

Primary Care Respiratory **UPDATE**



www.pcrs-uk.org/pcru

HIGHLIGHTS ...

Primary care perspective on the new British Asthma Guideline

Learning from the National COPD audit results

Spirometry certification scheme

Diagnosis of rarer lung conditions

Pull-out wall chart on COPD nutrition guidelines





Chiesi

TWO DEVICES. TWO CONDITIONS. ONE PRICE.

The only ICS/LABA fixed-dose combination, licensed in adult asthma and COPD*, in both a pMDI and DPI at one price of £29.32.

*FEV₁ <50% predicted

 **FOSTAIR®**
Beclometasone + formoterol

Fostair 100/6 and 200/6 Prescribing Information

Please refer to the full Summary of Product Characteristics 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 beta₂-agonist (ICS/LABA) combination is appropriate: patients not adequately controlled on ICS and 'as needed' (prn) short-acting beta₂-agonist, or patients already adequately controlled on both ICS and LABA. **COPD (Fostair 100/6 only):** Symptomatic treatment of patients with severe COPD (FEV₁ <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 pMDI 100/6 only):** taken as a regular maintenance treatment and prn in response to asthma symptoms: 1 inhalation twice daily (bd) plus 1 additional inhalation prn in response to symptoms. If symptoms persist after a few minutes, an additional inhalation is recommended. The maximum daily dose is 8 inhalations. Fostair pMDI 100/6 may also be used as maintenance therapy (with a separate short-acting bronchodilator prn). Fostair pMDI 200/6 and NEXThaler (100/6 and 200/6) should be used as maintenance therapy only. Maintenance therapy: Fostair pMDI and NEXThaler 100/6: 1–2 inhalations bd. Fostair pMDI and NEXThaler 200/6: 2 inhalations bd. 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 bd. 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, ischemic heart disease, severe heart failure, congestive heart failure, occlusive vascular diseases, arterial hypertension, severe arterial hypertension, aneurysm, thyrotoxicosis, diabetes mellitus, pheochromocytoma 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 beta₂-agonist therapy and may also be potentiated by concomitant treatments (e.g. xanthine derivatives, steroids and diuretics) and increase the risk of arrhythmias. 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 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. Treatment should not be initiated during exacerbations or acutely deteriorating asthma. Fostair treatment should be discontinued immediately if the patient experiences a paradoxical bronchospasm. Systemic effects: 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. Prolonged treatment with high doses of ICS may result in adrenal suppression and acute adrenal crisis. Lactose contains small amounts of milk proteins, which may cause allergic reactions. **Interactions:** Beta-blockers should be avoided in asthma patients. Concomitant administration of other beta₂-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 beta₂-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 beta₂-agonists. Hypokalaemia may increase the likelihood of arrhythmias in patients receiving digitalis glycosides. Presence of ethanol may cause potential

interaction in sensitive patients taking metronidazole or disulfiram. **Fertility, pregnancy and lactation:** Fostair should only be used during pregnancy or lactation if the expected benefits outweigh the potential risks. **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, otosalginitis, 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 (Refer to SPC for full list of side effects). **Legal category:** POM **Packs and price:** £29.32 1x120 actuations **Marketing authorisation (MA) Nos:** 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:** Jul 2016. 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. Adverse events should
also be reported to Chiesi Ltd on 0161 488 5555.

Primary Care Respiratory **UPDATE**

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

www.pcrs-uk.org/pcru

Editorial Office and Publishers

Primary Care Respiratory Society UK
Unit 2, Warwick House
Kingsbury Road
Curdworth, Warwicks B76 9EE
Tel: +44 (0)1675 477600
Fax: +44 (0)1361 331811
Email: sales@pcrs-uk.org

Advertising and sales

Primary Care Respiratory Society UK
Unit 2, Warwick House
Kingsbury Road
Curdworth, Warwicks B76 9EE
Tel: +44 (0)1675 477600
Fax: +44 (0)1361 331811
Email: sales@pcrs-uk.org

Supplements and reprints

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

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

For further information, contact:
Primary Care Respiratory Society UK
Unit 2, Warwick House
Kingsbury Road
Curdworth, Warwicks B76 9EE
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 acid-free paper

Editor

Professor Hilary Pinnock, *Reader, Asthma UK Centre for Applied Research, Allergy and Respiratory Research Group, Centre for Population Health Sciences, University of Edinburgh General Practitioner, Whitstable Medical Practice, Whitstable, Kent*

Editorial board

Dr Noel Baxter, *Chair PCRS-UK Executive, London*

Carol Stonham, *PCRS-UK Nurse Lead, Gloucestershire*

Sally King, *PCRS-UK Education Committee and Respiratory Physiotherapist, Gloucestershire*

Dr Basil Penney, *GPwSI in Respiratory Medicine, Darlington*

Anne Rodman, *Independent Respiratory Advanced Nurse Practitioner and Education for Health Regional Trainer, Lichfield*

Dr Iain R Small, *PCRS-UK Executive, General Practitioner, Peterhead*

Ruth Thomas, *Senior Community Respiratory Nurse, Milton Keynes*

Steph Wolfe, *Independent Respiratory Nurse Specialist (Primary Care)*

PCRS-UK Chief Executive

Anne Smith

Communications Consultant and Freelance Journalist

Francesca Robinson

Policy Advisor

Bronwen Thompson

PCRS-UK Operations Director

Tricia Bryant

Competing interests are declared to PCRS-UK 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-UK, the editor or their agents or employees is accepted for the consequences of any inaccurate or misleading information. © 2016 Primary Care Respiratory Society UK. 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 UK. Enquiries concerning reproduction outside those terms should be submitted to Primary Care Respiratory Society UK via gail@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-UK, Unit 2 Warwick House, Kingsbury Road, Sutton Coldfield B76 9EE. Telephone: +44 (0)1675 477600 Facsimile: +44 (0)121 336 1914 Email: info@pcrs-uk.org Website: <http://www.pcrs-uk.org>

The Primary Care Respiratory Society UK is grateful to its corporate supporters including AstraZeneca UK Ltd, Boehringer Ingelheim Ltd, Chiesi Ltd, Napp Pharmaceuticals, Novartis UK, Pfizer Ltd and TEVA UK Ltd for their financial support which supports the core activities of the Charity and allows PCRS-UK 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-UK statement on pharmaceutical funding.

Data you can rely on.
People you can trust.



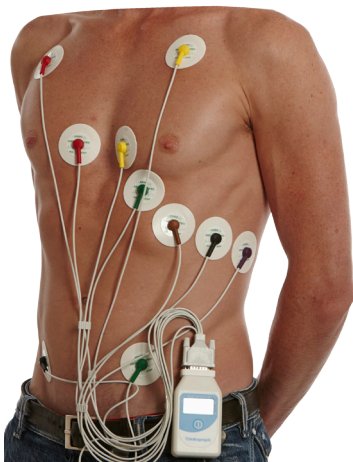
Vitalograph Spirotrac

Cardio-respiratory diagnostic software

PC-based cardio-respiratory diagnostic software integrates high quality spirometry, pulse oximetry, 12-lead ECG, COPD assessment, blood pressure measurement, challenge testing and more, in a simple, flexible solution.

Spirometry Software with Pneumotrac™

- Accurate, robust and linear Fleisch pneumotachograph for high quality testing
- Automatic FEV₁ trend chart of actual and normal range data as subject is selected
- Open session, f/v and v/t curves, all test data and test quality in one view
- Built-in test quality checks
- Choice of exciting incentives
- Fully scalable database capacity using powerful Microsoft® SQL server technology
- Network ready



ECG Software with wireless (BT) 12-lead ECG unit

- Wireless data transmission via Bluetooth®, reducing lead artifact
- Visual electrode contact indication to assist operator
- Print configurable 1 or 2 page reports
- View traces as 1 x 12; 2 x 6 or 3 x 4 plus rhythm strip
- Calculation of the heart rate with acoustic and visual signal
- Full range of parameters are available (e.g. P duration, PQ interval, QRS period)
- Automatic pacemaker detection
- Glasgow Algorithm Interpretation

For more information call **01280 827110** or e-mail **sales@vitalograph.co.uk**
www.vitalograph.co.uk

Primary Care Respiratory **UPDATE**



SPECIAL FEATURES

Editor's Round-Up

Hilary Pinnock 7

Chair's Perspective

Noel Baxter 9

Fit for the Future: a holistic approach to respiratory care: 2016 conference round-up

Francesca Robinson 13

A primary care perspective on the new British asthma guideline

Bronwen Thompson, Hilary Pinnock 19

Time to take a breath – COPD audit results from primary care

Bronwen Thompson, Noel Baxter, Carol Stonham, Kevin Gruffydd Jones 23

Certification scheme to raise standards of spirometry for respiratory diagnosis

Bronwen Thompson, Monica Fletcher, Stephen Gaduzo, Judith Lawrence 26

The Lay Patient and Carer Reference Group – one year on ...

Bronwen Thompson, Jane Scullion, Noel Baxter 28

REGULAR FEATURES

Policy Round-Up

Bronwen Thompson 30

Getting the Basics Right

A summary of PCRS-UK opinion sheets
Iain Small, Basil Penny 32

Journal Round-Up 36

PCRS-UK News Round-Up 46

Second opinion

Your respiratory questions answered 47

Delivering Excellence Locally

The rewards and challenges of setting up an integrated community respiratory service
Francesca Robinson, Daryl Freeman 48

Affiliated Group Leaders Workshop

Francesca Robinson 51

Update your clinical practice:
BTS/SIGN guideline - Summary individual diagnostic tests 54

SPECIAL PULL-OUT FEATURE

Managing Malnutrition in COPD

Equipping you to make things happen in your respiratory community

- ✓ **Interactive skills & knowledge based workshops**, relevant to your day to day work as well as equipping you to bring about longer term changes to care
- ✓ **Free to attend**, for any health professional (or manager) involved in providing or commissioning primary respiratory care and who is member of PCRS-UK
- ✓ **Supportive and safe environment** to develop and practice a range of skills and network with like minded colleagues
- ✓ **Access to a multi disciplinary faculty of experienced clinical leaders** - all practising clinicians who understand the realities and challenges of bringing about change in a primary or community care setting.



See
<https://pcrs-uk.org/clinical-leadership-programme>
for forthcoming
Clinical Leadership event
programmes



NUTRICIA
Fortisip[®]
Compact Protein

**“MY COPD MEANS
MY APPETITE HASN’T
BEEN VERY GOOD...”**

...so I started taking Fortisip Compact Protein. It’s very easy to take and I feel like I’m getting better.”

Ron, Camden

- Low 125ml volume and easy to take
- The most protein-rich, energy-dense nutritional supplement on the market
- Better compliance^{1*}

Why change to anything else?



*Greater compliance (91%) has been shown with more energy dense supplements ($\geq 2\text{kcal/ml}$) such as Fortisip Compact Protein when compared to standard oral nutritional supplements.

Reference: 1. Hubbard GP et al. Clin Nutr, 2012;31;293-312.

**RIGHT PATIENT,
RIGHT PRODUCT,
RIGHT OUTCOMES**

AirFluSal[®]

Forspiro[®]

salmeterol/
fluticasone propionate

A NEW VIEW...

...OF AN ESTABLISHED COMBINATION^{1,2}

20% savings vs Seretide[®]
Accuhaler^{®3}

FOR THE TREATMENT OF COPD[†]

[†]AirFluSal Forspiro is indicated for the symptomatic treatment of adults with Chronic Obstructive Pulmonary Disease (COPD), with a FEV1 <60% predicted normal (prebronchodilator) and a history of repeated exacerbations and who have significant symptoms despite regular bronchodilator therapy. AirFluSal Forspiro is intended for use by adults 18 years of age and older only.



Device not actual size

Prescribing Information: AirFluSal[®] Forspiro[®]

(Please refer to the full Summary of Product Characteristics before prescribing)

AirFluSal[®] Forspiro[®] (salmeterol xinafoate and fluticasone propionate) Indications: AirFluSal Forspiro is indicated in the symptomatic treatment of patients with COPD with a FEV1 <60% predicted normal (pre-bronchodilator) and a history of repeated exacerbations who have significant symptoms despite regular bronchodilator therapy. For use by adult patients aged 18 years and older only. **Dosage and administration:** Inhalation only. One inhalation b.d. of AirFluSal Forspiro 50/500 (salmeterol 50 mcg/fluticasone propionate 500 mcg). **Contraindications:** Hypersensitivity to the active ingredients or to any of the excipients. **Precautions:** Pulmonary tuberculosis, fungal, viral or other infections of the airway, severe cardiovascular disorders, heart rhythm abnormalities, diabetes mellitus, hypokalaemia and thyrotoxicosis. Increased reporting of pneumonia and bronchitis in patients with COPD receiving AirFluSal compared with placebo. If a patient with severe COPD has experienced pneumonia, treatment with AirFluSal should be re-evaluated. Paradoxical bronchospasm post-dose. **Acute symptoms:** Not for acute symptoms. Use short-acting inhaled bronchodilator. **Systemic effects:** Systemic effects of inhaled corticosteroids may occur, particularly at high doses for prolonged periods, but much less likely than with oral corticosteroids. May include Cushing's syndrome, cushingoid features, adrenal suppression, adrenal crisis, growth retardation in children and adolescents, decrease in bone mineral density, cataract,

glaucoma and, more rarely, a range of psychological or behavioural effects including psychomotor hyperactivity, sleep disorders, anxiety, depression or aggression. Tremor, palpitations and headache, have been reported with β_2 agonist treatment. Treatment should not be abruptly stopped due to risk of exacerbation. Patients should not be initiated on AirFluSal during an exacerbation. Data from a large clinical trial suggested patients of black African or Afro-Caribbean ancestry were at increased risk of serious respiratory-related events or deaths when using salmeterol. All patients should continue treatment but seek medical advice if symptoms remain uncontrolled or worsen when initiated on AirFluSal or using AirFluSal. Cessation of therapy may also be associated with decompensation and should be supervised by a physician. **Transfer from oral steroids:** Special care needed. Consider appropriate steroid therapy in stressful situations. **Drug interactions:** Avoid beta-blockers. Avoid concomitant administration of ketoconazole or other potent (e.g. itraconazole, telithromycin, ritonavir) and moderate (erythromycin) CYP3A4 inhibitors unless benefits outweigh potential risk. β_2 adrenergic blockers may weaken or antagonise the effect of salmeterol. Potentially serious hypokalaemia may result from β_2 agonist therapy. This effect may be potentiated by concomitant treatment with xanthine derivatives, steroids and diuretics. **Pregnancy and lactation:** Experience limited. Balance risks against benefits. **Side effects:** Very Common: headache, nasopharyngitis. Common: candidiasis of the mouth and throat, hoarseness/dysphonia, throat irritation, pneumonia,

bronchitis, hypokalaemia, sinusitis, contusions, traumatic fractures, arthralgia, myalgia, muscle cramps. **Uncommon:** respiratory symptoms (dyspnoea), anxiety, tremor, palpitations, tachycardia, angina pectoris, atrial fibrillation, cutaneous hypersensitivity reactions, hyperglycaemia, sleep disorders, cataract. **Rare:** angioedema, respiratory symptoms (bronchospasm), anaphylactic reactions including anaphylactic shock, Cushing syndrome, cushingoid features, adrenal suppression, growth retardation in children and adolescents, decreased bone mineral density, oesophageal candidiasis, behavioural changes including psychomotor hyperactivity and irritability, glaucoma, cardiac arrhythmias and paradoxical bronchospasm. **Not known:** depression or aggression. **Paradoxical bronchospasm:** substitute alternative therapy. **Legal category:** POM. **Presentation and Basic NHS cost:** AirFluSal Forspiro 50/500 60 inhalations. £32.74. **Product Licence (PL) no:** PL 04416/1431 **PL holder:** Sandoz Ltd, Frimley Business Park, Frimley, Camberley, Surrey, GU16 7SR. **Last date of revision:** October 2015.

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 Sandoz Ltd, 01276 698020 or
uk.drugsafety@sandoz.com

1. AirFluSal[®] Forspiro[®] SmPC. 2. Seretide[®] Accuhaler[®] SmPC. 3. MIMS UK September 2015.

Seretide[®] and Accuhaler[®] are registered trademarks of the GlaxoSmithKline Group of Companies.

Date of preparation: April 2016 UK/MKT/AFS/15-0065(1)

 **SANDOZ**
a Novartis company

Editor's Round-Up

Professor Hilary Pinnock, *Editor Primary Care Respiratory Update*



It is three years since the *Primary Care Respiratory Update* was launched, and as I hand the baton of editorship to Iain Small, maybe I may be permitted to look back at the themes we have featured in the 12 issues with which I have been involved. In our first issue in June 2014 we reviewed the recently published National Review of Asthma Deaths and were shocked that preventable asthma deaths still occurred. Over the years we have focused on chronic obstructive pulmonary disease (COPD) and preventing admissions, addressing the combination of hay fever and asthma, and the challenge of diagnosis and of managing breathlessness.

If there is a common theme it is pursuit of quality; of striving to improve the care we provide to people with respiratory disease. It seems appropriate therefore that the final issue that I am editing is focused on quality improvement.

Quality of care is occupying the reflections of our chairman, Noel Baxter, and following his lead there are three articles addressing different aspects of quality. The first is a summary of the key recommendations of the 2016 BTS/SIGN guideline. The ethos of BTS/SIGN is to produce pragmatic guidelines that support clinicians wanting to provide quality care: evidence-based recommendations but practical in their advice. 'Quality-assured spirometry' has become one of those phrases that we use but do not always stop to think about the implications. After many years of discussion, the National Register of certified professionals and operators is a welcome step in

the direction of ensuring that all spirometry is performed to appropriate standards. The publication of the primary care COPD audit using routine data from Welsh general practices makes salutary reading – but also emphasises the learning that can come from using anonymised routine data.

Quality was the focus of a prize-winning abstract at this year's Annual Scientific Meeting in which Jayne Longstaff and her team from Portsmouth described a pioneering initiative to identify undiagnosed patients with breathlessness symptoms in primary care.

The lay patient and carer reference group is a year old. Noel Baxter summarised the benefit of working with the group when he said "*Remind me not to underestimate how much better we can be if we utilise the skills and experience of people who have lived with respiratory disease*".

An example of an integrated community-based initiative that is bringing quality respiratory care to people in rural Norfolk is described by Dr Daryl Freeman on page 48. There have been challenges along the way but, as Daryl says, "*Care in the community has to improve and primary, secondary and community services have to work together*".

So, as I write my last *PCRU* editorial round-up, I am reminded of our strapline '*Inspiring best practice in respiratory care*'. Quality is what we are about in the Primary Care Respiratory Society.

Help your patients self-manage their asthma better

Asthma UK has launched a new range of printed booklets packed with simple, practical strategies to help with medicine adherence, using asthma action plans and more.



Download for free and find out how to order bulk copies:
www.asthma.org.uk/advice/resources



Looking for more asthma advice?



Call Asthma UK's nurses on **0300 222 5800**
(open 9-5, Monday-Friday)



Join the community of healthcare professionals
via www.asthma.org.uk/professionals/sign-up



Chair's Perspective

Noel Baxter, *PCRS-UK Executive Chair*



Three new reports challenge the system to take respiratory care more seriously

Noel Baxter reflects on three important new reports that provide insight and guidance on areas where everyday respiratory care could be improved.

These reports are

- 'Time to take a breath', the COPD primary care audit in Wales.¹
- 'Improving the quality of diagnostic spirometry in adults: the National Register of certified professionals and operators'.²
- The 2016 BTS/SIGN guideline for the management of asthma.³

COPD audit in Wales produces stark findings that we should all implement

'Time to take a breath' provides a revealing snapshot of the way that COPD is being managed in general practice in Wales and contains valuable lessons for practitioners across the UK.

Anonymised routine data extracted from the records of almost 50,000 patients on COPD registers in Welsh general practices highlight that there are serious concerns about the diagnosis of COPD with subsequent failures to provide optimal interventions and identify those most at risk.

