January 2020
Issue 19

Primary Care Respiratory Update

The PCRS Respiratory Conference 2019

19th-21st September, Telford International Centre

Conference report

Edition Highlights

- Conference feedback from Telford 2019
- Managing cough in primary care
- SABA Guardians
- Conference abstracts

Primary Care Respiratory Society www.pcrs-uk.org

CIRCASSIA

The gold standard just got better.

At Circassia we believe that innovation should never stop. That is why we are committed to setting new standards in FeNO testing. It's time to enhance the experience.

Introducing the future of FeNO.
NIOX VERO® plus is available now.
www.niox.com/en-gb/niox-vero-plus

NIOX VERO® plus

NIOX VERO® and NIOX® are registered trademarks of Circassia AB.
CIRCASSIA is a registered trademark of Circassia Ltd.
© Copyright Circassia Ltd 2019. PP-NXUK-UK-0078.

Primary Care Respiratory Update

The Primary Care Respiratory Update is published quarterly and distributed to members of the Primary Care Respiratory Society.

www.pcrs-uk.org/pcru

Editorial Office and Publishers

Primary Care Respiratory Society
Miria House,
1683B High Street,
Knowle, B93 0LL
Tel: +44 (0)1675 477600
Fax: +44 (0)1361 331811
Email: sales@pcrs-uk.org

Advertising and sales

Primary Care Respiratory Society
Miria House,
1683B High Street,
Knowle, B93 0LL
Tel: +44 (0)1675 477600
Fax: +44 (0)1361 331811
Email: sales@pcrs-uk.org

Supplements and reprints

From time to time PCRS publishes supplements to the regular journal, which are subject to review by the editorial board.

PCRS also offers licencing opportunities for bulk reproduction of this journal.

For further information, contact:
Primary Care Respiratory Society
Miria House,
1683B High Street,
Knowle, B93 0LL
Tel: +44 (0)1675 477600
Fax: +44 (0)1361 331811
Email: sales@pcrs-uk.org

Printed in the UK by Caric Print Ltd, Bournemouth, Dorset in association with Stephens & George Magazines Ltd.
Printed on recycled paper

Editor

Dr Iain Small, PCRS Executive, GP, Peterhead

Editorial board

Dr Noel Baxter, PCRS Policy Lead
Dr Luke Daines, GP, Edinburgh
Dr Stephen Gaduzo, GP Stockport
Sally King, Respiratory Physiotherapist, Gloucestershire
Anne Rodman, Advanced Nurse Practitioner, Walsall
Carol Stonham, Chair PCRS Executive, Gloucestershire
Ruth Thomas, Respiratory Nurse Specialist, Milton Keynes

PCRS Chief Executive

Anne Smith

Communications Consultant and Freelance Journalist

Francesca Robinson

Policy Co-ordinator

Tracey Lonergan

PCRS Operations Director

Tricia Bryant

Competing interests are declared to PCRS and this information is kept on file.

The opinions, data and statements that appear in this journal are those of the contributors. The publisher, editor and members of the editorial board do not necessarily share the views expressed herein. Although every effort is made to ensure accuracy and avoid mistakes, no liability on the part of PCRS, the editor or their agents or employees is accepted for the consequences of any inaccurate or misleading information.
© 2020 Primary Care Respiratory Society. All rights reserved.
Apart from fair dealing for the purposes of research or private study, criticism or review, and only as permitted under the Copyright, Designs and Patent Act 1988, this publication may only be produced, stored or transmitted, in any form or by any means, with the prior permission in writing of Primary Care Respiratory Society. Enquiries concerning reproduction outside those terms should be submitted to Primary Care Respiratory Society via info@pcrs-uk.org

The Primary Care Respiratory Society UK is a registered charity (Charity No: 1098117) and a company limited by guarantee registered in England (Company No: 4298947). VAT Registration Number: 866 1543 09. Registered offices: PCRS, Miria House, 1683B High Street, Knowle, B93 0LL. Telephone: +44 (0)1675 477600 Facsimile: +44 (0)121 336 1914 Email: info@pcrs-uk.org Website: http://www.pcrs-uk.org

In 2019 The Primary Care Respiratory Society is grateful to its corporate supporters including AstraZeneca UK Ltd, Boehringer Ingelheim Ltd, Chiesi Ltd, Cipla EU Ltd, Circassia Ltd, Napp Pharmaceuticals and Novartis UK for their financial support which supports the core activities of the Charity and allows PCRS to make its services either freely available or at greatly reduced rates to its members.
See http://www.pcrs-uk.org/sites/pcrs-uk.org/files/files/PI_funding.pdf for PCRS statement on pharmaceutical funding.

FOSTAIR®
Beclometasone + formoterol
Extrafine formulation
100/6 & 200/6
Part of the Fostair Family

THE ONLY EXTRAFINE FORMULATION ICS/LABA COMBINATION[1]

FOSTAIR NEXThaler
FOR ADULT ASTHMA. IT'S FOSTAIR, IN A DRY POWDER INHALER[2,3]

Full licensed indication can be found in the Prescribing Information below.

Chiesi

References: [1]MIMS Online. 2019. Available at: www.mims.co.uk. Accessed September 2019.
[2]Fostair NEXThaler 100/6 Summary of Product Characteristics. Chiesi Ltd. https://www.medicines.org.uk/emc/product/3317/smpc.
[3]Fostair NEXThaler 200/6 Summary of Product Characteristics. Chiesi Ltd. https://www.medicines.org.uk/emc/product/5075/smpc.

Fostair 100/6 and 200/6 Prescribing Information
Please refer to the full Summary of Product Characteristics (SPC) before prescribing. **Presentation:** Each Fostair pressurised metered dose inhaler (pMDI) 100/6 dose contains 100 micrograms (mcg) of beclometasone dipropionate (BDP) and 6mcg of formoterol fumarate dihydrate (formoterol). Each Fostair pMDI 200/6 dose contains 200mcg of BDP and 6mcg of formoterol. Each Fostair NEXThaler 100/6 dry powder inhaler (DPI) dose contains 100mcg of BDP anhydrous and 6mcg of formoterol. Each Fostair NEXThaler 200/6 DPI dose contains 200mcg of BDP anhydrous and 6mcg of formoterol. **Indications:** ***Asthma***: Regular treatment of asthma where use of an inhaled corticosteroid/long-acting beta$_2$-agonist (ICS/LABA) combination is appropriate: patients not adequately controlled on ICS and as needed short-acting beta$_2$-agonist, or patients already adequately controlled on both ICS and LABA. ***COPD*** **(Fostair 100/6 only):** Symptomatic treatment of patients with severe COPD (FEV$_1$ <50% predicted normal) and a history of repeated exacerbations, who have significant symptoms despite regular therapy with long-acting bronchodilators. **Dosage and administration:** For inhalation in adult patients (≥18 years). ***Asthma***: **Maintenance And Reliever Therapy (Fostair 100/6 only)** can be taken as a regular maintenance treatment and as needed in response to asthma symptoms: 1 inhalation twice daily plus 1 additional inhalation as needed in response to symptoms. If symptoms persist after a few minutes, an additional inhalation is recommended. The maximum daily dose is 8 inhalations. Fostair 100/6 may also be used as maintenance therapy (with a separate short-acting bronchodilator as needed). Fostair 200/6 should be used as maintenance therapy only. **Maintenance therapy**: Fostair 100/6: 1–2 inhalations twice daily. Fostair 200/6: 2 inhalations twice daily. The maximum daily dose is 4 inhalations. Patients should receive the lowest dose that effectively controls their symptoms. ***COPD*** **(Fostair 100/6 only)**: 2 inhalations twice daily. Fostair pMDI can be used with the AeroChamber Plus® spacer device. BDP in Fostair is characterised by an extrafine particle size distribution which results in a more potent effect than formulations of BDP with a non-extrafine particle size distribution (100mcg of BDP extrafine in Fostair are equivalent to 250mcg of BDP in a non-extrafine formulation). When switching patients from previous treatments, it should be considered that the recommended total daily dose of BDP for Fostair is lower than that for non-extrafine BDP containing products and should be adjusted to the needs of the individual patient. However, patients who are transferred between Fostair NEXThaler and Fostair pMDI do not need dose adjustment. **Contraindications:** Hypersensitivity to the active substances or to any of the excipients. **Warnings and precautions:** Use with caution in patients with cardiac arrhythmias, aortic stenosis, hypertrophic obstructive cardiomyopathy, ischaemic heart disease, severe heart failure, congestive heart failure, occlusive vascular diseases, arterial hypertension, severe arterial hypertension, aneurysm, thyrotoxicosis, diabetes mellitus, phaeochromocytoma and untreated hypokalaemia. Caution should also be used when treating patients with known or suspected prolongation of the QTc interval (QTc > 0.44 seconds). Formoterol itself may induce QTc prolongation. Potentially serious hypokalaemia may result from beta$_2$-agonist therapy and may also be potentiated by concomitant treatments (e.g. xanthine derivatives, steroids and diuretics). Formoterol may cause a rise in blood glucose levels. Fostair should not be administered for at least 12 hours before the start of anaesthesia, if halogenated anaesthetics are planned as there is risk of arrhythmias. Use with caution in patients with pulmonary tuberculosis or fungal/viral airway infections. Increase in pneumonia and pneumonia hospitalisation in COPD patients receiving ICS. Clinical features of pneumonia may overlap with symptoms of COPD exacerbations. Fostair treatment should not be stopped abruptly. Medical attention should be sought if treatment ineffective. Treatment should not be initiated during exacerbations or acutely deteriorating asthma. Fostair treatment should be discontinued immediately if the patient experiences a paradoxical bronchospasm. Fostair is not intended for initial management of asthma. Systemic effects of ICS may occur, particularly at high doses for long periods, but are less likely than with oral steroids. These include Cushing's syndrome, Cushingoid features, adrenal suppression, decrease in bone mineral density, cataract and glaucoma and more rarely, a range of psychological or behavioural effects including psychomotor hyperactivity, sleep disorders, anxiety, depression and aggression. Consider referral of patients reporting blurred vision or visual disturbances to an ophthalmologist as causes may include cataract, glaucoma or rare diseases such as central serous chorioretinopathy. Prolonged treatment with high doses of ICS may result in adrenal suppression and acute adrenal crisis. Lactose in Fostair NEXThaler contains small amounts of milk proteins, which may cause allergic reactions. **Interactions:** Possibility of systemic effects with concomitant use of strong CYP3A inhibitors (e.g. ritonavir, cobicistat) cannot be excluded and therefore caution and appropriate monitoring is advised. Beta-blockers should be avoided in asthma patients. Concomitant administration of other beta-adrenergic drugs may have potentially additive effects. Concomitant treatment with quinidine, disopyramide, procainamide, phenothiazines, antihistamines, monoamine oxidase inhibitors (MAOIs) and tricyclic antidepressants can prolong the QTc interval and increase the risk of ventricular arrhythmias. L-dopa, L-thyroxine, oxytocin and alcohol can impair cardiac tolerance towards beta$_2$-sympathomimetics. Hypertensive reactions may occur following co-administration with MAOIs including agents with similar properties (e.g. furazolidone, procarbazine). Concomitant treatment with xanthine derivatives, steroids or diuretics may potentiate a possible hypokalaemic effect of beta$_2$-agonists. Hypokalaemia may increase the likelihood of arrhythmias in patients receiving digitalis glycosides. Presence of ethanol in Fostair pMDI may cause potential interaction in sensitive patients taking metronidazole or disulfram. **Fertility, pregnancy and lactation:** Fostair should only be used during pregnancy or lactation if the expected benefits outweigh the potential risks. A risk/benefit decision should be taken to discontinue/abstain from therapy in the mother or discontinue breastfeeding. **Effects on driving and operating machinery:** Fostair is unlikely to have any effect on the ability to drive and use machines. **Side effects:** *Common*: pneumonia (in COPD patients), pharyngitis, oral candidiasis, headache, dysphonia, tremor. *Uncommon:* influenza, oral fungal infection, oropharyngeal candidiasis, nasopharyngitis, oesophageal candidiasis, vulvovaginal candidiasis, gastroenteritis, sinusitis, rhinitis, granulocytopenia, allergic dermatitis, hypokalaemia, hyperglycaemia, hypertriglyceridaemia, restlessness, dizziness, otosalpingitis, palpitations, prolongation of QTc interval, ECG change, tachycardia, tachyarrhythmia, atrial fibrillation, sinus bradycardia, angina pectoris, myocardial ischaemia, blood pressure increased, hyperaemia, flushing, cough, productive cough, throat irritation, asthmatic crisis, exacerbation of asthma, dyspnoea, pharyngeal erythema, diarrhoea, dry mouth, dyspepsia, dysphagia, burning sensation of the lips, nausea, dysgeusia, pruritus, rash, hyperhidrosis, urticaria, muscle spasms, myalgia, C-reactive protein increased, platelet count increased, free fatty acids increased, blood insulin increased, blood ketone body increased, blood cortisol decrease, oropharyngeal pain, fatigue, irritability, cortisol free urine decreased, blood potassium increased, blood glucose increased, ECG poor r-wave progression. *Rare*: ventricular extrasystoles, paradoxical bronchospasm, angioedema, nephritis, blood pressure decreased. *Very rare*: thrombocytopenia, hypersensitivity reactions, including erythema, lips, face, eyes and pharyngeal oedema, adrenal suppression, glaucoma, cataract, peripheral oedema, bone density decreased. *Unknown frequency*: psychomotor hyperactivity, sleep disorders, anxiety, depression, aggression, behavioural changes, blurred vision. (Refer to SPC for full list of side effects). **Legal category:** POM **Price and Pack:** £29.32 1x120 actuations **Marketing authorisation (MA) No(s):** PL 08829/0156, PL 08829/0175, PL 08829/0173, PL 08829/0174 **MA holder:** Chiesi Ltd, 333 Styal Road, Manchester, M22 5LG. **Date of Preparation:** Aug 2018. AeroChamber Plus® is a registered trademark of Trudell Medical International.

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card in the Google Play or Apple App Store. Adverse events should also be reported to Chiesi Ltd on 0800 0092329 (UK), 1800 817459 (IE) or PV.UK@Chiesi.com.

UK-NEX-1900019. September 2019.

