

- That technology can support your respiratory consultation
- How to discover treatments that are licensed for COPD and asthma using pathway and filter functions
- How to filter medicines e.g. low dose ICS, dose counter, spacer compatibility
- To understand the differences between the app and website - patient and clinician modes.
- How RightBreathe inhaler technique videos are scored against UKIG standards



# Primary Care Respiratory Update

## CBT in a 10 minute consultation

Speaker: Karen Heslop-Marshall, nurse consultant, Newcastle upon Tyne NHS Foundation Trust

### CBT-key concepts:

- It is not the event that is important-it is what we think about it
- What we think affects how we feel and what we do

## Spirometry interpretation



Speaker: Chris Loveridge, Spirometry Lead, Education for Health

### This session covered:

- The ARTP Accredited Spirometry Register - proof of competence
- Your COPD register-misdiagnosis or even missed diagnosis
- Patient preparation, procedures and protocols
- Case studies.

## “Strictly” COPD



Sian Williams, Healthcare Consultant, Haringey and Chief Executive of the International Primary Care Respiratory Group gave delegates an opportunity to experience the type of movement to music that works for breathless patients on rehabilitation programmes.

## Smoking cessation techniques hands-on session

Speaker: Greg Mann, Team Lead and Training Facilitator, Smoke-free Norfolk

### Delegates learned:

- How to engage with smokers by using the ‘3 A’s’.
- What stop smoking medications are available.
- What the nicotine addiction process is and how to manage withdrawal.
- How a specialist stop smoking service can help.

## Getting your patient moving

Speaker: Claire Cook, respiratory physiotherapist and Executive Chair of the PCRS Respiratory Leaders Programme.

### Learning points:

- Have the confidence that you can help motivate your patients to be more active
- Posture plays a key role in natural relaxed breathing
- Know what simple exercises help make patients aware of posture and breathing
- Know where to recommend patients to continue exercising safely

## Relaxation and breathing techniques

Speaker: Kate Binnie, Senior Research Associate, University of Bristol, Life of Breath project

### Learning points:

- Breath-Body-Mind integration breathing and relaxation techniques can help patients with chronic breathlessness
- Working with urgent bodily sensations leads to quick wins such as soothing panic and breathlessness

This leads to changes in:

- Feelings (anxiety, fear/hopelessness)
- Behaviour/self-efficacy, which can affect clinical outcomes, compliance etc.
- Body-emotions-actions.

## Nutrition, sarcopenia and respiratory disease

Speaker: Alex Jenkins, non-clinical researcher, Biomedical Research Unit, Nottingham City Hospital

### Learning points:

- Sarcopenia is common in stable COPD. Interventions such as pulmonary rehabilitation have the potential to reverse the condition
- Sarcopenia can be categorised as: pre-sarcopenia (low muscle mass without an impact on muscle strength or physical performance), sarcopenia (low muscle mass and low muscle strength or physical performance), and severe sarcopenia (low

muscle mass combined with low muscle strength and poor physical performance)

- Malnutrition can be categorised as low, moderate or high risk using the MUST scoring tool
- Handgrip strength, timed-up-and-go test and short physical performance battery, are useful functional measures for identifying sarcopenia
- The SARC-F is a quick and easy tool for screening for sarcopenia

### Research stream

The *npj Primary Care Respiratory Medicine* research stream was a great success, with a high quality selection of 63 abstracts presented.

PCRS Research Lead Helen Ashdown said: “This year we moved, for the first time, to an ‘elevator pitch/short oral’ style of presenting, which gave more authors the opportunity to present their research orally and for really interesting discussion to take place which hopefully will help shape the research as it moves towards publication.”

A pre-conference workshop aimed at early-mid career researchers was attended by a multi-disciplinary group of researchers at various career stages.

The focus of the talks was on integrated care. The first presentation was from Sarah Elkin, Clinical Director of Integrated Care at Imperial College Healthcare NHS Trust, who explained how research underpins the future of integrated care, and how we can embed research into integrated care models. The second was about research integrated with industry. Delegates heard two perspectives on industry collaboration from Sue Collier (GSK) and GP Athan Simopoulos on how researchers can become more involved in this.



These presentations were followed by a motivating talk from Nick Francis on preparing a research funding application. Delegates then broke into small themed groups to talk about current issues in primary care respiratory research and fed back to the room.

“I left feeling inspired by all the research potential and with ideas for the future, and having made some new contacts and potential collaborations, and I feel really positive about research being an increasing part of respiratory primary care and adapting with the changing times,” said Helen.

**You can view a selection of the research abstracts on pages 40–50**

# Appendix 2 – Scientific Research Abstracts

Included below are a selection of original scientific research abstracts which were submitted and presented at the PCRS conference. We do not include abstracts that have been published elsewhere or where permission has not been granted for publication

### Abstract ID Number: 120

**Title:** A process exploration of the acceptability and benefits of an online mindfulness meditation intervention for people with asthma, recruited in primary care

**Corresponding Author:** Sabina Stanescu

**List of authors:** Stanescu SC, Ainsworth B, Kirby SE

**Institution:** University of Southampton

**Abstract: Aim:** To assess acceptability of a mindfulness intervention in primary care patients with asthma using quantitative and qualitative methods and to explore participants' representations of their asthma and quality of life (QoL).

**Method:** Ninety-eight participants were given access to the Headspace mindfulness app. They completed demographic, psychological and asthma measures at baseline, six weeks and three months. Twenty-seven participants completed semi-structured interviews 6 weeks after entering the trial. T-tests were used to assess changes in QoL, asthma control, illness perceptions and anxiety/depression. Correlations were further used to explore relationships between psychological factors. Interviews were analysed with inductive thematic analysis. They addressed the experience of living with asthma, and the relevance and usefulness of non-pharmacological interventions for people with asthma, and costs/benefits of digital interventions for asthma.

**Results:** QoL and asthma control significantly improved both at six weeks, QoL significantly improved at three months, psychological inflexibility and depression decreased, and people reported feeling more mindful in relation to their condition. Participants qualitatively described quality of life mainly in terms of activity limitation, and anxiety about specific activities triggering asthma attacks, and they reported QoL as a meaningful outcome for all interventions. However, anxiety did not significantly change after using Headspace, despite participants reporting and increase in overall wellbeing. Participants viewed their condition as significantly less threatening and easier to control at follow-up, particularly as they appreciated the newly-

acquired awareness of their breathing, the routine nature of the meditation, as well as the accessible nature of the digital intervention. Finally, participants valued non-pharmacological interventions but noted that they would prefer asthma-specific apps or websites (rather than general mindfulness or anxiety-reducing).

**Conclusion:** Our findings have important implications for the development of future digital interventions for people with asthma that target quality of life, highlighting the need for disease-specific components to ensure interventions are engaging and acceptable.

### Abstract ID Number: 123

**Title:** Emerging themes of a qualitative study of an asthma diagnosis decision aid in primary care.

**Corresponding Author:** Victoria Murray

**List of authors:** Murray V, Daines L, Pinnock H

**Institution:** Usher Institute of Population Health Sciences and Informatics, The University of Edinburgh

**Abstract: Aim:** Substantial over and under-diagnosis of asthma is occurring in routine clinical practice. An asthma diagnosis clinical decision support system (CDSS) for primary healthcare professionals has the potential to facilitate achieving a robust diagnosis, promote phenotyping of individuals with newly diagnosed asthma, and, by including a patient-facing mode, could reconceptualise the way that information is presented and shared between patient and healthcare professional. We therefore explored professional and patient perceptions of how a CDSS could improve the diagnostic process; discussing existing approaches to diagnosis and the potential for integrating a CDSS into current diagnostic routines. Importantly, the advantages/challenges of including a patient-facing CDSS was explored with both groups, including the potential impact on the dynamics of the professional/patient relationship.

**Methods:** We use in-depth Interviews and focus groups to explore the perspectives of patients and primary care professionals on the existing approach to diagnosing asthma. By unpacking current diagnostic routes, we hope to better understand how a CDSS could best be designed to improve asthma diagnosis in the future and allow us to understand how we can maximise the value of the patient-facing design of the CDSS.

**Future Plans:** Supported by Clinical Research Networks, Primary Care Respiratory Society UK and Optimum Patient Care, the research team are recruiting up to 10 practices in Scotland and England. We seek practices serving different areas and population groups, encompassing urban and rural locations, and with patients from a range of socioeconomic and cultural backgrounds. Professionals working within practices that have enrolled in the study will be invited to participate and, from their databases, will select and invite 100 individuals from those meeting the inclusion criteria. The data resulting from an in-depth analysis of the qualitative work will be presented here.

### Abstract ID Number: 128

**Title:** Correlation of Hand Grip Strength and VO<sub>2</sub> Max in Active and Sedentary Individuals

**Corresponding Author:** Chidinma Ezeugwa

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**Institution:** College of Medicine, University of Lagos

**Abstract: Aim:** This study sought to determine the correlation between handgrip strength and VO<sub>2</sub>max in apparently healthy young adults living an active lifestyle and a sedentary lifestyle.

**Methods:** Four hundred participants (171 males and 229 females), were involved in the study. They were apparently healthy young adults stratified into sedentary and active using the International Physical Activity Questionnaire (IPAQ). Handgrip strength was assessed using the digital hand grip dynamometer and VO<sub>2</sub>max was calculated using the formula  $15(HR_{max} - HR_{rest})$ . Resting heart rate was obtained using a heart rate monitor while the maximum heart rate was calculated by subtracting the age from 220. Independent t-test was used to obtain the difference between the parameters of sedentary and active participants. Relationship between VO<sub>2</sub>max and Handgrip Strength was obtained using Pearson's correlation coefficient.

**Results:** The mean resting heart rate in sedentary individuals was significantly higher than the active participants ( $p=0.001$ ). All other parameters assessed (Handgrip strength and VO<sub>2</sub>max) were significantly higher among the active participants when compared with the sedentary participants. ( $p=0.001$ ,  $p=0.001$  respectively). Overall, a significant relation-

ship exists between Handgrip strength and VO<sub>2</sub>max among all participants but when stratified into active and sedentary, there was significant relationship between Handgrip strength and VO<sub>2</sub>max in active participants, however, there was no significant correlation between the handgrip strength and VO<sub>2</sub>max in sedentary participants. The regression analysis showed that handgrip strength was significant predictor for VO<sub>2</sub>max in all the participants.

**Conclusions:** Apparently healthy active participants had higher handgrip strength and VO<sub>2</sub>max with lower resting heart rate. There was significant relationship between handgrip strength and VO<sub>2</sub>max while Handgrip strength was found to predict VO<sub>2</sub>max in apparently healthy young individuals.

**Keywords:** Handgrip strength, VO<sub>2</sub>max, Active lifestyle, Sedentary lifestyle

### Abstract ID Number: 133

**Title:** The importance of forming good inhaler habits

**Corresponding Author:** Mark Sanders

**List of authors:** Sanders MJ, Waleed WA, Abdelrahim ME

**Institution:** Clement Clarke International Limited

**Abstract: Aim:** Many asthma and COPD patients exhibit poor inhaler technique despite extensive efforts at training and Guideline agency support. Training takes place predominantly in the clinic or pharmacy, and is a one-off event that may include demonstration, explanation and patient-participation. Inhaler use is an habitual process: formed by repeated action, reinforced by reward. For reliever medication, multiple actuations may contribute towards tangible relief but be misinterpreted as acceptable technique. We have looked at how habit formation and new skill acquisition might contribute to better technique.

**Method:** We deconstructed the features of inhaler training tools in terms of the aspect of training they address: checks of device coordination/preparation and correct flow, and app availability; and active inhaler/home use availability (habit-forming potential). In an on-going investigation we determined the inhalation duration ( $n=3$  efforts) of subjects who received verbal pMDI instruction (VI) with/without the Clip-Tone device (Figure) fitted to the pMDI as an acoustic guidance aid ( $n=25$  per group).