After more than a decade of populating COPD Quality and Outcomes Framework (QOF) registers, we still have less than one in five people on the Welsh registers in 2014–15 who have a record of a post-bronchodilator FEV₁/FVC ratio <0.7, the essential criterion to support a diagnosis of COPD. It is quite inconceivable that this would be deemed acceptable for diabetes or ischaemic heart disease, so why has it been allowed to happen for COPD? We must ask ourselves what organisational, patient and health professional factors drive this anomaly.

Recently a director from my own clinical commissioning group, on hearing that we have only 50% of

our patients with COPD diagnosed correctly, asked "Why is this so difficult? I thought you just needed to blow into a tube!" Whilst we know respiratory diagnostics can be tricky and time consuming, he does have a point and, as leaders in respiratory medicine, the onus is on us to start providing some answers and solutions.

This is, of course, a major patient safety issue. We should be acting urgently to identify the correct diagnosis if these patients haven't got COPD. About two-thirds had a chest X-ray (CXR) around the time of diagnosis, which is more reassuring, but there should be no reason why 100% of people can't have imaging to exclude other causes.

The predominant symptom of COPD is breathlessness, and someone suspected of having COPD could also have lung cancer or non-respiratory conditions such as heart failure. This is, of course, a widespread problem not limited to primary care; the secondary care audit found that about 50% of patients being managed for COPD in hospital did not have evidence of the diagnosis. My integrated respiratory consultant colleagues tell me that acute breathlessness presenting to accident and emergency (A&E) is often not adequately or robustly assessed with a vague 'LRTI' or 'AECOPD' diagnosis being applied without sufficient thought or evidence. In stark contrast, chest pain is usually ruthlessly probed to avoid misdiagnosis.

The audit reinforces the message that spirometry is an essential test, but that other factors such as tobacco use, breathlessness score and frequency of exacerbations that should be monitored are often not recorded annually. These four measures can help stretched health systems allocate resources more appropriately by stratifying those at risk of more rapid decline and those who may be closer to

death and need support to live well in their remaining years.

The message that only cessation of tobacco smoking can slow the decline of COPD does not appear to have translated into the routine provision of high value tobacco dependence therapy, as seen in this audit. Tobacco dependence is a long-term condition that needs treatment. It relapses, especially in people who have COPD, so frequent support and objective measuring with exhaled CO testing is required.

Political and public anxiety about data protection in England exacerbated by the 'care.data' furore in recent years has meant that it has not been possible to do a similar audit in England, and is a situation that is unlikely to change by the time of the next data extraction in Wales. However, primary care organisations across the UK should take note of the learning from these Welsh data and the respiratory community should thank the Welsh Government for allowing this important story to be revealed.

So, our message to the health boards of Northern Ireland and Scotland and the clinical commissioning groups in England is – don't be reassured by QOF. Look at your own data to see how you compare with Wales. Scotland and Somerset have already left QOF behind and, with others likely to follow suit soon, looking at the findings from this report could help develop future metrics for understanding how people with chronic respiratory symptoms and illness are being diagnosed and managed.

New scheme proposes equitable quality for all respiratory diagnostics

A reliable CXR report needs a trained radiographer and radiologist; it's time to ask the same standards for a spirometry report – be trained to do the job you do.

'Improving the quality of diagnostic spirometry in adults: the National Register of certified professionals and operators' sets out details of a long awaited and welcome new scheme

to support the training and competency assessment of those performing and/or interpreting diagnostic spirometry and the introduction of a new national register of health practitioners certified to do and interpret the test.

Spirometry plays an important role in understanding the cause of the predominant symptoms of respiratory illness: breathlessness, wheeze, cough and recurrent chest infections. This report identifies that there is wide variability in the training that healthcare professionals who carry out and interpret spirometry have received, and this results in unwarranted variation in the quality of diagnosis, clearly demonstrated from the Welsh report.

This document now sets out a clear process of what is required to assure a patient, commissioner or provider that the spirometry being performed is adequate to support diagnosis. The diagnostician can then use the report along with their CXR, ECG and blood results – all of which we accept as having an essential quality assurance process – to do their job. This means we can confidently bring all the evidence together and support the patient to understand what causes their symptoms as a basis for future engagement and co-creation of safe and effective therapy.

The challenge will be the system response to this guidance. In urban centres, where general practice resource is being scaled up through super practices and federations, there seems to be a clear case for delivering respiratory diagnostics at the population level. Different approaches will be required for rural communities.

Whatever the approach, it will require managers to ensure that time and resources are provided for training. It is likely that the current general practice nurse workforce will be best placed to deliver this with many already having ensured they are well trained and able to deliver a quality service. We do, however, hear from our nurse members that having the

time and resources to be released from their jobs to do the training they need is one of the biggest challenges that they face.

This report importantly does not make training mandatory, and current practitioners in general practice and community services who have been performing or interpreting spirometry for many years can join the national register by applying to be certified as competent via an Expert Practitioner Scheme.

It's not all about spirometry – but it helps

In the last year, when considerable debate and controversy has followed the NICE consultation about the new asthma diagnosis guideline, PCRS-UK welcomes the updated BTS/SIGN guideline. This recently published guideline endorses the use of objective measures such as spirometry for identifying airflow obstruction, and gives healthcare professionals an evidence-based and highly practical and pragmatic approach that builds on what currently happens in general practice when suspecting and confirming a diagnosis of asthma.

People will still see the familiar probability-based process of making a diagnosis, and these guidelines support clinicians to record a diagnosis of 'suspected asthma' until they feel they have enough evidence to confirm it. This guideline will be helpful for clinicians; it has been written clearly with general practice in mind and it supports a longitudinal and systematic approach to diagnosing asthma. So how should we ask our colleagues to respond to this?

We are yet to see a national asthma audit, but my comments are based on what I see in surgeries. I am sure other PCRS-UK members would agree that, when they see patients for asthma reviews or potential exacerbations, it is often not clear where this all started and why the diagnosis of asthma was made. Sadly, and more importantly, the patient often doesn't really understand why the diagnosis was made. Why is it a surprise therefore that they

don't adhere to therapy? We have to get better at utilising objective tests carried out correctly and preferably longitudinally to support our clinical findings, but there must be more of an effort to correctly code and record why that decision was made.

Everyone can lead and inspire change

Members of PCRS-UK have been directly involved in developing and influencing these three reports at national level and will be working hard to support their implementation. The next step is to work as individual clinicians and leaders to use them to address shortfalls in respiratory care in our own areas, whether as affiliated group leaders by bringing these reports to the attention of colleagues or as respiratory leaders where you may be having influence with your local health economy.

PCRS-UK can help you find your voice to drive change in your locality through our leadership programme where we will support you to understand data, make a business case and talk to your commissioners and financial officers.

These reports in themselves won't make a difference, so please read the articles on each of these new reports in this issue of *PCRU*, take on board the findings and examine your

practice and encourage those around you to do likewise to see how it can be raised to the level of the best.

How we can all implement the findings of these reports

- **PCRS-UK:** Updating the Asthma Quick Guide; it will be available soon on the website.
- **Affiliated group leaders:** Present the findings of these reports to your local groups and discuss how you can overcome any barriers to making the recommended improvements to care and support each other in finding solutions.
- **Respiratory leaders:** Write to your CCG making the case for spirometry training to be mandatory for all nurses performing spirometry in your area.
- **GPs:** Support your nurses to undertake the required training if they are performing spirometry.
- **Individuals:** Download and read the reports in full and make sure you are fully updated; this will count towards revalidation.

Reference

1. Time to take a breath. <https://www.rcplondon.ac.uk/projects/outputs/primary-care-time-take-breath>
2. Improving the quality of diagnostic spirometry in adults; the National Register of certified professionals and operators <https://www.pcc-cic.org.uk/article/quality-assured-diagnostic-spirometry>
3. The 2016 BTS/SIGN guideline for the management of asthma. <https://www.brit-thoracic.org.uk/document-library/clinical-information/asthma/btssign-asthma-guideline-2016>

Hold the date

PCRS-UK primary care respiratory conference 2017

**Telford International Centre
28th-30th September 2017**

www.pcrs-uk.org

Listen to your lungs



Raising awareness of breathlessness

In July 2016 we launched *Listen to your lungs*.

The year-long campaign aims to:

- increase awareness that breathlessness can be a symptom of serious illness such as COPD
- encourage people to ask healthcare professionals about their breathlessness

Our team have launched a quick online test based around the MRC breathlessness scale.

So far, 185,000 people have completed the test!

Get involved and try the test for yourself here
blf.org.uk/ltyl

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

AstraZeneca, Boehringer Ingelheim, Chiesi, GlaxoSmithKline and Teva UK Ltd are the sponsors of the British Lung Foundation Listen to your lungs campaign, including the BLF Breath Test. These companies contributed financially to the campaign work, but had no influence over the content.

Fit for the Future: a holistic approach to respiratory care: 2016 conference round-up

Fran Robinson reports on the PCRS-UK Annual Conference held on 14/15 October 2016 at Telford International Centre

Francesca Robinson, PCRS-UK Communications Consultant



“ The PCRS-UK conference is always so positive and enthusiastic. The speakers are inspirational leaders who give you lots of ideas and practical things that you can take back and introduce at the coalface. This year I have particularly enjoyed the holistic nature of the conference and the focus on personalised care – it is so refreshing ”

Joanne, GP

A holistic approach to respiratory care was a central theme of the 2016 PCRS-UK conference. Presentations focused on symptoms such as breathlessness with implications beyond lung health, and highlighting the value of exercise, quitting smoking, meeting the special needs of teenagers, reducing the impact of air pollution and tips on end of life care.

The patient's perspective was also at the heart of the conference. *“We need to move away from thinking about QOF and tick boxes and go back to really listening to our patients, having the right conversations and focusing on what matters to them,”* explained PCRS-UK chairman Dr Noel Baxter.

Professor Simon Gregory, Director and Dean of Education and Quality, Health Education England Midlands and East, and a GP in Northampton, said although general practice was struggling with an increasingly heavy workload, loss of continuity of care and the need to work at scale, it was more important than ever to move back to a culture of patient-centred medicine. He urged healthcare professionals to concentrate more on patient decision aids rather than guidelines and targets. Personalised plans and technology-supported medicine could be used to help healthcare professionals to understand the person and their disease.

“Primary care was undergoing transformation and general practice had to get used to working with new members of the workforce such as practice-based pharmacists, physicians associates and paramedics. GPs needed to become better employers of practice nurses and to value and support them,” said Professor Gregory.

Dr Baxter said the conference was called 'Fit for the Future' to encourage delegates to think about whether the organisation they worked in was fit for

the future and ask: *“Am I, as an individual, fit for the future? Am I able to have the right conversations with people? Am I able to work in a positive way with other professionals so that our organisations can really make a difference?”*

The conference heard about the new role of practice-based pharmacists and the GP extensivist, how ambulance services can help prevent emergency admissions, how psychologists can help patients cope better with their respiratory disease and how the fire brigade can help prevent oxygen fires.

Three films featuring patients' experiences of living with bronchiectasis, asthma and COPD, provided by conference partner the British Lung Foundation (BLF), gave delegates moving accounts of the reality of the daily challenges faced by patients of living with their diseases. Alex Supple, a teenager with asthma, gave delegates an insight into the challenges his age group faces in coping with respiratory disease.

In a discussion following the films, Stephen Wiberley, Chief Operating Officer of the BLF, said *“What we need to do is help patients take control and help them to look after themselves. We heard Jude, the patient in the film, talking about what was important to her. The phrase she used was – ‘listen to me, let me do my own exercise regime’. She wanted to take control of her condition.”*

“What we need to do is to work politically to increase the profile of respiratory disease, to ensure at a system level that people can access long-term exercise opportunities or pulmonary rehabilitation and at individual discussion level to encourage the healthcare professional and the patient to engage in shared decision-making to help the patient get the information they need and that they are able

to develop the skills and confidence to take control of their disease themselves."

Dr Samantha Walker, Deputy Chief Executive and Executive Director for Research and Policy at Asthma UK, said patient organisations and technology could help educate patients about self-management. *"Do it in partnership. Send your patients to the BLF or Asthma UK and tell them: 'learn as much as you can about self-management and I'm here to support you when you need it'. There is community online support and on people's phones to help them and if they do this they are likely to visit the surgery less often."*

Monica Fletcher, Chief Executive of Education for Health, said that patient activation measures, the concept of the patient managing their own health, had been used in the USA for 15 years and provided simple ways for patients to decide for themselves how far they were engaged in behaviour change cycles. This could then be personalised and support offered to maintain that behaviour change.

"This is something that I hope will transform the NHS. Helping people to manage their disease well is about looking at the holistic issues," she said.

Interactive workshops



A series of interactive workshops were run in conjunction with Education for Health providing updates in practical skills.

Templates in respiratory care

During this session there were two brief presentations arguing the case for and against using templates in the consultation, followed by a lively discussion.

Carol Stonham, nurse practitioner and PCRS-UK nurse lead, who led the session with Anne Rodman, advanced nurse practitioner, said: *"We talked about whether you should use templates to guide the consultation and asked: 'do they lead to a tick box mentality; if you are a novice can templates help with your educational needs and are they useful for*

collecting data for audit purposes?' We also discussed how templates impact on patients. A research nurse told us that a patient had described to her that templates made her feel as though she was on bail, reporting to the police while having a COPD check."

"We concluded that templates are useful, they're here to stay, they speed up data entry, but that it is our all-round consultation skills that are important and templates should only be used as an aid and not become the focus of a consultation."

"It's good to hear that people have similar issues to me and to hear what other people are doing around the country. This conference is always stimulating and I always go back to my practice feeling inspired"

Fiona, practice nurse

Chest examination for nurses and allied health professionals

This workshop provided an introduction to chest examination with a focus on respiratory disease.

The session covered the principles of chest examination, ensuring careful history taking to obtain a provisional diagnosis. It highlighted how the chest examination can assist in supporting or refuting this provisional diagnosis. Examples of chest sounds were heard linked to some common diagnoses.

Key learning points were:

- A structured approach to chest examinations is crucial – a useful acronym to use is HIPPO: History, Inspection, Palpation, Percussion and Auscultation.
- Findings must be recorded – both positive and negative.
- As with any new skill, practice is vital to become accomplished. Attendees were encouraged to work with a mentor in practice.

Simplifying spirometry interpretation

The session covered interpretation of spirom-

etry results and was directed at healthcare professionals who are actively involved in performing spirometry.

The key messages were:

- Spirometry does not make a diagnosis and must be interpreted in the light of the clinical history.
- A systematic approach to interpretation is essential to ensure nothing is omitted.
- Reproducibility and technical acceptability of the trace must be assured before moving on to interpret the result.

Helping patients live with breathlessness

Top tips:

- Positions of ease (such as 'forward lean sitting') can help to reduce breathlessness.
- Breathing control exercises help people feel more in control of symptoms.
- Using a hand-held fan can help reduce symptoms or sitting by an open window/door to create air movement across the face.
- A 'square breathing' approach not only regulates breathing but also acts as a distraction method.
- Simple techniques can be used to clear sputum from the chest.

Sally King, physiotherapist and clinical lead for Respiratory Services, Gloucestershire Care Services NHS Trust, who led the session, said: *"Following this session a GP said he was so enthused about the potential impact of these non-pharmacological interventions that he was planning to go away and get some additional training for his practice nurses in order to give them some additional tools to support their patients."*

"Had fabulous time #pcrsuk2016 Knowledge expanded every minute of each session. Can't wait to disseminate to colleagues"

Tweet from Hayley

Clinical symposia and service development

The value of exercise

Dr William Bird, a GP with a special interest in the promotion of physical activity, explained that physical activity can help prevent and improve symptoms of 'at least 23 long-term conditions, including respiratory disease'. COPD patients who walk regularly are 50% less likely to be admitted; however, healthcare professionals should be aware that most patients with respiratory conditions fear the breathlessness associated with exercise.

How to become an 'active' practice:

- The primary care team should discuss exercise at every consultation and create a culture of promoting exercise.
- All staff should be trained on the health benefits of physical activity and set an example by being active themselves.
- Physical activity should be included in all long-term condition clinical pathways.
- Physical activity data should be routinely collected from patients.
- Routinely give brief advice on the benefits of exercise to patients and document it.
- Ensure patients are signposted to external activities.
- Organise a health walk every week from the health centre led by staff.
- Put up posters and leaflets promoting the benefits of exercise in the waiting room.
- <http://prescription4exercise.com> is a useful source of information.

Monica Fletcher, Chief Executive of Education for Health, who chaired the session, said: "The take-home message from Dr Bird was that we need to normalise physical activity and that being active should not be an end in itself but a means to an end so that it becomes sustainable and something that we do in our daily lives. He explained how this concept is, for example, enshrined in Green Gyms which he set up to promote physical activity by encouraging people to volunteer to work on environmental or conservation projects. He also urged us as healthcare professionals to buy in to exercise and to lead by example. This was an inspirational session."

"All the presentations have been really interesting and very relevant which is fabulous. The topics reinforce current practice and also make me think a bit deeper about the way I work and how I deliver the service I do, it's really empowering. I have picked up lots of ideas to take back to my community team"

Lisa, respiratory specialist nurse

Urgent and emergency care

Andy Collen, Consultant Paramedic and Head of Clinical Development for South East Coast Ambulance Service NHS Foundation Trust, explained the role his service plays in reducing avoidable hospital admissions for respiratory conditions.

Key points:

- GP practices need to understand why patients with chronic respiratory disease call 999 and how ambulance services respond to breathing difficulties.
- Sharing advanced care plans helps to avoid admissions; there needs to be electronic care plan sharing.
- Ambulance services can signpost patients back to care teams following 999 calls; paramedic acute respiratory assessments must be trusted.
- Respiratory networks should consider ensuring paramedics can access study days, clinical reference groups, contribute to audit and have shadowing opportunities.

"This is a great conference for keeping up-to-date and consolidating what you know about respiratory medicine. The speakers are well informed, there are lots of data and research and key messages to take home, delivered in a friendly and at times entertaining manner"

Richard, GP with an interest in respiratory medicine

- Supporting ambulance services to develop oxygen titration protocols is a key strand in avoiding admission by hypercapnic respiratory failure.

Sustainable respiratory services through workforce transformation

- The role of pharmacists in general practice: Sanjay Tanna, a general practice-based pharmacist who runs asthma and COPD clinics, explained how this new and emerging role could benefit general practice. Deirdre Siddaway, a respiratory specialist nurse, who chaired this session said: "This new breed of pharmacists are really going to help us with the holistic management of not just our respiratory patients but looking at the patient as a whole by thinking about all the other comorbidities they may have. Their role will be to focus on more efficient use of medicines, they will increase consultation capacity for overall disease management and also have a role in overseeing and improving systems for medicines management."
- The role of psychologists in general practice: Dr Jane Hutton, Consultant Clinical Psychologist in Psychological Medicine, King's College Hospital and Dr Danny O'Toole, Principal Clinical Psychologist for the Imperial College Healthcare NHS Trust Community Cardiology Respiratory Service, explained how psychology can help in the daily management of patients. They explained that psychological interventions can help patients with respiratory conditions to achieve behaviour change, a reduction of anxiety and depression, or help them come to terms with a diagnosis of a long-term condition and their experience of breathlessness. This not only benefits the patient but also saves the NHS money – for example, by reducing hospital bed days, reducing the use of both primary and secondary care services and by helping patients to complete pulmonary rehabilitation courses.

“ The conference has been very positive with really good speakers and we have had presentations from different standpoints with more than one argument, which gives a lot of food for thought. I have picked up a huge variety of ideas for audit or small projects from the abstracts in the research stream ”

Katherine, community matron

Promoting early and accurate diagnosis

Dr Graham Burns, Consultant Physician and Honorary Senior Lecturer at the Royal Victoria Infirmary and Newcastle University, explained how a peripatetic spirometry screening service that he piloted in GP surgeries improved the quality of diagnostic spirometry.

Conducted by a lung physiologist, the service picked up a lot of new undiagnosed patients, found that some patients had asthma rather than COPD and one case of asbestos-related pleural disease. A large number of patients diagnosed with COPD did not have COPD at all, some patients had nothing wrong with them and 90% of patients had their diagnosis or treatment changed.

Accurate diagnoses meant more inhalers were prescribed but, equally, savings of £9,000 were achieved from stopping drugs that were not needed and a further £16,000 was saved from a reduction in exacerbations and hospital admissions.