Conference report

Primary Care Respiratory Update




Contents

Editor's Round-Up
Iain Small 5

PCRS National Respiratory Conference 2019 held at the Telford International Centre on 19th-21st September
Fran Robinson 7

What did the attendees think?
Fran Robinson 8

Feedback from delegates 11

Plenary Session Highlights

Fit for the future: an optimistic view of respiratory care
Carol Stonham 13

Managing Breathlessness: the Breathing, Thinking Functioning approach
Dr Anna Spathis 14

Clinical Stream Highlights

Managing cough in primary care
Kevin Gruffydd-Jones 16

Respiratory disease in the context of comorbidities and ageing
Dr Chris Dyer 21

We are SABA Guardians - Ask, Advise, Act.
Darush Attar-Zadeh, Katherine Hickman 23

Service Development Stream

Developing Services and Sharing Best Practice in Respiratory Primary Care Medicine
Tracey Lonergan 25

Abstracts

Prize Winning Abstracts 2019 28

The top five best practice/service development abstracts 32

Appendix 1
Key learning points as provided by speakers 35

Appendix 2
Scientific Research Abstracts 40

Appendix 3
Best Practice/Service Development Abstracts 51

npj | Primary Care Respiratory Medicine

Call for Papers

npj Primary Care Respiratory Medicine is an open access, online-only, multidisciplinary journal dedicated to publishing high-quality research in all areas of the primary care management of respiratory and respiratory-related allergic diseases. Papers published by the journal represent important advances of significance to specialists within the fields of primary care and respiratory medicine. We are particularly interested in receiving papers in relation to the following aspects of respiratory medicine, respiratory-related allergic diseases and tobacco control:

- Epidemiology
- Prevention
- Clinical care
- Service delivery and organisation of healthcare (including implementation science)
- Global health

Published in partnership with

PCRS

International Primary Care Respiratory Group IPCRG

EDITOR-IN-CHIEF

Professor Aziz Sheikh
The University of Edinburgh, Edinburgh, UK

All content is indexed within PubMed, PubMed Central, MEDLINE, Scopus and Web of Science

Part of the Nature Partner Journals series

npj nature partner journals

Editor's Round-Up

Dr Iain Small, *Editor Primary Care Respiratory Update*

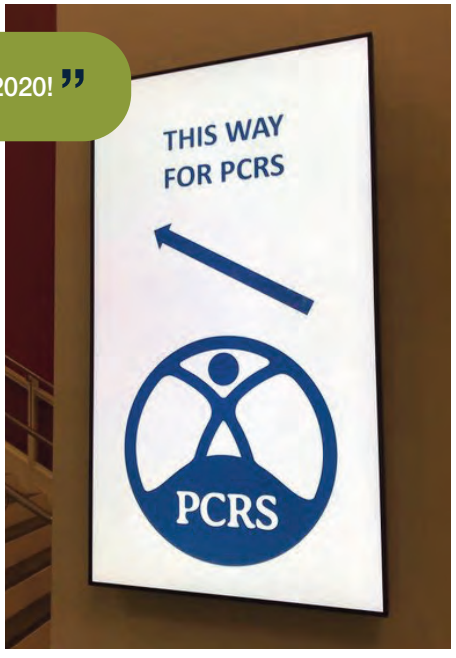
Welcome to our PCRS Conference Report-2019. Whether you were with us in Telford or you couldn't make it, I hope you will take the time to read this comprehensive summary of a fantastic couple of days. Although the conference itself seems to go by in a blur, the work that goes into it represents a whole year's effort (and sometimes more).

In this report, you will find a summary of the key plenary sessions, compiled by the Primary Care Respiratory Update team in collaboration with the speakers themselves, together with the abstracts presented.

Those of you who have heard me speak will know that a recurring theme is to think about how we apply what we have learned to our everyday clinical practice, and on the way to discuss that with colleagues, and record our activity both for our own benefit and for revalidation/appraisal. There is enough learning in this report to fuel multiple clinical improvements, and keep our appraisers happy for years. More importantly, of course, there is enough information advice and experience to bring about great change to the lives of our patients, their families, and our health communities, if only we apply it.

If you missed the 2019 Conference, don't despair- rather like the train to Telford, there's sure to be another one coming along, albeit that you might need to wait a while!

"Can't wait for 2020!"



flutiform® k-haler®

fluticasone propionate/formoterol

Intelligently designed. Simple to use.

The first and only ICS/LABA fixed-dose combination delivered in a breath-actuated aerosol inhaler.[2]

Aerosol delivery avoids the need for forceful inspiration.[1,3]

Kinked ***k-valve***™ holds the dose in situ until inhalation, and prevents double-dosing.[3]

Prominent colour-coded dose counter shows how many doses are remaining.[1,4]

Each dose is simply released by a gentle breath, removing the need for co-ordination.[3]

Full opening of the cover loads the dose.[1,4]

Award winning patient friendly packaging provide simple and clear instructions for patients

Award winning ease of use design

For more information or to arrange for a visit from a member of our team, please call 01223 424444.

flutiform k-haler*® (fluticasone propionate/formoterol fumarate) 50 µg/5 µg and 125 µg /5 µg pressurised inhalation suspension. Prescribing Information United Kingdom. Please read the Summary of Product Characteristics before prescribing. Presentation** Pressurised inhalation suspension, in a breath-actuated pressurised aerosol inhaler. **Indications** Regular treatment of asthma where the use of a combination product (inhaled corticosteroid [ICS] and long-acting β2-agonist [LABA]) is appropriate: (i) for patients not adequately controlled with ICS and 'as required' inhaled short-acting β2-agonist (SABA) (ii) for patients already adequately controlled on both an ICS and a LABA. For adults and adolescents aged 12 years and above. **Dosage and administration** For inhalation use. Patients should be shown how to use the inhaler correctly by a healthcare professional. Patients should be given the strength of ***flutiform k-haler containing the appropriate fluticasone propionate dose for their disease severity (note that ***flutiform k-haler*** 50 µg/5 µg per actuation is not appropriate in patients with severe asthma). The appropriate strength should be taken as two inhalations, twice daily (normally morning and evening) and used every day, even when asymptomatic. ***flutiform k-haler*** is not recommended in children under 12 years. Prescribers should be aware that in asthmatics, fluticasone propionate is as effective as some other inhaled steroids when administered at approximately half the total daily microgram dose. Patients should be assessed regularly and once asthma is controlled, treatment should be reviewed and stepped down to the lowest effective dose, or an ICS alone. ICSs alone are first line treatment for most patients. ***flutiform k-haler*** is not intended for initial treatment of mild asthma. For patients with severe asthma the ICS therapy should be established before prescribing a fixed-dose combination product. Patients on ***flutiform k-haler*** must not use an additional LABA. An inhaled SABA should be taken for immediate relief of asthma symptoms arising between doses. Patients should be advised to contact their prescriber when ***flutiform k-haler*** dose counter is getting near zero. **Contraindications** Hypersensitivity to the active substances or to any of the excipients. **Precautions and warnings** ***flutiform k-haler*** should not be used as the first asthma treatment, to treat acute asthma symptoms or for prophylaxis of exercise-induced asthma. It should not be initiated during an exacerbation, during significantly worsening or acutely deteriorating asthma, and should not be stopped abruptly. If a patient experiences serious asthma-related adverse events or exacerbations, they should continue treatment and seek medical advice. Patients should be reviewed as soon as possible if there is any indication of deteriorating asthma control. In case of sudden and progressive deterioration, seek urgent medical assessment. Caution in patients with: pulmonary tuberculosis; quiescent tuberculosis; fungal, viral or other infections of the airway; thyrotoxicosis; phaeochromocytoma; diabetes mellitus (consider additional blood sugar controls); uncorrected hypokalaemia; predisposition to low levels of serum potassium; impaired adrenal function (monitor HPA axis function regularly); hypertrophic obstructive cardiomyopathy; idiopathic subvalvular aortic stenosis; severe hypertension; aneurysm or other severe cardiovascular disorders; unstable or acute severe asthma and other conditions when the likelihood for hypokalaemia adverse effects is increased. There is risk of potentially serious hypokalaemia with high doses of β2-agonists or concomitant treatment with β2-agonists and drugs that can induce or potentiate a hypokalaemic effect. Monitoring of serum potassium levels is recommended during these circumstances. Formoterol may induce prolongation of the QTc interval. Caution must be observed when treating patients with existing prolongation of QTc interval. ***flutiform k-haler*** should be discontinued immediately if there is evidence of paradoxical bronchospasm. Visual disturbance may be reported with corticosteroid use. Systemic effects with an ICS may occur, particularly at high doses for prolonged periods or when combined with potent CYP3A4 inhibitors, but are less likely than with oral corticosteroids. Possible systemic effects include Cushing's syndrome, Cushingoid features, adrenal suppression, growth retardation in children and adolescents, decrease in bone mineral density and cataract glaucoma. Children may also experience anxiety, sleep disorders and behavioural changes. Increased exposure can be expected in patients with severe hepatic impairment. Prolonged treatment with high doses of corticosteroids may result in adrenal suppression and acute adrenal crisis, particularly in children and adolescents or potentially as a result of trauma, surgery, infection or rapid dose reduction. ***flutiform k-haler*** contains a negligible amount of ethanol that does not pose risk to patients. Interactions Co-treatment with CYP3A inhibitors (e.g. ritonavir, atazanavir, clarithromycin, indinavir, itraconazole, nelfinavir, saquinavir, ketoconazole, telithromycin, cobicistat) should be avoided unless the benefit outweighs the increased risk of systemic side-effects. Caution is advised with concomitant use of non-potassium sparing diuretics (e.g. loop or thiazide), xanthine derivatives, glucocorticosteroids, L-Dopa, L-thyroxine, oxytocin, alcohol or other adrenergic drugs, including anaesthesia with halogenated hydrocarbons and digitalis glycosides, β-adrenergic drugs, known to prolong the QTc interval, such as tricyclic antidepressants or MAOIs (and for two weeks following their discontinuation), antipsychotics (including phenothiazines), quinidine, disopyramide, procainamide, antihistamines. **Furazolidone and procarbazine *flutiform k-haler*** should not normally be used with β-blockers including those that are used as eye drops to treat glaucoma. Under certain circumstances, e.g. as prophylaxis after myocardial infarction, cardioselective β-blockers could be considered with caution. **Pregnancy and lactation *flutiform k-haler*** is not recommended during pregnancy unless the benefits to the mother outweigh risks to the foetus. A risk to the breastfeeding infant cannot be excluded. **Side-effects** Uncommon (<1/100) but potentially serious side-effects: hyperglycaemia, agitation, depression, aggression, behavioural changes (predominantly in children), vision blurred, vertigo, palpitations, ventricular extrasystoles, angina pectoris, tachycardia, hypertension, dyspnoea, peripheral oedema. Please consult the SPC for a full list of side-effects and those reported for the individual molecules. **Legal category** POM **Package quantities and price** One inhaler (120 actuations) 50 µg/5 µg - £14.40 125 µg/5 µg - £28.00 **Marketing Authorisation numbers** PL 16950/0338-39 **Marketing Authorisation holder** Napp Pharmaceuticals Limited Cambridge Science Park Milton Road Cambridge CB4 0GW UK Tel: 01223 424444 For medical information enquiries, please contact medicalinformationuk@napp.co.uk. FLUTIFORM is a registered trademark of Jagotec AG, and is used under licence. K-HALER is a registered trade mark of Mundipharma AG. © 2018 Napp Pharmaceuticals Limited. UK/FLUT-K-18011 Date of Preparation: May 2018

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to Napp Pharmaceuticals Limited on 01223 424444.

References: 1. Mundipharma International Limited. flutiform k-haler. Summary of Product Characteristics. Available from: https://www.medicines.org.uk/emc/product/9483/smpc. Last accessed August 2019. **2.** MIMS. Available from: www.mims.co.uk/search/drugs?keywords=Beta 2 agonists, long-acting/corticosteroids. Last accessed August 2019. **3.** Bell D et al. J Aerosol Med Pulm Drug Deliv 2017; 30:425–34. **4.** https://www.medicines.org.uk/emc/product/9412/pil

UK/FLUT-K-19022 Date of preparation: August 2019

www.flutiform.co.uk

NAPP RESPIRATORY

The PCRS Respiratory Conference 2019

19th-21st September, Telford International Centre

The must-attend event for all healthcare professionals interested in developing best-practice and integrated respiratory care

- Enhancing
- Integrated
- Holistic
- Life-Learning

Fran Robinson reports on the PCRS National Respiratory Conference 2019 held at the Telford International Centre on 19th-21st September

Carol Stonham opened the PCRS National Respiratory Conference 2019 breaking the mould in her new role as the first woman and the first nurse PCRS Executive Chair.

A primary care respiratory nurse in Gloucestershire, Carol pointed out how far PCRS has evolved from its origins in 1987 as a GP only organisation into a multidisciplinary organisation led by an Executive Committee comprised of many different healthcare professionals.

She said PCRS had also progressed from focusing solely on respiratory disease to viewing things from a values based care approach taking into account holistic patient care, accurate diagnosis, multi-morbidity, patient activation and supported self-management. "These are now the core values of PCRS," she said.

Carol explained that PCRS currently has three key campaigns, the themes of which ran throughout the conference:

- Asthma Right Care – a social movement to tackle patient overreliance on salbutamol in asthma
- Tobacco dependency as a long-term relapsing condition – which focuses on encouraging healthcare professionals to become 'quit catalysts' and keeping the conversation going to help patients to stop smoking
- Greener healthcare - PCRS' newest campaign which focuses on appropriate prescribing of inhalers, recycling, reducing waste by getting the diagnosis right, checking inhaler technique, reducing unnecessary travel to and from appointments, prescribing high value non pharmacological treatment and encouraging self care.

She said the PCRS Conference was a chance for delegates to recharge their batteries. It was also an opportunity to network and she said she hoped that delegates would join the new PCRS online community where delegates could keep the conversation going and share ideas and problems: "I would encourage you to do this, it is a new way of working and is something we want you all to be a part of."

> **"This is THE Respiratory Conference to attend - to challenge thoughts and processes and to encourage behaviour change!"**

Finally Carol urged delegates to take the learning gained from the conference presentations back to their practices and teams. She said she hoped this would inspire them to make changes to their practice.

What did the attendees think?

Fran Robinson reports on the feedback from delegates who attended the conference

This year 324 delegates attended the conference. The balance of healthcare professional disciplines comprised: doctors 22%, nurses 41%, physiotherapists 8%, pharmacists 8% and delegates in a non-clinical role 7%. Over 40% of attendees worked in GP practices with a further 26% working in community teams. The remainder were based in hospital based teams (15%) with an additional 9% from CCG/Health boards, and 10% from academia.

In feedback, most sessions scored as good or excellent. Of the plenary sessions the Grand Round scored particularly highly, two of the clinical sessions (COPD and Cough) also were amongst the highest scorers, with the service development pulmonary rehabilitation session also scoring very well. Several of the research sessions gained very high scores.

The most popular workshop sessions were the Strictly COPD, spirometry interpretation, helping people change, CBT and relaxation workshops.

Feedback has been extremely positive with recommendations for the future suggesting more of the same.

> “Coming from Northern Ireland I have had very little experience of the PCRS conference per se - but I am totally blown away with the calibre and quality of this conference and am committed to make it an annual event in my diary”

> “This conference just gets better and better. It’s fantastic to come and be energised to go back to my practice and change things for the better”

A logical choice

of maintenance treatment to help prevent exacerbations of COPD

Maintenance treatment in adult patients with moderate to severe chronic obstructive pulmonary disease (COPD) who are not adequately treated by a combination of an inhaled corticosteroid and a long-acting β_2-agonist or a combination of a long-acting β_2-agonist and a long-acting muscarinic antagonist (for effects on symptoms control and prevention of exacerbations see section 5.1 of the SPC).[1]

Trimbow®

beclometasone/formoterol/
glycopyrronium (87/5/9 mcg)
Extrafine formulation

Inspired logic

Chiesi

Prescribing information can be found overleaf

UK-TRI-1900078 Mar 2019

The verdict of the conference co-chairs

Katherine Hickman:

"I think the 2019 conference was our best yet. The feedback that we have had has been overwhelmingly positive – people commented that everything ran smoothly and that we got the content of the sessions right.