**Results:** Most training tools are unavailable for active inhaler or home use and are therefore unlikely to promote habit formation: some of the newer tools do, however, include features that could reinforce habit (Table). In VI subjects, inhalation duration ranged from 2.4-14.8 seconds, with 19/25 achieving the  $\geq 5$ -second target, and 2/25  $\leq 3$ -seconds. VI group inter- and intra-subject variability (standard deviation) was 2.62 and 1.02, respectively. For VI plus Clip-Tone, duration was 3.0-11.3

seconds, with 21/25 achieving  $\geq 5$ -seconds and none failing  $\leq 3$ -seconds, with variability decreasing to 1.76 and 0.82, respectively.

**Conclusion:** Opportunities for healthcare provider training are scarce, and unlikely to build habit. Devices that can be practised at home or, better still, used continuously will potentially have stronger habit-forming characteristics. Preliminary data suggest that an on-[active]device guidance approach could improve technique and co-identify with the relief-reward; building habit based on good technique.

### Abstract ID Number: 141

**Title:** Stability of eosinophil counts over time, and analytic performance of point of care eosinophil testing with a view to guiding personalised inhaled corticosteroid prescribing for COPD

**Corresponding Author:** Helen Ashdown

**List of authors:** Ashdown HF, Smith M, McCartney D, Madronal K, Rutter H, Hay D, Lasserson D, Bafadhel M, Butler CC

**Institution:** University of Oxford

**Abstract: Aim:** Studies have found that patients with a higher blood eosinophil count are more likely to benefit from inhaled corticosteroids (ICS). Near-patient tests can rapidly estimate eosinophil counts during a consultation for immediate decision-making. However, stability of blood eosinophils over time, and analytic performance of near-patient eosinophils compared to laboratory eosinophils, have not yet been adequately assessed.

**Methods:** The Near-patient testing to guide COPD Maintenance Treatment in primary care (COMET study), a prospective observational cohort study with a nested method comparison component, recruited participants aged  $\geq 40$  years with COPD and without an active diagnosis of asthma or prescription of ICS during the last two years. At baseline we administered the COPD Clinical Questionnaire and COPD Assessment Test, recorded medical, smoking and medication history, spirometry with reversibility, fraction of exhaled nitric oxide, and obtained a venous and fingerprick blood sample, which were tested for eosinophil count both at the point of care using the Hemocue WBC-DIFF machine, and using a hospital laboratory-based blood count. The same measurements were obtained at three subsequent visits approximately eight weeks apart. Within- and between-person means with standard deviation and intra-class correlation coefficient in relation to baseline characteristics will be calculated to assess variability of eosinophils; Bland-Altman analysis will assess accuracy of near-patient testing.

**Results:** We have reached our recruitment and follow-up target: 96 participants (69% male; median age 71) have been re-

cruited from 15 Oxfordshire practices. 328 lab results are available (mean 3.4 per participant), with matched near-patient results for 319 (97%). Analysis is due to start, and results will be available at the conference.

**Conclusion:** Findings will add to the evidence base on whether eosinophil-guided treatment of COPD, using results already available in medical records and using results of a near-patient test are valid for guiding a more personalised and targeted approach to COPD.

### Abstract ID Number: 143

**Title:** What constitutes high probability when making a diagnosis of asthma in primary care?

**Corresponding Author:** Luke Daines

**List of authors:** Daines L, Lewis S, Schneider A, Sheikh A, Pinnock H

**Institution:** University of Edinburgh

**Abstract: Background:** Asthma is a clinical diagnosis; health professionals build up evidence for or against the diagnosis. BTS/SIGN identify a group at 'high probability' of asthma. 'High probability', however, is not numerically defined giving rise to professional debate. We sought consensus on what constitutes a 'high probability' of asthma: defined as the probability threshold at which there is enough information to add a diagnostic code of asthma and a subsequent negative test would not alter that opinion (assumed to be a false negative).

**Methods:** A consensus workshop using modified Nominal Group Technique was held during an international conference. Participants were conference attendees and were eligible if they had knowledge/experience of primary care and spoke English. Participants took part in facilitated discussion and voted over three rounds, answering: "At what numerical probability would you consider someone to be at high probability of asthma diagnosis?" The workshop was audio-recorded, transcribed and qualitatively analysed.

**Results:** We recruited ten respiratory-interested participants (9 GPs, 1 allergy/asthma physician) from nine countries. Based on final votes, the mean value for a high probability of asthma was 75% (SD 7.6), representing a trade-off between limiting the number of false positives (more likely if a low threshold was used) and pragmatism; understanding that the first line treatment (inhaled corticosteroids) are relatively low risk. The need to review response to treatment was strongly emphasised for detecting non-responders and reviewing the diagnosis. The context in which participants worked and resources available also influenced threshold choice.

**Conclusion:** A probability of 75% was the threshold at which participants in this workshop felt confident to establish the diagnosis of asthma, albeit with the caveat that a review of

treatment response was essential. Contextual factors including availability and timing of tests and the ease with which patients could be reviewed influenced participants decision making.

### Abstract ID Number: 144

**Title:** Evaluation of the use of digital technology to improve medication engagement in children using spacers.

**Corresponding Author:** Elizabeth Crawford

**List of authors:** Toor S, Crawford E, Aslam T, Sanders M

**Institution:** Clin-e-cal Ltd

**Abstract: Aim:** An approved smartphone app (Rafi-Tone) is available to help parents/carers encourage young children to use their asthma inhaler-spacer to better effect, incentivising with game-playing cartoon characters. Currently the app is linked to the Able Spacer whistle mask. We wished to understand if the app had any effect on treatment-distress, general asthma and healthcare services.

**Method:** Nurses, asthmatic children (n=112, 1-11 years) and their parents/carers from 13 General Practices within the Salford Clinical Commissioning Group took part in the research. Detailed questionnaires were completed by parent/carer and, using Likert images (score 1-5), by children before and after 6-10 weeks' use of the app and spacer (Figure). Cost data were inferred from Unit Costs of Health and Social Care 2017.

**Results:** At baseline >50% of children became upset (every time, usually, sometimes), when using their spacer. Use of Rafi-Tone/Able Spacer reduced this to 22%, with 70% never becoming upset, alongside a significant improvement (mean change 3.4 to 4.2, p<0.001) in the child's reported feelings about inhaler use. This was concurrent with an increase in every-time spacer use (59% to 71%) and frequency of daily preventer use (55% to 81%). Difficulty in sleeping, daytime and activity-interfering symptoms all improved (32% to 12%, 53% to 21%, 34% to 11%, respectively). Patient use of GP and emergency services in the previous month decreased from 22 to 5 occasions. An increase in nurse appointments (22 to 33) was due mainly to review appointments but the overall cost of these decreased by 42%. 95% thought their children were likely to engage with an asthma game-based app and nurses reported the app easy to use.

**Conclusion:** This survey has shown potentially important clinical and economic benefits from the use of the combination of Rafi-Tone and Able Spacer to help engage young children with their inhaled asthma treatment.

### Abstract ID Number: 146

**Title:** Exploring Patient Views on IMpLeMenting IMProved Asthma self-management as RouTine (IMP2ART) Programme Developed Patient Resources

**Corresponding Author:** Kirstie McClatchey

**List of authors:** 1 McClatchey K, 1 Czyzykowska K, 1 Jackson T, 2 Ehrlich E, 3 Steed, E, 1 Morrow S 3 Taylor SJC, 1 Pinnock H, for the IMP2ART programme group.

1 University of Edinburgh

2 Asthma UK Centre for Applied Research

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**Institution:** University of Edinburgh

**Abstract: Aim:** Successful implementation of supported self-management requires attention to patient resources, professional training, and prioritisation by organisations. The IMP2ART programme is developing a theoretically informed whole-systems implementation strategy that will improve implementation of supported self-management in routine primary care practice. Informed by behaviour change theory, and in consultation with patient and public involvement (PPI) volunteers and a professional advisory group, the IMP2ART programme developed asthma review invitation letters, self-management promotion posters, and a patient website for asthma information. We aimed to elicit feedback from patients on these resources.

**Method:** We recruited patients from four practices across the UK to qualitative interviews telephone or face-to-face, or email feedback. Interviews were analysed using framework analysis and resources revised accordingly. In addition, we invited email feedback on the revised resources.

**Results:** Twelve qualitative interviews (n=10 telephone; n=2 emails) provided initial feedback. Four major themes were identified: Action Plan Promotion; Review Attendance; Information for Patients; and Patient Views on Self-management. Participants perceived their asthma to be generally well controlled, and highlighted the importance of annual review attendance. Patients also commented on the novel nature of the invitation letters promoting action plan ownership. Suggestions for improvement to the resources included, increased emphasis on the importance of review attendance, elements of the poster and website design, the inclusion of social support networks on the website, and ensuring the website is viewed as trustworthy. Follow-up email feedback (n=3) recommended that the patient information website should be more colourful.

**Conclusions:** Suggested changes and recommendations have been incorporated into the patient-facing resources. The resources will be integrated with the professional and organisational components of the IMP2ART implementation strategy for piloting (n=12 practices). A UK-wide cluster-RCT (n=144 practices) will follow, to evaluate the impact and cost-effect-

tiveness of the IMP2ART implementation strategy on unscheduled care and ownership of action plans.

### Abstract ID Number: 147

**Title:** The role of community pharmacist in improving adherence to inhaled medication among COPD patients

**Corresponding Author:** Abdullah Aljahan

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**Institution:** University of Birmingham

**Abstract: Background:** Inhaler medication is the most common pharmacological treatment for COPD, yet it is recognised that non-adherence is a significant problem, causing reduced quality of life and increased health care expenditure, morbidity and mortality. Inhaler non-adherence may relate to factors including inhaler type, dosing schedule, inhaler technique, patient characteristics and knowledge of COPD. Inhaler technique should be checked during annual COPD reviews at GP practices, but there may be insufficient time or knowledge to provide optimal training on this important issue. Effective training of inhaler technique could benefit from an integrated approach using other healthcare professionals including community pharmacists, with evidence from other countries suggesting they contribute to the successful management and support of COPD patients.

**Aim:** Assess the knowledge, attitudes and skills of Community Pharmacists within the UK, and explore the potential gap between community pharmacists and other HCPs in relation to the education of optimal inhaler use for COPD patients.

**Method:** An online questionnaire will be designed with a mixture of 5-point Likert scale, categorical and binary response items as appropriate. Approximately 300 Community Pharmacists across the UK will be invited to complete the survey. Study invitations and information sheets will be sent via the Community Pharmacist Champion in West Midlands, it will be sent through pharmacist networks. Pharmacists will be able to access study information on a web platform (<https://www.onlinesurveys.ac.uk/>) and complete the questionnaire if they agree to participate. The questionnaire will capture Pharmacist demographics, characteristics, knowledge, skills, attitudes and, views on potential interventions and communication with other health care practitioners.

**Analysis:** Basic descriptive analyses will be undertaken to produce summary scores that will be reported in narrative and graphical format. Stata Ver.15 will be used in statistical analysis.

**Dissemination:** Results will be published in a relevant scientific journal.

### Abstract ID Number: 152

**Title:** Effect on dose delivery of a range of inspiratory flow rates through an on-device pMDI training tool (Clip-Tone E).

**Corresponding Author:** Mark Sanders

**List of authors:** Sanders MJ, Tran CH

**Institution:** Clement Clarke International Limited

**Abstract: Aim:** Clip-Tone E is an inhaler technique training tool for use during active Ventolin Evohaler (VE) administration, and is newly-reimbursed. The device fits to the actuator-top of the Evohaler; providing whistle guidance during inspiration, thereby improving co-ordination and establishing good inhaler technique on a repeated basis. Previous in vitro aerodynamic particle size distribution (APSD) research, at the 30L/min flow rate, with single, dual and triple pMDI therapies has shown that Clip-Tone does not affect drug delivery. We wished to understand the effect of the span of flow rates at which the training whistle sounds.