“ Getting the diagnosis right not only improves quality of life for the patient but also achieves useful financial savings for the NHS as well,” he said.

Respiratory disease in adolescence

Dr Louise Fleming, Clinical Senior Lecturer in Respiratory Paediatrics, National Heart and Lung Institute, said teenage years are a time of great change which present unique challenges and opportunities, particularly around risk-taking behaviour, adherence to medica-

tion and smoking. Teenagers should be equipped and empowered to manage their asthma with appropriate support. “It is vital that we listen to young people and ensure their voice is heard,” she said.

When treating teenagers, healthcare practitioners need to

- Respect privacy, confidentiality
- Address the young person
- Involve them in decision-making/consent
- Give the young person the opportunity to have time alone in the consultation
- Promote self-advocacy versus parental/doctor advocacy
- Understand the teenager’s health needs.

Alex Supple, a teenager with asthma, who talked in the session said:

- Talk to teenagers about their inhalers and living with asthma as a teenager.
- Tell teenagers stories about children dying – drive home that this is what can happen.
- It’s common for teenagers not to take their medicines – they forget.
- Encourage schools to have salbutamol kits – children forget to bring their own inhalers to school.

Living and dying with progressive lung disease

Dr Elin Roddy, Consultant Physician and Lead Clinician for End of Life Care at the Royal Shrewsbury Hospital, said advanced care planning can be difficult in respiratory disease and we all need to get better at it.

Key points:

- Patients with respiratory conditions are much more likely to die in hospital than at home or in a hospice and are much less likely than those with cancer to access palliative care.
- There are lots of missed opportunities.
- Difficulty in prognostication and unpredictability of COPD should not be seen as barriers to appropriate care and support in advanced disease.
- Care and support should be person-centred, driven by self-identified support needs.
- Collaboration between primary, second-

ary and tertiary care and across professional hierarchies is critical.

- Patients with lung disease may have faced disadvantage and discrimination throughout their lives; they shouldn’t face it at the end too.

Therapeutic options to reduce tobacco dependency

Darush Attar, Respiratory Lead Pharmacist Barnet CCG and public health trainer, said healthcare professionals needed to medicalise the approach to reducing tobacco dependency by encouraging patients to use the many different forms of smoking cessation therapy available.

- Use all the tools available including a carbon monoxide monitor and the different forms of smoking cessation therapy.
- Pharmacotherapy plus behavioural support is the most effective treatment.
- The EAGLES study now allows us to be confident that mental illness should not be a barrier to the prescribing of varenicline and, in so doing, ensures optimal treatment for tobacco dependency. [www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)30272-0/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)30272-0/abstract)
- Be aware of the effects of nicotine withdrawal – under-dosing with nicotine replacement therapy can be a problem.
- The first licensed e-cigarette will be available in 2017. Stop smoking services should be open to e-cigarette use in people keen to try them to help them to quit. Guidance is available at: www.ncsct.co.uk/publication_electronic_cigarette_briefing.php

“ I keep an ‘ideas page’ in my notebook and add to it whenever I hear about something I could implement at work. I do this because the content at this conference is so full of practical stuff that is really relevant to my job ”

Personalising care for the breathless patient

The Living with Breathlessness Study is a programme of work involving 500 patients with COPD which provides new evidence on the care needs and preferences of patients with COPD and their informal carers. Completed in 2015, the study was conducted by a multi-disciplinary team in the Primary Care Unit at the University of Cambridge.

Research Lead, Dr Morag Farquhar, set out the six key recommendations from the study, explaining that they all had patient-centred care at their heart:

- Stop focusing on the challenge of prognosis and unpredictability of trajectories as barriers to meeting needs.
- Change targets to incentivise person-centred care within existing services.
- Enable identification of patient support needs and the appropriate response (through evidence-based tools and approaches).
- Identify and support patients' informal carers (through evidence-based tools and approaches).

- Identify and respond to psychological morbidity in patients and informal carers.
- Change societal attitudes and understandings of COPD, breathlessness, palliative care and informal care support.

Holistic management of chronic breathlessness

Miriam Johnson, Professor of Palliative Medicine, Hull York Medical School, explained how holistic management of breathlessness stems from holistic assessment.

Key points:

- Breathlessness is not just a signpost to diagnosis – assess and treat it in its own right.
- Base assessment and management on the model of 'breathing, thinking and functioning'.
- Evidence-based non-drug and drug interventions can modulate the perception of breathlessness and help to improve self-efficacy and re-conditioning.
- Cognitive approaches can modify the emotional response to breathlessness.

- Exercise and other ways to maximise function:

- o maintain quality of life
- o reduce social isolation
- o improve breathlessness.

Rising awareness that tobacco kills – death certification

Dr Julianne Kause, Lead Consultant for out of hours care and seven day services, University Hospital Southampton NHS Foundation Trust, explained the importance of introducing lifestyle causes such as tobacco, obesity and alcohol in death certificates:

- It leads to widespread acceptance of these facts.
- It results in knowledge dissemination amongst doctors and is an opportunity to influence future professional and personal behaviour.
- It results in acknowledgement by the bereaved and is an opportunity to influence their behaviour.
- It improves the quality of death certification.
- It improves the accuracy of information.

PCRS-UK 2016 conference winning abstracts



Fran Robinson reports on the winning abstracts presented at the PCRS-UK National Conference

The research stream at the annual PCRS-UK conference has gone from strength to strength. This year there were a record number of abstract submissions and presentations – 64 across both 'research' and 'best practice' themes. Prizes were awarded for the best abstracts in each category.

Dr Paul Stephenson and Dr Helen Ashdown, who led the judging of the abstracts, said: "We were thrilled with the exceptionally high quality of the abstracts, presentations and audience interaction at the research sessions, including the poster walk-arounds, which were new for this year."

"Abstracts were sent out for scoring to a panel of 5–6 peer reviewers (to whom we are very grateful for their input) and the two winning abstracts were selected from those which scored highest in the peer review process, as well as on the quality of the presentation given at the conference."

The winning Research abstract

The 'blue' colour convention for inhaled reliever medications is important

This survey conducted by members of the UK Inhaler Group (UKIG) identified that the 'blue' colour convention for inhaled reliever medications is still important and that straying away from this would be a potential patient safety issue.

In many countries short-acting beta-2-agonist inhalers, known as 'reliever' medication by patients and healthcare professionals, have traditionally been coloured blue. However, with a rapidly changing market for inhaled therapy for COPD and asthma and a growing number of devices, there has been concern that this is resulting in the erosion of traditional colour conventions. This could cause confusion among both patients and healthcare professionals about the role of different therapies.

UKIG carried out a large online survey of patients and healthcare professionals to assess the importance of inhaler colour and to determine whether there was a requirement to formalise colour schemes.

The results

The survey confirmed the importance of the term 'blue inhaler':

- Only 11.3% of patients never referred to the colour when referring to their inhaler.
- 95% of healthcare professionals felt colour conventions were important when referring to reliever medication.
- Healthcare professionals appear to refer to inhalers mainly by colour when talking to patients.

UKIG conclude that the descriptor of a 'blue inhaler' is important to both patients and healthcare professionals. They say these results add to the debate about the need to formalise the colour coding of inhaled therapies, in particular using the colour blue for inhalers for rapid relief of symptoms. Formalising this concept may contribute to patient safety. Their survey should provide impetus for all interested parties to discuss and agree a formal industry-wide approach to colour coding of inhaled therapies for the benefit of patients, carers and healthcare professionals.

Monica Fletcher, Chief Executive of Education for Health, Chair of UKIG and lead author of the abstract, said: *"I was delighted to win this prize. This has been a long journey for me and my co-authors who are all members of UKIG. The Group exists to ensure we get best value out of inhaled medications and we do this through education of both healthcare professionals and patients, advocacy activities and awareness raising. We believe that this piece of research will contribute to all three of these objectives and has the potential to have an impact on patient safety. We are therefore really grateful for the additional impetus that winning this award will give to the dissemination of our work."*

The full manuscript has been published in *npj Primary Care Respiratory Medicine*. UKIG and their member organisations, which include PCRS-UK and Education for Health, now plan to cascade the findings to the medical and non-medical press, all relevant pharmaceutical companies and regulators.

Monica said: *"A standardised colour convention for all inhalers is difficult now as there are so many types and combinations of medications. However, it would be possible to have a colour coding system of some kind which could help to identify the compounds within the inhalers. The blue inhaler remains a commonly used term in the UK and has the potential to save lives in an acute asthma attack."*

The judges said: *"This abstract demonstrates the value of rigorous research in answering questions which can then help shape future policy decisions of relevance in day-to-day practice."*

The winning Best Practice abstract

Integrated case finding project to improve diagnosis of the breathless patient

This project involved identifying undiagnosed patients with breathlessness symptoms in primary care in the Portsmouth area in order to improve their care.

The rationale for the initiative was that many patients with breathlessness lack a correct diagnosis, yet the condition results in more than one in four acute hospital admissions. Breathlessness is overlooked as a medical condition and has no core funding.

Jayne Longstaff and her team used the GRASP suite of case-finding tools (<https://www.nottingham.ac.uk/primis/tools-audits/tools-audits/grasp-suite/grasp-copd.aspx>) to identify patients with breathlessness symptoms in primary care who lacked a diagnosis. These patients were then invited to attend 'carousel' practice clinics run by specialist secondary care multidisciplinary teams working in partnership with primary healthcare professionals. Patients were given same-day accurate diagnoses and education about their condition.

The results

Out of 42 patients reviewed:

- 97.2% were given a confirmed respiratory diagnosis.
- There was an 89% reduction in exacerbations.
- There was a 100% reduction in hospital admissions, out of hours and emergency department visits.

- Patients gained greater confidence in managing their symptoms.
- All the patients said they would recommend the clinics.

The lessons learned:

- Case finding by symptoms rather than condition yields a high rate of diagnosis and health benefits for patients.
- The initiative saved money – the cost per patient of running a specialist clinic in primary care was £142 compared with £242 for a respiratory multi-professional outpatient appointment.
- The skills of primary care healthcare professionals in accurately diagnosing patients with breathlessness symptoms were improved after working alongside the specialist multidisciplinary teams.

The work was funded by NHS IQ and supported by the Wessex Academic Health Science Network.

Jayne, a Respiratory Quality Improvement Nurse employed by Portsmouth Hospital Trust and author of the abstract, said: *"I am delighted to win this prize, not just for me but for the team, because it was a team effort identifying the undiagnosed patients in primary care. This work was about bringing the expertise of secondary care out into primary care to improve the care of patients and also to educate and improve the skills of primary care healthcare professionals in diagnosing patients with symptoms of breathlessness."*

This work is now being incorporated into an initiative known as Mission ABC (Asthma, Breathlessness and COPD) to identify patients with breathlessness symptoms who have poorly controlled asthma or COPD and undiagnosed patients. It is being rolled out across the entire South East Hampshire CCG area.

The judges said: *"This is a leading example of some of the high quality initiatives being developed across the UK to improve patient care. It also demonstrates the importance of evaluating the effectiveness, cost and acceptability to patients and professionals of initiatives like this. Sharing such research and initiatives in the forum of the PCRS-UK conference is a key part of feedback and dissemination, which helps improve practice at both a local and national level."*

A primary care perspective on the new British asthma guideline



Bronwen Thompson discusses the revisions to the BTS/SIGN guideline with **Dr Hilary Pinnock**

This guideline update¹ is significant. It builds on previous asthma guidelines so is an evolution rather than a revolution but, importantly, it focuses on being relevant and practical to implement in primary care. This is highly appropriate because the key chapters which have been updated are those on diagnosis and pharmacological treatment.

Diagnosing asthma

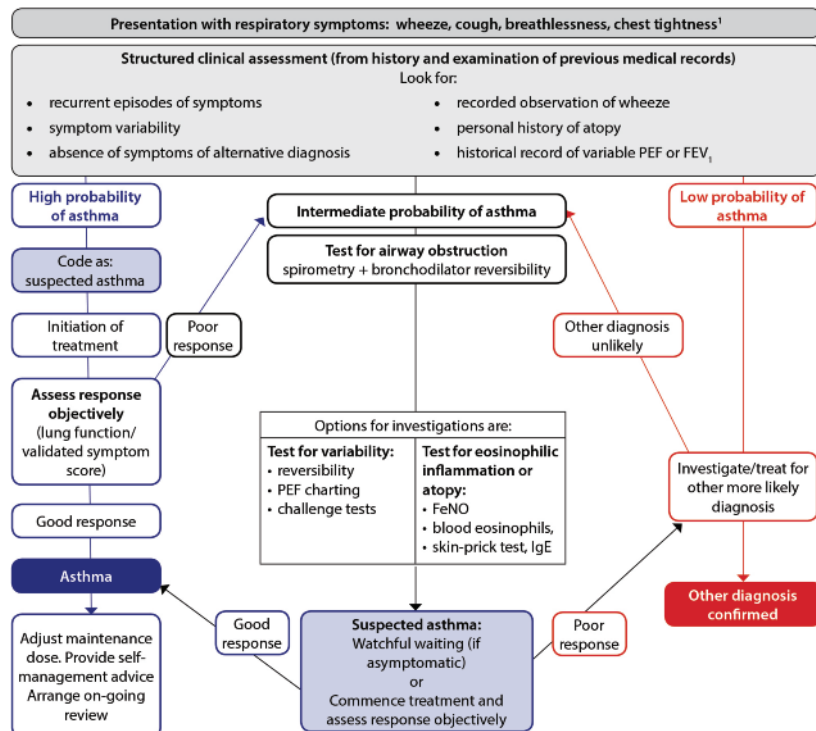
Diagnosing asthma is not straightforward. Asthma is a condition that fluctuates over time, so it may take time to make an accurate diagnosis.



Key messages about diagnosis

- Diagnosis of asthma is based on a structured clinical assessment informed by objective tests for variable airway obstruction or airway inflammation and supported or refuted by monitored initiation of treatment.
- There is no single conclusive test to confirm asthma: all tests have false positive and false negatives.
- Use time to help you make the diagnosis comparing signs and tests when the patient is symptomatic with results when they are asymptomatic – and use the READ code for 'suspected asthma' until a diagnosis is confirmed.
- Keep good records while exploring the possibility of asthma – you may need to review the basis on which a diagnosis was made in the future.

Figure 1: Diagnostic algorithm



¹ In children under 5 years and others unable to undertake spirometry in whom there is a high or intermediate probability of asthma, the options are monitored initiation of treatment or watchful waiting according to the assessed probability of asthma.

Reproduced with permission from the British Guideline on the Management of Asthma 2016.

(See page 54 for more information on the diagnostic tests for asthma)

What's new/different on diagnosis in this guideline update?

- A new schematic to illustrate the diagnosis pathway according to probability (Figure 1, p. 29).
- A comprehensive table comparing different objective tests (Table 1, pp.18–20).
- Introduction of the concept of an 'initial structured clinical assessment' (3.3.1, p.21).
- Introduction of the concept of a 'monitored initiation of therapy' (Table 3, p. 24).
- Diagnosis in children and adults is considered together, although there are still separate tables for alternative diagnoses.

There is no single test that can conclusively determine whether a cluster of symptoms is asthma (or not), so the guideline recommends an initial assessment of the probability of asthma based on a 'structured clinical assessment'. This is a comprehensive review of the full patient history and previous consultations, alongside the symptoms described by the patient. Depending on whether the patient is considered to have a high, medium or low probability of asthma, a set of further investigations will be appropriate. Because it may take several weeks or months to confirm a diagnosis, the READ code 'suspected asthma' should be used in the interim. High quality record keeping is critical in order that the basis for a diagnosis can be checked in the future.

The guideline emphasises that diagnostic tests form only one part of an asthma diagnosis and some tests may give false negatives (e.g. spirometry, peak flows), especially when the patient is asymptomatic. However, quality assured spirometry is regarded as the pivotal test for demonstrating airway obstruction in adults and children old enough to perform the test. The definition of obstruction is based on the FEV₁/FVC ratio. This ratio varies with age; using the lower limit of normal (as opposed to a fixed ratio of 70%) will avoid under-diagnosis in children and over-diagnosis in the elderly. A range of other investigations may be used to demonstrate variability and/or inflammatory/atopic status in order to help confirm or refute the diagnosis.

The draft NICE guideline on asthma diagnosis and monitoring in 2015 raised the profile of fractional exhaled nitric oxide (FeNO) as a potentially mainstream test for asthma. The British Asthma Guideline positions FeNO as a useful approach to detecting eosinophilic inflammation which provides supportive (but not conclusive) evidence of a diagnosis of asthma. Raised FeNO levels indicate steroid responsiveness, and levels fall after treatment with steroids. Blood eosinophila, raised allergen-specific IgE and a positive skin prick test indicate atopic status and are also associated with asthma. Importantly, normal spirometry does not exclude asthma; indeed, only a minority of people with asthma in primary care will have obstructive spirometry and reversibility at the time when it is tested. There are a number of confounders which may influence FeNO results but, unlike lung function, may still be positive in an asymptomatic patient. A comprehensive table detailing the sensitivities and specificities of all diagnostic tests is included (Table 1 see page 54).

The concept of a 'trial of therapy' has been developed into a 'monitored initiation of therapy' for people in whom there is a high probability of asthma.

Pharmacological treatment

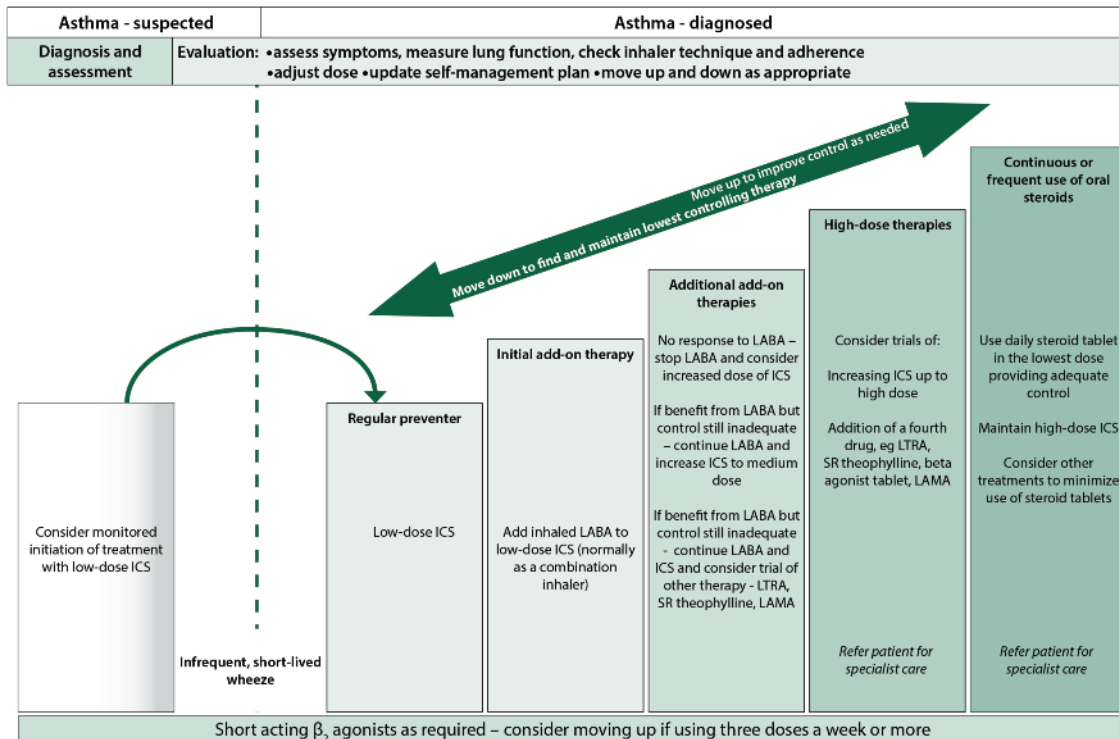
Pharmacological treatment remains the mainstay of asthma treatment and there have been some important changes to treatment options since the last guideline update in 2014. There are some significant changes to the familiar 'steps' of asthma management.

The numbering of steps has been replaced by descriptions. One of the reasons for this is that, due to important changes to the recommendations on early steps, it could cause confusion if we continue to refer to them as Steps 1–3.