"It was great to see such enthusiasm over the three days. Two of the workshop sessions – the Strictly COPD and CBT were very popular and had such a buzz about them. We hope to invite these speakers back next year and ensure more people experience their expertise.

"Delegates liked the fact that the PCRS Respiratory Conference gave them ideas for change that they could take back to their teams and implement straight away."

Anne Rodman:

"Conference in 2019 had a very positive response with ever improving evaluation scores and enthusiastic comments about how much delegates are looking forward to putting their learning into practice.

"Particular highlights included the ever popular case based and interactive Grand Round and a clinical session exploring the merits of the recent GOLD and NICE COPD guideline updates.

"The workshop sessions were also very well attended and highly rated. The conference app which allows audience participation and polling was also very helpful in fostering an interactive experience in many of the sessions and was rated very easy to use by this year's delegates.

"As usual the bar has been set even higher for next year's programme!"

Prescribing Information

Trimbow 87/5/9 Pressurised Metered Dose Inhaler (pMDI) Prescribing Information
Please refer to the full Summary of Product Characteristics (SPC) before prescribing. **Presentation:** Each Trimbow 87/5/9 pMDI delivered dose contains 87micrograms (mcg) of beclometasone dipropionate (BDP), 5mcg of formoterol fumarate dihydrate (formoterol) and 9mcg of glycopyrronium. This is equivalent to a metered dose of 100mcg BDP, 6mcg formoterol and 10mcg glycopyrronium. **Indication:** Maintenance treatment in adult patients with moderate to severe chronic obstructive pulmonary disease (COPD) who are not adequately treated by a combination of an inhaled corticosteroid and a long-acting beta$_2$-agonist or a combination of a long-acting beta$_2$-agonist and a long-acting muscarinic antagonist (for effects on symptoms control and prevention of exacerbations see section 5.1 of the SPC). **Dosage and administration:** For inhalation in adult patients (≥18 years). 2 inhalations twice daily. Can be used with the AeroChamber Plus® spacer device. BDP in Trimbow is characterised by an extrafine particle size distribution which results in a more potent effect than formulations of BDP with a non-extrafine particle size distribution (100mcg of BDP extrafine in Trimbow are equivalent to 250mcg of BDP in a non-extrafine formulation). **Contraindications:** Hypersensitivity to the active substances or to any of the excipients. **Warnings and precautions:** Not for acute use in treatment of acute episodes of bronchospasm or to treat COPD exacerbation. Discontinue immediately if hypersensitivity or paradoxical bronchospasm. *Deterioration of disease:* Trimbow should not be stopped abruptly. *Cardiovascular effects:* Use with caution in patients with cardiac arrhythmias, aortic stenosis, hypertrophic obstructive cardiomyopathy, severe heart disease, occlusive vascular diseases, arterial hypertension and aneurysm. Caution should also be used when treating patients with known or suspected prolongation of the QTc interval (QTc > 450 milliseconds for males, or > 470 milliseconds for females) either congenital or induced by medicinal products. Trimbow should not be administered for at least 12 hours before the start of anaesthesia as there is a risk of cardiac arrhythmias. Caution in patients with thyrotoxicosis, diabetes mellitus, phaeochromocytoma and untreated hypokalaemia. Increase in pneumonia and pneumonia hospitalisation in COPD patients receiving ICS observed. Clinical features of pneumonia may overlap with symptoms of COPD exacerbations. Systemic effects of ICS may occur, particularly at high doses for long periods, but are less likely than with oral steroids. These include Cushing's syndrome, Cushingoid features, adrenal suppression, growth retardation, decrease in bone mineral density, cataract, glaucoma and more rarely, a range of psychological or behavioural effects including psychomotor hyperactivity, sleep disorders, anxiety, depression and aggression. Use with caution in patients with pulmonary tuberculosis or fungal/viral airway infections. Potentially serious hypokalaemia may result from beta$_2$-agonist therapy. Formoterol may cause a rise in blood glucose levels. Glycopyrronium should be used with caution in patients with narrow-angle glaucoma, prostatic hyperplasia or urinary retention. Use in patients with severe hepatic or renal impairment should only be considered if benefit outweighs the risk. Consider referral of patients reporting blurred vision or visual disturbances to an ophthalmologist as causes may include cataract, glaucoma or rare diseases such as central serous chorioretinopathy. **Interactions:** Since glycopyrronium is eliminated via renal route, potential drug interactions could occur with medicinal products affecting renal excretion mechanisms e.g. with cimetidine (an inhibitor of OCT2 and MATE1 transporters in the kidney) co-administration, glycopyrronium showed a slight decrease in renal excretion (20%) and a limited increase in total systemic exposure (16%). Possibility of systemic effects with concomitant use of strong CYP3A inhibitors (e.g. ritonavir, cobicistat) cannot be excluded and therefore caution and appropriate monitoring is advised. *Related to formoterol:* Non-cardioselective beta-blockers (including eye drops) should be avoided. Concomitant administration of other beta-adrenergic drugs may have potentially additive effects. Concomitant treatment with quinidine, disopyramide, procainamide, antihistamines, monoamine oxidase inhibitors (MAOIs), tricyclic antidepressants and phenothiazines can prolong the QTc interval and increase the risk of ventricular arrhythmias. L-dopa, L-thyroxine, oxytocin and alcohol can impair cardiac tolerance towards beta$_2$-sympathomimetics. Hypertensive reactions may occur following co-administration with MAOIs including drugs with similar properties (e.g. furazolidone, procarbazine). Risk of arrhythmias in patients receiving concomitant anaesthesia with halogenated hydrocarbons. Concomitant treatment with xanthine derivatives, steroids or diuretics may potentiate a possible hypokalaemic effect of beta$_2$-agonists. Hypokalaemia may increase the likelihood of arrhythmias in patients receiving digitalis glycosides. *Related to glycopyrronium:* Co-administration with other anticholinergic-containing medicinal products is not recommended. *Excipients:* Presence of ethanol may cause potential interaction in sensitive patients taking metronidazole or disulfram. **Fertility, pregnancy and lactation:** Should only be used during pregnancy if the expected benefits outweigh the potential risks. Children born to mothers receiving substantial doses should be observed for adrenal suppression. Glucocorticoids and metabolites are excreted in human milk. It is unknown whether formoterol or glycopyrronium (including their metabolites) pass into human breast-milk but they have been detected in the milk of lactating animals. Anticholinergic agents like glycopyrronium could suppress lactation. A risk/benefit decision should be taken to discontinue therapy in the mother or discontinue breastfeeding. A decision must be made whether to discontinue breastfeeding or to discontinue/abstain from therapy. **Effects on driving and operating machinery:** None or negligible. **Side effects:** *Common:* pneumonia (in COPD patients), pharyngitis, oral candidiasis, urinary tract infection, nasopharyngitis, headache, dysphonia. *Uncommon:* influenza, oral fungal infection, oropharyngeal candidiasis, oesophageal candidiasis, sinusitis, rhinitis, gastroenteritis, vulvovaginal candidiasis, granulocytopenia, dermatitis allergic, hypokalaemia, hyperglycaemia, restlessness, tremor, dizziness, dysgeusia, hypoaesthesia, otosalpingitis, atrial fibrillation, electrocardiogram QT prolonged, tachycardia, tachyarrhythmia, palpitations, hyperaemia, flushing, hypertension, cough, productive cough, throat irritation, epistaxis, diarrhoea, dry mouth, dysphagia, nausea, dyspepsia, burning sensation of the lips, dental caries, aphthous stomatitis, rash, urticaria, pruritus, hyperhidrosis, muscle spasms, myalgia, pain in extremity, musculoskeletal chest pain, fatigue, C-reactive protein increased, platelet count increased, free fatty acids increased, blood insulin increased, blood ketone body increased, cortisol decreased. *Rare:* Lower respiratory tract infection (fungal), hypersensitivity reactions, including erythema, lips, face, eye and pharyngeal oedema, decreased appetite, insomnia, hypersomnia, angina pectoris (stable and unstable), ventricular extrasystoles, nodal rhythm, sinus bradycardia, blood extravasation, paradoxical bronchospasm, oropharyngeal pain, pharyngeal erythema, pharyngeal inflammation, dry throat, angioedema, dysuria, urinary retention, nephritis, asthenia, blood pressure increased, blood pressure decreased. *Very rare:* thrombocytopenia, adrenal suppression, glaucoma, cataract, dyspnoea, growth retardation, peripheral oedema, bone density decreased. *Frequency not known:* psychomotor hyperactivity, sleep disorders, anxiety, depression, aggression, behavioural changes, blurred vision. (Refer to SPC for full list of side effects). **Legal category:** POM **Price and Pack:** £44.50 1x120 actuations. **Marketing authorisation (MA) no:** EU/1/17/1208/002 **UK Distributor:** Chiesi Limited, 333 Styal Road, Manchester, M22 5LG. **Date of Preparation:** Jan 2019. AeroChamber Plus® is a registered trademark of Trudell Medical International.

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard or search for MHRA Yellow Card in the Google Play or Apple App Store. Adverse events should also be reported to Chiesi Limited on 0800 0092329 (UK) or PV.UK@Chiesi.com.

Reference: 1. Trimbow Summary of Product Characteristics, Chiesi Limited. Available at: www.medicines.org.uk/emc/product/761.

Trimbow®
beclometasone/formoterol/
glycopyrronium (87/5/9 mcg)

Feedback from delegates

Sharon, community integrated care respiratory nurse

"I am a PCRS member and the PCRS has always been my go-to on the website for information and especially for clearing up conflicting guidelines. It speaks sense and makes everything understandable. So I decided to come to the conference and I have absolutely loved it. A highlight for me has been the session on helping people to change. I will take back from this the idea of celebrating success, even the small things – this is something I will introduce into the pulmonary rehabilitation groups that we run. Everything at this conference has been so relevant to my work."

Rachael, service lead, community respiratory nurse

"I've heard so many good things about the PCRS so I decided to come to the conference to find out what all the buzz was about. I work in a community service bridging the gap between primary and secondary care and I wanted to get a better understanding of what happens in primary care. I've picked up some really good ideas to take back to my team and I have also understood what training is needed to enhance the service provided by my team."

Nita, practice pharmacist

"I'm a first timer at this conference. I joined PCRS last year because of the resources. All the top people are here talking about respiratory it's very exciting. I've come along to understand what's currently cutting edge and to find out what's going to be happening in the future. This conference also helps to put everything into context – this is hard to find out when you are just working in your own area in your practice. It's a chance to meet people from other disciplines and other practices. A highlight for me was the presentation on allergy which has given me a much greater understanding of anaphylaxis."

Katie, senior respiratory nurse, integrated care

"I recently started a new role working in integrated care in community so came to the conference to find out more about primary care. "I have been very impressed – the education has been of a very high standard – hearing from the leading, reliable respiratory voices from around the country. I have been learning a lot of new things and it has helped me to understand the level that people are working at in the community. This will help me to provide a more effective service. Everybody has been very friendly and there has been a good selection of corporate people represented in the exhibition."

Athan, GP partner, the Wirral

"I have learned things at this conference that will help me change my practice. In particular the importance of getting the diagnosis right and checking with patients with asthma that they are using their inhalers regularly. I will definitely be coming again."

Angela, advanced nurse practitioner

"I have been coming to this conference for ten years. It gives me an excellent clinical update and there is always plenty to take back and share with the other respiratory nurses in my team. Highlights for me this year were the presentations on co-morbidities and ageing and COPD management. This is also a great place for networking – I always meet new people here."

Paul, a GP generalist

"This conference has given me a new enthusiasm for respiratory. I found the presentation on SABA over-reliance eye-opening."

Alice, respiratory physiotherapist

"My team has always been in previous years and have been very enthusiastic about the conference. It's a bit more real world than BTS or the ERS conferences for respiratory physios working in primary care. A highlights for me was the CBT session – I really enjoyed it and so did everyone else, there was standing room only. I have also found the posters very instructive in terms of things that I could be doing more of myself. This has been a great opportunity to network with other physios in my area. It has been very interesting to find out what other people are doing."

Karen, practice nurse

"This is a good way of getting a really good update in respiratory. I love the workshops at this conference – they are an excellent way to get a practical hands-on update This year I really enjoyed the 'Strictly COPD' workshop – it was such a brilliant idea to engage people in dancing – it gave me a new perspective and will be something I will be encouraging my patients to think about." The other really useful presentation was the COPD management update which cleared up for me some of the confusion about the latest guidelines."

Christopher, GP, Scotland

"I'm a regular attender. This is a very well organised conference and every year there's always something new and different and useful. I always take everything I learn back to the practice and share it with colleagues. It is also an opportunity to get an update on new products on the market – I come from a remote part of Scotland so don't tend to see any reps. It is worth the effort to travel from Scotland because you learn a lot in a short space of time – it is always well worth it."

Melanie, nurse practitioner and respiratory lead for a primary care network

"The speakers at the PCRS conference are always of a really high quality and the topics, posters and abstracts are always really interesting – every year I get so much out of this event. This year it has been even more interesting because it has become more diverse with all the difference disciplines. This has been really good for networking. I am in the process of setting up a FeNO clinic and have learned a lot of useful information."

Plenary Session Highlights

Fit for the future: an optimistic view of respiratory care

A discussion led by **Carol Stonham** *MBE, Executive Chair PCRS*

Our Executive Chair, Carol Stonham MBE, officially opened the PCRS Respiratory Conference 2019 with a plenary session taking an optimistic view of the future of respiratory care in the UK. Carol invited the audience to imagine the NHS Long Term Plan had reached maturity. Imagine – it is 2029 and respiratory disease is well and truly on the map, with equal importance to cancer, diabetes, cardiovascular disease and mental health. This is the goal and our task now is to get us there.

Carol shared her view of the progress made in recent years with an increased focus on prevention and smoking cessation, addressing health inequalities, achieving earlier diagnosis, utilizing artificial intelligence to support and facilitate diagnosis, expanding pulmonary rehabilitation services and referrals, improvements in care delivery and medicines optimisation as well as staff recruitment, education and retention and a greener approach to healthcare. Real progress has been made in all these areas and we need to keep up this momentum and continue to drive improvements in respiratory service provision.

After sharing her vision, Carol opened up a panel discussion around several key areas that she felt will be key in driving improvements in respiratory health in the coming years. The panel included **Dr Katherine Hickman**, a General Practitioner and PCRS Executive Vice-Chair Elect, **Deidre Siddaway,** a respiratory specialist nurse, **Darush Attar-Zedah**, a pharmacist and PCRS Executive Committee member and **Mike McKevitt**, Director of Patient Services at the British Lung Foundation.