**Method:** Salbutamol APSD from VE (Control) and VE plus Clip-Tone E (n=5 per group) was evaluated at 20 and 48 L/min flow rates. Aerosol properties were studied using the Next Generation Impactor (Copley Scientific Limited, UK). Five actuations were delivered from each inhaler. Salbutamol deposition ( $\mu\text{g}$ , mean $\pm$ SD) was quantified, using standard chromatographic analysis; from Clip-Tone, inhaler actuator, induction port ('throat') and all NGI stages. Key aerosol variables were determined.

**Results:** We also present the 30L/min data from Eur Respir J 2018; 52[suppl62]:PA4430 (10.1183/13993003.congress-2018.PA443). Fine particle fraction data (FPF % $<$ 5 $\mu\text{m}$ ) at 20, 30 and 48 L/min for Control were 27.5 $\pm$ 2.0, 48.9 $\pm$ 1.3 and 43.8 $\pm$ 2.9 respectively; for VE plus Clip-Tone: 30.0 $\pm$ 1.7, 48.2 $\pm$ 1.6 and 44.9 $\pm$ 1.6. Similarly, fine particle dose data (FPD  $\mu\text{g}$  $<$ 5 $\mu\text{m}$ ) were Control: 27.8 $\pm$ 3.5, 39.8 $\pm$ 1.9 and 46.3 $\pm$ 7.1 and VE plus Clip-Tone: 31.0 $\pm$ 2.0, 41.5 $\pm$ 2.5 and 40.9 $\pm$ 3.1. Summary APSD data were comparable (Figure).

**Conclusion:** Clip-Tone did not adversely influence salbutamol delivery at the range of flow rates that span whistle generation. Although FPF and FPD data differed between flow rates this was not unexpected or considered of clinical relevance, the dose of salbutamol being sufficient for clinical effect. Patients hearing the Clip-Tone whistle as they use their inhaler can expect to receive a clinically effective dose of salbutamol.

### Abstract ID Number: 153

**Title:** Developing a theoretically informed education package for the IMP2ART programme; implementing supported asthma self-management in primary care

**Corresponding Author:** Viv Marsh

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1 Education for Health  
2 University of Edinburgh  
3 Queen Mary University London

**Institution:** Education for Health

**Abstract: Aim:** Successful implementation of supported self-management requires attention to patient resources, professional training, and prioritisation by organisations. The IMPLementing IMProved Asthma self-management as RouTine (IMP2ART) programme is developing a theoretically informed whole-systems implementation strategy that will improve implementation of supported self-management in routine primary care practice. The IMP2ART programme aimed to develop an educational package that targets barriers to implementation and develops professionals' skills in delivering tailored supported self-management.

**Method:** A multidisciplinary team (educationalists, clinicians, academics, health psychologists) built on contemporary understanding of effective adult learning and behaviour change theory, robust clinical evidence, and existing practice routines to design a team-based educational package. A professional focus group of clinicians working in general practice (n=10) was held via webinar to provide insights on the initial design approaches.

**Results:** Evidence from implementation research, and analysis using the theoretical domains framework, identified the importance of role identity, teamwork and perceived barriers to implementation (patient, health care professional and organisational) and barriers of practice routines. These themes, endorsed by the focus group, informed the content which will be divided into two distinct modules:

1. A facilitated team-based introductory module to raise awareness of supported self-management and increase engagement, motivation and commitment to supporting self-management to become a priority across the practice team.
2. An individual on-line module to skill key professionals providing asthma reviews to use behaviour change strategies in general practice to facilitate supported self-management.

**Conclusion:** Practice-based testing using a 'think-aloud' method will be conducted to pilot the modules and suggested changes and recommendations will be incorporated. The modules will be integrated with the patient and organisational components of the IMP2ART implementation strategy for piloting (n=12 practices). A UK-wide cluster-RCT (n=144 practices) will follow, to evaluate the impact and cost-effectiveness of the IMP2ART implementation strategy on unscheduled care and ownership of action plans.

**Abstract ID Number:** 154

**Title:** A Low Exhaled Nitric Oxide Level Excludes a Short-term Benefit From Inhaled Corticosteroids in Suspected Asthma

**Corresponding Author:** Tim Harrison

**List of authors:** Shaw KD<sup>1</sup>, Parrish CA<sup>1</sup>, Sutherland L, Hearson G, Hutchinson S, McKeever T, Stewart I, Shaw DE, Harrison TW

**Institution:** University of Nottingham

**Abstract: Aims:** The aim of this study was to determine if a low fractional exhaled nitric oxide (FeNO) of  $\leq 27$  ppb could be used to reliably identify patients with suspected asthma who would not benefit from initiating treatment with Inhaled Corticosteroids (ICS).

**Methods:** The study team, delivered 458 Spirometry clinics in 47 primary care practices throughout the East Midlands. Between May 2016 and March 2018, 821 patients were seen, 234 were screened and 180 were entered into the study. Participants were steroid naïve adults with suspected asthma and a FeNO of  $\leq 27$  ppb. Participants were randomized to receive either 400mcgs of budesonide or placebo daily and were followed-up every four weeks for three months in their primary care practice. The primary outcome was the difference in Asthma Control Questionnaire 7 (ACQ7) scores between active and placebo groups where a decrease of  $\geq 0.5$  represented a clinically important difference.

**Results:** A total of 134 participants (68 budesonide) completed the study and were included in the analysis. Subjects were well matched at baseline and mean ACQ7 scores were in the moderately controlled zone in both groups (1.43 and 1.42 respectively). Following three months of treatment, the between group mean difference in ACQ7 scores from baseline to three months was 0.25. The 95% CI around this difference was -0.004 to 0.49 which was within the equivalence interval of -0.5 to 0.5, confirming that budesonide and placebo are equivalent ( $p < 0.05$ ). FEV1 was largely unchanged throughout the study, mean (SD) change -3mL ( $\pm 218$ ) and -6mL ( $\pm 204$ ) in the budesonide and placebo groups respectively.

**Conclusions:** Steroid naïve participants with suspected asthma and a baseline FeNo of  $\leq 27$  ppb did not benefit subjectively or objectively from ICS treatment in the short-term. Although this does not exclude a beneficial effect on exacerbations but should highlight the need for greater diagnostic certainty.



## Abstract ID Number: 155

**Title:** Impact of ICS use on exacerbation frequency in COPD patients stratified by blood eosinophil count: a systematic review and meta-analysis

**Corresponding Author:** Timothy Harries

**List of authors:** Harries TH, Corrigan C, Rowland V, Schofield P, White PT

**Institution:** King's College London

**Abstract: Background:** An optimal threshold of blood eosinophilia has not been determined.

**Aim:** To assess the impact of ICS use, judged by the size of the change in exacerbation frequency, when COPD patients are stratified by blood eosinophil count.

**Methods:** We conducted a systematic literature review of Ovid Medline, Embase, Web of Science, Cochrane Central, CINHAL (inception to end 2018). Included studies were predominantly post-hoc analyses of RCTs, for which patients were not randomized by blood eosinophil count. Studies were categorised by the form (relative or absolute count) and cut point of eosinophil threshold used. Two meta-analyses were carried out, one based on studies using relative eosinophil count and one on studies using absolute eosinophil count. RCTs that reported an association at blood eosinophil thresholds of 2%, 150 cells/ $\mu$ L and 300 cells/ $\mu$ L, and observational studies were included. Studies that exhibited mild or moderate heterogeneity were excluded.

**Results:** 22 studies examined the association between blood eosinophil count and response to ICS in COPD patients. 14 studies were post-hoc analyses of RCTs. 8 were retrospective observational studies. The post-hoc analyses were consistent in their low risk of bias. The observational studies varied in the quality of description of factors including exacerbation definition and past exacerbation history.

A meta-analysis of the post-hoc RCTs will be reported. Impact on exacerbation frequency was compared at blood eosinophil thresholds of 2%, 150 cells/ $\mu$ L and 300 cells/ $\mu$ L.

**Conclusions:** A large number of studies demonstrate the association between blood eosinophil count and impact of ICS on exacerbation frequency. This association is not replicated in observational studies. This difference may be due to the unrepresentative, selected populations within the RCTs. To clarify the clinical utility of this biomarker, the association should be tested in prospective studies.

## Abstract ID Number: 167

**Title:** Should we be utilising thoracic CT more frequently within the primary care setting?

**Corresponding Author:** Harriet Owles

**List of authors:** Owles H, Dardak S, Ahmed N, Mallia P, Elkin SL

**Institution:** Imperial College NHS Trust

**Abstract: Introduction:** There is little guidance regarding the utilisation of thoracic CT scans in primary care. In North-West London we have a well-established integrated respiratory service, led by experienced respiratory physicians. Below we discuss the benefit of using cross-sectional thoracic imaging in the community or primary care setting.

**Methods:** We collated demographics, indications and clinical outcomes for patients who underwent thoracic CTs via our integrated respiratory service April 2017 - April 2018. We excluded patients who had additional CTs in the preceding 24 months.

**Results:** 185 patients had thoracic CTs with ages ranging 26-96 years and female predominance (57%). 68% had a smoking history. Prior to CT scan 35% patients had no known respiratory diagnosis, 61% obstructive airways disease and 4% bronchiectasis.

The predominant symptoms resulting in scan requests were dyspnoea 49%, cough 22% and recurrent infections 16%. 21% referenced abnormal lung function or gas transfer, 6% abnormal clinical examination and 5% abnormal chest x-ray as an indication for CT. 74% were first ever CTs aimed at clarifying, quantifying or confirming the diagnosis.

Emphysema and bronchiectasis were the most common findings, with only 29% of scans being normal. 8 suspected cancers and 8 pulmonary nodules were identified, of which 5 confirmed malignancy.

Radiological diagnosis correlated in 41% of cases with the physicians' clinical impression prior to CT.

Radiological findings affected future management of patients: 37% had inhalers altered, 18% were taught airways clearance techniques and recommended prolonged antibiotic courses for exacerbations, 9% were referred to specialist secondary care clinics. 27% of new referrals were discharged with clinical advice to GPs following CT.

**Conclusion:** Cross-sectional imaging helps ensure correct diagnosis and characterisation of respiratory disease. Input from respiratory physicians earlier via an integrated service can help triage requests, ensure correct future management and refer fewer and appropriate patients via secondary care.

## Abstract ID Number: 168

**Title:** UK cost-effectiveness value pyramid of asthma interventions

**Corresponding Author:** Florian Tomini

**List of authors:** Roukas Ch, Tomini T, Mihaylova B

**Institution:** Queen Mary University of London

**Abstract: Aim:** In the UK, the British Thoracic Society (BTS)/Scottish Intercollegiate Guidelines Network (SIGN) and the National Institute for Health and Care Excellence (NICE) have published guidelines for the management of people with asthma. However, although the clinical evidence used for the guidelines' development were similar, BTS/SIGN appraised the clinical evidence alone while NICE reviewed also the health economic evidence and supplemented it with further health economic analyses. Differences between the two guidelines' recommendations have been noted by previous studies and further issues are raised with practice falling short of implementing recommendations.

The aim of this study is to propose a cost-effectiveness value pyramid of asthma interventions in the UK using all available evidence for the additional healthcare cost per an extra quality-adjusted life year (QALY) with different interventions.

**Method:** We followed a three-stage approach. Firstly, the UK-relevant cost-effectiveness findings from economic evaluations of asthma interventions were identified following a systematic review of peer-reviewed economic evaluation studies. Secondly, economic analyses developed or reviewed (e.g. external published studies or pharmaceutical company submissions to NICE) were added. Finally, our review was extended to economic findings for common interventions recommended by BTS/SIGN and NICE in the context of general populations in the absence of results in people with asthma specifically.