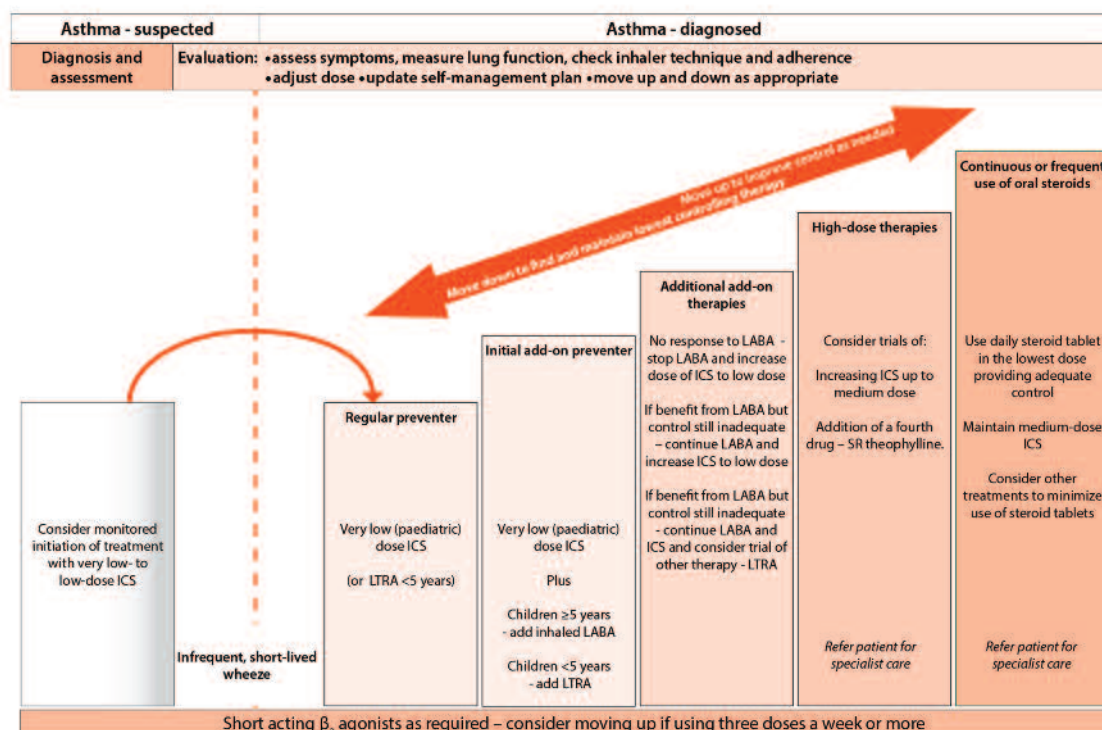
- In all but a few patients, preventive therapy with low-dose inhaled corticosteroids (ICS) should be initiated from diagnosis. Important lessons from the National Review of Asthma Deaths about the overuse of short-acting bronchodilators have been taken on board. So most patients will now start on the step to be known as 'regular inhaled preventer'. If control is not achieved at any step, patients move through 'initial add-on therapy', 'additional add-on therapies', 'high dose therapies', and 'continuous or frequent use of oral steroids' until they are controlled.
- Short-acting beta-agonist (SABAs) should be prescribed for anyone with symptomatic asthma for symptom relief. However, monotherapy with SABAs is now recommended only for those with infrequent short-lived wheeze (typically occasional exercise-induced symptoms lasting no more than an hour or two). Using more than three doses of SABA a week should prompt a review and consideration of moving up to the next step of therapy. Anyone prescribed more than one SABA inhaler device a month should be identified and have their asthma assessed urgently.
- The former Step 3 has been divided into 'initial add-on therapy' and 'additional add-on therapies'. 'Initial add-on therapy' is the ad-

Key messages about asthma prescribing

- Preventive treatment should be the basis for asthma management in almost all people with asthma.
- The guidance on preventer medication has been clarified and the old 'step 3' divided into two options to emphasise that the evidence for adding a LABA takes precedence over either options (especially in adults).
- The numbered steps have been replaced with descriptions.
- Inhaled steroids have been categorised into bands by strength – very low (children), low, medium, high.
- Inhalers should be prescribed by brand name to ensure patients receive the right inhaler.
- Referral for specialist opinion is recommended if the patient is on 'high dose therapies' or 'continuous or frequent use of oral steroids'.

Figure 2: Summary of management in adults


Reproduced with permission from the British Guideline on the Management of Asthma 2016.

Figure 3: Summary of management in children


Reproduced with permission from the British Guideline on the Management of Asthma 2016.

What's new/different in pharmacological management

- Numbered steps have been removed in favour of descriptions.
- Former Step 1 – SABAs only – has more or less gone in favour of immediate preventer treatment.
- More than one SABA inhaler a month should trigger urgent review and action.
- Former Step 3 has now been divided into two – 'initial add-on therapy' and 'additional add-on therapies'.
- ICS are no longer compared with BDP as reference product for strength. Instead, all ICS are categorised into bands (very low, low, medium and high) to enable comparison.
- Recommendation that all patients on high dose therapies and continuous or frequent use of oral steroids are referred to specialist care (adults and children).
- Inhaler prescriptions should be written by brand name to avoid patients being given an inhaler which they have not been trained to use.

dition of a long-acting beta2 agonist (LABA) to the low-dose ICS, usually as a combination to prevent inadvertent LABA monotherapy. If this is ineffective, the LABA should be discontinued, diagnosis confirmed, adherence and inhaler technique addressed before additional options are considered (e.g. increasing ICS dose, trials of alternative add-on therapy). In young children in whom the evidence for LABA is less clear, leukotriene receptor antagonists (LTRA) are an early treatment option.

Previous versions of the guideline have used beclometasone (BDP) as a reference ICS against which other steroids are compared. However, the development of an increasing range of ICS and inhaler devices means that this comparison is no longer helpful. All ICS are now banded into very low, low, medium or high dose categories to enable comparison and to determine equivalence. The new banding of ICS by strength should be more accurate and more straightforward in practice. Two tables indicate the licensed doses of all ICS for adults and children (Tables 9 and 10).

The guideline update recommends that both children and adults on high dose therapies and continuous or frequent use of oral steroids are referred for specialist care. This is clearly indicated in the Figures showing the summaries of stepwise management.

For the first time, under 'Key recommendations for implementation', the guideline highlights that inhalers should be written by brand name to avoid a patient being dispensed a device which they have not used before. This is particularly important now that increasingly familiar compounds are being made available in a range of inhaler devices. They also emphasise that patients should receive training in use of a particular device and be able to demonstrate that they can use it correctly before it is prescribed.

Other changes to the guidelines include the sections on adherence and telehealth.

What you can do

- **Ask yourself:** how are you demonstrating a quality diagnosis of asthma, have you worked towards the diagnosis in a systematic way, have you recorded the reasons why you made this diagnosis clearly so that you feel confident in the diagnosis, does your patient know and understand the diagnosis and will the healthcare practitioner coming after you also feel confident about how you made a diagnosis when they have read your notes?
- **If you are the asthma lead for your practice:** make sure all your colleagues are aware of the new guidance.

Adherence – assessing adherence is an important component of asthma reviews and non-adherence should always be considered as a (common) cause of poor control before stepping up treatment. In this update, guidance is given on the questions to ask to get an accurate view of adherence, using prescribing records to assess adherence and tailored suggestions for ways of encouraging improved adherence.

Telehealthcare – may be used to support self-management, facilitate monitoring and 'games' may influence behaviour change. The guideline also highlights how remote consultations (phone and e-mail) could provide convenient care and computerised decision support has potential. The evidence suggests that these technological options deliver similar outcomes to traditional care and may be considered as an option according to the clinical context and preferences of the patient and professional.

Conclusion

This update has real value for primary care where the majority of diagnosis and prescribing takes place. The diagnosis chapter provides a pragmatic, structured approach to suspecting and confirming a diagnosis of asthma. The chapter on prescribing highlights the important role of preventive treatments and gives greater guidance on the sequence of treatments and when to refer for specialist opinion and support. Accurate diagnosis, appropriate use of effective medication and supported self-management can help to reduce the considerable morbidity and mortality still associated with asthma.

Acknowledgements

PCRS-UK wishes to thank the British Thoracic Society for permission to reproduce Figures 1-3 and the table of diagnostic tests from the British Guideline on the Management of Asthma 2016

References

1. SIGN 153: British guideline on the management of asthma. National Clinical Guideline. September 2016. <https://www.brit-thoracic.org.uk/standards-of-care/guidelines/btssign-british-guideline-on-the-management-of-asthma/> (last accessed 22 November 2016).

Further Information

- a. Pinnock H. A structured approach is key to diagnosing asthma. *Guidelines in Practice* 2016;**19**(11):13-31. Available at: www.guidelinesinpractice.co.uk/a-structured-approach-is-key-to-diagnosing-asthma
- b. Pinnock H. Guidelines-BTS/SIGN British guideline on the management of asthma: 2016 update (video). 2016. Available at: www.guidelines.co.uk/bts-sign/asthma

Time to take a breath – COPD audit results from primary care

Bronwen Thompson in discussion with Noel Baxter, Clinical Lead, National COPD Audit Programme Primary Care Workstream; Carol Stonham, PCRS-UK representative on Primary Care Workstream Group and Kevin Gruffydd Jones, RCGP representative on Primary Care Workstream Group

The first results from the National COPD Audit Programme in primary care were published in October. In a report entitled 'Time to take a breath', a snapshot of the way that COPD is being managed in Wales evaluated the clinical effectiveness of COPD care in the general practice setting.

“There is a wealth of material in this report that is directly relevant to all who provide care to COPD patients. It highlights many areas for improvement and I would urge every primary care professional to review its findings and reflect on what they could do to improve care in their own practice or locality. The report won't make a difference – it is only if clinicians pick up on the learning from it and make changes to their current practice that patients will be managed better and have more positive outcomes,” says Dr Noel Baxter, the Primary Care Workstream Lead for the RCP National COPD Audit – and also PCRS-UK Executive Chair.

Background to the audit

A national audit for COPD commenced in England and Wales in 2013. This was designed to collect data from secondary care, primary care and pulmonary rehabilitation services in order to monitor the quality of care and adoption of best practice guidelines across the two countries. To date, reports have been published on the organisation of care in secondary care and pulmonary rehabilitation and the outcomes of care in secondary care and pulmonary rehabilitation. Important lessons have emerged from these reports which highlight areas for improvement both within those sectors but also across the system. Primary care, community care and commissioners should review the findings of all these reports to explore the part they could play in driving change across the local health economy.

National audits have traditionally been focused on data collection in secondary care, but it has been increasingly recognised that, for conditions which are largely managed in primary care, measuring the quality of care there becomes relevant and important. The national diabetes audit blazed the trail with data collection in primary care, and COPD was to follow suit. Unfortunately there have been significant challenges and delays with the audit due to increasing limitations on data extraction from practices in England. At present it has not been possible to carry out the audit in England beyond publicly available QOF data, but it is hoped that this nationally important work can be rolled out to England in the future. It is fortunate that Wales has not had the same issues, so the collection of data from primary care has been able to proceed.

Practices in Wales were invited to take part in the audit in early 2016, and 60% of practices signed up. 280 practices provided valuable information about the care of 48,029 people living with COPD in Wales through automatic data downloads from the practice computer systems. Data extracted from computers were compared with data collected from QOF to examine the degree of consistency or disparity.

Summary of key findings

Poor standards of diagnosis or inconsistent coding?

- Only 20% of people on the COPD registers had an electronic record of the post-bronchodilator FEV₁/FVC ratio, which is necessary for diagnosing COPD.
- 63% of patients on the COPD register had a record of an X-ray around the time of diagnosis, which NICE recommends for all COPD diagnoses to exclude co-morbidities.
- There is considerable variation in data accuracy and coding across practices, particularly for diagnosis. In people who had a record of post-bronchodilator spirometry, only 27% had a value that was consistent with a diagnosis of COPD. Therefore, overall, the data extraction from Wales provided confidence in the quality of COPD diagnosis in only 14% of people on the COPD register. This was in sharp contrast to the QOF data in Wales which shows practices recorded confidence in diagnosis in over 90% of cases. Dr Noel Baxter commented: “Low recording rates could reflect lower

standards of care, but may also reflect confusion about appropriate coding. It was hard to tease out exactly what the issue was for some questions." In conclusion, at best 42% of the COPD registered population and at worst 86% will require diagnostic re-evaluation to confirm COPD.

Under-use of high value interventions means patients are missing out on optimal care

Many highly effective treatments supported by good evidence are available to manage COPD. Many of these are being used, but there is also evidence that effective interventions are being under-used and harmful or ineffective treatments over-used.

- In COPD patients recorded as being current smokers, almost 75% had been referred to stop smoking service. However, only 10.8% of current smokers had received any pharmacotherapy to help them quit.
- Two-thirds of patients with an MRC breathlessness score making them eligible for pulmonary rehabilitation had never actually been referred to pulmonary rehabilitation.

Discrepancies between coding in notes and QOF results means people with more serious disease may not be getting the care they need

- The number of COPD patients with an MRC breathlessness score recorded in the audit year was 58%. A breathlessness score is important for planning care and for detecting worsening of COPD.
- In only 11% of patients with COPD was an exacerbation coded in 2013–14, which is almost certainly an under-recording. There was wide variation between Health Boards, with the lowest recording 7% versus 14% for the highest.
- Over 15% of COPD patients on COPD registers were exception-reported in QOF.
- Considerable discrepancies emerged between the high level of achievement of regular reviews reported for QOF, while the individual components of a review were not coded in records.
- There is undoubtedly a need for greater clarification about what should be monitored during a routine COPD review and how this should be recorded.

The report makes many recommendations for improving COPD diagnosis and management. These include:

A diagnosis of COPD should be made accurately and early. If the diagnosis is incorrect, any subsequent treatment will be of no value.

- Clinicians to be alert to breathlessness, cough, frequent chest infections as potential early signs of disease and to investigate with quality-assured spirometry.
- Patients with a risk factor and symptoms to be assessed by competent clinicians with appropriate training.
- People at risk of COPD are at risk of lung cancer and a chest X-ray is an essential part of the breathlessness assessment and COPD diagnosis.

People with COPD should be offered interventions according to value-based medicine principles – which include flu vaccination, help to overcome tobacco dependency and pulmonary rehabilitation.

- Tobacco dependence treatment is safe and highly effective but under-used. Health professionals should be trained to assess dependency and offer appropriate intervention.
- Anyone with an MRC breathlessness score of 3 or more should be offered and encouraged to attend pulmonary rehabilitation by their primary care health professional and have timely and easy access to a service.
- Health professionals should be up to date on the inhaler devices available, able to support patients with optimal technique and ensure people are offered optimal and appropriate bronchodilator and inhaled corticosteroid medication, taking into account long-term safety of high dose inhaled steroids.

People with severe disease (categorised according to the extent of airflow limitation) should be identified for optimal therapy. COPD encompasses a broad spectrum of conditions and health status and a personalised approach is essential.

- Long-term oxygen therapy is a life prolonging intervention for people with COPD who have hypoxia. When low oxygen saturation is detected, patients should be referred to a suitable assessment and review service. The use of oxygen should be recorded on patient notes as for any other long-term medication to ensure timely review for assessment of safety and effectiveness.
- People having frequent exacerbations of COPD need to be identified as they are at higher risk of an accelerated decline in their condition and may require specialist review. Recording the 'number of exacerbations in the last year' allows this group to be identified by practices and prioritised.

There should be better coding and recording of COPD consultations, prescribing and referrals.

- Be sure that people with COPD 'know their numbers' (i.e. understand why their spirometry test is consistent with COPD) and are supported to manage their own condition as patient access to personal health records improves and their involvement in maintaining their own health becomes an expected norm.
- Much of the variation seen in the data suggests variance in electronic coding. In order to standardise data entry and promote a systematic approach to care, they recommend developing a template to guide systematic recording of key information.

Carol Stonham commented: *“‘Time to take a breath’ has highlighted the areas of everyday care where primary care can make a difference. Much of it is the day-to-day care – be it diagnosis, annual review or exacerbation – and whilst there are pockets of outstanding care, patients are subjected to too much variability. We all need to look at how the care we offer compares locally and nationally and aspire to be the best.”*

What you can do:

- Examine your practice registers to see how they compare with the data from the audit in Wales. Use this as an opportunity to audit the quality of diagnosis in your local population.
- Focus on diagnostic accuracy, use of high value interventions and whether you have the right data recorded to identify the people with greatest need and highest cost.
- If you don't work in Wales, look out for the RCP Primary Care Workstream second extraction queries in the next *PCRUI* and run them in your own primary care population.



Wales has had a comprehensive Respiratory Delivery Plan in place since early 2014 – the only country in the UK to have a plan covering all of the major respiratory conditions. Importantly, they also have a national group which is overseeing the implementation of this plan – with each of the seven Health Boards also having a local implementation group to ensure that the national plan drives improved care at a local level.

Their first annual report reviewing progress up to the end of 2015 highlighted areas of achievement – e.g. reduction in admissions and read-

missions, but also pointing out the ways in which services needed to improve – reducing smoking rates, uptake of flu vaccinations, better diagnosis. Many of the areas they highlight also feature in the primary care audit report. They therefore have an excellent structure in place in Wales to review the learning from this audit and to drive improvements in care.

It is known from less comprehensive reports and studies from within and outside the UK that Wales is not an outlier in what this audit has found. In November, an additional report was published based on publicly available data from England, such as QOF, so that we now have similar data to examine from across England as well as Wales. Dr Kevin Gruffydd Jones, Clinical Policy Lead for PCRS-UK, recommends that PCRS-UK members not only consider what they can learn from this report but also urge as many colleagues as possible to do likewise.

“This audit report provides the opportunity for health professionals and commissioners – wherever they are in the UK – to challenge themselves about their own approach to the diagnosis and management of COPD. Taking some action on just one or two of the areas for improvement identified here could make a difference to the lives of many patients with COPD.”

Future?

We are aware of several areas in England developing Sustainability and Transformation Plans (STP) which have prioritised respiratory disease. However, to raise the profile of respiratory disease, we plan to develop a short set of key questions based on the COPD audit which we would encourage every STP area to run, to establish how they compare with Wales.

Resources

- ‘Time to take a breath’. National Chronic Obstructive Pulmonary Disease (COPD) Audit Programme: National Primary Care Audit (Wales), 2014-15.
- National COPD audit programme <https://www.rcplondon.ac.uk/projects/national-copd-audit-programme>
- ‘Together for health’. Respiratory annual report, 2015. <http://gov.wales/docs/dhss/publications/160213reporten.pdf>
- ‘Together for health – a respiratory health delivery plan. A delivery plan up to 2017 for the NHS and its partners’. <http://gov.wales/docs/dhss/publications/140429respiratoryen.pdf>

Certification scheme to raise standards of spirometry for respiratory diagnosis



Bronwen Thompson in discussion with Monica Fletcher, Chief Executive, Education for Health and PCRS-UK members Dr Stephen Gaduzo and Judith Lawrence on the new certification scheme which aims to raise standards of spirometry for respiratory diagnosis

It is hard to disagree that making a timely and accurate diagnosis is a critical stage of managing ill health. It is the starting point from which everything else flows. Without a diagnosis, a patient is unlikely to get the care that they need.

So getting the diagnosis right is essential – but we know it is not easy in respiratory disease. There are no definitive tests. Conditions may fluctuate over time. There may be differences between adults and children. It may take weeks or months to see how initial symptoms evolve. Getting a negative response to a test does not mean that the individual doesn't have a respiratory condition. False negatives can be a real confounder.

Spirometry plays an important part in the diagnosis of respiratory disease. The latest update to the BTS/SIGN British Asthma Guideline has confirmed that spirometry is the investigation of choice for identifying airflow obstruction. But it also highlights that training is required to obtain reliable recordings and to interpret the results. Since the Quality and Outcomes Framework (QOF) put spirometry centre stage as a key investigation for COPD, many more practices are providing spirometric testing. However, there is variability in the training that primary care professionals have received, and variation in the quality of spirometry undertaken.