The first of these is pulmonary rehabilitation (PR). While PR is proven to be effective in the management of chronic obstructive pulmonary disease, referrals and uptake are far below recommended levels. How can we improve this situation? Selling PR to patients in a simple language and encouraging them to attend was high on the panel recommendations but encouraging referrals is also important. Simple things such as providing patients attending PR with thank you postcards to send back to their referring GP can also have an impact on referral levels.

Supporting patients to quit smoking continues to be a challenging area as services are squeezed, but there is also that we can still do. Around 72% of health care professionals (HCPs) are 'Very Brief Advice' (VBA) trained and Carol charged everyone with the task of spreading the word and inspiring colleagues to 'get VBA trained'.

Encouraging everyone to maintain their own health should be a critical focus of all primary care interactions with patients. Knowing the social and support services in your own area as well as peer support groups will enable social prescribing that could address fundamental issues such as loneliness that can drive down patient health and increase their attendance in primary care. Utilizing the full range of advice and support services provided by community pharmacies is another way of ensuring patients get the care they need and helping them to look after their own respiratory health. Carol encouraged all HCPs to seek to approach and influence service delivery through their Clinical Commissioning Groups and Primary Care Networks, "Be rude, be a pain and champion respiratory service provision."

Plenary

Managing Breathlessness: the Breathing, Thinking Functioning approach

Speaker **Dr Anna Spathis** *Consultant in Palliative Care, Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust*

Key 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.

What do we do when chronic breathlessness persists once we have looked for reversible causes, treated them and optimised the underlying disease?

This was the question Anna Spathis asked delegates at the beginning of her presentation.

"Breathlessness is a complex symptom. It is not only the subjective perception of breathlessness but the reactions and responses to the sensation that are important and that is a very key part of what I want to talk about," she said.

Breathlessness is extremely common and is likely to become more so with increasing ageing and multi-morbidity as so many underlying diseases are associated with the symptom.

People with breathlessness are two and a half times more likely to be admitted to hospital and account for one in five emergency department attendances.

It is also important to remember that breathlessness has a devastating impact on the carers of people with advanced respiratory disease, said Anna.

The Breathing Thinking Functioning (BTF) model, developed by Anna with colleagues, in the Breathlessness Intervention Service, explains how breathlessness perpetuates and worsens and provides a structure and rationale for its management.

It does this by engaging patients and professionals in turning the vicious cycles that can lead to breathlessness into 'cycles of improvement'. "The BTF model helps to make sense of breathlessness," she said.

The model is based on three predominant cognitive and behavioural reactions to breathlessness that, by causing vicious cycles, can maintain and worsen the symptom, irrespective of the underlying disease that triggered the breathlessness initially

The vicious cycles are:

- Breathing: Increased respiratory rate, inappropriate accessory muscle use and dynamic hyperinflation which can lead to inefficient breathing, and increased work of breathing
- Thinking: Attention to the sensation of breathlessness, memories of past experiences, misconceptions and thoughts about dying. This can lead to anxiety, feelings of panic, frustration, anger and low mood.
- Functioning: Reduced activity, social isolation and reliance on help which can lead to cardiovascular and muscular deconditioning.

Drug treatments are helpful for treating the underlying lung disease, but there is limited evidence for benefit in relieving the perception of breathlessness. Although non-drug treatments can be effective and safe, their use is hindered by lack of engagement with them, and by the challenge of choosing the most appropriate approach for individual patients out of the many approaches available.

The role of the BTF framework

- It can make sense of breathless: it can explain how breathlessness can be perpetuated, how things can get worse even when the initial trigger has settled, and how the symptom can become out of keeping with the severity of the underlying disease
- It offers motivation and mastery: it shows patients that there is always something that can be done to relieve their breathlessness, and that small changes which can lead to a big improvement by changing a vicious to a 'virtuous' cycle.
- It can provide a management focus: it can be helpful to start with non-pharmacological approaches that interrupt the predominant vicious cycle for an individual patient.

> "A fantastic conference - probably the best I have been to."

The assessment

When assessing patients Anna and her colleagues in the Breathlessness Intervention Service see patients generally between one and three times, with extra reviews by telephone if needed. "I spend a lot of time finding out what patients' existing coping strategies are - patients are experts in their own health. However it is important to manage expectations - I am upfront with patients that there is no magic wand to completely get rid of the breathlessness. However what we try to do is help people live as well as possible, so that they can get on and do the things that matter to them, without their breathlessness being a big feature in their lives."

During the consultation Anna assesses which of the BTF cycles are predominant and then using the BTF model discusses with patients how they can break their vicious cycles.

"At the beginning you are aiming for quick wins, things that work simply and reasonably fast, so you can engage patients in thinking 'I can do this'. It is really important that when talking to patients we avoid them feeling that it's their responses that have made the breathlessness worse.- I explain that their responses are normal – in fact it would be unusual for them not to occur."

Brief approaches that can be used:

Breathing cycle example:

Recovery breathing using a handheld fan. Encourage patients to use their fan and lean forward, to focus on breathing out for longer and longer with each breath out. and to gently relax and soften their shoulders each time they breathe out. Tell patients that by lengthening their out breath a little, they will be making space for the next breath.

Other non-pharmacological approaches: breathing techniques, airway clearance techniques, singing therapy

> "A very good and well organised conference. Lots of take home messages & ideas to put into practice."

Thinking cycle examples:

Consider using progressive muscular relaxation techniques, or suggesting patients use calming guided imagery such imagining blowing seeds away from a dandelion or sitting on a beach listening to waves. If patients do this at a regular time every day just for five minutes it can become second nature over time. "I sometimes suggest it's like taking a daily pill, but is safer and more effective,and patients really get that," said Anna.

Other non-pharmacological approaches: CBT, mindfulness and self-hypnosis

Functioning cycle example:

Exercise and activity: People with advanced respiratory disease can sometimes be sceptical about being told to 'exercise'. "I only ever talk to patients about 'doing the things they want to do' or encourage them to 'be a bit more active' at most. Quite a few people enjoy using a pedometer to count their steps, increasing them gradually week by week," said Anna.

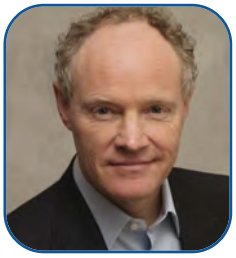
Other non-pharmacological approaches: pulmonary rehabilitation, walking aids and pacing.

"The key thing about the Breathing, Thinking Functioning approach is that it is simply a structure, a framework, which can be used to cut through the complexity of breathlessness.

"Breathlessness clinics and interventions to manage breathlessness are gathering pace and given how debilitating this symptom is, we have great potential to make a difference not just to our patients but to their carers as well," said Anna.

Clinical Stream Highlights

Managing cough in primary care



Speaker **Kevin Gruffydd-Jones** *GP, Box, Wiltshire*

Key learning points:
- Taking a history, doing the examination, chest X-ray and spirometry are really important
- Look for red flags and refer these patients straight to secondary care.
- Do the basics which will point you towards the things you can do in primary care.
- If you are worried about patients at any stage or feel you haven't got a clue – you can refer them to secondary care at any stage

About one in ten patients present with chronic cough and the majority of cases can be dealt with in primary care, Kevin Gruffydd-Jones told delegates.

The most common diagnosis is likely to be asthma and COPD so first do a chest X-ray and spirometry.

Definitions and causes of cough

- Acute cough (<3 weeks):
  Caused by:
  - Viral respiratory tract infections
  - Pneumonia
  - Exacerbation of underlying disease (COPD, asthma)
- Sub-acute (3-8weeks)
  Caused by:
  - Post infection cough (including TB) may be helped by Tiotropium
  - Exacerbation of underlying chest condition
  - Upper Airway Cough Syndrome
- Chronic (>8 weeks)
  Caused by:
  - Asthma/non asthma eosinophilic bronchitis
  - Upper Airway Cough Syndrome
  - Gastro-oesophageal disease

Impact of cough on health status

Ask patients how their cough is impacting on their health. The physical impact could include – chest pain, a hoarse voice and for women, stress incontinence. It can also cause sleep disturbance, syncope and rib fracture from coughing so hard.

The psychosocial impact will have a detrimental effect on a patient's social life, cause embarrassment and could result in a partner sleeping in another bedroom. The psychosocial impact can be similar to severe COPD in terms of depression and anxiety.

The causes of chronic cough:

- Asthma/COPD
- Upper Airway Cough Syndrome
- Gastro-oesophageal reflux (acid and non-acid)
- Drugs (e.g. ACE inhibitors, Sitagliptin)
- Other lung disease (lung cancer, bronchiectasis, interstitial lung disease)
- Infection (TB, pertussis)
- Cardiovascular problems (cardiac failure, recurrent P.E.)
- Cough hypersensitivity syndrome (refractory cough)

Take a history

Look for red flags such as: hemoptysis, a smoker over 45 with a new cough, older smokers, trouble swallowing when eating, vomiting, and recurrent pneumonia. Consider lung cancer, TB and HIV.

Think about:

- The nature of the cough - is it dry/wet, intermittent/persistent, when did it start, is there vomiting or a whoop after coughing?
- Any associated symptoms and their impact, such as: wheeze, heartburn, post-nasal drip, nasal blockage and breathlessness. It is really important to ask - how does it affect you?
- Triggers cause by the patient's occupation, their exposure to any pollutants such as smoking whether second-hand or direct, or from a main road, food, speech, lying down, allergens, medications, infections from recent travel (e.g. TB).
- Past family history such as atopy or rhinitis

The examination in primary care

Look for: anaemia, clubbing, lymphadenopathy, chest – any localising signs, basal crackles, upper airway (nose and throat), cardiovascular and if you suspect whooping cough, ask the patient to make a recording on their mobile phone.

Tests

- Spirometry – look at the pattern of obstruction and restriction and do a reversibility test if you suspect asthma
- Chest X-ray (it may be normal in lung cancer and bronchiectasis so have a high index of suspicion)
- Peak flow monitoring, do a full blood count including eosinophils and if you suspect bronchiectasis do a sputum test
- FeNO – if the level is > 50ppb these patients with a cough are twice as likely to respond to ICS than <50ppb in patients with non-specific cough.

Management of cough

Once you have done the basics, you will have a pretty good idea of what might be going on so there are some quick hits that can be done at this stage:

- Refer immediately if TB or lung cancer is suspected
- Give smoking cessation advice or remove the patient from the irritant. The cough may initially worsen but will improve after four weeks.
- Stop an ACE inhibitor – but monitor the patient
- Stop Sitagliptin – the cough will improve after a week

Other conditions to consider

Cough variant asthma

These are adults who get a cough without wheeze and they may have shortness of breath. The characteristic history points in the direction of asthma but there is no evidence for just giving them an ICS. A raised FeNO reading or bloody eosinophils might be indicators. Also consider non-asthma eosinophilic bronchitis – the patient will have high sputum eosinophilia, they may have a high FeNO reading but have no airways hyperactivity or obstruction. This condition may be triggered by the patient's occupation and will take a more benign course because it will respond to ICS and leukotriene receptor antagonists (LTRA) but not to long acting beta agonists (LABA).

Pertussis

The patient may not have the characteristic 'whoop' or any fever. Symptoms include a paroxysmal cough and vomiting after coughing. It can be diagnosed by an oropharyngeal or nasopharyngeal swab in the first two weeks or by igG serology after 14 days in adults aged over 17 or by oropharyngeal secretions in patients aged 5-16. Macrolides only work in the first three weeks to reduce infectivity. The condition lasts for around 112 days but most patients are reassured when you make a positive diagnosis.

Upper Airway Cough Syndrome

The most common cause of this condition is post nasal drip but 20% of patients are not aware of this. They may have nasal congestion and sneezing. When you examine the upper airway look for bumps in the throat that look like cobblestones, mucus in the oropharynx, swollen inferior turbinates, polyps and deviated septum.

Treatment: try a strong topical steroid such as betamethasone nasal drops for one month then a maintenance nasal spray. Make sure the patient understands the technique for using the nasal spray.

Bronchiectasis

- Bronchiectasis is characterised by recurrent or persistent sepsis due to irreversibly and damaged dilated bronchi.
- Suspect bronchiectasis if the patient has had a recurrent/persistent cough for longer than 8 weeks with production of purulent/mucopurulent sputum.
- Management is down to preventing further damage with antibiotics and physiotherapy.
- Refer all your patients with bronchiectasis to secondary care

whether you have made a diagnosis or suspect it. Formulate a management plan.

- A new BTS Guideline for Bronchiectasis in Adults was published in January 2019[1] and an article on the practical implications for primary care published in *NPJ Primary Care Respiratory Medicine*[2].

Gastro-oesophageal disease

Acid and non-acid laryngeal microsaspiration or vagally stimulated oesophageal reflux may be responsible. Symptoms include coughing worse after eating and phonation (on telephone) lying down

Treatment: prescribe an eight-week trial of a PPI and a shorter trial of a prokinetic agent and give lifestyle advice on losing weight, posture, diet etc.

Chronic hypersensitivity/refractory cough

This syndrome is characterised by troublesome coughing often triggered by low levels of thermal, mechanical or chemical exposure. It can account for 10-20% of patients in the cough clinic. Patients are often middle aged women who are overweight. Symptoms are often a cough or tickling in throat, worse with phonation and fumes.

Treatment: speech therapy can be very effective along with education, breathing techniques and counselling can improve quality of life. Medication: Amitriptyline is probably the best. Also consider Gabapentin (but 1 in 3 suffer side effects), Pregabalin, TRPV1 antagonist, P2X3 antagonist and morphine for palliative care or IPF.