**Results:** The totality of available evidence on cost-effectiveness of asthma interventions in UK is presented separately for adolescents/adults (aged 12 years and over) and children (aged 6-14 years). The most cost-effective treatments of interventions with reported ICER < £10,000 per QALY gained were: smoking cessation interventions and services (ICER £13 - £3,601 per QALY) and flu vaccination uptake (£2,996 - £3,158), outpatient asthma clinic (£1,378 - £6,776), specific subcutaneous immunotherapy (£6,975), ICS+LABA combination inhaler (£7,604 - £13,706), and temperature-controlled laminar airflow devices (£8,915) in adults. In children, these were: flu vaccination uptake (£2,294 - £4,751), specific subcutaneous immunotherapy (£6,975) and temperature-controlled laminar airflow devices (£8,915). Several treatment options (SABAs, theophylline, oral steroids, immunosuppressant, bronchial thermoplasty, allergy avoidance, exercise and other complimentary therapies), recommended for the man-

agement of asthma by BTS and/or NICE, were not included in the pyramids due to lack of any economic evidence.

**Conclusions:** Lack of cost-effectiveness evidence leads to possible confusion when prioritizing asthma interventions that provide the most benefits for required resources. While our study provides some guidance for highest priority interventions, we have also identified gaps in the cost-effectiveness evidence. Future studies assessing the cost-effectiveness of SABAs, theophylline, oral steroids, immunosuppressant, bronchial thermoplasty, allergy avoidance, exercise and other complimentary therapies are required.

## Abstract ID Number: 172

**Title:** Development of audit and feedback to promote self-management in primary care as part of the IMP2ART Study

**Corresponding Author:** Kirstie McClatchey

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1 University of Edinburgh; 2 Queen Mary University of London; 3 Optimum Patient Care

**Institution:** University of Edinburgh

**Abstract: Aim:** Successful implementation of supported self-management not only requires attention to patient resources and professional training but also depends upon organisations prioritising and monitoring the success of implementation strategies. Audit and feedback is used in healthcare organisations to improve the performance of healthcare. The IMPlimenting IMProved Asthma self-management as RouTine (IMP2ART) programme aimed to develop annual audit and feedback reports with brief monthly progress reports to motivate general practice staff and promote provision of supported self-management in primary care.

**Method:** Building on current guidelines and behaviour change theory, the multidisciplinary team (clinicians, health psychologists, technical experts) developed a prototype audit and feedback report and a monthly progress report. A professional advisory group of asthma-interested GPs and nurses (n=17), provided insights and feedback. Staff from pre-pilot practices participated in semi-structured interviews to provide feedback on the reports.

**Results:** General practice staff (n=9) described previous experiences of audit and feedback and commented on the IMP2ART audit and feedback process and the proposed annual/monthly reports. Staff had mixed views on whether local or national comparators in the reports should be used, or a mixture of both. Feedback also included the content of reports, with suggestions for further inclusions such as smoking

status and inhaler technique checks. Recommendations included providing brief evidence to emphasise the importance of particular practices e.g. action plan provision relating to improved control, and aspects such as the provision of 'top tips' to be provided within monthly reports.

**Conclusion:** Suggested changes and recommendations have been incorporated into the annual and monthly reports. The audit and feedback will be integrated into the IMP2ART implementation strategy which will be piloted and tested in a UK-wide cluster-RCT (n=144 practices), to evaluate the impact and cost-effectiveness of the IMP2ART implementation strategy on unscheduled asthma care and ownership of action plans.

### Abstract ID Number: 179

**Title:** A rapid review of the influence of contextual factors on innovation in self-management strategies for primary-care based asthma management

**Corresponding Author:** Agalya Ramanathan

**List of authors:** A Ramanathan, J Sheringham

**Institution:** Royal Free VTS/NIHR

**Abstract: Aim:** Our aim was to identify contextual factors which have been discussed in existing literature which influence adoption of self-management strategies in primary care settings. This work will add to existing literature by summarising the currently discussed contextual factors and identifying gaps in the evidence-base regarding their impact.

1) We will use the list of contextual factors to inform the development of a 'practice profile' - contextual information on all IMPART practices that will be used in the trial for randomisation, facilitator allocation, by facilitators and by evaluators - to understand what contextual factors might have influenced effectiveness

2) Summarise contextual factors relating to innovation in this field to help inform future implementation strategies.

3) Identify gaps in research.

**Method:** A search was conducted of the PUBMED database and SCOPUS databases in March 2019 to identify literature about implementation of self-management in primary care, particularly regarding asthma (or other chronic diseases) and digital tools. A total of 2566 papers were identified; 261 via the SCOPUS database and 2305 on PUBMED. After reading abstracts, the number of titles identified for full paper screening was reduced to 224 papers (56 from the SCOPUS database and 168 from PUBMED). A second reviewer further narrowed down the number of abstracts according to our inclusion criteria. Papers were also excluded based on year of publication, i.e. those included in a recent systematic review by Lau et al

were excluded. For the purpose of this review article, we selected studies which looked at multiple/wide-ranging interventions and review articles. Papers which were protocols were removed as they would not give significant information about contextual factors. We used a narrative synthesis approach as all the papers were all heterogeneous in nature to identify key themes from the literature in order to answer our questions. A total of 168 papers were identified for full text screening.

**Results:** This is a work in progress; papers have been summarised according to research methods used, disease investigated and key contextual factors identified. The total number of papers will be categorised into types of contextual factors discussed and key contextual factors will be identified by the number of papers they are discussed in, and any significant findings.

Key contextual factors influencing implementation of self-management tools in primary care will be discussed in further detail.

**Conclusions:** The conclusion will cover key contextual factors and identify how they can be used to design further research. The conclusion will also cover how these factors will influence the practice profile, which will be used as part of the IMPART asthma self-management trial, to recruit practices and guide the approach of facilitators.

Any unexpected findings, as identified from previous literature, will also be discussed.

### Abstract ID Number: 180

**Title:** Life in the Fasting Lane: Inhaler compliance during Ramadan and its effect on admission rates.

**Corresponding Author:** Aron James

**List of authors:** James AJ, Davey C, Simpson J

**Institution:** Barts Health NHS Trust

**Abstract: Introduction:** Healthy Muslim adults are obligated to refrain from food and drink between dawn and sundown as one of the Five Pillars of Islam during Ramadan. Despite medical and religious advice, Muslim individuals with chronic respiratory conditions may feel impelled to fast and reduce their inhaler compliance, believing inhaler use breaks their fast. These individuals may be at risk of respiratory compromise, potentially leading to increased hospital admissions during this period.

**Aim:** To review admission rates of Muslim patients with chronic respiratory conditions requiring inhaled medications during and after Ramadan. Of patients admitted, altered inhaler compliance was assessed to indicate whether this could have influenced the admission.

**Hypothesis:** Reduced inhaler compliance will increase respiratory exacerbation admissions during Ramadan.

**Method:** Using self-reported questionnaires, all Muslim patients admitted with exacerbations of asthma or chronic obstructive pulmonary disease to the Royal London Hospital were interviewed about their inhaler compliance and beliefs during Ramadan. The number of admissions were compared during and after Ramadan.

**Results:** 12 male patients were admitted and therefore included (8 during Ramadan, 4 after). In this study it was unlikely that inhaler compliance beliefs contributed solely to the increased admission rates during Ramadan, and that gender-based multifactorial influences likely swayed the raised rate (100%). The majority felt inhaler use did not break fasts and adhered to their usual prescription, altering regime timing if able or necessary (87.5%). There exists a smaller population whose opposing beliefs may increase their risk of respiratory complications (12.5%).

**Conclusion:** This small study indicated that the majority of Muslim patients felt that their usual inhaler compliance was acceptable during Ramadan. The increased number of respiratory admissions during Ramadan was likely due to multifactorial causes.

### Abstract ID Number: 186

**Title:** Clinical features and C-Reactive Protein as predictors of bacterial exacerbations of COPD

**Corresponding Author:** Nick Francis

**List of authors:** Francis NA, Gillespie D, Wootton M, White P, Bates J, Butler CC

**Institution:** Cardiff University

**Abstract: Aim:** COPD exacerbations are usually treated with antibiotics, although many are associated with viral infections or other triggers. We aimed to identify clinical factors associated with bacterial infection in patients presenting with acute exacerbation of COPD (AECOPD) in primary care, and whether C-reactive protein point of care testing (CRP-POCT) adds diagnostic value.

**Method:** The PACE randomised controlled trial evaluated the use of a CRP-POCT in patients with AECOPD in primary care. Bacterial pathogens were identified in baseline sputum samples using Matrix Assisted Laser Desorption Ionising Time of Flight Mass Spectrometry (MALDI-ToF-MS). Sputum colour was graded from 1 (non-purulent) to 5 (very purulent) using the Bronkotest colour chart. We used multilevel logistic regression to identify baseline demographic and clinical (including CRP in those in the CRP arm) factors associated with finding a bacterial pathogen in the sputum. We explored the predictive

properties of the best clinical predictors, and any additive value of CRP testing, using ROC curve analyses.

**Results:** 386 (59.1%) participants had baseline sputum analysed for bacterial and viral pathogens, and of these 170 (44.0%) had a bacterial pathogen isolated. Sputum colour was the only significant predictor (OR 42 (95% CI 4, 408) for grade 5 sputum colour compared to grade 1). 188 participants had sputum colour and CRP data. We calculated an area under the ROC curve (AUROC) of 0.74 (0.67, 0.81) and 0.75 (0.68, 0.82) for sputum colour alone and sputum colour with CRP ( $p$  value for comparison of models = 0.458).

**Conclusion:** Sputum colour (using a colour chart) was the best clinical predictor of finding a bacterial pathogen in sputum during AECOPD. CRP was associated with bacterial infection, but did not add to the diagnostic value over sputum colour measurement. Future work will explore the association between sputum colour, CRP and other potential predictors with patient recovery.

### Abstract ID Number: 191

**Title:** A retrospective database study of oral corticosteroids and bisphosphonates prescribing patterns in England

**Corresponding Author:** Christos Chalistos

**List of authors:** Christos VC, Tricia MM, Dominick ES

**Institution:** University of Nottingham

**Abstract: Background:** Regular use of oral corticosteroids (OCS) is associated with an increased risk of osteoporosis and fracture. Guidelines state that all patients receiving regular OCS therapy should be considered for bisphosphonate (BP) use in order to prevent osteoporosis.

**Objectives:** To comprehensively assess prescribing and cost patterns, trends and variation of OCS and BP among General Practices (GPs) and Clinical Commissioning Groups (CCGs) in England.

**Methods:** A population study was performed using prescribing and cost data for all GPs and CCGs in England. We calculated the prescribing and cost patterns per 1,000 population between 1998 and 2018 and the annual ratio between OCS and BP prescriptions from 2015 to 2018. We also evaluated geographical variation patterns and examined factors associated with OCS and BP prescribing performing a mixed-effect negative binomial regression analysis across 2018.

**Results:** There was a rise in OCS and BP prescriptions of 55% and 1,200% respectively from 1998 to 2018. OCS and BP had respectively 140 and 120 prescribed items per 1,000 population at a cost of £920 and £101 per 1,000 population in 2018. By 2018 there were 1.16 OCS prescriptions for every BP. Higher OCS prescribing was associated with higher BP

prescribing rate (IRR=1.82; 95%CI: 1.75-1.90;  $p < .0001$ ). Better QOF score, comorbidities and advanced age were associated with higher both OCS and BP prescriptions. The more deprived the area where the GPs located, the less the medication is likely to be prescribed. Conclusion Although OCS and BP prescriptions are closely related, a variation among GPs and CCGs exists and is associated with multiple factors including patients and GP characteristics. Our results support the need to promote best practice in glucocorticoid-induced osteoporosis preventative prescribing.