In 2014, an All Party Parliamentary Group inquiry looked at why premature mortality from respiratory disease remained so high and how death rates could be improved. One of its recommendations was that, in order to improve diagnostic accuracy in respiratory disease, a national system of competency assessment in spirometry should be established. At this point a stakeholder group from the respiratory community had been working with NHS England on developing standards for quality-assured diagnostic spirometry, culminating in a publication in 2013.

So the publication this September of 'Improving the quality of diagnostic spirometry in adults: the National Register of certified professionals and operators' marked the next step in working towards that aim – the creation of a National Register to ensure the competence of practitioners in order to improve the diagnosis of respiratory disease. While the Association for Respiratory Technology and Physiology (ARTP) has for some time held a voluntary register of people who undertake training in spirometry, this document now recommends that all healthcare professionals performing and interpreting spirometry

should have their competence assessed so that the National Register becomes a more formal record for patients, employers and commissioners of competent practitioners.

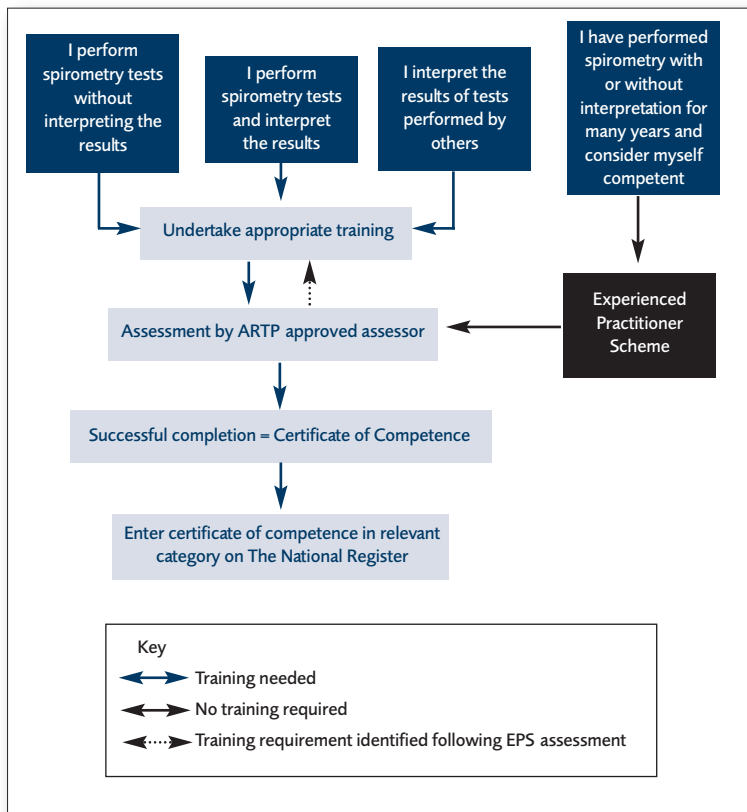
The scheme recognises that different practitioners play different roles in spirometry. Clinicians who rely on colleagues to perform and interpret spirometry but who consider the results of spirometric testing alongside examination of the patient and the history to make a clinical diagnosis are unaffected by the scheme. But those who perform spirometry, or who interpret spirometry, or do both will be expected to have their competence assessed in order to be certified and join the National Register. While the scheme is not strictly mandatory, employers, commissioners and regulators in England increasingly may look to the National Register as the indicator of whether an individual practitioner is competent to be performing or interpreting spirometry. This scheme will be phased in gradually – and by 2021 it is expected that anyone performing or interpreting spirometry in England will be on the National Register.

3 levels of competency assessment:

- **Foundation:** those who have been assessed as competent to perform safe, accurate and reliable spirometry tests without interpretation.
- **Full:** those who have been assessed as competent to perform and interpret spirometry in terms of physiological changes.
- **Interpretation only:** those who have been assessed as competent in interpretation only.

The scheme recognises that some healthcare professionals have been involved with spirometry for many years and need no further training. They can apply to have their competence assessed under the Expert Practitioner Scheme (EPS) – again for performing spirometry only, or interpreting only, or both.

Those practitioners who have received no training will probably want to attend training in order to improve their skills and knowledge before having their competence assessed and being certified as eligible for the National Register. Some may feel rusty and may want to attend a refresher course before being assessed and certified. Others may have



In a nutshell

The certification scheme to raise standards of spirometry for respiratory diagnosis:

- Recognises the distinct and separate skills of performing spirometry, interpreting spirometry and diagnosing respiratory conditions where spirometry results form part of the whole picture.
- Enables practitioners who are experienced and confident in either performing and/or assessing spirometry and consider themselves competent to be assessed and certified through an experienced practitioner scheme.
- Supports practitioners who are less confident about their skills to access the appropriate training.
- Recognises that providing a good diagnostic spirometry service may take different forms in different places and is not prescriptive about the setting in which spirometry takes place.
- Will be phased in gradually up to March 2021.

trained recently but will need to be re-certified. The scheme will require re-certification of all who are on the National Register every three years.

It is important that the scheme is not prescriptive about where a spirometry service takes place or who provides it. It does not dictate the settings or models of spirometry provision. Different models may be appropriate in different localities. It doesn't matter who is performing and interpreting the spirometry or where they work; they need to be on the Register.

The scheme will serve to ensure that patients have access to diagnostic spirometry to a consistent and high standard. This has been developed by the coordinated efforts of the respiratory community, and PCRS-UK has played a leading role in ensuring that the outcome is a pragmatic approach to standardising what is currently a situation marked by variation and inconsistency as a result of evolution over time. Patient and professional groups working alongside NHS England include Association of Respiratory Nurse Specialists, Association for Respiratory Technology and Physiology, Asthma UK, British Lung Foundation, British Thoracic Society, Education for Health and Primary Care Respiratory Society UK.

Useful links

- Improving the quality of diagnostic spirometry in adults: the National Register of certified professionals and operators. <https://www.pcc-cic.org.uk/article/quality-assured-diagnostic-spirometry>
- Quick guide to the diagnosis and management of COPD. <https://pcrs-uk.org/quick-guide-diagnosis-and-management-copd-primary-care>
- Quick guide to the diagnosis and management of asthma. <https://pcrs-uk.org/resource/Guidelines-and-guidance/AQG>

As the majority of spirometry takes place in primary care, this scheme has the potential to make a real difference to the accuracy of diagnosis of respiratory disease across England. We would encourage the respiratory community to champion this scheme as something which raises standards and stimulates practices to ensure that healthcare professionals are competent. Patients deserve an accurate diagnosis so that they can get the treatment they need. Let's help them get it!

What you can do:

- **Employers:** check what is happening in your local system and support your nurses to get the training they need to carry out spirometry in your surgery or more widely so they can take a lead role in your general practice community.
- **Individuals doing spirometry:** check to see whether you need more training or need to be certified then discuss your needs with your employer or primary care organisation.
- **Commissioners:** When writing contracts for services that provide respiratory diagnostics, assure yourselves of the quality control as you would for an imaging or pathology service.

Look out for the pull-out wall chart on spirometry in this edition of PCRU!

The Lay Patient and Carer Reference Group – one year on ...



Bronwen Thompson, Jane Scullion and Noel Baxter

Having set up a Lay Patient and Carer Reference Group (LRG) a year ago, we met again with the group to explore how both PCRS-UK and they have benefited in the first year.

Aims of the LRG:

- Embed a patient-centred approach within the 'corporate consciousness' of PCRS-UK and all its activities.
- Provide a check/balance to ensure PCRS-UK is acting ultimately in patients' best interests and providing public benefit.

The LRG is an advisory group responsible for providing independent advice and feedback to PCRS-UK Executive and Trustees on how well the Society is performing in relation to the above objectives.

We are, after all, seeking to improve the lives of our patients, so being informed by a group that can comment on our priorities and activities is a step in the right direction.

Contribution/involvement of the LRG this year:

- Received all PCRS-UK membership mailings
- Two have attended each PCRS-UK Executive meeting
- Invited to conference
- Ongoing dialogue within the group on email
- Invited to contribute on specific issues

This was our second meeting of the whole group, chaired by Trustee and Respiratory Nurse Consultant Jane Scullion. We sought views on how the group is working and whether we are indeed listening to them and having our activities informed by them. Members of the group have attended our six-monthly Executive Committee meetings and were impressed by the volume of work covered in a day and the liveliness of the discussion. They also reported that they felt able to contribute their views in that forum and felt valued. At various points in the year we

sought input on our activities and had constructive dialogue by email.

Several LRG members attended parts of our conference in 2015 and 2016 and enjoyed the opportunity to hear about the issues that are on the agenda for healthcare professionals. They could see the value that PCRS-UK brings in supporting them with their respiratory knowledge, and how best practice can also be shared through its wider activities.

The group highlighted their interest in the importance of activity and exercise for patients with respiratory issues and recognised that pulmonary rehabilitation is only one part of the solution. They are also very interested in air quality and its impact on people with lung disease. They wished there was a higher profile for the message that there is a lot that can be done to improve the lives of people with respiratory problems, rather than a tendency towards focusing on the problems and difficulties presented by lung disease.

They were particularly interested in hearing more about the role of steroids in lung disease, and consider that patients may not be told enough about the risks of extended usage and of the importance of tapering down

the dose gradually when stopping them. Some of the group were not aware of steroid safety cards, so are now better informed about the cards as a safety measure to inform and protect them.

We are keen to develop the way we collaborate and are exploring options in which the group can contribute in other ways to the organisation's activities, in addition to being represented on committees and boards and meeting annually.

"This group certainly adds depth and perspective to everything we are doing," said Carol Stonham, Nurse Lead for PCRS-UK, and Sandy Walmsley reflected that the group provided a useful insight into the PCRS-UK activities.

"PCRS-UK and its members already have a longstanding working relationship with patient charities such as BLF and Asthma UK to ensure we hear the patient voice. My personal experience of this new level of corporate involvement both at executive and the conference organising boards has reminded me not to underestimate how much better we can be if we utilise the skills and experience of people who have lived with respiratory disease", said Noel Baxter, Chair PCRS-UK Executive.



Education for Health Quality Assured Spirometry training

Spirometry is an essential tool in the diagnosis and management of respiratory disease but do you feel confident or assured when you or your team are performing this?

Education for Health have a range of Spirometry courses written by experts, including:

- * **Performing and Interpreting Quality Assured Spirometry Level 6 module** - a professional qualification to perform and interpret Spirometry and includes academic credits with The Open University.
- * **Performing and Interpreting Quality Assured Spirometry module** - a professional qualification to perform and interpret Spirometry and has no academic assignment.
- * **Performing Quality Assured Spirometry Level 5 module** - a professional qualification to perform Spirometry and includes academic credits with The Open University.
- * **Performing Quality Assured Spirometry module** - a professional qualification to perform Spirometry and has no academic assignment.

Our Spirometry modules are developed with the Association of Respiratory Technology & Physiology (ARTP) and supported by the British Thoracic Society (BTS). Depending on which module you take, you may or may not also earn academic credits with The Open University.

Visit our website at www.educationforhealth.org/spirometry to see every course we run including workshops, and discover dates to suit. Or contact us at nhsteam@educationforhealth.org to bring training to your area.



education for health

www.educationforhealth.org



Policy Round-Up

Bronwen Thompson, *PCRS-UK Policy Advisor*

A summary of the latest developments in the UK health services, including any major new reports, guidelines and other documents relevant to primary care respiratory medicine

Federations and scaling up general practice

In Birmingham eight large-scale providers of GP services have formed a GP alliance covering one million patients. Having been left out of Sustainability and Transformation Plan (STP) discussions early on, they felt that joining forces would give them a voice on a par with other providers in the area.

We are seeing increasing examples of general practices joining forces to form new informal or formal organisations in order to achieve economies of scale, provide services differently and also to have more influence in local health economies. NHS England, the British Medical Association, the Royal College of General Practitioners and the King's Fund have all published on this subject in the last two years, so this trend is clearly not one that is going away.

A new report from the Nuffield Trust, 'Is bigger better? Lessons for large scale general practice' explores this trend through a series of case studies and a larger scale survey across England. It explores the benefits, challenges and costs of general practices joining forces into larger organisations. They conclude: "The case studies suggest that large-scale general practice organisations can improve the sustainability of general practice and provide extended services in community settings. As larger organisations, they can harness some economies of scale and invest in technology and other infrastructure that would be beyond the reach of smaller practices. They can also train and develop their workforce and enable peer support, which is highly valued by staff."

Respiratory interested clinicians may like to consider the benefits to respiratory services of working 'at scale' in terms of how services are organised and delivered – particularly in the context of diagno-

sis and providing quality assured diagnostic spirometry. Might staff training be improved? Could services be provided more effectively or cheaply? Could a wider or more specialist range of services be developed? Could care be provided closer to the patient's home? This consolidation in primary care is likely to be something we will see more of, and there is an opportunity to make it work for the benefit of respiratory patients.

http://www.nuffieldtrust.org.uk/sites/files/nuffield/publication/large_scale_general_practice_web.pdf

Related resources:

1. The National Association of Provider Organisations (NAPO) is a network for GP provider companies and others focused on the 'out of hospital' sector. NAPO now supports over 72 federations with a patient population in the region of 11 million. See their website for resources and case studies: <http://www.napc.co.uk/national-association-of-provider-organisations>
- RCGP has an online network for supporting federations. They have webinars, and other support to share learning and provide guidance. <http://www.rcgp.org.uk/clinical-and-research/our-programmes/supporting-federations.aspx>

Community pharmacies to become more involved in patient care

Taking a forward view is highly fashionable. After the 'Five year forward view' from NHS England in 2014 heralded new models of care to be piloted in vanguard initiatives, the 'General Practice forward view' followed in 2016. This set out specific, practical and funded steps to grow and develop the workforce, drive efficiencies in workload and relieve demand, modernise infrastructure and technology, and support local practices to redesign the way primary care is offered to patients.

So the pharmacy world is now setting out its stall on the role that they can play in a healthcare world where sustainability and transformation are the bywords for the future. They paint a picture of a future where patients with long-term conditions can register with a community pharmacist to coordinate their care; where repeat prescribing is managed exclusively within the pharmacy; where routine review of patients



takes place in pharmacies; and where pharmacists are part of integrated primary care networks and regarded as part of the primary care team. It is expected that, in this way, pharmacy will play a major role in reducing the demand on general practice.

This has considerable appeal for respiratory disease, where the rapid expansion in the number of compounds and combinations of medicines available, the wide range of inhaler devices, variations in dosing between inhaled steroids and dealing with multimorbidities all present challenges to the busy clinician. A comprehensive service for respiratory patients based in the pharmacy could provide an interesting alternative to practice-based care for patients at one end of the spectrum, or at least some welcome resource to supplement and complement the care provided in general practices.

Community pharmacies are the nation's most accessible healthcare providers: around 90% of the population live within 20 minutes walk of a pharmacy and pharmacy services are available without an appointment

BMJ Open. The positive pharmacy care law: an area-level analysis of the relationship between community pharmacy distribution, urbanity and social deprivation in England. Last accessed August 2016.
<http://bmjopen.bmj.com/content/4/8/e005764.full.pdf+html>

In brief

- Other articles in this issue highlight the Welsh COPD audit report in primary care (page 9), revised BTS/SIGN British Asthma guideline (page 19) and National register for spirometry (page 26)
- **Assessing and managing multimorbidities:** September saw the launch of NICE guidance on 'Assessing and managing multimorbidities'. There is much in here for clinicians with an interest in respiratory disease as so many people with respiratory conditions also have other health issues. <https://www.nice.org.uk/guidance/NG56/chapter/Recommendations>
- **Role of pirfenidone in IPF:** NICE has reviewed its guidance on pirfenidone for the treatment of idiopathic pulmonary fibrosis (IPF) and has not changed its recommendation. It continues to be recommended as an option for treating IPF in adults only if:
 - o the person has a forced vital capacity (FVC) between 50% and 80% predicted
 - o treatment is stopped if there is evidence of disease progression (an absolute decline of 10% or more in predicted FVC within any 12-month period).

As this is a high cost product, the company provides pirfenidone at a discount agreed in a patient access scheme. NICE published a guideline on IPF in 2013 and followed it with a quality standard in 2015, which highlighted the importance of patients having access to appropriate clinical expertise and interventions such as pulmonary rehabilitation, assessment for oxygen and palliative care.

- **NICE COPD guideline:** NICE has announced that it will be updating the COPD guideline over the next 18 months. Important changes have taken place since its publication in 2010 and they plan to update sections on diagnosis, managing stable COPD and managing exacerbations.
- **Report on public health post-2013:** The Health Select Committee reported that there is still a long way to go before the new approach to public health, driven by local authorities, can deliver real improvements in preventing ill health. Cuts to public health and the front line services they deliver are a false economy as they not only add to the future costs of health and social care but risk widening health inequalities, says the Health Committee in its report on public health post-2013 (see <http://tinyurl.com/hm35opr>).

GETTING THE BASICS RIGHT



Recognising and diagnosing rarer lung conditions

A summary of PCRS-UK opinion sheets input from **Dr Iain Small** and **Dr Basil Penney**

As a primary care organisation, the first priority for PCRS-UK is trying to get the diagnosis right for people with asthma and COPD because these are the patients that we see and manage most commonly. Nevertheless, there is a need to be able to recognise and appropriately refer and manage patients who may have rarer lung conditions.

Rarer respiratory conditions are, by definition, uncommon and each practice will have only a handful of such patients. The most important things that clinicians need to know are:

- Limits of your own knowledge
- How such patients present
- Referral pathways to secondary care
- What the local Community Respiratory Team can provide

However, these patients will continue to be looked after in primary care and so clinicians will also need to know:

- Where to get information for a patient and themselves when a diagnosis is made
- The typical natural history of the disease
- What to do in the face of an 'exacerbation' of symptoms
- Rarer conditions may co-exist in patients with commoner respiratory disease. Make sure you treat the treatable!

Acknowledgements and further information

This article has been summarised from a series of PCRS-UK opinion sheets including 'What Every GP Should Know About Rarer Lung Conditions' written by Dr Simon Dunn and 'Lung Cancer' written by Dr David Bellamy. The article has been reviewed by Dr Basil Penney and Dr Iain Small.

Bronchiectasis

In children this is commonly caused by cystic fibrosis (CF): patients presenting as adults have a number of different causes. Presenting features typically include chronic productive cough, dyspnoea and wheeze. There are no good up-to-date figures for prevalence but, as a guide, the average full-time GP with a list size of about 2,000 patients would expect to manage approximately two cases of bronchiectasis.

- High-resolution computerised tomography (HRCT) is the investigation of choice for diagnosis.
- Common causes of bronchiectasis include CF, foreign bodies and aspiration, immune deficiency, asthma associated with allergic bronchopulmonary aspergillosis and connective tissue disease.
- Asthma is considered to be the cause of bronchiectasis when no other cause is found, therefore be prepared to look for and manage asthma in these patients.
- All patients should be taught airway clearance techniques by a physiotherapist and pulmonary rehabilitation should be offered to those troubled by dyspnoea.
- Exacerbations present as worsening of cough, sputum or dyspnoea. Treat with amoxicillin or clarithromycin, having first sent a sputum sample. Where possible, GPs should treat according to sensitivity.
- Chronic bacterial colonisation of the airways may require long-term antibiotics.
- Prognosis is generally good in non-CF patients although general health can be poor, especially in those whose lungs are colonised with *Pseudomonas* where progressive deterioration may occur.

Interstitial Lung Disease

The term encompasses a number of conditions that result in parenchymal lung disease which can present as:

- shortness of breath
- cough
- fine inspiratory crackles
- restrictive spirometry
- (possibly) abnormal chest X-ray findings.

Although surgical biopsy is the gold standard for diagnosis, HRCT and pulmonary function tests will often provide sufficient diagnostic certainty.

The commonest type of interstitial lung disease (ILD), formerly termed cryptogenic fibrosing alveolitis, has around 2,000 new cases each year in England and Wales with an average survival of three years from diagnosis. Currently, no treatment is proven to affect progression. This group is now recognised to be made up of two distinct forms: idiopathic pulmonary fibrosis (IPF) with a 5-year survival of 10–15% and non-specific interstitial pneumonia with a better prognosis of >50% survival over 5 years. Other forms include those associated with connective tissue disorders (approximately 10% of the total), hypersensitivity (bird exposure and drug-related being most common in the UK) and sarcoidosis (see below).