References

1. Hill, AT *et al*. British Thoracic Guideline for bronchiectasis in adults. *Thorax* 2019; **74** (Suppl 1), 1–69. https://www.brit-thoracic.org.uk/quality-improvement/guidelines/bronchiectasis-in-adults/
2. Gruffydd-Jones K, Keeley D, Knowles V *et al*. Primary care implications of the British Thoracic Society Guidelines for bronchiectasis in adults. *npj Prim Care Respir Med* 2019;**29**:24. https://www.nature.com/articles/s41533-019-0136-8

Prescribing Information (UK)

Prescribing Information ▼SPIOLTO® RESPIMAT®
(tiotropium and olodaterol)
Inhalation solution containing 2.5 microgram tiotropium (as bromide monohydrate) and 2.5 microgram olodaterol (as hydrochloride) per puff. **Action**: Inhalation solution containing a long acting muscarinic receptor antagonist, tiotropium, and a long acting beta$_2$-adrenergic agonist, olodaterol. **Indication:** Maintenance bronchodilator treatment to relieve symptoms in adult patients with chronic obstructive pulmonary disease (COPD). **Dose and Administration:** Adults only aged 18 years or over: 5 microgram tiotropium and 5 microgram of olodaterol given as two puffs from the Respimat inhaler once daily, at the same time of the day. **Contraindications:** Hypersensitivity to tiotropium or olodaterol or any of the excipients; benzalkonium chloride, disodium edetate, purified water, 1M hydrochloric acid (for pH adjustment); atropine or its derivatives e.g. ipratropium or oxitropium. **Warnings and Precautions:** Not for use in asthma or for the treatment of acute episodes of bronchospasm, i.e. as rescue therapy. Inhaled medicines may cause inhalation-induced paradoxical bronchospasm. Caution in patients with narrow-angle glaucoma, prostatic hyperplasia or bladder-neck obstruction. Patients should be cautioned to avoid getting the spray into their eyes. They should be advised that this may result in precipitation or worsening of narrow-angle glaucoma, eye pain or discomfort, temporary blurring of vision, visual halos or coloured images in association with red eyes from conjunctival congestion and corneal oedema. Should any combination of these eye symptoms develop, patients should stop using Spiolto Respimat and consult a specialist immediately. In patients with moderate to severe renal impairment (creatinine clearance ≤ 50ml/min) use only if the expected benefit outweighs the potential risk. Caution in patients with a history of myocardial infarction during the previous year, unstable or life-threatening cardiac arrhythmia, hospitalised for heart failure during the previous year or with a diagnosis of paroxysmal tachycardia (> 100 beats per minute) as these patients were excluded from the clinical trials. In some patients, like other beta-adrenergic agonists, olodaterol may produce a clinically significant cardiovascular effect as measured by increases in pulse rate, blood pressure and/or symptoms. Caution in patients with: cardiovascular disorders, especially ischaemic heart disease, severe cardiac decompensation, cardiac arrhythmias, hypertrophic obstructive cardiomyopathy, hypertension, and aneurysm; convulsive disorders or thyrotoxicosis; known or suspected prolongation of the QT interval (e.g. QT>0.44 s); patients unusually responsive to sympathomimetic amines; in some patients beta$_2$-agonists may produce significant hypokalaemia; increases in plasma glucose after inhalation of high doses. Caution in planned operations with halogenated hydrocarbon anaesthetics due to increased susceptibility of adverse cardiac effects. Should not be used in conjunction with any other long-acting beta$_2$-adrenergic agonists. Immediate hypersensitivity reactions may occur after administration. Should not be used more frequently than once daily. Benzalkonium chloride may cause wheezing and breathing difficulties; patients with asthma are at an increased risk for these adverse events. **Interactions:** Although no formal *in vivo* drug interaction studies have been performed, inhaled Spiolto Respimat has been used concomitantly with other COPD medicinal products, including short acting sympathomimetic bronchodilators and inhaled corticosteroids without clinical evidence of drug interactions. The co-administration of the component tiotropium with other anticholinergic containing drugs has not been studied and therefore is not recommended. Concomitant administration of other adrenergic agents (alone or as part of combination therapy) may potentiate the undesirable effects of Spiolto Respimat. Concomitant treatment with xanthine derivatives, steroids, or non-potassium sparing diuretics may potentiate any hypokalaemic effect of adrenergic agonists. Beta-adrenergic blockers may weaken or antagonise the effect of olodaterol. Cardioselective beta-blockers could be considered, although they should be administered with caution. MAO inhibitors, tricyclic antidepressants or other drugs known to prolong the QTc interval may potentiate the action of Spiolto Respimat on the cardiovascular system. **Fertility, pregnancy and lactation:** There is a very limited amount of data from the use of tiotropium in pregnant women. For olodaterol no clinical data on exposed pregnancies are available. As a precautionary measure, avoid the use of Spiolto Respimat during pregnancy. Like other beta$_2$-adrenergic agonists, olodaterol may inhibit labour due to a relaxant effect on uterine smooth muscle. It is not known whether tiotropium and/or olodaterol pass into human breast milk. A decision on whether to continue/discontinue breast-feeding or to continue/discontinue therapy with Spiolto Respimat should be made taking into account the benefit of breast-feeding to the child and the benefit of therapy for the woman. Clinical data on fertility are not available for tiotropium or olodaterol or the combination of both components. **Effects on ability to drive and use machines:** No studies have been performed. The occurrence of dizziness or blurred vision may influence the ability to drive and use machinery. **Undesirable effects:** Uncommon (≥ 1/1,000 to <1/100): Dizziness, headache, tachycardia, cough, dysphonia, dry mouth. Rare (≥ 1/10,000 to <1/1,000): Insomnia, vision blurred, atrial fibrillation, palpitations, supraventricular tachycardia, hypertension, laryngitis, pharyngitis, epistaxis, bronchospasm, constipation, oropharyngeal candidiasis, gingivitis, nausea, stomatitis, hypersensitivity, angioedema, urticaria, pruritus, rash, arthralgia, back pain, joint swelling, urinary retention, urinary tract infection, dysuria. Not known (cannot be estimated from the available data): Nasopharyngitis, dehydration, glaucoma, intraocular pressure increased, sinusitis, intestinal obstruction ileus paralytic, dysphagia, gastrooesophageal reflux disease, glossitis, dental caries, anaphylactic reaction, skin infection and skin ulcer, dry skin. Serious undesirable effects consistent with anticholinergic effects: glaucoma, constipation, intestinal obstruction including ileus paralytic and urinary retention. An increase in anticholinergic effects may occur with increasing age. The occurrence of undesirable effects related to beta-adrenergic agonist class should be taken into consideration such as, arrhythmia, myocardial ischaemia, angina pectoris, hypotension, tremor, nervousness, muscle spasms, fatigue, malaise, hypokalaemia, hyperglycaemia and metabolic acidosis. Prescribers should consult the Summary of Product Characteristics for further information on side effects. **Pack sizes and NHS price:** Single pack: 1 Respimat re-usable inhaler and 1 cartridge providing 60 puffs (30 medicinal doses) £32.50; Single refill pack: 1 cartridge providing 60 puffs (30 medicinal doses) £32.50 **Legal category:** POM **MA numbers:** PL 14598/0101 **Marketing Authorisation Holder:** Boehringer Ingelheim International GmbH, D-55216 Ingelheim am Rhein, Germany. Prescribers should consult the Summary of Product Characteristics for full prescribing information. **Prepared in** September 2019

Adverse events should be reported.
Reporting forms and information can be found at www.mhra.gov.uk/yellowcard.

Adverse events should also be reported to Boehringer Ingelheim Drug Safety on 0800 328 1627 (freephone).

References:

1. SPIOLTO® RESPIMAT® Summary of Product Characteristics.
2. Anderson P. Int J Chron Obstruct Pulmon Dis. 2006;1(3):251–259.
3. Dhand R *et al.* Int J Chronic Obstr Pulm Dis. 2019;14:509–23.
4. Hochrainer D *et al.* J Aerosol Med Pulm Drug Deliv. 2005;18(3):273–282.
5. Dalby R *et al.* Int J Pharm. 2004;283(1–2):1–9.
6. Pitcairn G *et al.* J Aerosol Med. 2005;18(3):264–272.

Date of preparation: September 2019 PC-GB-100006 V1

Prescribing Information (UK) SPIRIVA® RESPIMAT® (tiotropium)
Inhalation solution containing 2.5 microgram tiotropium (as bromide monohydrate) per puff. **Indication:** COPD: Tiotropium is indicated as a maintenance bronchodilator treatment to relieve symptoms of patients with chronic obstructive pulmonary disease (COPD). Asthma: Spiriva Respimat is indicated as add-on maintenance bronchodilator treatment in patients aged 6 years and older with severe asthma who experienced one or more severe asthma exacerbations in the preceding year. **Dose and Administration:** COPD Adults only age 18 years or over: 5 microgram tiotropium given as two puffs from the Respimat inhaler once daily, at the same time of the day. Asthma Adults and patients 6 to 17 years of age: 5 microgram tiotropium given as two puffs from the Respimat inhaler once daily, at the same time of the day. In adult patients with severe asthma, tiotropium should be used in addition to inhaled corticosteroids (≥ 800 µg budesonide/day or equivalent) and at least one controller. In adolescents (12 - 17 years) with severe asthma, tiotropium should be used in addition to inhaled corticosteroids (> 800 - 1600 µg budesonide/day or equivalent) and one controller or in addition to inhaled corticosteroids (400 - 800 µg budesonide/day or equivalent) with two controllers. For children (6 - 11 years) with severe asthma, tiotropium should be used in addition to inhaled corticosteroids (> 400 µg budesonide/day or equivalent) and one controller or in addition to inhaled corticosteroids (200 - 400 µg budesonide/day or equivalent) with two controllers. **Contraindications:** Hypersensitivity to tiotropium bromide, atropine or its derivatives, e.g. ipratropium or oxitropium or to any of the excipients; benzalkonium chloride, disodium edetate, purified water, hydrochloric acid 3.6 % (for pH adjustment). **Warnings and Precautions:** Benzalkonium chloride may cause wheezing and breathing difficulties; patients with asthma are at an increased risk for these adverse events. Not for the initial treatment of acute episodes of bronchospasm or for the relief of acute symptoms. Spiriva Respimat should not be used as monotherapy for asthma. Asthma patients must be advised to continue taking anti-inflammatory therapy, i.e. inhaled corticosteroids, unchanged after the introduction of Spiriva Respimat, even when their symptoms improve. Immediate hypersensitivity reactions may occur after administration of tiotropium bromide inhalation solution. Caution in patients with narrow-angle glaucoma, prostatic hyperplasia or bladder-neck obstruction. Inhaled medicines may cause inhalation-induced bronchospasm. Tiotropium should be used with caution in patients with recent myocardial infarction < 6 months; any unstable or life threatening cardiac arrhythmia or cardiac arrhythmia requiring intervention or a change in drug therapy in the past year; hospitalisation of heart failure (NYHA Class III or IV) within the past year. These patients were excluded from the clinical trials and these conditions may be affected by the anticholinergic mechanism of action. In patients with moderate to severe renal impairment (creatinine clearance ≤ 50 ml/min) tiotropium bromide should be used only if the expected benefit outweighs the potential risk. Patients should be cautioned to avoid getting the spray into their eyes. They should be advised that this may result in precipitation or worsening of narrow-angle glaucoma, eye pain or discomfort, temporary blurring of vision, visual halos or coloured images in association with red eyes from conjunctival congestion and corneal oedema. Should any combination of these eye symptoms develop, patients should stop using tiotropium bromide and consult a specialist immediately. Tiotropium bromide should not be used more frequently than once a day. **Interactions:** Although no formal drug interaction studies have been performed, tiotropium bromide has been used concomitantly with other drugs commonly used in the treatment of COPD and asthma, including sympathomimetic bronchodilators, methylxanthines, oral and inhaled steroids, antihistamines, mucolytics, leukotriene modifiers, cromones, anti-IgE treatment without clinical evidence of drug interactions. Use of LABA or ICS was not found to alter the exposure to tiotropium. The co-administration of tiotropium bromide with other anticholinergic-containing drugs has not been studied and is therefore not recommended. **Fertility, Pregnancy and Lactation:** Very limited amount of data in pregnant women. Avoid the use of Spiriva Respimat during pregnancy. It is unknown whether tiotropium bromide is excreted in human breast milk. Use of Spiriva Respimat during breast feeding is not recommended. A decision on whether to continue/discontinue breast feeding or therapy with Spiriva Respimat should be made taking into account the benefit of breast feeding to the child and the benefit of Spiriva Respimat therapy to the woman. Clinical data on fertility are not available for tiotropium. **Effects on ability to drive and use machines:** No studies have been performed. The occurrence of dizziness or blurred vision may influence the ability to drive and use machinery. **Undesirable effects:** COPD: Common (≥ 1/100 to < 1/10) Dry mouth. Uncommon (≥ 1/1,000 to < 1/100) Dizziness, headache, cough, pharyngitis, dysphonia, constipation, oropharyngeal candidiasis, rash, pruritus, urinary retention, dysuria. Rare (≥1/10,000 to <1/1,000): Insomnia, glaucoma, intraocular pressure increased, vision blurred, atrial fibrillation, palpitations, supraventricular tachycardia, tachycardia, epistaxis, bronchospasm, laryngitis, dysphagia, gastrooesophageal reflux disease, dental caries, gingivitis, glossitis, angioneurotic oedema, urticaria, skin infection/skin ulcer, dry skin, urinary tract infection. Not known (cannot be estimated from the available data): Dehydration, sinusitis, stomatitis, intestinal obstruction including ileus paralytic, nausea, hypersensitivity (including immediate reactions), anaphylactic reaction, joint swelling. Asthma: Uncommon (≥ 1/1,000 to < 1/100) Dizziness, headache, insomnia, palpitations, cough, pharyngitis, dysphonia, bronchospasm, dry mouth, oropharyngeal candidiasis, rash. Rare (≥1/10,000 to <1/1,000): Epistaxis, constipation, gingivitis, stomatitis, pruritus, angioneurotic oedema, urticaria, hypersensitivity (including immediate reactions), urinary tract infection. Not known (cannot be estimated from the available data): Dehydration, glaucoma, intraocular pressure increased, vision blurred, atrial fibrillation, supraventricular tachycardia, tachycardia, laryngitis, sinusitis, dysphagia, gastrooesophageal reflux disease, dental caries, glossitis, intestinal obstruction including ileus paralytic, nausea, skin infection/skin ulcer, dry skin, anaphylactic reaction, joint swelling, urinary retention, dysuria. Serious undesirable effects consistent with anticholinergic effects: glaucoma, constipation, intestinal obstruction including ileus paralytic and urinary retention. An increase in anticholinergic effects may occur with increasing age. Prescribers should consult the Summary of Product Characteristics for further information on undesirable effects. **Pack sizes and NHS price:** Single pack: 1 Respimat re-usable inhaler and 1 cartridge providing 60 puffs (30 medicinal doses) £23.00; Single refill pack: 1 cartridge providing 60 puffs (30 medicinal doses) £23.00. **Legal category:** POM. **MA number:** PL 14598/0084. **Marketing Authorisation Holder:** Boehringer Ingelheim International GmbH, D-55216 Ingelheim am Rhein, Germany. Prescribers should consult the Summary of Product Characteristics for full prescribing information. **Prepared in** September 2019

Boehringer Ingelheim

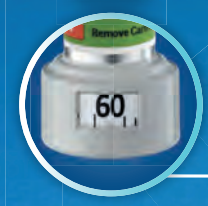
SPIOLTO® RESPIMAT®

tiotropium & olodaterol

is now **reusable**

FAMILIAR TURN, OPEN, PRESS[1]

SIMPLE CARTRIDGE REPLACEMENT[3]



LARGER DOSE INDICATOR[3]

SAME SLOW-MOVING, LONG-LASTING MIST[2]

DESIGNED FOR USE WITH UP TO 6 CARTRIDGES[3]

Respimat® is **a unique soft-mist inhaler** designed for efficient lung delivery[4-6]

SPIRIVA® RESPIMAT® tiotropium

SPIOLTO® RESPIMAT® tiotropium & olodaterol

Prescribing information for Spiolto® can be found on the adjacent page

Respiratory Education and Training

Respiratory diseases such as asthma and COPD are some of the UK's most common Long Term Conditions.[1]
By developing essential respiratory clinical skills and knowledge, you will be better placed to ensure that your patients with respiratory diseases receive the individual treatment they need.