### Abstract ID Number: 192

**Title:** Internet of Medical Things to support asthma self-management: a rapid scoping review

**Corresponding Author:** Chi Yan Hui

**List of authors:** Hui CY, McKinstry B, Buchner M, Fulton O, Pinnock H for the A4A+ project team

**Institution:** Asthma UK Centre for Applied Research, Usher Institute of Population Health Sciences and Informatics, The University of Edinburgh

**Abstract: Aim:** 'Internet of Medical Things' (IoMT) systems could improve asthma outcome by supporting self-management. We aimed to answer the questions: What are the emerging/currently available technologies that have potential for use in asthma? What is the clinical evidence, reports or papers supporting the use of those technologies?

**Methods:** We performed the rapid on-line review of the technology. We used "Asthma" + "technology" to scope the possible categories of technologies on the Google search engine and then used the categories' names (eg, "smart inhaler" ) to scope the products currently available in the market. We examined lists until the content on the webpage was repeated or irrelevant.

**Results:** 12 categories of technologies were found on 18th February, 2019. The 12 categories were air purifiers, 'wheezemeters', breathe analysis devices, smart inhalers, chatbots, smart home, digital peak flow meters, digital action plans, smart sleep sensors, robots, repeat prescriptions ordering system, mobile apps. Advertising claims were often exaggerated or unsupported. The air purifier advertisement suggested clean air could improve asthma outcomes although this is contrary to current evidence and guideline recommendations. Of the 15 smart inhalers brands in the market, some claimed their products could 'control your asthma'. A NICE Medtech innovation briefing reports five RCT studies using smart inhalers. Medication adherence was improved in one of the studies; two studies showed significant improvements on the asthma outcomes.

**Conclusion:** While many technologies can be used for asthma, the clinical guideline or evidence to suggest the

effective technology design for better asthma outcomes is lacking. Further research is needed to understand the technology features that are associated with better asthma outcomes.

### Abstract ID Number: 193

**Title:** What features do clinicians 'want' in the future Internet Of Medical Things (IoMT) systems for asthma: a qualitative study

**Corresponding Author:** Chi Yan Hui

**List of authors:** Hui CY, McKinstry B, Buchner M, Fulton O, Pinnock H for the A4A+ project team

**Institution:** Asthma UK Centre for Applied Research, Usher Institute of Population Health Sciences and Informatics, The University of Edinburgh

**Abstract: Aim:** The Internet Of Medical Things (IoMT) can support the delivery of self-management with a broad range of applications (not only self-monitoring). Clinicians' recommendations are pivotal to encouraging patients to adopt a new technology. Sustained involvement of the clinician in the patients' self-management journey is the key to encouraging patients to keep using technology to look after their asthma. We explored the features that clinicians 'want' in order to support patients' self-management.

**Methods:** We recruited clinicians to an interview through PCRS, Lothian Respiratory Managed Clinical Network and NRS Primary Care Network. Interviews were transcribed and analysed thematically with the Practical Reviews in Self Management Support (PRISMS) taxonomy. We explored clinicians' opinions about their preferred features and the data they would like to receive.

**Results:** We recruited up to 15 primary and secondary care clinicians who manage asthma patients in their daily work. Emerging themes suggest that peak flows, asthma symptoms and medication usage are the core data that most clinicians want to see on their practice system. Incorrect inhaler technique is commonly regarded as important information that could inform how patients were using their inhaler and, furthermore, will help determine the best drug and inhaler device for patients. Unusual use of blue inhaler ideally correlated with the patients' activities, was perceived as useful information enabling clinicians to determine patient's medication usage and identify causes of exacerbations. Weight and exercise logs linked with asthma logs (symptoms/peak flows) could help clinicians suggest fitness activities to patients.

**Conclusion:** We identified a number of different features to inform future IoMT development. Objective data that is automatically collected by technology could support online or teleconsultations to save patients' travel time, and might encourage regular review.

## Appendix 3 – Best Practice/Service Development Abstracts

Included below are a selection of best practice/service development abstracts which were submitted and presented at the PCRS conference. We do not include abstracts that have been published elsewhere or where permission has not been granted for publication

### Abstract ID Number: 200

**Title:** Emergency MDI and spacer packs for asthma and COPD

**Corresponding author:** Duncan Keeley

**List of authors:** Keeley, D MRCP FRCGP General Practitioner, Executive Committee Primary Care Respiratory Society Partridge, MR MD FRCP Emeritus Professor of Respiratory Medicine Imperial College London

**Abstract:** Asthma and COPD exacerbations are common causes of hospital admission. Effective use of inhaled medications is a key element of self-management plans. The most effective method of using high dose inhaled treatments in attacks is by pMDI and spacer. Personalised action plans are widely advocated in guidelines but are not well implemented. We propose that patients with asthma and COPD who have had or are at risk of having exacerbations could be offered standardised sealed emergency treatment packs containing the appropriate pMDI(s) and a spacer, together with simple pictorial instructions, for use in exacerbations. (1). This proposal, which can be implemented regardless of the patients regular treatment regimen, would greatly simplify this key element of self-management planning and improve outcomes by ensuring that patients had immediate access to effective inhaled treatment at the time of an attack, together with clear instructions on seeking help. Development of the proposal has been endorsed by PCRS and by the UK Inhalers Group and we are seeking wider discussion and endorsement with a view to implementation.

**Reference:** 1. Keeley D, Partridge MR. Emergency MDI and spacer packs for asthma and COPD. *Lancet Respiratory Medicine* Online publication April 5th 2019 [http://dx.doi.org/10.1016/S2213-2600\(19\)30046-3](http://dx.doi.org/10.1016/S2213-2600(19)30046-3)

### Abstract ID Number: 196

**Title:** Real world use of roflumilast in the management of COPD

**Corresponding author:** Sarah Cowdell

**List of authors:** Sarah Cowdell, Patricia Griffiths, Andrew Hardy

**Institution:** Locala Community Partnerships

**Abstract: Introduction:** Roflumilast is a novel treatment for COPD which was approved by NICE in 2017. It is a phosphodiesterase 4 inhibitor and reduces exacerbation frequency in patients with severe to very severe airflow obstruction (FEV1<50% predicted) and a history of exacerbations. Diarrhoea and weight loss were cited as common side effects in clinical trials. We have audited the use of roflumilast over the last 12 months. Results 15 patients were prescribed roflumilast between June 2018 and May 2019. Mean FEV1 was 43% and mean self reported exacerbation frequency was 6 per annum. All patients were non smokers. 4 patients had an FEV1 of over 50% predicted, which is higher than recommended. 11 patients (73%) stopped treatment due to side effects. Average treatment duration was 45 days in this group. 5 patients stopped treatment due to diarrhoea. Other reported side effects were myalgia, tremor, oral thrush and low mood. Of the 6 patients who continued treatment 2 reported diarrhoea. In this group self reported exacerbation frequency fell to 2.5. 3 patients lost weight with an average weight loss of 4.7kg in the continuation group. Summary Roflumilast was generally poorly tolerated with diarrhoea being the commonest reported side effect. If patients were able to tolerate treatment their self reported exacerbation frequency fell and they generally lost weight. These findings are in keeping with the side effect profile reported in clinical trials.

### Abstract ID Number: 195

**Title:** Trends in inhaler prescribing for COPD in a community respiratory clinic 2014-2019

**Corresponding author:** Sarah Cowdell

**List of authors:** Sarah Cowdell, Patricia Griffiths, Andrew Hardy

**Institution:** Locala Community Partnerships

**Abstract: Introduction:** There have been a number of changes to respiratory guidelines in the UK over the last few years following the introduction of new inhalers and a focus on the prescribing of dual LABA/LAMA bronchodilators for mild and moderate COPD, and a move away from inhaled corticosteroids (ICS). We have reviewed the prescribing of different classes of inhaled bronchodilators for patients with COPD between 2014 and 2019. Full year data is available for April 2013-14, 2015-16 and 2017-18. Data from April to June 2019 was available at the time of submissions.

**Results:** Use of dual bronchodilator therapy either as separate products or in a single inhaler has increased from 14% in 2014 to 29% in 2019. Use of single agent bronchodilators has fallen from 10% to 3%, and LABA/ICS from 7%. Use of 'Triple therapy' LABA/LAMA/ICS has fallen from 69% to 62% and remains the most commonly prescribed combination.

**Summary:** Use of LABA/LAMA dual bronchodilation has double over the last 5 years in keeping with updated recommendations in national and international guidelines.

### Abstract ID Number: 185

**Title:** The accessibility and use of a digital health platform in a cohort of stable community COPD patients.

**Corresponding author:** Adam Lound

**List of authors:** Lound A, O'Toole DPH, Spurway RL, Killeen L

**Institution:** Imperial College Healthcare NHS Trust

**Abstract: Aim:** Digital health platforms are increasingly commonplace in healthcare. However, there is limited understanding of the accessibility and use of digital tools in those with COPD. myCOPD™ (My mHealth Ltd, Bournemouth, UK) is the only NHS approved digital tool for this population, providing a platform for self-management information and an online PR programme. Patients suitable for myCOPD™ are those with stable disease who have internet access and an email address. We sought to identify suitable patients in order to ascertain both willingness to trial and actual use of myCOPD™.

**Method:** Over 12 months, we asked stable COPD patients attending the Hammersmith and Fulham community respiratory clinics to complete a questionnaire assessing their suitability and willingness to trial myCOPD™. Those who met both criteria were provided with free access. We then quantified the number who logged onto the self-management platform and the number who accessed the online PR programme. This enabled us to ascertain if there was a difference between willingness to trial myCOPD™ and actual use.

**Results:** 253 patients were screened with 163 (64%) suitable for myCOPD™. Of those suitable, 138 (85%) agreed to trial the application. However, only 77 (56%) of those given access have ever logged onto the self-management platform. Further-

more, of those who have logged onto myCOPD™, only 8 (10%) have accessed the online PR programme.

**Conclusion:** The results indicate that approximately two thirds of the cohort of stable community COPD patients surveyed were suitable to trial myCOPD™. Despite high willingness to trial the platform, this did not translate into either uptake or engagement. Further research needs to explore the barriers and facilitators to uptake and use of digital tools such as myCOPD™.

### Abstract ID Number: 182

**Title:** Breaking down barriers and Building relationships between a community respiratory team, Marie Curie Hospice and Secondary Care to the benefit of patients with end stage respiratory disease.

**Corresponding author:** Sue Barclay

**List of authors:** Barclay SM, Ferguson C, Dave C. Burge G.

**Institution:** University Hospitals Birmingham Foundation Trust

**Abstract: Background:** Solihull Community Respiratory Team (CRT) saw an increase in the number of patients re-admitted to hospital which they felt were avoidable. The team already saw patients within 10 working days of hospital discharge to provide follow up support and condition management advice but patients continued to re-attend Hospital with breathlessness. The Hospital and the CRT had different IT systems and Hospital Respiratory team were unable to access the CRT system to retrieve any information on patients known to the team. The local Marie Curie Hospice started a new service, a Well Being Programme (WBP), of which there was lack of awareness amongst Health Care Professionals. The CRT already held their oxygen clinics at the Hospice but didn't interact with Hospice Day Services. The CRT worked out of the hospital site and the Hospice was also in close proximity however firm links between the 3 services had not been established.

**Method:** The CRT invited Hospice consultant; Respiratory consultant, lead palliative care CNS and respiratory CNS from Secondary Care; ILD CNS to a fortnightly breakfast meeting to discuss how to manage this group of patients.