Suspected cases should be referred to the local chest physicians.

- Inhalers: bronchodilators and corticosteroids are of no proven value.
- Oral steroids have no evidence-based place in the treatment of acutely worsening symptoms in the community.
- Haemoptysis is rarely associated with ILD alone. Always investigate for cancer, pneumonia and pulmonary embolus.
- Treatment for the disease is often 'Best Supportive Care' and may include referral to palliative care services.
- Despite symptoms of breathlessness, oxygen has little place unless the patient is chronically hypoxic, although a literature review did find some weak evidence for a small benefit from ambulatory oxygen.

There are now two licensed treatments for ILD: pirfenidone and the more recent monoclonal antibody, rituximab. Each has been approved by NICE and the Scottish Medicines Consortium (SMC) for use under strict restrictions of lung function, diagnostic testing (characteristic pattern on HRCT) and a monitored response to treatment. The role of primary care is to identify patients with suspicious symptoms and signs and a restrictive pattern on spirometry and refer promptly. Neither drug may currently be used unless the FVC is below 80% predicted, although this may change in time once more accurate diagnostic assessment identifies the early responding group.

Lung Cancer

Lung cancer is one of the most common cancers in the UK but, although a common cancer, most GPs will see only 1–2 new cases a year.

Lung cancer is linked to smoking in over 85% of cases. The relative risk for someone who smokes 20 cigarettes per day is approximately 20 times greater than that of a lifetime non-smoker. Lung cancer death risk is around 24 times higher in smokers of 25+ cigarettes per day and 39 times higher in smokers of 42+ cigarettes per day. Female smokers appear more susceptible. Stopping smoking before middle age avoids 90% of the risk. Passive smoking increases risk. Patients with COPD are 3–5 times more likely to develop lung cancer than smokers without COPD. Other risk factors include occupational exposure to asbestos, nickel, cadmium and arsenic.

The symptoms of lung cancer are similar to other more common diseases and making a diagnosis is often not easy. Symptoms such as haemoptysis tend to lead to rapid referral, but more non-specific symptoms of fatigue and weight loss may not always alert the clinician to the possibility of lung cancer. Perhaps the most common presentation is cough that does not improve after a few weeks.

Summary of NICE guidance on referral for suspected lung cancer

Urgent referral for CXR with symptoms

- Haemoptysis or unexplained or persistent, more than 2 weeks

- Cough
- Dyspnoea
- Chest/shoulder pain
- Weight loss
- Chest signs
- Hoarseness
- Finger clubbing
- Supraclavicular or cervical persistent lymphadenopathy
- Features of metastases: brain, bone, liver, skin

Urgent referral to a member of a lung cancer multidisciplinary team (MDT) – chest physician

- If CXR suggests lung cancer.
- Even if CXR is normal, there may be high suspicion of lung cancer clinically.
- Persistent haemoptysis in smoker or ex-smoker over the age of 49 years.
- Signs of SVC obstruction or stridor in younger patients.

A CXR will show abnormalities in over 90% of patients with lung cancer, but it is important to remember that a normal CXR does not exclude lung cancer if there is a high index of clinical suspicion.

Some areas now have direct access to CT imaging if the above clinical criteria are met. It is worth finding out if you work in one of these areas.

Referral

There are well established referral pathways to the lung cancer MDT for patients to be seen within two weeks. Investigation, staging and diagnosis should be completed within 31 days and specialist treatment begun within 62 days of GP referral.

The primary care role post-diagnosis is important and includes:

- General advice and education about the disease and its treatments.
- Counselling and support for patient and carers.
- Regular review, assessing symptoms, nutrition, mood and social situation.
- Palliative care support within the MDT.

Tuberculosis (TB)

Symptoms:

- Persistent cough (>3 weeks)
- Fevers
- Night sweats
 - Weight loss
 - Lethargy
 - Loss of appetite
 - Chest pain
 - Haemoptysis

Diagnosis is usually achieved with chest X-ray and three spontaneously produced sputum samples. Suspicion of pulmonary TB warrants rapid access to a chest physician with expertise in the management of TB.

Every patient being treated for TB should have a named key worker responsible for education and ensuring adherence with treatment.

Treatment usually consists of six months anti-tuberculous drugs, initially rifampicin, isoniazid and either pyrazinamide or ethambutol for two months and then a further four of rifampicin and isoniazid. This is considered curative and patients are not generally offered follow-up. Poor adherence to treatment encourages drug resistance.

Sputum microscopy positive patients are usually considered to be infectious until they have completed two weeks of treatment.

Latent TB is said to be present in those individuals with a strongly positive skin (Mantoux or Heaf) test. They have a 10–15% risk of developing active disease, especially in association with other risk factors that reduce immune function.

BCG vaccination is now offered on an 'at risk' basis rather than to all schoolchildren. There is little benefit of protection from this vaccine in those over 35 years.

Contact tracing is done by key workers and usually aimed at close household contacts, except in outbreaks involving institutions (schools, hospitals, prisons) where the Health Protection Agency or similar will set up specific programmes.

Non-tuberculous *Mycobacterium* Infections

These opportunistic infections most commonly affect middle aged and older men with COPD (typically emphysema) and previous TB infections. They present with TB-like symptoms and should be looked after as hospital outpatients.

If they require treatment this often extends to two years and is determined by the sensitivities of the organism.

Aspergillosis

This term covers a large number of diseases that involve infection and growth of this fungus as well as allergic responses. The commonest presentations are in the lung and include:

- Invasive pulmonary aspergillosis – generally occurs in immunocompromised patients.
- Allergic bronchopulmonary aspergillosis – affecting patients with asthma, bronchiectasis and cystic fibrosis; treated with long-term steroids.
- Chronic pulmonary aspergilloma – long-term aspergillus infection usually in those with underlying lung disease.
- Severe asthma with fungal sensitisation (SAFS) – one of the causes of difficult to control asthma.

Sarcoidosis

This is a multisystem disease of unknown cause predominantly affecting young and middle aged patients, most often affecting the lungs (>90% of cases) or skin. Spontaneous remission occurs in up to 60% within six months, particularly in milder forms. In spite of this, the course and prognosis are variable and difficult to predict; however, systemic treatment is often unnecessary. Common respiratory symptoms include:

- non-productive cough
- breathlessness
- wheeze

Other common non-respiratory symptoms include fatigue, uveitis (25%), erythema nodosum (25%);

25–50% will have an inflammatory arthritis most commonly involving the ankle, knee, wrist or elbow. Hypercalcaemia can cause nephrocalcinosis, which causes renal impairment and is a major cause of chronic renal failure. Hypercalcaemia is one of the indications for oral glucocorticoid treatment along with ocular sarcoid not responding to topical treatment and neurological and cardiac manifestations.

Cardiac sarcoid is rare but life-threatening and symptoms of palpitations and syncope should be taken seriously. Investigations include spirometry (typically showing a restrictive defect) and chest X-ray (showing hilar lymphadenopathy).

Serum angiotensin converting enzyme (ACE) is often raised but has a limited use in diagnosing or monitoring the disease as it is relatively non-specific.

Pulmonary Hypertension

This group of conditions, characterised by a raised mean pulmonary artery pressure, has a prevalence of approximately 25 treated patients per million. It presents in a very non-specific manner and should be suspected in anybody presenting with breathlessness without overt signs of cardiorespiratory disease.

There is no definitive test in primary care although chest X-ray, ECG and echocardiography can all be suggestive, particularly the latter.

There is frequently a diagnostic delay of three years between the first presenting symptom and diagnosis. Patients are largely looked after in specialist centres but GPs need to be aware that their symptoms can break unpredictably through drug treatment.

Treatment often involves using drugs or combinations of drugs that require monitoring similar to that for disease-modifying anti-rheumatic drugs (DMARDs) which clinicians in primary care may be asked to perform.

Chronic thromboembolic pulmonary hypertension follows 12–24 months after a pulmonary embolus in about 4% of patients and presents with continued or recurrent breathlessness. It is important because it is treatable by endarterectomy.

Journal Round-Up

npj Primary Care Respiratory Medicine Key Summaries

npj | Primary Care
Respiratory Medicine

A selection of short summaries of original research articles published in *npj Primary Care Respiratory Medicine*. The articles featured have been selected by the Primary Care Respiratory Update editorial board as being the most relevant and useful to primary care respiratory clinical practice in the UK. You can download freely any articles of interest from the website <http://www.nature.com/npjpcrm/>

npj Primary Care Respiratory Medicine is the only fully indexed scientific journal devoted to the management of respiratory diseases in primary care. It is an international, online, open access journal and is part of the Nature Partner Journal series.

If you would like to be informed when a new paper is published by *npj Primary Care Respiratory Medicine* simply join the npj Primary Care Respiratory Medicine e-alert list to receive notification direct to your inbox. Visit www.nature.com/npjpcrm/ and click the link on the right titled E-alert.

**** EDITOR'S CHOICE ****

Should the diagnosis of COPD be based on a single spirometry test?

Tjard R Schermer, Bas Robberts, Alan J Crockett, Bart P Thoonen, Annelies Lucas, Joke Grootens, Ivo J Smeele, Cindy Thamrin & Helen K Reddel

npj Primary Care Respiratory Medicine 26, Article number: 16059 (2016)
doi:10.1038/npjpcrm.2016.59

The diagnosis of chronic obstructive pulmonary disease (COPD) should not be based on a single lung function test. Tjard Schermer of Radboud University Medical Center in The Netherlands and colleagues examined spirometry test data from 2,352 patients at risk for COPD one and two years after an initial diagnostic spirometry. Current guidelines recommend only a single spirometry test for a COPD diagnosis. The team found that about 20% and 28% of patients initially diagnosed with airway

obstruction were no longer so after one and two years, respectively. Of those patients diagnosed as unobstructed, 11% and 17% shifted to becoming obstructed after one and two years, respectively. Body mass index, gender, age and smoking were among the factors influencing these shifts. One-off spirometry could lead to over- or under-diagnosis of COPD, the researchers concluded.

Use of spirometry among chest physicians and primary care physicians in India

Nitin Vanjare, Sushmeeta Chhowala, Sapna Madas, Rahul Kodgule, Jaideep Gogtay & Sundeep Salvi

npj Primary Care Respiratory Medicine 26,
Article number: 16036 (2016), doi:10.1038/npjpcrm.2016.36

Doctors in India require better access to affordable equipment in diagnosing chronic lung diseases, say researchers. Spirometry is a simple machine-based test that measures lung function and is highly regarded for diagnosing and determining the severity of lung diseases. Nitin Vanjare at the Chest Research Foundation in Pune, India and co-workers conducted two nationwide surveys in 2005 and 2013 to determine the use of spirometry by physicians in different care settings in the country. The researchers found that spirometry use increased in all sectors, with chest physicians making the most use of the test. However, family doctors and paediatricians, usually the first port of call for patients, rarely

used spirometry. Physicians cited expensive equipment, uncertainty in interpreting results and not having time to conduct tests as key reasons for spirometry underuse

The frequency of, and adherence to, single maintenance and reliever therapy instructions in asthma: a descriptive analysis

Rachael L DiSantostefano, Nada Boudiaf, David A Stempel, Neil C Barnes & Andrew P Greening

npj Primary Care Respiratory Medicine 26,
Article number: 16038 (2016), doi:10.1038/npjpcrm.2016.38

The low uptake of 'SMART' asthma therapy in the UK suggests results from trials are not currently translatable into clinical practice. The SMART regimen uses a single inhaler device combining drugs to reduce exacerbations and relieve symptoms. However, little is known about how effective SMART is at controlling asthma in clinical practice.

Neil Barnes at GlaxoSmithKline, Brentford, UK, together with UK and US based scientists, analysed SMART uptake from UK prescription data between 2009 and 2013. Of 14,818 patients prescribed asthma medication, only 1.2% (173) were prescribed SMART inhalers accompanied by dosing instructions. Over half were also prescribed rescue inhalers, which is not part of the SMART regimen. The number of SMART inhalers prescribed did not equate to a full year's dose for each patient. Patient education and further investigations into SMART use are required.

Morning and night symptoms in primary care COPD patients: a cross-sectional and longitudinal study.

An UNLOCK study from the IPCRG

Ioanna Tsiligianni, Esther Metting, Thys van der Molen, Niels Chavannes & Janwillem Kocks

npj Primary Care Respiratory Medicine 26

Article number: 16040 (2016), doi:10.1038/npjpcrm.2016.40

More severe symptoms of chronic lung disease in the morning and at night are common and may help predict future health status. Ioanna Tsiligianni at the University of Groningen, The Netherlands and co-workers analysed patient history and questionnaire data collected from 2,269 primary care patients suffering from chronic obstructive pulmonary disease (COPD) between 2007 and 2013. Patients who experienced symptoms in the morning and at night tended to be those with poor lung function and more severe disease/higher CCQ (worse health status), particularly those who smoked. This means patients with such symptom variations are often identified during assessment with existing health status tools such as the CCQ. Crucially, the results show that daily symptom variations are common in COPD and are not specific to a particular group of patients. Severe morning symptoms are a strong indicator of poor long-term health outcomes.

Determinants of patients' needs in asthma treatment: a cross-sectional study

Adrian Loerbroks, Aziz Sheikh, Verena Leucht, Christian J Apfelbacher, Andrea Icks & Peter Angerer

npj Primary Care Respiratory Medicine 26

Article number: 16044 (2016), doi:10.1038/npjpcrm.2016.44

Tailored treatments for asthma may be informed by studies exploring the characteristics of patients who need more support. Adrian Loerbroks at the University of Düsseldorf, Germany, together with an international team of scientists, conducted a questionnaire-based study of 189 adults diagnosed with asthma. The participants answered the Needs in Asthma Treatment questionnaire, which includes questions on demographics (such as age, sex and education) as well as details of asthma drug effects, patient expertise at handling the illness and exacerbations. People aged under 45, those with poor mental health and those recently diagnosed with asthma were most likely to require support. Men reported increased needs in relation to understanding drug effects. Larger scale studies are required to confirm these initial findings, but the insights could help inform individualised asthma treatment plans.

Asthma prescribing, ethnicity and risk of hospital admission: an analysis of 35,864 linked primary and secondary care records in East London

Sally A Hull, Shauna McKibben, Kate Homer, Stephanie JC Taylor,

Katy Pike & Chris Griffiths

npj Primary Care Respiratory Medicine 26

Article number: 16049 (2016), doi:10.1038/npjpcrm.2016.49

Targeted care for at-risk patients is needed to avoid asthma-related hospital admission. If a patient persistently uses a short-acting beta2-agonist (SABA) inhaler designed for quick relief of asthma symptoms, it is a sign that their asthma is not fully under control. Indeed, over-use of SABA inhalers may be associated with asthma-related death. Sally Hull at the Queen Mary University of London and co-workers analysed data from 35,864 patients at 139 London-based doctors' surgeries and found that using more than three SABA inhalers per year increases the risks of hospital admission for both adults and children. Increasing the regular use of 'preventer' steroid inhalers might prevent many admissions. Cultural aspects may also impact on asthma control because, in adults, certain ethnic groups were more likely to require hospital admission, particularly Black and South Asian patients.

Implementation of 'matrix support' (collaborative care) to reduce asthma and COPD referrals and improve primary care management in Brazil: a pilot observational study

Sonia Maria Martins, William Salibe-Filho, Luís Paulo Tonioli, Luís Eduardo Pflingesten, Patrícia Dias Braz, Juliet McDonnell, Siân Williams, Débora do Carmo, Jaime Correia de Sousa, Hilary Pinnock & Rafael Stelmach

npj Primary Care Respiratory Medicine 26

Article number: 16047 (2016), doi:10.1038/npjpcrm.2016.47

Collaborative care could improve management of asthma and chronic obstructive pulmonary disease (COPD). To maximise resources available for asthma and COPD care, Sonia Martins and colleagues of the Respiratory Group of Brazilian Society of Family Medicine and Community and University of São Paulo in Brazil implemented a collaborative care model in three of the nine health territories in the city of São Bernardo do Campo in south-eastern Brazil. Family doctors, nurses and healthcare managers attended an eight-hour workshop led by three pulmonologists and one primary care physician to raise professional awareness of the two conditions. Primary care physicians then conducted joint consultations with pulmonologists on patients, followed by individual case discussions without patients. The approach was effective in improving the knowledge and confidence of primary care professionals in managing asthma and COPD. It also decreased the number of referrals to specialists.

Health status instruments for patients with COPD in pulmonary rehabilitation: defining a minimal clinically important difference

Harma Alma, Corina de Jong, Danijel Jelusic, Michael Wittmann, Michael Schuler, Bertine Flokstra-de Blok, Janwillem Kocks, Konrad Schultz & Thys van der Molen

npj Primary Care Respiratory Medicine 26

Article number: 16041 (2016), doi:10.1038/npjpcrm.2016.41

Indices derived from questionnaire results could be overestimating the effectiveness of treatment in chronic lung disease. Harma Alma from the University Medical Center Groningen in The Netherlands and colleagues recruited 451 patients with COPD participating in a three-week pulmonary rehabilitation programme in the Klinik Bad Reichenhall, Germany. Three different questionnaires commonly used to assess the

effectiveness of treatment were administered to the patients. The results were compared with indices that indicate whether the patient has experienced a 'minimal clinically important difference' (MCID), a parameter used to assess clinically relevant change in the patient's health that could mandate a change in managing their condition. They found that reported estimates in the literature for the MCID in two of the three questionnaires might be too low, leading to overestimation of the effects of treatment on patients.

Socio-economic factors, gender and smoking as determinants of COPD in a low-income country of sub-Saharan Africa: FRESH AIR Uganda

Frederik van Gemert, Niels Chavannes, Bruce Kirenga, Rupert Jones, Sian Williams, Ioanna Tsiligianni, Judith Vonk, Janwillem Kocks, Corina de Jong & Thys van der Molen
npj Primary Care Respiratory Medicine 26
Article number: 16050 (2016), doi:10.1038/npjpcrm.2016.50

Ethnicity, use of biomass fuel for heating, smoking history and marital status are associated with chronic lung disease in rural Uganda. Frederik van Gemert at the University of Groningen, The Netherlands and colleagues analysed data from 588 randomly selected individuals over 30 years of age in the Masindi district, one of the poorest in Uganda. They found a significantly higher prevalence of COPD among participants of non-Bantu ethnicity and those who used biomass fuel for heating. Further analysis of the data by gender revealed that the prevalence of COPD was higher among men who were unmarried and among women who were former smokers. These findings highlight risk factors for COPD that should be considered in public awareness and prevention programmes in low- and middle-income countries.

Independent effect of prior exacerbation frequency and disease severity on the risk of future exacerbations of COPD: a retrospective cohort study

Miguel Santibañez Margüello, Roberto Garrastazu, Mario Ruiz-Nuñez, Jose Manuel Helguera, Sandra Arenal, Cristina Bonnardeux, Carlos León, Marc Miravittles & Juan Luis García-Rivero
npj Primary Care Respiratory Medicine 26
Article number: 16046 (2016), doi:10.1038/npjpcrm.2016.46

Obstructive lung disease patients with frequent episodes of worsening symptoms are likely to experience similar episodes the following year. Miguel Santibañez from Universidad de Cantabria in Spain and colleagues reviewed data from 900 patients with varying severities of COPD. They found the most important independent predictor of frequent 'exacerbations' – recurring episodes of worsening symptoms – was a history of frequent exacerbations the previous year, regardless of the degree of severity of the disease. As COPD severity increased, so did exacerbation frequency. Of the 563 patients with infrequent exacerbations, 78% had infrequent exacerbations the following year. Of the 337 patients who had frequent exacerbations, 61% experienced frequent exacerbations the following year. The study highlights the importance of monitoring COPD patients and providing therapeutic and preventive measures, especially for those with milder forms of the disease.