Education for Health offers a range of nationally recognised qualifications and a variety of study options including interactive eLearning, workshops and validated modules at levels 5, 6 and 7[2]. Our innovative teaching techniques enable you to combine work and professional development, studying at a time and location to suit you.

- Asthma, including Paediatric Asthma
- Allergy
- COPD
- Improving Inhaler Technique
- Non-Invasive Ventilation
- Respiratory Assessment and Examination
- Respiratory Diagnostics
- Spirometry

[1] http://www.nice.org.uk/guidance

[2] From February 2020, all courses and modules at Levels 5, 6 and 7 are accredited by the University of Hertfordshire.

Visit: www.educationforhealth.org/respiratory

Call: 01926 838969

Email: contact@educationforhealth.org

We have moved

Our new address is:
Education for Health,
No. 1, Lowes Lane Business Park,
Lowes Lane (off Walton Road),
Wellesbourne, Warwickshire CV35 9RB.

education for health

www.educationforhealth.org

Charity Reg No: 1048816

Respiratory disease in the context of comorbidities and ageing

Speaker **Dr Chris Dyer** *Consultant Geriatrician, Royal United Hospitals NHS Foundation Trust, Bath*

Key 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

For frail older people what is really important is their quality of life and not necessarily the quantity of life, Chris Dyer told delegates.

He said that although more people are reaching old age the morbidities associated with the later stages of life are not reducing.

Rather than considering a patient's age it is better to think about ageing in the context of frailty. This is a distinctive health state related to ageing in which multiple body systems gradually lose their in-built reserves. This causes slow walking, a lack of energy, loss of strength and an increased risk of falls. About one in 10 people over the age of 65 are frail but around one in four people with COPD are frail.

Comprehensive geriatric assessment

Dr Dyer said that there is a strong evidence base for conducting a holistic geriatric assessment of patients with moderate frailty. It is known that this can reduce the risk of institutionalisation and mortality by about a third and improve quality of life.

The NHS Long Term Plan has identified the need to to target frail older people in the community, particularly those with moderate frailty with a view to implementing preventive measures to try and prevent them progressing towards severe frailty. It recommends that community teams seek out older people with moderate frailty or existing conditions like COPD to offer proactive personalised care.

The electronic frailty index which is linked to the TPP and Emis computer systems can be used to identify patients with frailty and rank them from managing well, moderate or severely frail to terminally ill.

> "Congratulations on another inspirational conference!"

Conducting a holistic assessment should be a team-based approach. For example in Wiltshire care coordinators work with practice nurses.

An assessment should identify physical problems such as respiratory conditions or arthritis, review medication, identify environmental elements or mobility aspects which could result in a home visit by an occupational therapist to help to reduce falls. It should also consider psychological mood and cognitive function.

Many patients who are old and frail have respiratory problems as part of a wider condition and therefore the comprehensive geriatric assessment should cast a wider net than might perhaps typically be cast in a patient with COPD or pulmonary fibrosis.

> "It was my first PCRS conference, I found it very friendly and useful."

The impact of comorbidities

Multi-morbidity is common in patients with COPD. These include:

- Heart failure: This may be increased directly as a result of the COPD or indirectly by smoking. The prevalence of heart failure in people with COPD is 20% - it is twice as common as those of a similar age in the general population. Ischaemic heart disease, atrial fibrillation and hypertension are also more common in people with COPD. Beta-blockers increase survival of patients with COPD with little impact on lung function.
- Osteoporosis: This is three times more common in COPD and patients have a 60% increased risk of fractures. Patients should be asked if they have fallen or broken a bone in the last few months. If the answer is yes consider a fracture score or even the DEXA scan. While there is some contention about the effectiveness of osteoporosis treatment it is known that up to the last year of life people probably benefit from taking osteoporosis treatment in terms of fracture prevention.
- Anxiety and depression: This is prominent in about half of older adults with COPD and other severe respiratory disorders. It results in high levels of hospital admission and mortality. So screening for this co-morbidity and treating it can pay dividends.
- Comorbidity and inhaler technique: Around 40% of older people have a problem with inhaler technique. This may be because of a lack of dexterity, (caused by arthritis, poor vision or muscle weakness) or their mental status.

If struggling with the patient ask:

- Is the diagnosis correct? Look holistically at the older person and consider co-morbidities.
- Are they on optimal therapy and are they taking it? Could the reason they are not taking their inhaler be that they are fed up and socially isolated? Social prescribing for frail people might offer support and companionship and or a network of support that could include encouragement to use an inhaler or become more mobile.
- Is the patient's cognition, depression or anxiety causing problems?
- What about pulmonary rehabilitation (PR)? Does the patient need oxygen in order to be able to attend PR? Less than one in three people who could benefit from PR are referred but it is never too late to stay active.
- What are the patient's oxygen levels? Check their oxygen saturations.
- Do you need to phone someone else for advice?

NICE offers guidance on multi-morbidity which recommends considering:

- Treatments that could be stopped because of limited benefit
- Treatments and follow up arrangements with a high burden – do they need all these appointments?
- Rationalising medicines with a higher risk of adverse events such as falls, gastrointestinal bleeding, acute kidney injury

"Talk to your patients about these issues and come up with an agreed shared plan then you can rationalise medication and focus on what's really important," said Dr Dyer.

> "Thought the breadth and depth of sessions this year was excellent."

Conclusion

It is important to conduct a comprehensive respiratory assessment of frail older people, involve the patient in shared decision-making and agree a care plan. The key thing is to have a holistic view of the patient and consider comorbidities. Pulmonary rehabilitation should be considered for older people with frailty and should include a mobility assessment with a view to reducing the risk of falls.

Finally it is really important to review medication and to rationalise treatment where possible.

We are SABA Guardians - Ask, Advise, Act.

Darush Attar-Zadeh and **Katherine Hickman**

This session challenged delegates on their prescribing habits and attention to patient behaviours, and provided tangible tools and techniques for immediate adoption into practice to improve asthma outcomes.

Dr Katherine Hickman introduced the concept of social movement, citing the emotive 'Hello My Name Is' campaign (https://www.hellomynameis.org.uk/) as a successful example of driving change in the NHS to improve patients' experience of their care. The Asthma Right Care (ARC - https://www.pcrs-uk.org/resource/arc) campaign is adopting this approach, engaging followers and inspiring a grassroots movement to drive much needed change in the often outdated, and habitual patterns of care experienced by people with asthma. Why not take action now and become an @AsthmaRightCare #SABAGuardian?

> "An inspiring environment, with inspiring people. Thank you"

The consequences of entrenched, out of date prescribing behaviours have been felt, with the National Review of Asthma Deaths (NRAD) finding in 2014 that 75% of the asthma deaths reviewed could have been prevented, had a prescribing review taken place.

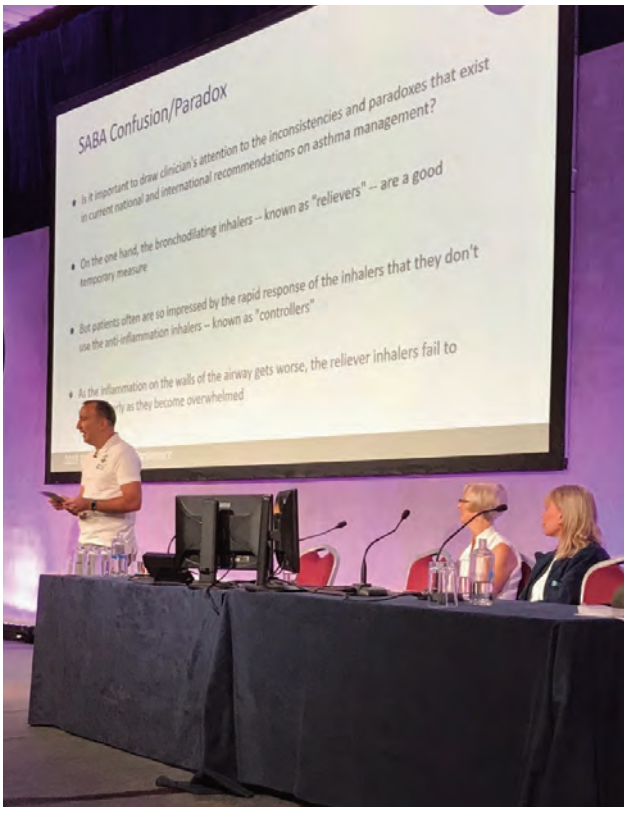
Co-presenter Darush Attar-Zadeh reported on Raj's story, a young boy with asthma who had been experiencing up to 2400 breathless moments a year owing to a primary reliance on his blue inhaler for symptom management; while Katherine recalled the moment her passion for driving change in asthma care was realised, when she learned of a patient who had died clutching her blue inhaler. Darush and Katherine challenged their audience – since NRAD, has anything changed?

Ask, advise, act: three pointers in the direction of asthma right care.

What does asthma control look like? Raj's father was shocked to learn that the 12 blue canisters his son was relying on each year equated to 2400 puffs, and up to 2400 breathless moments. As prescribers, we share a responsibility to have this conversation with the people under our care. GP practices and pharmacies share a unique opportunity to educate patients on symptom control versus treatment, with an emphasis on discussing disease management with people newly diagnosed with asthma. Patients shouldn't expect to be, nor tolerate being, breathless and reliant on their blue inhaler every day. This is a mindset that we, as SABA Guardians, can begin to challenge.

An educational (and entertaining!) demonstration of the Asthma Slide Rule (https://www.pcrs-uk.org/asthma-right-care) tool was delivered by the session's co-presenters, who role-played an interaction between a pharmacist and a patient with a prescription for her twelfth blue inhaler in the past year. Using the Asthma Slide Rule to guide their conversation, the health risks associated with SABA overreliance could be clearly visualised to the patient, using a red, amber and green – 'RAG' – rating that explained what good asthma control looks like in terms of puffs. Delegates were given the opportunity to practice using the Asthma Slide Rule. As well as being able to use the Asthma Slide Rule online (https://www.pcrs-uk.org/resource/asthma-slide-rule) with your patients, you can also speak to your AstraZeneca representative about ordering the physical tool.

The role-play also demonstrated how physical airway models can be used with patients to explain how their maintenance therapy treats inflammation; advising them that, although their brown inhaler may take a longer time to ease their symptoms, it



is addressing inflammation from the inside to achieve – and sustain – open airways.

Useful analogies were shared, such as comparing asthma inflammation with eczema, and asking patients to consider whether they would leave eczema untreated, were it very visible on their body. Other analogies were discussed, such as dealing with a leak in your house – would you use a bucket (representing the blue inhaler), or call a plumber (representing the brown)? An audience member took the plumber analogy further, suggesting a patient should become the expert plumber, so as not have to call someone for help to manage their asthma.

The ARC Question & Challenge Cards (https://www.pcrs-uk.org/resource/question-and-challenge-practice) were introduced here as a valuable tool to use amongst both colleagues and patients. The cards pose questions and provide metaphors that aim to challenge both patient and HCP understanding and behaviours around what good asthma control looks like. The cards have also proven useful in supporting good HCP/patient relationships, as it's perceived that the challenge to behaviours is coming from a third party.

Other successful behavioural change methods included group consultations, which facilitated a parent and child demonstration of how ICS had enabled the child to become symptom free, which in-turn encouraged a reluctant father to have his son use ICS as prescribed, resulting in improved health at follow-up.

An MDT approach to completing the Asthma Action Plan was encouraged, employing a medicines specialist at the outset, with an appropriate clinician completing the remainder with the patient.

> "Brilliant conference, I was attending for the first time and felt I learned something new."

It is the SABA Guardians' mission to do things in the right way, for the right patient, at the right time, and in the right place.

We have data and reports proving SABA overuse as an indicator of poorly controlled asthma, yet we don't change. We don't change our systems, or our prescribing behaviours. If we don't change, we'll get the same outcomes – and this simply isn't good enough.

The Asthma Right Care (https://www.pcrs-uk.org/resource/arc) movement asks colleagues to become SABA Guardians, in the same way the antimicrobial resistance movement has inspired us to become Antibiotic Guardians.

This session inspired delegates to believe in the power of a grass-roots approach to achieving change, with a closing reflection on the stand taken by Greta Thunberg – one person inspiring a global movement followed by millions. That's what we'd like to see for Asthma Right Care.

Identifying some Asthma RISKS(S)

Ratio of ICS/SABA

ICS appropriate use – non-adherence and over prescribing

SABA – over-reliance/dependency in asthma

Knowledge – Asthma Reviews, PAAP, inhaler technique

Smoking cessation offered and 2nd hand smoke, environmental exposure

Spacer use

Service Development Stream

Developing Services and Sharing Best Practice in Respiratory Primary Care Medicine

Tracey Lonergan *PCRS Policy Coordinator, reports on the highlights from the PCRS National Conference Service Development Stream*

Supporting our members to improve respiratory healthcare service provision continues to be at the heart of everything we do at PCRS. Our members commitment to delivering the very best care and ensuring respiratory medicine is recognised as a priority was reflected by the volume of abstracts submitted to the service development stream and by the range of sessions and presentations focused on service development at this year's conference.

Dr Daryl Freeman, our Service Development Lead, chaired a key session on 'Respiratory Service design for the hardly reached and seldom heard' that focused on exploring innovative ways to reach patients with respiratory disease who do now easily engage with health care services including the housebound, homeless, refugees and asylum seekers or those with drug and alcohol problems. Supported by four expert panellists, Mrs Sukhi Sandhu, TB clinical Nurse Specialist at Frimley Health NHS Trust, Charlotte Slaughter, Assistant Clinical Psychologist at Berkshire Health care NHS Foundation Trust (East), Tracy Pollard, Nurse Manager and Chris Allen, Consultant Clinical Psychologist at Berkshire NHS Foundation Trust, Dr Freeman highlighted the need to understand the barriers these patients face in engaging with health care services from mobility and transport issues to issues around cultural stigma and fear of authorities. The panel highlighted that taking healthcare services to the patient, in their own home or by working alongside other organisations such as homeless charities or drug addition services, is one way to overcome these barriers.

Dr Robert Stuart Shields, a GP from West Cambs GP Federation, and Dr Noel Baxter, our outgoing Chair and a GP working in Southwark, co-chaired a session on respiratory care and the NHS long term plan. Presentations from Dr Sanjeev Rana, Clinical Commissioner, GP and GP trainer, and Dr Daryl Freeman highlighted the importance of NHS Right Care in enabling the delivery of the long-term plan. They also explored how the PCRS Respiratory Framework can guide the service developments that will be needed to ensure the respiratory components for the long-term plan can be delivered. The PCRS Respiratory Service Framework covers a range of respiratory conditions including asthma, COPD, nicotine dependence, lung cancer, infections and interstitial lung disease and is designed to present best practice through a range of interactive resources. You can access more information PCRS Respiratory Service Framework and a range of resources through the PCRS website by searching for 'respiratory services framework'.