**Aim:** Explore how Respiratory Hospital Team could access community patient record. Discuss 'plan of care' for admission avoidance. Increase referral to Well Being Clinic Improved Management of complex respiratory patients. Outcomes:- Pro-forma introduced and format agreed. Used to outline 'plan of care' following MDT expert input. CRT discussed with patient; pro forma uploaded to Hospital IT system. Increased awareness of WBP which covered anxiety; patients enrolled from oxygen clinic. Ethical, emotional, educational support for CRT/CNS. Strong links between services; shared resources; work closer together. Cost neutral.

## Abstract ID Number: 181

**Title:** Audit of COPD and Asthmatic patient on high dose inhaled corticosteroids

**Corresponding author:** Helen Moran

**List of authors:** Moran HV, (GP) Mahay A, (GP registrar) Hamilton J (Lead Respiratory Nurse for Dudley).

**Institution:** Northway Medical Centre and The Dudley Respiratory Group

**Abstract:** An audit of high dose inhaled corticosteroids was carried out at a GP Practice in Dudley with 6000 patients. We were concerned that high dose inhaled steroids were used both off licence and had limited benefit over moderate dose inhaled corticosteroids (BNF, Masoli M et al. Thorax 2004, Holt S et al BMJ 2001). Potential side effects of these inhalers was another consideration. Local and national guidelines were reviewed (Dudley Asthma and COPD guidelines, NICE, BTS and GINA guidelines). 8% Asthmatic, 14% COPD and 10% of patients with both a diagnosis of asthma and COPD were found to be on high dose corticosteroid inhalers. The most common inhaler was Seretide and most been on this treatment for 1-15 years. 83% of patients were ordering their inhalers regularly. A number of asthmatics on these had had exacerbations in the last year. The audit shows there is the need for education of health care professionals and patients regarding inhaler use and guidelines. Patients inhaler use will be reviewed and changed inline with guidelines. If this is not possible a discussion at the respiratory MDT or referral will be considered. This will help inform further changes over the Dudley area. This audit highlights the need for regular review of patients treatment in line with guidelines. There are a vast number of inhalers available on the market and health care professional should have knowledge of these including the corticosteroid dose they contain.

## Abstract ID Number: 170

**Title:** A Retrospective Audit on the Use of Short-Acting Beta Agonists (SABAs) as Monotherapy in the Management of Asthma

**Corresponding author:** Jack Webb

**List of authors:** Webb J H R, Elliott S, Charlton J

1 Dr Jack Henry Robert Webb - Foundation Year 2 Doctor Worcestershire Acute Hospital Trust

2 Dr Suzy Elliott - General Practitioner Bewdley Medical Centre

3 Sister Joanne Charlton - Practice Nurse Bewdley Medical Centre

**Institution:** Worcestershire Acute Hospital Trust

**Abstract: Background:** Inhaled short acting beta-agonists

(SABAs) have been a mainstay in treatment of chronic asthma for many years. However, in response to the National Review of Asthma Deaths (2015), the British Thoracic Society and Scottish Intercollegiate Guideline Network (BTS/SIGN) released updated guidelines recommending an inhaled corticosteroid as first line treatment, replacing SABAs as 'step 1' of asthma management. This audit assessed the compliance of a rural general practice (approx. 18 000 patients) with these guidelines and sought to identify patients still receiving salbutamol alone for their asthma treatment.

**Methods:** The electronic records system was searched with two specific criteria i) a patient must have an asthma diagnosis on their 'problem list' ii) a salbutamol inhaler must be the only asthma treatment on their repeat prescriptions. The patient records were then reviewed to confirm if they were receiving salbutamol alone, how often it was prescribed in a 1-year period and whether they had attended an asthma review during that time.

**Results:** 96 asthma patients were treated with salbutamol inhalers alone (median age 49). During the 1-year period, 36 of these patients received no apparent asthma treatment, 2 patients were issued with over 20 salbutamol inhalers and the remaining 58 patients received between 1 and 10 salbutamol inhalers each. The total number of patients who had attended an asthma review during this time was 36/96 (38%).

**Conclusion:** This audit highlighted immediate safety concerns regarding the number of salbutamol prescriptions. All patients who had received over 3 SABAs in a one-year period, without an asthma review were contacted by telephone to arrange a face-to-face appointment. Patients receiving less than 3 SABAs were invited to an asthma review. This audit proved that in any practice there may be an unidentified cohort of asthma patients with uncontrolled symptoms, increasing risk of exacerbation or even hospitalisation. 1 Dr Jack Henry Robert Webb – Foundation Year 2 Doctor Worcestershire Acute Hospital Trust

## Abstract ID Number: 164

**Title:** Respiratory Advanced Care - The Derby ImpACT+ Fatigue and Breathlessness (FAB) course

**Corresponding author:** Ruth Aldridge

**List of authors:** Aldridge R, Kidder S, Spendlove R, Smith S, Evans R, Subramanian D, Lowrey G.

**Institution:** University Hospitals of Derby and Burton NHS Foundation Trust

**Abstract:** Holistic breathlessness support is beneficial (Thorax 2019;74:270-281). Several UK hospices run 'Fatigue and Breathlessness' (FAB) courses, catering for all patients with breathlessness, regardless of the cause. The Derby ImpACT+



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team devised a similar course for patients with advanced respiratory disease.

**Structure:** The Derby FAB is a 3 week course (2 hours per week) comprising of 6-8 patients per group (plus carers) and 2 staff. Attendees receive written information each session and are offered 1:1 follow up consultations with both a respiratory consultant (for future care planning) and an occupational therapist (for anxiety management) once the course has finished.

**Topics covered:** Management of breathlessness and fatigue; Use of oxygen; Maximising life; Relaxation techniques; Anxiety management; Support for carers; Future care planning.

**Results:** 10 FAB courses were delivered Sept 2018 - June 2019 with an average 4-5 patients (plus carers) per group. 45 questionnaires were sent to patient attendees; we received written anonymous feedback from 22 patients and 15 carers/supporters. 97% of respondents enjoyed the course, found it useful and would recommend it. 90% of respondents replied that the course had helped with their breathing/fatigue. 85% of respondents felt more positive about life as a result of the course. 57% of respondents would have preferred a longer course.

**Selected comments:** 'I haven't been admitted to A+E since being able to control my breathing'. 'I have run a Breathe Easy group for 15 years; I thought I knew it all, but I don't'.

**Lessons learnt:** Attendees learn best when actively contributing; an informal programme allows all attendees to feel heard and included. Management of group dynamics can be difficult. Some attendees would like a longer course; this would need to be weighed against reducing the number of courses delivered.

**Conclusion:** The Derby FAB course is proving beneficial for patients with advanced respiratory disease.

### Abstract ID Number: 145

**Title:** Tackling SABA over-reliance using the Scottish Therapeutics Utility Tool

**Corresponding author:** Katie Johnston

**List of authors:** Johnston K, Fitzgerald G, Christie E, Choudhury G, Daines L

**Institution:** NHS Lothian

**Abstract:** Tackling SABA over-reliance using the Scottish Therapeutics Utility Tool Katie Johnston<sup>1,2</sup>, Gareth Fitzgerald<sup>1</sup>, Elspeth Christie<sup>2</sup>, Gourab Choudhury<sup>2</sup>, Luke Daines<sup>2,3</sup> 1 NHS Lothian Primary Care Pharmacy 2 NHS Lothian Respiratory Managed Clinical Network 3 Asthma UK Centre for Applied Research, The University of Edinburgh Background Over-reliance of short-acting beta-agonists (SABA) often indicates poor asthma control and is a predictor for future risk of asthma

attack and death. We aimed to raise awareness of, and improve primary care prescribing of SABA in NHS Lothian, Scotland, through the adaptation and implementation of an IT system.

**Strategy for change:** Adaptation The Scottish Therapeutics Utility (STU) tool uses data from GP computer systems to provide reports on repeat and high risk prescribing. Though installed in every Lothian practice, not every practice uses it. The respiratory section consists of five searches, including '>12 SABA in 1 year, without a diagnosis of COPD'. Implementation A respiratory training event raised awareness of STU and demonstrated the ease at which high risk asthmatic patients could be identified. Practices were then encouraged to use their STU data to identify and review these patients.

**Results:** NHS Lothian has 123 general practices, serving 959,701 patients, 6% of whom have a diagnosis of asthma. There was wide variation in SABA prescribing. Per practice, the lowest number of individuals over-ordering SABAs was 12; the highest was 602 patients. One patient in the sample ordered >200 SABAs in one year. The training event was attended by 103 nurses representing 62% of practices. Only one knew about STU. Early findings suggest practices are now using STU data to identify patients for review.

**Lessons learned:** Despite efforts to promote STU, those who needed to know about it (i.e. nurses and doctors) were unaware of the resource.

**Messages for others:** Utilising primary care data can help educate and encourage change in practice. Raising awareness directly with users was needed to improve implementation.

### Abstract ID Number: 134

**Title:** Community Tracheostomy De-cannulation: Service Development across Lancashire and South Cumbria

**Corresponding author:** Emma Forster

**List of authors:** Forster E

**Institution:** Lancashire NHS Foundation Trust

**Abstract:** The Regional Tracheostomy Team 10-month service trial was started in December 2019 with the broad aim of promoting community tracheostomy de-cannulation across the region. The multi-disciplinary team was created to allow delivery of holistic therapy through the implementation of individualised weaning plans. This specialist community weaning team is the first of a kind across the UK with support received from NHS England. Long term community tracheostomy management can be extremely challenging for commissioners and care providers with a high cost implication for the NHS. Community tracheostomy management poses a high clinical risk with the potential for community infection, trauma and loss of airway. Patients may have initially had a tracheostomy inserted

for airway support prior to community discharge once clinically stable. Weaning may not have been clinically indicated at the point of discharge however due to a lack of dedicated community teams to provide follow-up, it may simply remain in place without specialist review. We have been able to achieve community de-cannulation with patients who have had a tracheostomy for up to ten-years. De-cannulation reduces clinical risks, improves potential communication, improves access to community therapy, increases the chance of oral dietary intake and has the potential to massively improve quality of life. Both quantitative and qualitative outcomes have been used as a measurement of improvement. Annual financial savings have been calculated post de-cannulation to present a service need business case to secure ongoing service funding. This would allow continued improvement of tracheostomy care across the region and reduce tracheostomy related complications. We have heavily focused on education throughout the pilot service to encourage all clinicians to engage with tracheostomy weaning and never to simply accept the presence of a long term tracheostomy without thorough assessment and definitive clinical decision for tracheostomy dependence.

### Abstract ID Number: 130

**Title:** Effect of the Aer8 spacer on Ventolin® salbutamol MDI respirable dose and oropharyngeal deposition

**Corresponding author:** Michael Friel

**List of authors:** Friel, M

**Institution:** Aer Beatha

**Abstract: Aim:** To compare respirable dose and oropharyngeal deposition of salbutamol from salbutamol MDIs with and without use of the Aer8 spacer, a 500mL, fully-collapsible, recyclable, spacer made of cardboard from sustainable Swedish wood pulp.

**Methods:** Particle size distributions from six Ventolin® salbutamol MDIs were measured using a Next Generation Cascade Impactor® (NGI) (flow-rate 30L/minute) and analyzed using high-performance liquid chromatography. MDIs were shaken for five-seconds pre-actuation. Ten sequential actuations/MDI, with and without the Aer8 spacer, were analysed. Spacer samples had a two-second delay post-actuation. The particle mass for each of the eight NGI collection stages was recovered. Stage 0 represents oropharyngeal deposition; Stages 3-7 represent the Fine Particle Dose (FPD) or Respirable Dose. Mass Median Aerodynamic Distribution (MMAD), Geometric Standard Deviation (GSD) and Respirable Dose of salbutamol particles collected were calculated by analysing the drug amounts deposited on each of the eight impactor stages.