Patient coping strategies in COPD across disease severity and quality of life: a qualitative study

Sarah B Brien, George T Lewith & Mike Thomas
npj Primary Care Respiratory Medicine 26
Article number: 16051 (2016), doi:10.1038/npjpcrm.2016.51

Patients who adapt well to living with COPD are more likely to have improved quality of life. Sarah Brien from Southampton General Hospital and colleagues interviewed 34 participants with COPD of varying severity and varying quality of life (QoL). Identifying four themes (disease impact, coping strategies, coping challenges and support needs), the team found that individuals successfully employing coping strategies (such as breathing rehabilitation) reported higher QoL than poorly adapted patients, irrespective of actual physical lung damage. Patients reporting poor QoL were more likely to seek out non-pharmacological coping strategies, including turning to complementary and alternative medicine. This study demonstrates a link between adaptation to COPD and QoL and indicates that targeted intervention, based on QoL not disease severity, is needed to improve patient self-management.

Respiratory constraints during activities in daily life and the impact on health status in patients with early-stage COPD: a cross-sectional study

Hanneke AC van Helvoort, Laura M Willems, PN Richard Dekhuijzen, Hieronymus WH van Hees & Yvonne F Heijdra
npj Primary Care Respiratory Medicine 26
Article number: 16054 (2016), doi:10.1038/npjpcrm.2016.54

Patients with mild COPD experience respiratory limitations during daily life activities. Hanneke van Helvoort at Radboud University Medical Center in The Netherlands and colleagues assessed the breathing mechanics of 39 early-stage COPD patients and 20 healthy controls while they carried out three activities of daily life: climbing stairs, vacuuming and putting groceries in a cupboard. They found that a significantly higher percentage of patients with early-stage COPD experienced shortness of breath and more health problems than the control group. They also showed exercise-induced air trapping, inhaling before completing exhalation. The results suggest that patients may start to reduce their physical activity levels at the very early stages of the disease with adverse consequences for their overall health status. The authors highlight the importance of early COPD diagnosis and treatment in general practice.

Inappropriate asthma therapy – a tale of two countries: a parallel population-based cohort study

Manon Belhassen, Anjan Nibber, Eric Van Ganse, Dermot Ryan, Carole Langlois, Francis Appiagyei, Derek Skinner, Laurent Laforest, Joan B Soriano & David Price
npj Primary Care Respiratory Medicine 26
Article number: 16076 (2016), doi:10.1038/npjpcrm.2016.76

The delivery of asthma care in Europe is cause for concern as a study reveals the extent of inappropriate therapy use. The inappropriate use of short-acting and long-acting beta-agonist asthma inhalers (SABA/LABA) is an avoidable risk factor contributing to asthma exacerbations and death. Eric Van Ganse at Claude Bernard University in Lyon, France and co-workers investigated the prevalence of inappropriate therapy use in patients in the UK and France in 2007 and 2013. Approximately 210,000 UK patients and 190,000 patients in France

were inappropriately treated for asthma in 2013. The team found that 8–10% of UK adult patients overused SABA reliever inhalers compared with 5% of adults in France, a misuse of treatment on the rise in the UK by 2013. However, inappropriate LABA use reduced markedly between 2007 and 2013 in both countries.

Measurement characteristics of the childhood Asthma Control Test and a shortened, child-only version

Christian Bime, Joe K Gerald, Christine Y Wei, Janet T Holbrook, William G Teague, Robert A Wise & Lynn B Gerald
npj Primary Care Respiratory Medicine 26
 Article number: 16075 (2016), doi:10.1038/npjpcrm.2016.75

An existing childhood Asthma Control Test (C-ACT) could be altered and improved to assess asthma status from child-only responses. C-ACT is a well-used, reliable way of testing asthma control in children aged 4–11 years, but it relies on the simultaneous presence of both parent or caregiver and child to respond to questions. In certain circumstances, for example in schools, a child-only assessment tool would be invaluable. Christian Bime at the University of Arizona, together with scientists across the US, trialed a child-only version of the C-ACT for assessment accuracy, using the four questions aimed at children from the original test. While the shortened version did not quite perform to a high enough standard for immediate use, the researchers

hope that alterations and improvements to the child-only test will enable its use in future.

Change in health status in COPD: a seven-year follow-up cohort study

Josefin Sundh, Scott Montgomery, Mikael Hasselgren, Mary Kämpe, Christer Janson, Björn Stållberg & Karin Lisspers
npj Primary Care Respiratory Medicine 26
 Article number: 16073 (2016), doi:10.1038/npjpcrm.2016.73

Shortness of breath and being underweight are significant contributors to deterioration in patients with chronic lung disease. A patient's health status is one measure of the severity of COPD. Josefin Sundh and co-workers at Örebro University together with scientists across Sweden used questionnaires to track factors influencing the health status of primary and secondary care patients with COPD over seven years. They found that overall the health status of patients worsened over time, with over a third of the study population exhibiting clinically significant deterioration. Patients who exhibited higher levels of breathlessness and who were of normal or below normal weight from the start were more likely to deteriorate over time. Strategies for limiting breathlessness and an awareness of weight-related risks should be included in COPD patient care.

Best of the rest



These reviews were prepared by Dr Basil Penney and published by Doctors.net.uk Journal Watch. They have been selected and edited for inclusion into *Primary Care Respiratory Update* by editor Professor Hilary Pinnock.

The Doctors.net.uk Journal Watch service covers other specialities as well as respiratory medicine. Doctors.net.uk is the largest network of GMC-registered doctors in the UK. To find out more about membership visit <http://www.doctors.net.uk>

Abbreviations used in these reviews are:		LTOTT	Long-term oxygen treatment trial	MDI	Metered dose inhaler
Respiratory conditions		Max0–2.5	Maximum lung function	NRT	Nicotine replacement therapy
AECOPD	Acute exacerbations of COPD	mmHg	Millimetres of mercury	PMDI	Pressurised metered dose inhaler
COPD	Chronic obstructive pulmonary disease	mg	Milligrams	SABA	Short acting beta-agonist
		QoL	Quality of life	SMART	Single maintenance and reliever therapy
		µg	Micrograms		
		µL	Microlitres		
Measures and investigations		Organisations and people		Statistical terms	
AHI	Apnea-hypopnea index	A&E	Accident and Emergency	LLN	Lower limit of normal
C-ACT	Childhood Asthma Control Test	GINA	Global Initiative for Asthma	LR	Likelihood ratio
CCQ	Clinical COPD Questionnaire	GOLD	Global Initiative for Chronic Obstructive Lung Disease	MCID	Minimally clinically important difference
CRP	C-Reactive Protein	GP	General practitioner	n	Number(s)
CT	Computed tomography	HCP	Healthcare professional	NNT	Numbers needed to treat
ESR	Erythrocyte sedimentation rate			OR	Odds ratio
FeNO	Fractional exhaled nitric oxide			RCT	Randomised controlled trial
FEV1	Forced expiratory volume in 1 second			RR	Relative risk
FVC	Forced vital capacity			SD	Standard deviation
HRCT	High resolution computed tomography			95% CI	95% Confidence interval
		Respiratory treatments			
		DPI	Dry powder device/inhaler		
		ICS	Inhaled corticosteroids		
		LABA	Long acting beta-agonist		
		LAMA	Long acting muscarinic agent		

** EDITOR'S CHOICE **

Association between electronic cigarette use and changes in quit attempts, success of quit attempts, use of smoking cessation pharmacotherapy, and use of stop smoking services in England: time series analysis of population trends

Emma Beard, Robert West, Susan Michie, Jamie Brown
BMJ 2016;354:i4645 <http://dx.doi.org/10.1136/bmj.i4645>



There are concerns that the increase in population use of electronic cigarettes could be undermining smoking cessation. If true, e-cigarettes could have a negative effect on public health.

Beard et al conducted a time series analysis of population trends using data from the Smoking Toolkit Study (repeated cross-sectional household surveys of individuals >16 years old in England) and NHS stop smoking services to assess whether changes in e-cigarette use at a population level have been associated with changes in smoking cessation activities and use of licensed smoking cessation treatment. Data were aggregated on about 1,200 smokers quarterly between 2006 and 2015.

The increase in e-cigarette use in England was positively associated with the success rate of quit attempts after adjustment for a range

of confounding variables. No clear association emerged between e-cigarette use and prevalence of quit attempts or use of licensed NRT bought over the counter, prescription treatment or behavioural support. However, use of e-cigarettes in quit attempts was negatively associated with use of NRT on prescription.

The increased prevalence of e-cigarettes in England does not appear to have been associated with a detectable change in attempts to stop smoking. However, the increase in e-cigarette use has been associated with an increase in success of quit attempts. Growth in the use of e-cigarettes for quitting has also been associated with a decline in use of NRT obtained on prescription, but has not clearly been associated with the use of other quitting support.

Systematic review of errors in inhaler use: has patient technique improved over time?

Joaquin Sanchis, Ignasi Gich, Soren Pedersen, on behalf of the Aerosol Drug Management Improvement Team (ADMiT)

Chest 2016;150:394–406

<http://dx.doi.org/10.1016/j.chest.2016.03.041>



One prominent reason for poor asthma control is poor inhaler technique because, no matter how good a drug is, it cannot be effective if it does not reach the targeted airway. Problems with technique were recognised shortly after the launch of pressurised MDIs in the 1960s, and since then significant resources for training of healthcare professionals and patients along with measures and devices to make inhalation easier have been introduced. Sanchis *et al* conducted a systematic review of articles reporting direct observation of inhaler technique by trained personnel, to assess the most common errors in inhaler use over the past 40 years in patients treated with MDIs or DPIs.

144 articles reported on a total number of 54,354 subjects performing observed tests of technique. The most frequent MDI errors were poor coordination (45%), speed and/or depth of inspiration (44%) and no post-inhalation breath-hold (46%). Frequent DPI errors were incorrect preparation (29%), no full expiration before inhalation (46%) and no post-inhalation breath-hold (37%). The overall prevalence of correct technique was 31%, with a further 31% of observed techniques rated as poor. There were no significant differences in results between the first and last 20 years of observation.

Incorrect inhaler technique is still a frequent occurrence and has not improved over the past 40 years, pointing to a need for new approaches to education and drug delivery.

Asymptomatic subjects with airway obstruction have significant impairment at exercise

Thorax

Thibaud Soumagne, Pierantonio Laveneziana, Matthieu Veil-Picard, Alicia Guillien, Frédéric Claudé, Marc Puyraveau, Isabella Annesi-Maesano, Nicolas Roche, Jean-Charles Dalphin, Bruno Degano

Thorax 2016;71:804–11.

<http://dx.doi.org/10.1136/thoraxjnl-2015-207953>

The definition of COPD is based on the presence of symptoms (cough, sputum and/or dyspnoea) with persistent, irreversible airway obstruction. In at-risk subjects who complain of symptoms, early detection of COPD is now recommended. In the absence of COPD-related symptoms, subjects with airway obstruction defined by a post-bronchodilator FEV1/FVC ratio below the age-specific LLN are at risk of premature death and/or of development of respiratory symptoms, suggesting that their identification is pertinent.

Soumagne *et al* measured dyspnoea intensity during exertion, exercise tolerance and ventilator mechanics in subjects (n=20) with a history of smoking, without symptoms of COPD and mild persistent airway obstruction (post-bronchodilator FEV1/FVC <LLN), along with normal FEV1. Measurements were compared with a matched group of healthy controls with normal spirometry and a group of symptomatic patients with COPD.

The asymptomatic subjects with airway obstruction had i) greater dyspnoea intensity during incremental exercise and poorer peak exercise capacity than matched healthy subjects with normal spirometry; ii) a

greater reduction in inspiratory capacity than healthy controls during exercise, and half of them had significant dynamic lung hyperinflation on exertion.

These findings suggest that subjects with mild airway obstruction (post-bronchodilator FEV1/FVC <LLN with normal FEV1) who do not present with symptoms of COPD do not represent a physiological variant but have early signs of obstructive abnormalities. When they are detected by screening, these cases may, therefore, deserve closer attention and follow-up.

Diagnosis of acute rhinosinusitis in primary care: a systematic review of test accuracy

Mark H Ebell, Brian McKay, Ryan Guilbault, Yokabed Ermias

Br J Gen Pract 1 September 2016

<http://dx.doi.org/10.3399/bjgp16X686581>

Acute rhinosinusitis is defined as inflammation of the paranasal sinuses caused by viral or bacterial infection, and typically presents with facial pain or pressure, purulent nasal discharge, fever, loss or abnormalities of smell and symptoms that worsen after an initial improvement ('double-sickening'). Recent guidelines recommend that clinicians only prescribe antibiotics when acute bacterial rhinosinusitis is suspected.

Antral puncture is the preferred reference diagnostic standard test, but is not widely used. One strategy to reduce inappropriate antibiotic use is to encourage the use of point-of-care tests such as CRP or imaging to improve diagnostic accuracy.

Ebell *et al* performed a systematic review of the accuracy of imaging and laboratory tests for the diagnosis of acute rhinosinusitis. The evidence base was limited with many of the studies being ≥20 years old and few at low risk of bias.

CRP >20 mg/L (likelihood ratio LR+ 2.9) and ESR >30 (LR+ 4.1) or >40 (LR+ 7.4) increases the likelihood of acute rhinosinusitis whereas normal radiography decreases the likelihood of acute rhinosinusitis (LR– 0.28). A dipstick of nasal secretions for leucocyte esterase was highly accurate (LR+ 18.4, LR– 0.17) but has not been validated. The accuracy of ultrasound varied depending on the technology used and on the reference standards applied.

The authors conclude that imaging, CRP and ESR (given their limited accuracy as individual tests) cannot be routinely recommended for patients with suspected acute rhinosinusitis. Further prospective studies integrating signs and symptoms as point-of-care tests are required.

Predictive value of exhaled nitric oxide in the management of asthma: a systematic review

Lauri Lehtimäki, Péter Csonka, Eeva Mäkinen, Jaana Isojärvi, Sirpa-Liisa Hovi, Anneli Ahovuo-Saloranta

ERJ 4 August 2016

<http://dx.doi.org/10.1183/13993003.00699-2016>

Airway inflammation in asthma is difficult to measure directly in practice. Fractional exhaled nitric oxide (FeNO) is associated with eosinophilic airway inflammation. FeNO measurement, as a marker of inflammation, might provide additional information for asthma diagnosis and activity. Since the basis of asthma therapy is to alleviate airway inflammation, FeNO could also predict or assess responsiveness to anti-inflammatory therapy. Previous reviews have focused on using FeNO in the diagnosis of asthma or in adjusting individual corticosteroid treatment.

Lehtimäki *et al* conducted a systematic review to assess the predictive value of FeNO measurements in asthma treated with inhaled corticosteroids by focusing on five clinically relevant questions:

- Could high FeNO predict a favourable response to ICS treatment in steroid-naïve asthmatics?
- Could elevated FeNO identify patients who are at risk of exacerbation?
- During regular stable ICS treatment, could elevated FeNO identify those patients who would benefit from augmented glucocorticoid treatment?
- Does a low level of FeNO predict that ICS therapy could be successfully discontinued?
- After cessation of ICS therapy, does an elevated FeNO predict the reactivation of the disease and the need for anti-inflammatory therapy?

12 prospective studies were included, partly answering three of the five questions.

In steroid-naïve asthma, a high FeNO level probably predicts a good response to ICS. In ICS-treated asthmatics, a low FeNO level probably predicts low risk of exacerbation and the patient is unlikely to benefit from increasing ICS dose.

There is a lack of good-quality data to draw firm conclusions on the predictive role of FeNO in asthma.

The barriers to accessing primary care resulting in hospital presentation for exacerbation of asthma or chronic obstructive pulmonary disease in a large teaching hospital in London

Marium Naqvi, Hasanin Khachi

Respir Med 2016;117:162–5

<http://dx.doi.org/10.1016/j.rmed.2016.05.020>

Various factors have been suggested as contributing to COPD or asthma-related A&E attendances and/or inpatient admissions. These include access to primary care, proximity to A&E, urban location and a perception that the socially deprived may be less likely to be registered with a GP.

This 12-month observational study from Barts Hospital, London reviewed patients attending A&E and/or following an admission due to an exacerbation of asthma or COPD during weekday working hours to establish the pathway that patients undertake to access care in the lead-up to hospital attendance.

920 (224 asthma and 696 COPD) presentations for exacerbations of asthma and COPD were reviewed. Twelve (5%) and 32 (5%) patients with asthma and COPD, respectively, were treated and discharged from A&E; the remainder were admitted as inpatients. Asthma patients were predominantly female (65%) with a mean age of 50 years and 36% were classed as White British. COPD patients were older (mean age 70 years) and the majority were White British (71%).

Less than half of asthma (47%) and COPD (46%) patients sought medical attention from their GP. The main cited barrier to accessing primary care was lack of an appointment within 24 hours (asthma (8%) and COPD (4%)). Sudden onset of symptoms (asthma (19%) and COPD (21%)); patient and/or carer anxiety (asthma (15%) and COPD (18%)) were cited as reasons to attend A&E rather than contacting the GP.

This study has demonstrated barriers associated with accessing primary care and has indicated that hospital presentations may be avoided with prioritisation of high-risk patients and appropriate patient education.

Socioeconomic inequalities in adherence to inhaled maintenance medications and clinical prognosis of COPD

Sandra Søgaard Tøttenborg, Peter Lange,

Søren Paaske Johnsen, Henrik Nielsen, Truls Sylvan Ingebrigtsen, Reimar Wernich Thomsen

Respir Med 2016;119:160–7

<http://dx.doi.org/10.1016/j.rmed.2016.09.007>

Low socioeconomic status is associated with a high risk of developing COPD. The influence of socioeconomic status on treatment success and clinical outcomes, including adherence to therapeutic management, exacerbations, admissions and mortality once the COPD has developed, is poorly understood. Tøttenborg *et al* examined the associations between a range of indicators (education, employment, income, ethnicity and cohabitation) with suboptimal medication adherence, exacerbation, COPD admissions and all-cause mortality using a nationwide register of information on all COPD patients followed in Danish hospital-based outpatient clinics.

13,369 patients were identified between 2008 and 2012. Medication adherence was estimated as proportion of days covered by maintenance therapy one year from first contact. Associations between socioeconomic indicators and poor adherence and non-use were estimated using Poisson regression models. Cox regression was used to calculate adjusted hazard ratios of clinical outcomes.

32% were poor adherers and 5% were non-users. Poor adherence was predominant in patients with milder disease, those who were younger, unemployed, immigrants and lived alone. Non-use was especially prevalent in the youngest group, those in GOLD category B, never-smokers, unemployed and immigrants. COPD severity was higher among patients with lower education, lower income, pensioners and those living alone. Low education was associated with exacerbations and admissions. Low income was associated with admissions and death. The unemployed and those living alone had a lower exacerbation risk but higher mortality risk.

In addition to being at higher risk of developing COPD, the socioeconomically disadvantaged are also at higher risk of suboptimal treatment and poorer clinical prognosis.

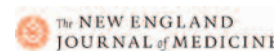
Effectiveness of fluticasone furoate–vilanterol for COPD in clinical practice

Jørgen Vestbo, David Leather, Nawar Diar Bakerly, John New, J. Martin Gibson, Sheila McCorkindale, Susan Collier, Jodie Crawford, Lucy Frith, Catherine Harvey, Henrik Svedsater, and Ashley Woodcock, for the Salford Lung Study Investigators

N Engl J Med 2016; 375:1253–60

<http://dx.doi.org/10.1056/NEJMoa1608033>

Guidelines on the management of COPD are based on numerous randomised controlled trials of efficacy. However, these trials have included patients who were selected with the use of strict criteria and were closely monitored, and therefore the results have limited relevance to everyday clinical practice.



The Salford Lung Study was a prospective, 12-month, open-label, parallel group, randomised trial conducted in 75 general practices. It aimed to evaluate the effectiveness and safety of once-daily inhaled combination of fluticasone furoate and vilanterol ($n=1,291$) compared with existing maintenance therapy (usual care, $n=1,309$) in a large real-world population of patients with COPD in conditions of normal care. The primary outcome was the rate of moderate or severe exacerbations among patients who had had an exacerbation within 1 year before the trial.

The rate of moderate or severe exacerbations was 8.4% lower (95% CI 1.1 to 15.2) in the fluticasone furoate–vilanterol group compared with usual care ($p=0.02$). There was no difference in COPD-related contacts to primary or secondary care. There were no significant between-group differences in the rates of the first moderate or severe exacerbations. Serious adverse events were similar in the two groups.