An interesting session chaired by Deborah Leese, Clinical practice Pharmacist/lead pharmacist for respiratory at Sheffield CCG and Samantha Oughton, COPD Nurse Specialist at Norfolk Community Health & Care NHS Trust, heard from allied health care professionals adding a new dimension to respiratory health care. Raj Gill shared his experience of training as a General Practice Physician Associate with a special interest in respiratory medicine. Raj is based at Swiss Cottage Surgery in North Central London where he is the asthma and COPD lead. In this role he has been able to improve

the identification of patients misdiagnosed with asthma as well as deliver a range of educational events to colleagues to improve respiratory care across London and the South East. Mark Bilby is an advanced Emergency Care Practitioner at Watton Medical Practice and is a senior Lecturer in Medical Education at Norwich Medical School. Together, our allied health professionals offer a range of key services to patients and complementing the work of GPs.

The role of group consultations in delivering comprehensive respiratory care was the focus of a session chaired by Beverley Bostock, Nurse Practitioner at Mann Cottage Surgery in the Cotswolds, and Dominika Froehlich-Jeziorek, Clinical Pharmacist at the Fernbank Surgery in Lancashire. Alison Manson, National Training Lead, BSLM, and Katherine Hickman, GP and Respiratory Lead for Bradford and Leeds, shared their experience of the value of delivering healthcare through group consultations and the very real benefits patients can gain from the peer support and advice that emerge at such sessions.

The ongoing work of PCRS to develop a respiratory diagnostic service framework was the focus of a session chaired by Valerie Gerrard, Advanced Nurse Practitioner at a General Practice in North Norfolk, and Victoria McKelvie, NW Regional Clinical Lead & Respiratory Nurse Specialist at BOC Healthcare. Dr Noel Baxter shared the current status of this important piece of work which will ultimately provide the tools needed for making the case to commissioners and clinical directors to support respiratory diagnostic framework and for designing such a service to suit the needs of local populations. The service framework has been developed to provide a diagnostic hub for patients presenting to primary care with respiratory symptoms beyond an acute phase or diagnosis, those with suspected asthma where the probability is low or intermediate, those diagnosed with asthma or COPD who have not responded as expected to treatment and patients identified through data analysis as potentially undiagnosed with asthma or COPD or misdiagnosed. Next steps for this project will be to develop the calculator tools to enable estimation of the expected number of patients requiring such a service at local level. You can join the conversation about this exciting project through the PCRS online platform at pcrscommunity.forumbee.com.

In an era of great and fundamental change, we all need to keep our attention on delivering high quality, cost effective services focused on meeting the real needs of patients. Sharing best practice and implementing what we learn from each other into our own clinical practice will ensure all our patients receive the very best care for their respiratory condition.

We thank everyone who contributed to this years' Service Development stream with presentations, posters, lively discussions and twitter conversations and look forward to hearing from you all again at PCRS Conference 2020.

You can view the conference best practice/service development posters on pages 51-60.

Are you working in **respiratory care?**

Become a BLF Professional, and we'll support you to improve care, educate patients, their families and carers, and develop effective services for people with lung disease.

Sign up today: **blf.org.uk/hcp**

British Lung Foundation

Registered charity in England and Wales (326730), Scotland (038415) and the Isle of Man (1177)

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 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 us 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 progamme 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 important 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 PCRS Respiratory Conference 2019

19th - 21st September, Telford International Centre

Thursday 19th September 2019

Hours	
1830-2000	**Sponsored plenary: Asthma Management - Time for a New Approach? (AstraZeneca (UK) Limited satellite symposium)** PCRS 1 (Ironbridge 1) Anna Murphy (Speaker); Grainne d'Ancona (Speaker); Heather Matthews (Speaker); Binita Kane (Chair)

Friday 20th September 2019

Hours						
0830-0900	**Refreshments and exhibition** PCRS 5 (Ironbridge 2 and 3)					
0900-1000	**Plenary: Fit for the future- optimising respiratory care within the next 10 years of the NHS** PCRS 1 (Ironbridge 1) Darush Attar-Zadeh (Panellist); Mike McKevitt (Panellist); Deirdre Siddaway (Panellist); Katherine Hickman (Panellist); Carol Stonham (Chair)					
	Clinical symposia PCRS 1 (Ironbridge 1)	**Service development** PCRS 2 (Atcham Suite)	**Research sessions** *in conjunction with npj Primary Care Respiratory Medicine*		**Practical workshops**	
			Oral presentations PCRS 3 (Wenlock Suite)	**Poster presentations** (Gallery)	PCRS 4 (Coalport 1)	PCRS 4 (Coalport 2)
1005-1050	**Managing cough and cough as a diagnostic symptom** Nicola Wood (Co-chair); Anna Murphy (Co-chair); Kevin Gruffydd-Jones (Speaker)	**Respiratory service design for the hardly reached and seldom heard** Daryl Freeman (Co-chair); Frances Barrett (Co-chair) Sukhwinder Sandhu (Speaker); Charlotte Slaughter (Speaker); Chris Allen (Speaker)	**Personalising management in COPD** Rachel Jordan (Co-chair); Steph Taylor (Co-chair)		**Helping people to change** Katherine Hickman (Facilitator)	**Using the Right Breathe App** Darush Attar-Zadeh (Facilitator)
1050-1120	**Refreshments and exhibition** PCRS 5 (Ironbridge 2 and 3)					
1120-1205	**Respiratory related Allergy** Samantha Walker (Co-chair); Victoria McKelvie (Co-chair); Liz Angier (Speaker); Clare Barnette (Speaker)	**Respiratory care and the NHS long term plan** Robert Stuart Shields (Co-chair); Noel Baxter (Co-chair); Sanjeev Rana (Speaker); Daryl Freeman (Speaker)	**Diagnosis and Monitoring** Mike Thomas (Co-chair); Mohammad Al Sallakh (Co-chair)		**CBT in a 10 minute consultation** Karen Heslop-Marshall (Facilitator)	**Spirometry interpretation** Christine Loveridge (Facilitator)
1210-1255	**Sponsored plenary: Taking care of asthma patients in primary and secondary care (GlaxoSmithKline satellite symposium)** PCRS 1 (Ironbridge 1) Iain Small (Chair); Brian Kent (Speaker); Nawar Bakerly (Speaker)					
1255-1355	**Lunch** PCRS 5 (Ironbridge 2 and 3)					
1355-1440	**Sponsored plenary: Making the most of treatment in COPD: Optimise outcomes by treating the right people at the right time (Boehringer Ingelheim Ltd satellite symposium)** PCRS 1 (Ironbridge 1) Richard Russell (Speaker); Stephen Gaduzo (Chair)					
1445-1530	**Respiratory Disease in the Context of Co-Morbidities and Ageing** Joanne King (Co-chair); Nicola Wood (Co-chair); Christopher Dyer (Speaker)	**The allied health care professional embedded in the respiratory pathway - Making the most of the available skills** Samantha Oughton (Co-chair); Deborah Leese (Co-chair); Raj Gill (Speaker); Mark Bilby (Speaker)	**Patient (and clinician) centred research** Samantha Walker (Co-chair); Jane Watson (Co-chair)	**Scientific Research Abstract Poster Presentations and Discussion** Patrick White (Co-chair); Debbie Roots (Co-chair)	**"Strictly" COPD** Siân Williams (Facilitator)	**Spirometry interpretation** Christine Loveridge (Facilitator)
1530-1600	**Refreshments and exhibition** PCRS 5 (Ironbridge 2 and 3)					
1600-1645	**COPD Management: When All that glitters is not GOLD, nor is it even NICE** Stephen Gaduzo (Co-chair); Oonagh Potts (Co-chair) Vincent Mak (Speaker); Wendy Preston (Speaker)	**Making time for comprehensive respiratory care using the group consultation** Beverley Bostock (Co-chair); Dominika Froehlich-Jeziorek (Co-chair); Alison Manson (Speaker), Katherine Hickman (Speaker)	**Refining asthma care: cost-effectiveness and service re-design** Tracy Jackson (Co-chair); Martyn Partridge (Co-chair)		**Smoking cessation techniques hands-on session** Greg Mann (Facilitator)	**Getting your patient moving** Paul Brice (Facilitator)
1650-1750	**Plenary: Managing Breathlessness: the Breathing, Thinking, Functioning Approach** PCRS 1 (Ironbridge 1) Karen Heslop-Marshall (Co-chair); Clare Cook (Co-chair); Anna Spathis (Speaker)					

1945-2015	**Drinks Reception** (Gallery)
2015-2359	**Gala Dinner** Ludlow Suite (Ground Floor)

Saturday 21st September 2019

Hours							
0745-0845	**PCRS AGM** PCRS 2 (Atcham Suite)						
	Clinical symposia PCRS 1 (Ironbridge 1)	**Service development** PCRS 2 (Atcham Suite)	**Research sessions** *in conjunction with npj Primary Care Respiratory Medicine* **Oral presentations** PCRS 3 (Wenlock Suite)	**Poster presentations** (Gallery)	**Practical workshops** PCRS 4 (Coalport 1)	PCRS 4 (Coalport 2)	
0850-0935	**Journal Overload** Luke Daines (Co-chair); Ren Lawlor (Co-chair); Steve Holmes (Speaker)	**Presentation of Best Practice / Service Development Abstracts** Noel Baxter (Co-chair); Dominika Froehlich-Jeziorek (Co-chair)	**Asthma Management** Nick Francis (Co-chair); Chi Yan Hui (Co-chair)		**CBT in a 10 minute consultation** Karen Heslop-Marshall (Facilitator)	**Relaxation and breathing techniques** Kate Binnie (Facilitator)	
0937-0952	**Plenary: Winning scientific research abstract: What informal carers of people living with breathlessness in advanced disease want to learn about "What to expect in the future"** PCRS 1 (Ironbridge 1) Morag Farquhar (Speaker); Carol Stonham (Chair)						
	Discipline specific *Organised in conjunction with ARNS* *A dedicated session for respiratory nurse specialists* PCRS 1 (Ironbridge 1)	**Discipline specific** *This clinically orientated session will be designed specifically for generalist health professionals* PCRS 2 (Atcham)	**Discipline specific** *Organised in conjunction with ACPRC A dedicated session for respiratory physiotherapists involved in respiratory care* PCRS 3 (Wenlock Suite)	**Discipline specific** *Organised in conjunction with npj | Primary Care Respiratory Medicine* *This session is designed for academic researchers* PCRS 4 (Coalport 1)	**Discipline specific** *Organised in conjunction with CPPE* *This session will appeal to pharmacists from all sectors with a respiratory interest* PCRS 4 (Coalport 2)	**Discipline specific** *This session is suitable for anyone keen to have a bigger impact on patient care and wants to find out how the PCRS Leadership programme can help them* Beckbury 3/4 (Ground Floor)	**Discipline specific** *Organised in conjunction with Respiratory Futures* *This session is for anyone working in an integrated care role* Beckbury 1/2 (Ground Floor)
0955-1040	**The Role of the Respiratory Nurse Specialist: Now and the Future** Joanne King (Speaker); Debbie Roots (Speaker)	**Community activation in achieving and maintaining better health** Heather Henry (Speaker)	**Where are we with Pulmonary Rehabilitation?** Kelly Redden-Rowley (Facilitator); Rachael Colclough (Facilitator); Claire Davidson (Facilitator);	**Publishing impactful primary care respiratory research – demystifying the publishing process** Nicolas Fanget (Speaker)	**A dedicated session for pharmacists with a keen interest in respiratory care – ask the experts!** Anna Murphy (Speaker); Nipa Patel (Speaker); Poh Long (Speaker); Hetal Dhruve (Speaker); Fin McCaul (Speaker); Bernadette Brown (Speaker); Darush Attar-Zadeh (Chair);	**The PCRS respiratory leadership programme - could this help me to make successful change? Is this for me?** Clare Cook (Speaker); Deirdre Siddaway (Facilitator); Stephen Gaduzo (Facilitator); Bronwen Thompson (Facilitator); Melissa Canavan (Facilitator)	**Integrated Care for Patient Benefit - Networking Session** Vincent Mak (Speaker); Binita Kane (Speaker); Jon Bennett (Chair);
1040-1125	**Refreshments and exhibition** PCRS 5 (Ironbridge 2 and 3)						
	Clinical symposia PCRS 1 (Ironbridge 1)	**Service development** PCRS 2 (Atcham Suite)	**Research sessions** *in conjunction with npj Primary Care Respiratory Medicine* **Oral presentations** PCRS 3 (Wenlock Suite)	**Poster presentations** (Gallery)	**Practical workshops** PCRS 4 (Coalport 1)	PCRS 4 (Coalport 2)	
1125-1210	**SABA Guardians - creating the followers SABA over-reliance - the bottom up approach** Bernadette Brown (Co-chair); Kathleen Clarke (Co-chair); Darush Attar-Zadeh (Speaker); Katherine Hickman (Speaker)	**Respiratory diagnostic service design - The PCRS way** Victoria McKelvie (Co-chair); Valerie Gerrard (Co-chair); Noel Baxter (Speaker)	**Pulmonary Rehabilitation** Rachael Evans (Co-chair); Morag Farquhar (Co-chair)		**Nutrition, sarcopenia and respiratory disease** Alex Jenkins (Facilitator)	**Supported self-management** Steph Taylor (Facilitator)	
1215-1315	**Plenary: Grand Round: Get Moving on diagnosis - Interactive case study discussion** PCRS 1 (Ironbridge 1) Iain Small (Facilitator); Neil Jackson (Panellist); Binita Kane (Panellist); Ruth De Vos (Panellist); Valerie Gerrard (Panellist)						
1315-1330	**Plenary: Chair closing remarks** PCRS 1 (Ironbridge 1) Carol Stonham (Speaker)						

Any interactions with pharmaceutical stands in the exhibition area stands are for HCPs /ORDMs only.
A full list of exhibitors can be found at www.pcrs-uk.org/conference-exhibitors.