**Results:** Compared with the salbutamol MDI alone, use with the Aer8 spacer reduced oropharyngeal deposition, (mean

48ug v 2ug/actuation). The respirable dose (FPD) was unchanged, (mean 32µg v 40µg/actuation). The MMAD and the GSD were unchanged (mean 2.7µm/actuation for both with/without the spacer). Total drug emitted/actuation was reduced by the Aer8 Spacer owing to the post-actuation two-second delay (69µg v 100µg/actuation, MDI alone).

**Conclusion:** The Aer8 spacer reduced salbutamol MDI oropharyngeal particle deposition while maintaining respirable dose delivery. The Aer8 spacer total drug emitted and fine particle dose were similar to other spacers (2,3). With its user-friendly, environmentally-sustainable features, the Aer8 is an alternative to bulky plastic spacers. It could also be a tool for teaching patients how to use MDIs properly.

**References** 1. Vincken et al. ERJ OpenRes 2018;4:00065-2018 2. Mitchell & Dolovich. JAerosolMedPulmDrugDeliv 2012; 25(4):217-4. 3. Hall GL et al, Respirology 2011; 16, 639-644

### Abstract ID Number: 124

**Title:** Case Finding for COPD in Primary Care - A Patient's Perspective

**Corresponding author:** Victoria McKelvie

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**Institution:** BOC Healthcare

**Abstract:** A significant proportion of patients with COPD remain undiagnosed. Undiagnosed and therefore untreated COPD is recognised to cause a huge burden to the patients and families of those living with the disease, but also society and the health service. Prevalence is increasing and constitutes a major cause of morbidity and mortality globally. Highlighting the importance of early detection. The NHS Long-Term plan is encouraging population-management and proactive approaches to detect and diagnose respiratory problems earlier. There seems to be little dispute regarding the logic behind screening for COPD, but little is documented within the literature on the patient's perspective. Patient opinion was sought anonymously via a questionnaire following their discharge from the primary care respiratory team. Two groups of patients were questioned, one from case-found patients with newly diagnosed COPD and the other with existing diagnoses of COPD. The first group being asked if they were happy to be proactively sought out and the latter asked if they would have been happy, with a view to earlier diagnosis and potentially less disease progression. This audit suggests overwhelmingly that the vast majority of COPD patients were happy (or in hindsight, would have been happy) to have been identified through a case-finding project. A project which is easily replicable to all GP surgeries in the UK.

## Abstract ID Number: 117

**Title:** Tools for the Job, Improving Asthma Reviews

**Corresponding author:** Jayne Longstaff

**List of authors:** Longstaff J, Fogg C, Gates J, De Vos R, Chauhan AJ

**Institution:** Research and Innovation Department Porsmouth Hospital Trust

**Abstract: Background:** An asthma consultation is an important opportunity to help patients to self-manage their condition. Education reduces healthcare utilisation and improves asthma control. The asthma toolbox contains a wide variety of essential asthma clinical equipment to aid healthcare professionals (HCP's) to educate people with asthma.

**Objective:** To assess HCP's experience of using the asthma toolbox with patients in primary care.

**Method:** 69 Asthma toolboxes have been developed by Portsmouth Hospital Trust Respiratory Research team. The boxes were distributed during bespoke asthma education events. Questionnaires that combined open and closed questions were distributed to 61 HCP's who received the toolbox.

**Results:** 97% (n=59) will use the box >1 per week and thought it was an 'excellent idea' and 'a great resource to improve patients knowledge'. 100% (n=61) HCP's will use the box for asthma reviews as a visual aid, educating colleagues and to assist in prescribing the correct inhalers. 93% (n=57) will recommend it to other HCP's.

**Conclusion:** Primary care HCP's felt that the asthma toolbox provided useful equipment necessary for respiratory clinics. It brings together all the asthma tools, information and guidance to improve the consistency of care for people with asthma.

## Abstract ID Number: 112

**Title:** Real time qualitative primary-care based study related to the validity of the diagnosis and management of patients held on COPD registers in primary care

**Corresponding author:** Ruth Thomas

**List of authors:** Thomas R, Haines E

**Institution:** Westfield Rd Surgery

**Abstract:** The local community care group commissioned a project which aimed to ensure accurate diagnosis of asthma and COPD, prescribing is evidence based, effective, and cost effective, and ensure self-management plans are in place. It was planned for a whole time equivalent nurse/pharmacist to run audit tools and review any identified patients in terms of medication however the CCG was unable to recruit a pharmacist and the nurses had very limited dedicated available

time. It also quickly became apparent that the audit tools used were limited due to coding issues. It was decided that in order to obtain accurate data the nurses would have to review the notes of each individual on the COPD register which was very time-consuming. In term of diagnosis the quality of spirometry was poor, and in some surgeries 43% was either non-reproducible spirometry, or inaccurately interpreted. This lead to an overall reduction in the COPD registers by 5.6%. Documentation at diagnosis and reviews frequently lacked history of sign, symptoms, smoking pack years, use of recreational drugs, exposure to noxious substances, or exacerbation history. Very few patients had documented education given, advice on physical activity or plans for asthma, COPD or bronchiectasis. Of the 678 eligible for pulmonary rehabilitation 44.3% had no record of any discussion ever regarding physical activity.

**Conclusion:** This unique real time qualitative primary-care based study related to the validity of the diagnosis and management of patients held on COPD registers highlights high levels of poor quality diagnostic spirometry, unsafe diagnoses, variable standards of care compared to national guidelines and questions the validity of reported national COPD and asthma prevalence where purely based on extraction of data from GP registers. The findings will be of value for future training purposes for health care professionals and planning services for those patients with obstructive lung disease.

**Reference:** Asthma UK (<https://www.asthma.org.uk/about/media/facts-and-statistics/> accessed Feruary 2019) British Lung Foundation (2019) <https://statistics.blf.org.uk/methodology#numbers-deaths-admissions> NICE (2018) Chronic obstructive pulmonary disease in over 16's :diagnosis and management. NICE guideline (NIG11) Primary Care Commissioning (2013) A guide to performing quality assured diagnostic spirometry

## Abstract ID Number: 173

**Title:** Respiratory Advanced Care - The Derby ImpACT+ Asset Based Clinic - 'Lungs4Life'

**Corresponding author:** Ruth Aldridge

**List of authors:** Aldridge R, Kidder S, Spendlove R, Smith S, Evans R, Subramanian D, Lowrey G.

**Institution:** University Hospitals of Derby and Burton NHS Foundation Trust

**Abstract:** Social isolation is a major issue for people with advanced respiratory disease. The Derby ImpACT+ team has developed an asset-based clinic: we report our experiences. Structure: 'Lungs4life' is an informal group for people with advanced respiratory disease. We meet for 2 hours each week. The main activity is chatting over refreshments. We often play the 'Ungame' (used in group therapy as a means of encouraging deeper conversations) or choose a topic to discuss.

Occasionally there are craft activities (cake-decorating / mug-painting) and outside speakers (benefit / disability living information).

**Overall aims:** To reduce social isolation and develop community spirit. To offer informal respiratory support.

**Results:** The group initially met fortnightly from December 2018 and then weekly from March 2019. The numbers of attendees (patients and carers) vary each week from 6-16 plus staff. Mean patient age is 72yrs (range 58-81) with a 1:1 male:female ratio; 7 patients attend with a relative/carer. Feedback from 14 attendees is tabled. All respondents reported an improvement in their wellbeing / life-quality as a result of the group. When asked 'What is the main benefit of the group for you?' most attendees replied that it was having social interaction with people who have similar lung conditions. One respondent explained that the group enabled them to 'feel normal': 'I'm on oxygen and no-one stares at me; I can start up a nebuliser and not feel conscious' Attendees often seek medical advice from staff. Some patients were invited but did not attend. Common barriers appear to be lack of transport, low mood / anxiety, or feeling too fatigued.

**Conclusion:** The Lungs4Life group is fulfilling a need for social support and connection in people with advanced respiratory disease. The future challenge is to extend this; we hope to develop similar groups in other areas of Southern Derbyshire.

### Abstract ID Number: 169

**Title:** Creating a home exercise programme for COPD patients unable to attend pulmonary rehabilitation

**Corresponding author:** Keerthana Jayaraajan

**List of authors:** Jayaraajan K, Waheed B

**Institution:** Imperial College London

**Abstract: Introduction:** Evidence suggests that pulmonary rehabilitation (PR) enables patients to better manage their symptoms and improve their quality of life.<sup>1</sup> However, despite its benefits, there remain many barriers to patients attending and adhering to PR contributing to poor uptake and completion rates. As 3rd year medical students during our GP placement, we witnessed patients unable to attend sessions for multiple reasons including time constraints, travel and limited self-efficacy to participate in the programme alongside others, which is reflected in the literature. By creating a home exercise programme, we hoped to overcome these barriers, so that patients are not sent home empty-handed and are empowered to take active steps in managing their condition. This would eventually lead them to engage with PR services. Project Delivery After liaising with and observing physiotherapists deliver a PR session with 20 patients, a patient booklet was produced with accompanying YouTube tutorials to demonstrate what

home exercises to perform. To mitigate patients overexerting themselves, each exercise was kept at a low intensity and recovery tips and positions were outlined. The booklet was further refined after our pilot study of 10 patients and 80% of these patients informed us that they would utilise this programme at home.

**Conclusion:** After presenting our work to the GPs of Kingston Health Centre, the practice integrated this within their new COPD clinical guidance. We hope that through enabling patients to do the exercises in the comfort of their own home, we empower and encourage them to be more active, less breathless and more independent. With more time, we hope to measure the efficacy of our intervention by following them through with time.

**Reference:** 1. Charlotte E Bolton et al. BTS Guideline for the Pulmonary Rehabilitation in Adults. Thorax. 2013;68(2): 6-10. Available from: <https://www.brit-thoracic.org.uk/document-library/guidelines/pulmonary-rehabilitation/bts-guideline-for-the-pulmonary-rehabilitation-in-adults/> [Accessed 28th of June 2019]

### Abstract ID Number: 163

**Title:** Enhancing COPD diagnosis and management pathway collectively as an integrated network

**Corresponding author:** Sarah Elkin

**List of authors:** Razak, Y, Oyston M, Stone M, McGuire M, Garner R & Elkin SL

**Institution:** Imperial college NHS Trust

**Abstract:** Baseline data showed unwarranted variation across NeoHealth Practices in COPD diagnostic rates, outcomes data and COPD reviews. After the Grenfell tragedy it became apparent that COPD patients could receive better support if primary care were upskilled and care plans were more goal-orientated. Once the investment and approach were approved by the CCG, a project team was formed comprising of General Practice, Integrated respiratory team, commissioner and GP Federation staff. Our project involved working with our local partners to develop clearer diagnostic and management pathways with the aims of improving outcomes for our COPD population and improved staff experience, focussing on: • COPD Pathway redesign • Improving relationships, integrating local clinical teams in primary care, community respiratory, smoking cessation, community nursing & palliative care • Investment into up-skilling of staff & support systems, with utilisation all levels of skill mix within the PCN • Quantifiable improvement in care & patient experience, looking to long term benefit in outcomes and system change

**Results:** A standardised cross sector COPD care plan & new pathways have been co-designed with stakeholders. To date, 154

enhanced care plans have been put in place. - New diagnosis pathways are completed including the use of group consultations at diagnosis and ensuring correct onward referrals including Pulmonary rehabilitation - Upskilling via practical workshops (videoed for shared use) including care alongside practice visits by specialist teams for Virtual registry reviews. - The number of COPD patients who had Influenza vaccinations during the 18-19 flu season increased from 70% to 99%. - The number of COPD patients who are current smokers who received smoking cessation advice increased from 44% to 89%

**Conclusion:** As relationship building across our community support networks have grown, understanding COPD quality care will continue through templates, referral & diagnostic pathways, advice and guidance.

### Abstract ID Number: 161

**Title:** Asthma: safety, recognising high risk children

**Corresponding author:** Adeel Ansari

**List of authors:** Ansari A, Yassin E, Shahid M, Ansari S

**Institution:** Ripple Road Medical Centre, 364-370 Ripple Road, Barking IG11 9RS (Barking and Dagenham CCG)

**Abstract:** Asthma affects 1.1 million children in the UK. The number of deaths from asthma in the UK has not reduced significantly from around 1,200/year for many years, even though it is widely accepted that there are preventable factors in 90% of deaths.<sup>1</sup> It is essential to recognise children with asthma that are 'high risk'. Potential barriers in primary care 1) Clinician: Education/understanding 2) Patient/family: education/understanding (practical skills) 3) Lack of continuity of care (multiple clinicians), communication with secondary care/ community services 4) Social determinants of health Overcoming the potential barriers (what have we done): 1) Education: clinician education, non-clinical awareness 2) Named lead 3) Specific policy/protocol and 'EMIS' templates for: a. Routine asthma review-holistic approach b. Acute exacerbation of asthma- read code for vitals/history/examination, link to BTS guidance c. 48-hour post-exacerbation review -assessing potential reason for exacerbation and identifying at-risk (previous exacerbations/hospital attendance/compliance) 4) Coding: clinician/admin education a. Coding exacerbations b. Coding A+E-asthma attendance c. Coding hospital-asthma admissions 5) 48-hour post-exacerbation/hospital attendance review: clinician, admin-staff, and patient education. Monthly audit to identify patients with exacerbation that have not had a follow-up review 6) PAAP/action plan: easy access from templates, easy access in emis documents, 'F12' 7) Keep 'at-risk register': multiple exacerbations, poor compliance, hospital admissions 8) Asthma Summary-tab in emis: trend in PEFR, date of last exacerbation and last admission 9) 3 monthly Audits: a. Review 'at risk patient' register b. Children with asthma issued 2 or more prednisolone courses in last 12 months: review for

referral to secondary care/asthma specialist c. >3 SABA in 3 months-review d. >12 SABA in 12 months-review 10) Identify primary and secondary care non-attendance: keep register, work with social care where needed

**References:** (1) NRAD. Royal college of physicians. 2015 (2) Asthma.NICE Guideline[NG 80]. November 2018. (3) Guidance on management of asthma. BTS/ SIGN.2016

### Abstract ID Number: 157

**Title:** Impact of pharmacist-led clinics on the COPD population of Tameside & Glossop

**Corresponding author:** Philippa Lewis

**List of authors:** Lewis P, Hughes D, Birchall J, Ramachandran A

**Institution:** Interface Clinical Services

**Abstract:** Tameside & Glossop CCG has a COPD prevalence of 2.9%, the highest in Greater Manchester and amongst the highest in the UK.(1) This service aimed to support practices in improving COPD management through a proactive assessment of all patients with a diagnosis of COPD. Patients were stratified according to recorded symptoms and exacerbations. At baseline, 23% of the total COPD population (1171 patients) were recorded as having high levels of both symptoms and exacerbations. Following discussion with the lead GP in each practice appropriate patients were invited to GSK sponsored, Interface pharmacist-led clinics. 1133 patients were seen in 123 pharmacist-led clinics across 29 practices. Pharmacists assessed patients' inhaler technique using an In-Check device and symptoms using MRC and CAT Test scoring. Based on these assessments, pharmacists were then able to recommend appropriate pharmacological and non-pharmacological interventions for GP approval. 58% of patients who had their inhaler technique checked in clinic (667) were found to have sub-optimal inhaler technique despite 537 of them having a recent record of 'good technique'. As a result, 214 patients were provided with a spacer device and of those patients maintained on their current level of therapy 301 were recommended a change in inhaler device. 41% of patients seen (466) presented with high levels of symptoms and exacerbations and pharmacists recommended an increase in current pharmacological management for 29% of these patients (135). Although a further 29% of these patients already had an appropriate level of pharmacological treatment pharmacists recommended a change in device based on inhaler technique or rationalisation of current regimen. By recommending appropriate non-pharmacological interventions and ensuring patients are prescribed the optimal level of pharmacological treatment in an inhaler device they are best able to use, pharmacist-led programmes such as this can contribute to reducing symptoms and future risk of exacerbations.

**Reference:** 1. <https://fingertips.phe.org.uk/>

### Abstract ID Number: 156

**Title:** The quality of COPD patient care - outcomes from the British Lung Foundation Patient Passport

**Corresponding author:** Keir Philip

**List of authors:** Philip KEJ, Gaduzo S, Rogers J, Laffan M, Hopkinson NS

**Institution:** National Heart and Lung Institute, Imperial College London

**Abstract: Aim:** The British Lung Foundation COPD Patient Passport [www.blf.org.uk/passport](http://www.blf.org.uk/passport) was developed as a resource to help patients with the condition and clinicians to consider the care they had received and to identify essential omissions. We aimed to use the online data collected to evaluate the delivery of COPD care in the UK from a patient perspective.

**Method:** Each patient passport consists of 13 questions relating to key aspects of COPD care including: spirometry confirmation of diagnosis, understanding their diagnosis, support and a written management plan, vaccinations, smoking cessation, physical activity, exercise, eating well, pulmonary rehabilitation, exacerbations, medications, and yearly reviews. Data were presented as proportions with an answer representing good care, and plotted over time to identify trends.

**Results:** After removing duplicates, data from 41,769 entries, completed online between November 2014 and April 2019, were available (Table 1). Only 24% reported receiving support to manage their care and a written action plan; only 53% could spot the signs of an acute exacerbation; only 34% had discussed pulmonary rehabilitation. A quarter reported not receiving flu vaccination and a third of COPD smokers were not offered support to quit smoking. Even the strongest areas including a spirometry-confirmed diagnosis, and knowing the importance of being active and eating well, achieved only around 80%. Most responses remained stable over time or got slightly worse (Figure 1). Only checking of inhaler technique has improved, though remaining poor with only about two thirds giving a positive response in 2019.

**Conclusion:** Analysis of response to the BLF COPD Patient Passport identifies substantial gaps in the delivery of care. There is little evidence that there has been improvement over the 5 years covered by the data. This highlights the need for new approaches if the ambitions set out in the NHS Long Term Plan are to be met.

### Abstract ID Number: 149

**Title:** Delivering an Integrated Respiratory Service: The Derby ImpACT+ experience

**Corresponding author:** Gillian Lowrey

**List of authors:** Baguneid A, Lowrey G, Aldridge R, Evans R, Vale V, Subramanian D

**Institution:** Royal Derby Hospital

**Abstract: Introduction:** Respiratory RightCare Commissioning for Value highlighted opportunities to reduce variation in non-elective admissions. One of the main actions was commissioning of an integrated respiratory service (ImpACT+). This model of care was evidence based and followed NICE recommendations. It is unique in that it is not specific to airways disease, spans prevention through to end of life and is organised around primary care places.

**Methods:** The service is delivered by a multi-disciplinary team (consultants, specialist nurses, physiotherapists, occupational therapists). There are 6 main areas i) prevention ii) case finding iii) early specialist review at the point of diagnosis iv) on-going care including virtual place based consultant led clinics, and pulmonary rehabilitation; v) crisis: 7 day/week telephone helpline, supported discharge, specialist review for >2 exacerbations/year; vi) advanced care: fatigue and breathlessness groups, asset based clinics, home oxygen and non-invasive ventilation.

**Results:** In the first 9 months the service received 4932 referrals. The telephone helpline received 493 phone calls, directly avoiding 14 admissions. 207 patients were discussed in the virtual respiratory clinics, avoiding 83 referrals to secondary care (40%). Other outcomes from the virtual clinics included: medication changes (23%), referral to pulmonary rehabilitation (25%), confirmation of new diagnosis (20%). Feedback from primary care was favourable with 21/27 responses finding the extremely/very useful, including comments such as "an amazing service and demonstration of primary and secondary care working together to deliver seamless service". Since introduction, non-elective admissions for respiratory conditions have declined by 6% (7563 in to 7110). COPD non-elective admissions fell by 4% (1132 to 1086), asthma non-elective admissions dropped 16% (456 to 381).

**Conclusion:** Evidence based integrated care models that are not specific to airways disease, span prevention through to end of life, and are organised around primary care places or networks can be implemented successfully.

### Abstract ID Number: 142

**Title:** Changing the Approach - the value of FeNO testing in a Respiratory hub

**Corresponding author:** Liz Underhill

**List of authors:** Underhill L, Thompson S, Shearer R, McClaren S

**Institution:** North of England Commissioning Support (NECS)

# Primary Care Respiratory Update

**Abstract: Aim:** The aim of the Wallsend Respiratory hub was to deliver quality assured spirometry, improve asthma management and assess the value of FeNO testing.

**Method:** Patients were seen for spirometry, FeNO testing, reversibility and offered counselling on inhaler choice and technique. Patients on high dose inhaled corticosteroids were reviewed to assess potential for dose reduction.

**Results:** We have not gained sufficient data to provide quantitative results yet, but have qualitative data in the form of 4 cases. 1- Spirometry showed likely asthma diagnosis. FeNO 104 and Clenil inhaler was started. On review, FeNO 20 and Montelukast was commenced. Further review showed FeNO remained consistently low and ACT improved. GP - 'FeNO is a very exciting and new concept to Primary care. We found that patients like FeNO and it helps compliance' 2 - Normal spirometry and peak flow variability. FeNO 49, suggestive of asthma. Clenil inhaler was started and advise given Nurse - 'this has dramatically changed the way we think about asthma' 3- On high dose Seretide Evohaler but poor compliance. ACT 21 and FeNO 27. Switched to high dose Fostair inhaler and encouraged TWICE daily use. On review ACT was 25 and FeNO 19. ICS dose was reduced to medium dose 4- On high dose Seretide Accuhaler ACT 18, FeNO 13 . Switched to Duoresp Spiromax and ICS dose stepped down Patient - 'I really like this new test, it's so easy and quick'

**Conclusion:** FENO testing is not just about diagnosis, but tailoring the treatment to the patient to give the best individualised care, with a cost saving and reduced steroid burden. FeNO is a useful tool for behavioural change in patients and prescribers, providing an extra bit of the jigsaw and giving confidence around optimising treatment.

**References:** NICE NG 80, Asthma. 2017

## Abstract ID Number: 132

**Title:** Is a Respiratory Nurse Specialist Working with a Collaboration of GP Practices Value for Money?

**Corresponding author:** Melissa Canavan

**List of authors:** Anderson S, Canavan M

**Institution:** Respiratory care Solutions

**Abstract:** Brief outline of context In September 2017 a Respiratory Nurse Specialist (RNS) was employed to work with a collaboration of 8 GP practices to help standardise the respiratory care and reduce variation. By September 2018 this was extended to include another four practices.

**Brief outline of problem:** There was variation within the locality between practices with regards to respiratory, one of the areas identified was prescribing. One GP practice had 65 more respiratory patients than another but was spending £82,031 a year more. Assessment of problem and analysis of its causes Health care professionals have different levels of training and different time allocated for completing reviews which can have an effect on variation.

**Strategy for change:** The RNS has been working with the locality providing joint clinics, virtual reviews and education sessions. Practices have received asthma, COPD and spirometry updates. The local schools and community pharmacy have also received asthma updates to standardise messages. COPD information sessions have been held in the community and more recently we have set up a respiratory hub.

**Measurement of improvement:** We initially obtained baseline data to monitor change in a number of areas, however we found it difficult to obtain follow up data except for respiratory prescribing costs.

**Effects of changes:** As a locality collectively we have reduced our respiratory prescribing costs by £220,252 that can be reinvested back into the NHS.

**Lessons learnt:** This data highlights the importance of having an RNS working collaboratively across practices not only to standardise care and improve outcomes but also reduce costs.

**Message for others:** Building trusting relationships with practices is vital for success as there are competing priorities in general practice and everyone needs to be on board.