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 healthcare 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 Serretide 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

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 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 (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

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

- 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 McKevitt, 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

- 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

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 PCRSRespiratory 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

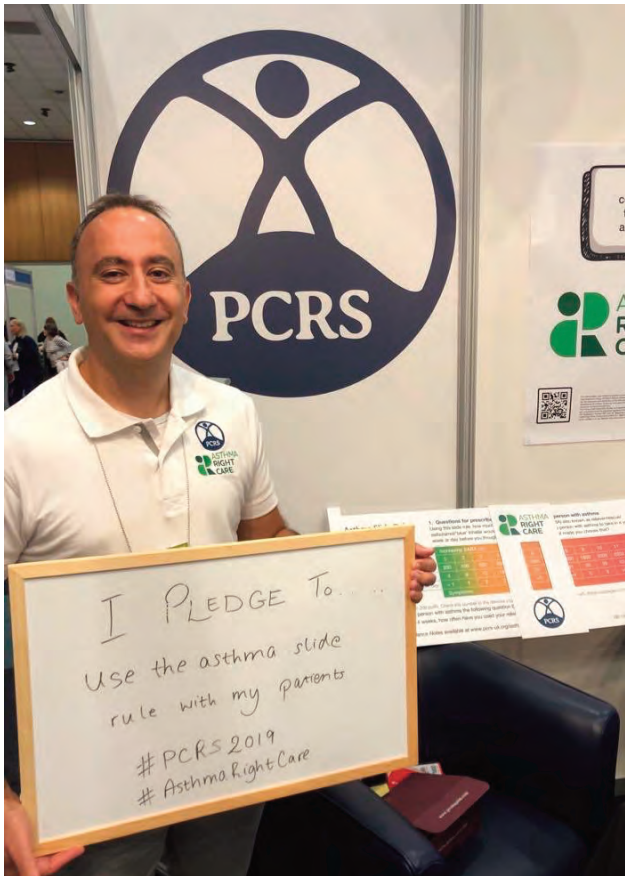
Research stream

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 asses 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 VO2 Max in Active and Sedentary Individuals

Corresponding Author: Chidinma Ezeugwa

List of authors: Ajepe TO, Ezeugwa CJ, Okafor UAC, Ehuwa OF

Institution: College of Medicine, University of Lagos

Abstract: Aim: This study sought to determine the correlation between handgrip strength and VO2max 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 VO2max was calculated using the formula 15(HRmax Ã·HRrest). 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 VO2max 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 VO2max) were significantly higher among the active participants when compared with the sedentary participants. (p=0.001, p=0.001 respectively). Overall, a significant relationship exists between Handgrip strength and VO2max among all participants but when stratified into active and sedentary, there was significant relationship between Handgrip strength and VO2max in active participants, however, there was no significant correlation between the handgrip strength and VO2max in sedentary participants. The regression analysis showed that handgrip strength was significant predictor for VO2max in all the participants.

Conclusions: Apparently healthy active participants had higher handgrip strength and VO2max with lower resting heart rate. There was significant relationship between handgrip strength and VO2max while Handgrip strength was found to predict VO2max in apparently healthy young individuals.

Keywords: Handgrip strength, VO2max, 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 ≥5-second target, and 2/25 ≤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 ≥5-seconds and none failing ≤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 ≥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 recruited 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
3 Queen Mary University of London

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-effec-

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

List of authors: Aljahan A.

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 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 (µg, mean±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 %<5µm) at 20, 30 and 48 L/min for Control were 27.5±2.0, 48.9±1.3 and 43.8±2.9 respectively; for VE plus Clip-Tone: 30.0±1.7, 48.2±1.6 and 44.9±1.6. Similarly, fine particle dose data (FPD µg<5µm) were Control: 27.8±3.5, 39.8±1.9 and 46.3±7.1 and VE plus Clip-Tone: 31.0±2.0, 41.5±2.5 and 40.9±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

List of authors: 1 Marsh V, 1 Last R, 2 McClatchey K, 3 Steed E, 3 Taylor SJC, 2 Pinnock H
1 Education for Health
2 Universityof 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 KDÂ[1], Parrish CÂ[1], 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 ≤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 ≤ 27ppb. 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 ≥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 (±218) and -6mL (±204) in the budesonide and placebo groups respectively.

Conclusions: Steroid naive participants with suspected asthma and a baseline FeNo of ≤27ppb 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/μL and 300 cells/μL, 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/μL and 300 cells/μL.

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 management 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

List of authors: 1 McClatchey K, 2 Steed E, 2 Taylor SJC, 2 Ridgway C, 3 Taylor O, 3 Carter V, 3 Appiagyei F, 3 Price D, 1 Morrow S, 1 Pinnock H
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 IMPlementing 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 testted 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 Chalistios

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 improves 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

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 yearss 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. Furthermore, 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+

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 Johnston1,2, Gareth Fitzgerald1, Elspeth Christie2, Gourab Choudhury2, Luke Daines2,3 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 quantitive 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 VentolinÂ® 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?m/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 oropharnygeal 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

List of authors: Victoria McKelvie

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 Porstmouth 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 rehabiliation

Corresponding author: Keerthanaa 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.[1] 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 effects 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.[1] 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]. November2018. (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 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)

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 21and 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.

13-14 May 2020
NEC Birmingham, UK

PRIMARY CARE HEALTH PUBLIC COMMUNITY

Celebrating 30 years

Register today for the UK's leading free of charge event for GPs, trainee GPs and other healthcare professionals working in primary and community care

21 free of charge CPD approved conference programmes including:

- General practice
- Newly qualified and trainee GPs
- Women's health
- Dermatology
- Cardiology
- Diabetes and obesity
- **Respiratory health and allergies**
- Child health and young people
- Older people and dementia
- End of life
- Travel health
- Social prescribing

Register and see the full programme at
www.primarycarehealth.co.uk

Organised by Sterling Events

ACTIVATION CODE: PCRU

CPD Approved | @PrimaryCareShow | Primary Care and Public Health | Free of Charge

BE MORE LIKE MAX

Prescribe an inhaler that can deliver in the real world

- Used correctly by 93% of people after reading the PIL*[1]
- Consistent dose delivery:**
  - At flow rates of 30–90L/min[2,3]
  - When held at +/-90 degrees from vertical[3]
  - At temperatures from -20°C to 40°C[3]
- Licensed for use as maintenance and reliever therapy (MART) in asthma†[4]

Prescribe DuoResp Spiromax.

DuoResp® Spiromax®
budesonide/formoterol

For asthma and COPD in adults‡
Visit duoresp.co.uk for more information

PIL, patient information leaflet.
*Correct usage data after reading PIL for Turbohaler® and Easyhaler® were 76.7% and 58.3% respectively (p<0.001, for both comparisons) n=120 for all groups.[1] Patients are advised to read the PIL carefully and follow the instructions for use as detailed in the leaflet.
**Dose delivery study using low, middle and high strength DuoResp Spiromax. Dose consistency was measured over inhaler life. Low dose was included in the study but is not licensed in the UK.[3]
†For 160/4.5mcg strength only.[4]
‡DuoResp Spiromax is licensed for use in adults 18 years of age and older only.[4]

Please refer to the Summary of Product Characteristics (SmPC) for full details of the Prescribing Information. DuoResp® Spiromax® (budesonide/formoterol) 160mcg/4.5mcg inhalation powder and DuoResp® Spiromax® (budesonide/formoterol) 320mcg/9mcg inhalation powder Abbreviated Prescribing Information. **Presentation:** *DuoResp® Spiromax® 160/4.5:* Each delivered dose contains 160mcg of budesonide and 4.5mcg of formoterol fumarate dihydrate. This is equivalent to a metered dose of 200mcg budesonide and 6mcg of formoterol fumarate dihydrate. *DuoResp® Spiromax® 320/9:* Each delivered dose contains 320mcg of budesonide and 9mcg of formoterol fumarate dihydrate. This is equivalent to a metered dose of 400mcg budesonide and 12mcg of formoterol fumarate dihydrate. Inhalation powder. **Indications:** Asthma: Treatment of asthma, where use of a combination (inhaled corticosteroid and long-acting β_2-adrenoceptor agonist) is appropriate. COPD: Symptomatic treatment of patients with COPD with forced expiratory volume in 1 second (FEV_1) < 70% predicted normal (post bronchodilator) and a history of repeated exacerbations, who have significant symptoms despite regular therapy with long-acting bronchodilators. **Dosage and administration:** For use in adults ≥18 years. Not for use in children < 18 years of age. ***Asthma:*** Not intended for the initial management. If an individual patient should require a combination of doses other than those available in the combination inhaler, appropriate doses of β_2-adrenoceptor agonists and/or corticosteroids by individual inhalers should be prescribed. The dose should be titrated to the lowest dose at which effective control of symptoms is maintained. When control of symptoms is achieved titrate to the lowest effective dose, which could include once daily dosing. *DuoResp® Spiromax® 160/4.5: maintenance* therapy – regular maintenance treatment with a separate reliever inhaler: *Adults*: 1-2 inhalations twice daily (maximum of 4 inhalations twice daily). *DuoResp® Spiromax®* maintenance and reliever therapy – regular maintenance treatment and as needed in response to symptoms: should be considered for patients with: (i) inadequate asthma control and in frequent need of reliever medication (ii) previous asthma exacerbations requiring medical intervention. *Adults*: The recommended maintenance dose is 2 inhalations per day, given either as one inhalation morning and evening or as 2 inhalations in either the morning or evening. For some patients a maintenance dose of 2 inhalations twice daily may be appropriate. Patients should take 1 additional inhalation as needed in response to symptoms. If symptoms persist after a few minutes, an additional inhalation should be taken. Not more than 6 inhalations should be taken on any single occasion. A total daily dose of up to 12 inhalations could be used for a limited period. Patients using more than 8 inhalations daily should be strongly recommended to seek medical advice. *DuoResp® Spiromax® 320/9:* Only to be used as maintenance therapy. *Adults*: 1 inhalation twice daily (maximum of 2 inhalations twice daily). ***COPD:*** *Adults*: 1 inhalation twice daily. *Elderly patients (≥65 years old)*: No special requirements. *Patients with renal or hepatic impairment*: No data available. **Contraindications:** Hypersensitivity to the active substance or to any of the excipients. **Precautions and warnings:** If treatment is ineffective, or exceeds the highest recommended dose, medical attention must be sought. Patients with sudden and progressive deterioration in control of asthma or COPD should undergo urgent medical assessment. Patients should have their rescue inhaler available at all times. The reliever inhalations should be taken in response to symptoms and are not intended for regular prophylactic use e.g. before exercise. For such, a separate rapid-acting bronchodilator should be considered. Patients should not be initiated during an exacerbation. Serious asthma-related adverse events and exacerbations may occur. If asthma symptoms remain uncontrolled or worsen, patients should continue treatment and seek medical advice. If paradoxical bronchospasm occurs, treatment should be discontinued immediately. Paradoxical bronchospasm responds to a rapid-acting inhaled bronchodilator and should be treated straightaway. Visual disturbance may be reported with systemic and topical corticosteroid use. Such patients should be considered for referral to an ophthalmologist for evaluation of possible causes. Systemic effects may occur, particularly at high doses prescribed for long periods. Potential effects on bone density should be considered, particularly in patients on high doses for prolonged periods that have co-existing risk factors for osteoporosis. Prolonged treatment with high doses of inhaled corticosteroids may result in clinically significant adrenal suppression. Additional systemic corticosteroid cover should be considered during periods of stress. Treatment should not be stopped abruptly. Transfer from oral steroid therapy to a budesonide/formoterol fumarate fixed-dose combination may result in the appearance of allergic or arthritic symptoms which will require treatment. In rare cases, tiredness, headache, nausea and vomiting can occur due to insufficient glucocorticosteroid effect and temporary increase in the dose of oral glucocorticosteroids may be necessary. To minimise risk of oropharyngeal Candida infection patients should rinse mouth with water. Administer with caution in patients with thyrotoxicosis, phaeochromocytoma, diabetes mellitus, untreated hypokalaemia, or severe cardiovascular disorders. The need for, and dose of inhaled corticosteroids should be re-evaluated in patients with active or quiescent pulmonary tuberculosis, fungal and viral infections in the airways. Additional blood glucose controls should be considered in diabetic patients. Hypokalaemia may occur at high doses. Particular caution is recommended in unstable or acute severe asthma. Serum potassium levels should be monitored in these patients. As with other lactose containing products the small amounts of milk proteins present may cause allergic reactions. There is some evidence of an increased risk of pneumonia with increasing steroid dose but this has not been demonstrated conclusively across all studies. Physicians should remain vigilant for the possible development of pneumonia in patients with COPD as the clinical features of such infections overlap with the symptoms of COPD exacerbations. **Interactions:** Concomitant treatment with potent CYP3A4 inhibitors should be avoided. If this is not possible the time interval between administration should be as long as possible. Co-treatment with CYP3A inhibitors, including cobicistat-containing products is expected to increase risk of systemic side effects and the use in combination should be avoided. Not recommended with β-adrenergic blockers (including eye drops) unless compelling reasons. Concomitant treatment with quinidine, disopyramide, procainamide, phenothiazines, antihistamines (terfenadine), and Tricyclic Antidepressants (TCAs) can prolong the QTc-interval and increase the risk of ventricular arrhythmias. L-Dopa, L-thyroxine, oxytocin and alcohol can impair cardiac tolerance. Concomitant treatment with MAOIs, including agents with similar properties, may precipitate hypertensive reactions. Patients receiving anaesthesia with halogenated hydrocarbons have an elevated risk of arrhythmias. Hypokalaemia may increase the disposition towards arrhythmias in patients taking digitalis glycosides. **Pregnancy and lactation:** Use only when benefits outweigh potential risks. Budesonide is excreted in breast milk; at therapeutic doses no effects on infants are anticipated. **Effects on ability to drive and use machines:** No or negligible influence. **Adverse reactions:** Since *DuoResp® Spiromax®* contains both budesonide and formoterol, the same pattern of adverse reactions as reported for these substances may occur. No increased incidence of adverse reactions has been seen following concurrent administration of the two compounds. *Serious*: Immediate and delayed hypersensitivity reactions, e.g. exanthema, urticaria, pruritus, dermatitis, angioedema and anaphylactic reaction, Cushing´s syndrome, adrenal suppression, growth retardation, decrease in bone mineral density, hypokalaemia, hyperglycaemia, aggression, psychomotor hyperactivity, anxiety, sleep disorders, depression, behavioural changes, cataract and glaucoma, tachycardia, cardiac arrhythmias, e.g. atrial fibrillation, supraventricular tachycardia and extrasystoles, angina pectoris, prolongation of QTc-interval, variations in blood pressure, bronchospasm, pneumonia in COPD patients and paradoxical bronchospasm. *Common:* Candida infections in the oropharynx, headache, tremor, palpitations, mild irritation in the throat, coughing, pneumonia in COPD patients and hoarseness. Consult the Summary of Product Characteristics in relation to other side effects. **Overdose:** An overdose of formoterol may lead to: tremor, headache, palpitations. Symptoms reported from isolated cases are tachycardia, hyperglycaemia, hypokalaemia, prolonged QTc-interval, arrhythmia, nausea and vomiting. Supportive and symptomatic treatment may be indicated. **Price per pack:** *DuoResp® Spiromax® 160/4.5* and *DuoResp® Spiromax® 320/9*: £27.97. **Legal Category:** POM. **Marketing Authorisation Numbers:** *DuoResp® Spiromax® 160/4.5:* EU/1/14/920/001. *DuoResp® Spiromax® 320/9*: EU/1/14/920/004. **Marketing Authorisation Holder:** Teva Pharma B.V. Swensweg 5, 2031GA Haarlem, The Netherlands. **Date of Preparation:** September 2018. **Job Code:** UK/MED/18/0194.

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard.
Adverse events should also be reported to Teva UK Limited on 0207 540 7117 or medinfo@tevauk.com

References: 1. Sandler N et al. *BMJ Open Resp Res* 2016; 3: e000119. 2. Chrystyn H et al. *Int J Pharm* 2015; 491: 268–276. 3. Canonica G et al. *J Aerosol Med Pulm Drug Deliv* 2015; 28(5): 309–319. 4. DuoResp Spiromax Summary of Product Characteristics.

Approval Code: UK/DUO/18/0054(1)

Teva UK Limited, Ridings Point, Whistler Drive, Castleford, West Yorkshire WF10 5HX

Date of preparation: August 2019