Patients in general practice who had a diagnosis of COPD and a heightened risk of exacerbations had a benefit with once daily inhaled combination treatment with fluticasone furoate and vilanterol compared to usual care, without an additional risk of serious adverse events.

Health coaching and chronic obstructive pulmonary disease rehospitalisation: a randomised study



Roberto Benzo, Kristin Vickers, Paul J Novotny, Sharon Tucker, Johanna Hoult, Pamela Neuenfeldt, John Connett, Kate Lorig, Charlene McEvoy

Am J Respir Crit Care Med 2016;194:672–80

<http://dx.doi.org/10.1164/rccm.201512-2503OC>

Multiple factors contribute to readmissions following COPD exacerbation, many of which are not specific to COPD, such as comorbidities and psychosocial issues. Effective prevention strategies need to be comprehensive and directed at more than COPD alone. Health coaching using motivational interviewing skills has been associated with behaviour change and improved self-management abilities, self-efficacy, health status and medication adherence.

Benzo *et al* conducted a multisite randomised trial comparing a health coaching intervention with guideline-based usual care for patients after hospitalisation for a COPD exacerbation. The primary outcome of the study was the rate of COPD-related rehospitalisation during 1 year of follow-up. Patients were randomised at discharge to receive either (1) motivational interviewing-based health coaching plus a written action plan for exacerbations (the use of antibiotics and oral steroids) and brief exercise advice ($n=108$) or (2) usual care ($n=107$).

The intervention decreased COPD-related hospitalisations at 1, 3 and 6 months after hospital discharge, but not at 1 year after discharge. Quality of life improved significantly in the health coaching group compared with the control group at 6 and 12 months. There were no differences between groups in measured physical activity at any time point.

Health coaching may represent a feasible and possibly effective intervention to reduce COPD readmissions.

Single inhaler triple therapy versus inhaled corticosteroid plus long-acting 2-agonist therapy for chronic obstructive pulmonary disease (TRILOGY): a double-blind, parallel group, randomised controlled trial

THE LANCET

Dave Singh, Alberto Papi, Massimo Corradi, Ilona Pavliová, Isabella Montagna, Catherine Francisco, Géraldine Cohuet, Stefano Vezzoli, Mario Scuri, Jørgen Vestbo

Lancet 2016;388:963–73

[http://dx.doi.org/10.1016/S0140-6736\(16\)31354-X](http://dx.doi.org/10.1016/S0140-6736(16)31354-X)

COPD treatment is often stepped up to 'triple therapy' when patients have exacerbations, combining an ICS, a LABA and a LAMA. Trials have shown that this step-up improves lung function and reduces symptoms. However, there is little evidence for this approach regarding exacerbation reduction. Patients receiving triple therapy currently use two inhalers, often of different types.

This multicentre randomised, parallel group, double-blind, active-controlled study (Trilogy) compared the efficacy and safety of single inhaler triple therapy comprising extrafine formulations of beclomethasone dipropionate (100 µg), formoterol fumarate (6 µg) and glycopyrronium bromide (12.5 µg) to that of beclomethasone dipropionate (100 µg) and formoterol fumarate (6 µg) in patients with COPD who had severe or very severe airflow limitation, symptoms and an exacerbation history.

After a 2 week run-in where they received beclomethasone/formoterol in two actuations twice daily, patients were randomised to either continue beclomethasone/formoterol ($n=681$) or step-up to triple therapy ($n=687$) in two actuations twice daily for 52 weeks via pMDI.

Triple therapy inhaler was superior to beclomethasone/formoterol for both pre-dose FEV1 (adjusted mean difference 0.081 L (95% CI 0.052 to 0.109); $p<0.001$) and 2-hour post-dose FEV1 (adjusted mean difference 0.117 (95% CI 0.086 to 0.147); $p<0.001$) at week 26. With triple therapy the rate of moderate-to-severe COPD exacerbations was 23% lower and the time to first exacerbation significantly longer compared with beclomethasone/formoterol. Adverse events were similar in the two groups.

This study provides evidence for the clinical benefits of stepping up patients with COPD from inhaled ICS/LABA combination treatment to triple therapy using a single inhaler.

Pulmonary rehabilitation as a mechanism to reduce hospitalisations for acute exacerbations of COPD: a systematic review and meta-analysis



Elizabeth Moore, Thomas Palmer, Roger Newson, Azeem Majeed, Jennifer K Quint, Michael A Soljak

Chest 2016;150:837–59

<http://dx.doi.org/10.1016/j.chest.2016.05.038>

Pulmonary rehabilitation (PR) is a key component in the management of COPD and can improve exercise capacity, dyspnoea, activities of daily living, muscle strength and self-efficacy. While PR significantly reduces hospitalisations and mortality in patients who have recently experienced an exacerbation of COPD, more evidence is needed in the large majority of patients with COPD who participate in PR courses when stable.

This review identified and reviewed RCTs and observational studies that examined whether PR reduced hospitalisations for AECOPD in all patients with a defined diagnosis of COPD, rather than only those who have had recent exacerbations. Eighteen studies were included in the meta-analysis.

Ten RCTs showed that the control groups had a higher overall rate of hospitalisation than the PR groups (control groups: 0.97 hospitalisa-

tions/patient-year, 95% CI 0.67 to 1.40; PR groups: 0.62 hospitalisations/patient-year, 95% CI 0.33 to 1.16). Five studies found a significantly higher admission rate in the 12 months before PR compared with after (before: 1.24 hospitalisations/patient-year, 95% CI 0.66 to 2.34; after: 0.47 hospitalisations/patient-year, 95% CI 0.28 to 0.79). In contrast, pooled results from three cohort studies which examined data from real-life populations did not favour PR, raising the possibility that PR may be more effective for reducing the risk of future hospitalisations in some patients than in others.

This review provides evidence from RCTs to suggest that providing rehabilitation is beneficial for reducing hospitalisations and therefore healthcare consumption. However, pooled results from the cohort studies did not confirm this, possibly reflecting the heterogeneous nature of individuals included in these trials and the varying standard of PR programmes.

A randomised trial of long-term oxygen for COPD with moderate desaturation: The Long-Term Oxygen Treatment Trial Research Group
N Engl J Med 2016;375:1617–27
<http://dx.doi.org/10.1056/NEJMoa1604344>



While long-term treatment with supplemental oxygen reduces mortality among patients with COPD and severe resting hypoxaemia, trials evaluating oxygen therapy in patients with COPD who have mild-to-moderate daytime hypoxaemia are underpowered to assess mortality.

The Long-Term Oxygen Treatment Trial (LOTT) was originally designed to test whether supplemental oxygen results in a longer time to death than no use of supplemental oxygen in COPD patients with moderate resting desaturation. The trial design was not feasible owing to lower than projected mortality and the overlap between patients with moderate resting desaturation and those with exercise-induced desaturation. The investigators therefore redesigned the trial to include patients with exercise-induced desaturation to test whether the use of oxygen resulted in a longer time to death or first hospitalisation for any cause compared to no use of supplemental oxygen among patients with moderate resting desaturation or moderate exercise-induced desaturation.

738 patients were followed for 1–6 years. Patients were randomised to receive long-term supplemental oxygen (supplemental oxygen group) or no long-term supplemental oxygen (no-supplemental-oxygen group). In the supplemental-oxygen group, patients with resting desaturation were prescribed 24-hour oxygen, and those with desaturation only during exercise were prescribed oxygen during exercise and sleep.

Results indicated that long-term supplemental oxygen did not provide any benefit with respect to the time to death or first hospitalisation or any sustained benefit with respect to any other outcome measured among patients with stable COPD and resting or exercise-induced moderate desaturation.

Benralizumab, an anti-interleukin-5 receptor monoclonal antibody as add-on treatment for patients with severe, uncontrolled, eosinophilic asthma (CALIMA): a randomised, double-blind, placebo-controlled phase 3 trial
 J Mark FitzGerald, Eugene R Bleeker, Parameswaran Nair, Stephanie Korn, Ken Ohta, Marek Lommatzsch, Gary T Ferguson,

THE LANCET

William W Busse, Peter Barker, Stephanie Sproule, Geoffrey Gilmartin, Viktoria Werkström, Magnus Aurivillius, Mitchell Goldman, on behalf of the CALIMA study investigators
Lancet 2016;388:2128–41
[http://dx.doi.org/10.1016/S0140-6736\(16\)31322-8](http://dx.doi.org/10.1016/S0140-6736(16)31322-8)

For many patients, eosinophilia is a hallmark of severe, uncontrolled asthma. Increased numbers of airway and circulating eosinophils are associated with an increased frequency of exacerbations, high symptom burden and impaired lung function. Maintaining lowered eosinophils has been linked with fewer exacerbations and hospital admissions. The cytokine interleukin-5 is a main driver of eosinophil proliferation, maturation, activation and survival. Current treatment guidelines for patients with severe, uncontrolled asthma with eosinophilia recommend add-on anti-interleukin-5 biologic therapy.

Benralizumab is an anti-interleukin-5 receptor α monoclonal antibody that induces nearly complete depletion of eosinophils via enhanced antibody-dependent cell-mediated cytotoxicity. This multicentre randomised, double-blind, parallel-group, placebo-controlled, phase III trial (CALIMA) investigated the efficacy and safety of benralizumab for patients with severe asthma uncontrolled by standard therapy with baseline blood eosinophils 300 cells/ μ L or greater. Patients were randomly assigned (1:1:1) to receive 56 weeks of benralizumab 30 mg every 4 weeks (n=425), benralizumab 30 mg every 8 weeks (n=441) or placebo (n=440).

Benralizumab 30 mg significantly reduced the annual rate of asthma exacerbations by up to 36% in patients with severe asthma and elevated blood eosinophils who were inadequately controlled on existing therapy. Both benralizumab dosing regimens significantly improved lung function and, when administered every 8 weeks, significantly improved patient-reported total asthma symptom scores. Furthermore, benralizumab rapidly depleted blood eosinophils to the limits of detection.

Benralizumab significantly reduced exacerbation rates and was generally well tolerated for patients with severe, uncontrolled asthma with blood eosinophils 300 cells/ μ L or greater.

Incidence of oral thrush in patients with COPD prescribed inhaled corticosteroids: effect of drug, dose, and device



P N Richard Dekhuijzen, Maria Batsiou, Leif Bjerner, Sinthia Bosnic-Anticevich, Henry Chrystyn, Alberto Papi, Roberto Rodríguez-Roisin, Monica Fletcher, Lucy Wood, Alessandra Cifra, Joan B Soriano, David B Price
Respir Med 2016;150:54–63
<http://dx.doi.org/10.1016/j.rmed.2016.09.015>

There is little information on real-life occurrence and distribution of oral thrush in patients with COPD who are prescribed ICS.

This historical, observational, matched cohort study utilised healthcare records from the Optimum Patient Care Research Database to investigate the incidence of oral thrush in COPD patients receiving ICS/LABA combination therapy. The investigators also assessed whether the type of ICS, the ICS dose and the delivery device influenced oral thrush incidence.

COPD patients on ICS/LABA therapy (n=8,255) had significantly greater odds of experiencing oral thrush than those prescribed long-acting bronchodilators (n=8,255) alone (adjusted OR 2.18 (95% CI 1.84 to 2.59)).

In two subset analyses the authors matched (1) 3,465 patients receiving budesonide/formoterol fumarate dihydrate (BUD/FOR) and fluticasone propionate/salmeterol xinafoate (FP/SAL) DPI both by dry powder device (DPI); and (2) 3,800 patients receiving FP/SAL either by metered dose inhaler (pMDI) or DPI.

Fewer patients prescribed BUD/FOR DPI developed oral thrush than patients prescribed FP/SAL DPI (196 (5.7%) patients with oral thrush vs 244 (7.0%); OR 0.77 (95% CI 0.63 to 0.94) after adjusting for baseline confounders). However, after adjusting for intended ICS daily dose, there was no significant difference between the treatment arms.

A significantly smaller proportion of patients developed oral thrush in the FP/SAL pMDI arm than in the FP/SAL DPI arm. In the FP/SAL cohort (both DPI and pMDI), increased risk of oral thrush was significantly associated with high ICS daily dose.

ICS use increases oral thrush incidence in COPD and this effect is dose-dependent for FP/SAL therapies. FP/SAL pMDI and BUD/FOR DPI may be more protective against oral thrush.

Influence of lung function and sleep-disordered breathing on all-cause mortality: a community-based study

Nirupama Putcha, Ciprian Crainiceanu, Gina Norato, Jonathan Samet, Stuart F Quan, Daniel J Gottlieb, Susan Redline, Naresh M Punjabi

Am J Respir Crit Care Med 2016;194:1007–14
<http://dx.doi.org/10.1164/rccm.201511-2178OC>



Levels of lung function below predicted values are associated with an increased risk of mortality. In addition, sleep-disordered breathing has been strongly associated with all-cause mortality. Influence of low lung function on the risk for all-cause mortality associated with sleep-disordered breathing has not been well studied.

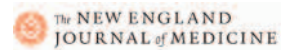
Putcha *et al* used data from a prospective cohort study of cardiovascular consequences of sleep-disordered breathing (Sleep Heart Health Study) to determine whether the association between low lung function and mortality would be stronger in those with increasing severity of sleep-disordered breathing in middle-aged and older adults.

Sleep testing and spirometry data were analysed on 6,173 participants. Proportional hazards models were used to calculate risk for all-cause mortality, with FEV1 and apnea-hypopnea index (AHI) as the primary exposure indicators along with several potential confounders. In people without sleep-disordered breathing (AHI <5 events/hour), a dose-response association was noted between a lower FEV1 and higher risk for mortality. In contrast, in people with moderate to severe sleep-

disordered breathing (AHI 15.0–29.9 and >30.0 events/h), a lower FEV1 was not associated with an increase in mortality risk when compared with a higher FEV1.

The findings indicate that the incremental impact of lung function impairment on all-cause mortality lessens with increasing degree of sleep-disordered breathing.

Prevalence of pulmonary embolism among patients hospitalised for syncope



Paolo Prandoni, Anthonie WA Lensing, Martin H Prins, Maurizio Ciammaichella, Marica Perlati, Nicola Mumoli, Eugenio Bucherini, Adriana Visonà, Carlo Bova, Davide Imberti, Stefano Campostrini, Sofia Barbar, for the PESIT Investigators
N Engl J Med 2016;375:1524–31

<http://dx.doi.org/10.1056/NEJMoa1602172>

Although pulmonary embolism is included in the differential diagnosis of syncope in most textbooks, current international guidelines pay little attention to establishing a diagnostic work-up for pulmonary embolism in these patients.

This cross-sectional Italian study used a systematic diagnostic work-up to assess the prevalence of pulmonary embolism in 560 patients (mean age 76 years) hospitalised for a first episode of syncope, regardless of whether there were potential alternative explanations for the syncope.

Syncope was defined as a transient loss of consciousness with rapid onset, short duration (<1 minute) and spontaneous resolution, with obvious causes such as epileptic seizure, stroke and head trauma ruled out.

The diagnosis of pulmonary embolism was ruled out in 360 patients who had a low pre-test clinical probability, according to the Wells score, in combination with a negative d-dimer assay. In the remaining 230 patients, CT pulmonary angiography or ventilation-perfusion lung scanning identified pulmonary embolism in 97 (42.2%). Evidence of major vessel emboli or perfusion defects larger than 25% of the total area of both lungs was found in 61 patients. Although the prevalence of pulmonary embolism was highest among patients who presented with syncope of undetermined origin (25% of patients), almost 13% of patients with potential alternative explanations for syncope had pulmonary embolism.

Among patients who were hospitalised for a first episode of syncope and who were not receiving anticoagulation therapy, pulmonary embolism was confirmed in approximately one in six patients.

PCRS-UK News Round-Up

PCRS-UK RESEARCH LEAD APPOINTMENT



We are delighted to announce the appointment of Dr Helen Ashdown as Research Lead for PCRS-UK. Helen has actively contributed to PCRS-UK Executive discussions

and correspondence; she has played a key role in advising on and planning the abstract sessions at the conference alongside Dr Paul Stephenson and she has been an active member of the group responsible for the early career researchers' workshop. Helen is a GP in Oxford and a clinical researcher and tutor at the University of Oxford, where she has both a clinical and research interest in respiratory medicine. She has previously carried out projects in childhood respiratory infection, sarcoidosis and whooping cough, and is currently working on projects investigating whether we can use blood eosinophils and fraction of exhaled nitric oxide (FeNO) to better target which patients with COPD will most benefit from inhaled

steroids, particularly by using near-patient testing in primary care. If you are interested in getting more involved in respiratory research contact us at info@pcrs-uk.org and we will put you in touch with Dr Ashdown.

PCRS-UK – INSPIRING AND ASPIRING RESPIRATORY RESEARCHERS MEETING, 13 OCTOBER 2016

A total of 21 delegates (including facilitators) attended the first workshop for aspiring respiratory researchers. The workshop, aimed at people starting out on a career in respiratory research and clinicians with a desire to get more involved in respiratory research, as well as those with innovative work they wish to publish, focused on how to write a paper/get your work published and also included structured networking with existing leading lights in the respiratory research field including Dr Patrick White, Professor Stephanie Taylor and Professor Mike Thomas as well as *npj Primary Care Respiratory Medicine* co-editor, Dr Paul Stephenson. Delegates were also given the opportunity to learn some top tips for prepar-

ing and presenting scientific abstracts. Of those who completed the evaluation, 95% felt that the workshop had been highly valuable or good value. All presentations scored well, as excellent or good. All respondents reported that they would wish to attend again if a similar workshop is run by PCRS-UK.

"Really interesting to hear more about the publication process and what makes a good poster/presentation. Meeting other researchers and finding out about their different backgrounds was great too," reported one delegate. *"I have been encouraged to continue my research career by this workshop and to start writing for publication. I was really pleased to find everyone's contribution was valued, please can we have longer next time. Patrick and Helen were excellent facilitators with just the right blend of letting it flow and guidance - great job!"* commented another.

If you are interested in attending our next respiratory research workshop, please express your interest by emailing us at info@pcrs-uk.org

SECOND OPINION

Your respiratory questions answered...

Question: I'm an experienced GP. I have an HCA (Healthcare assistant) who does all my spirometry and a nurse who is competent at interpreting it for me. What do these new guidelines mean to me? And what are the cost implications for the practice?

Answer: The recent guidance on assessment and certification of spirometry is all about improving the quality of diagnostic spirometry so that patients in England receive high quality, consistent spirometry to diagnose lung conditions.

1. It does not cover clinicians who are using spirometry results together with other clinical information to help them make a diagnosis. So the role you play in using spirometry falls outside of this guidance.
2. The guidance does, however, cover both your HCA and your practice nurse, since it covers any healthcare practitioner who is performing and/or interpreting spirometry. If they have undertaken training and are already on the voluntary register held by ARTP, they will need to be re-certified in the next 3 years in order to join the National Register. If they have received training in the past, they may need to undertake refresher training in order to be assessed and certified as competent before joining the National Register. If they have received no previous training, they will have two options: (1) undertaking training in order to be certified as competent to join the National Register or (2) applying to be assessed and certified as competent through the Experienced Practitioner Scheme (EPS). These different routes are illustrated in the figure on **page X** (Process for achieving certification of competence in performing diagnostic spirometry).
3. If your HCA and/or nurse need training or to join the National Register via the EPS scheme, the practice will be expected to cover the cost of training or to discuss it with the CCG. The CCG will be responsible for ensuring high quality diagnostic spirometry for their population. The guidance does not specify the setting in which spirometry should take place, so some CCGs may choose to review the arrangements for spirometry provision in their locality.

Reference: 'Improving the quality of diagnostic spirometry in adults: The national register of certified professionals and operators', September 2016 (see <http://tinyurl.com/h59f9me>).

Have you got a question for Second Opinion?

If you have a question for Second Opinion please submit your question to info@pcrs-uk.org quoting "Second Opinion" in the subject line



Delivering Excellence Locally

Featuring initiatives led by PCRS-UK members around the UK, supported by PCRS-UK programmes and tools

The rewards and challenges of setting up an integrated community respiratory service



Francesca Robinson talks to **Dr Daryl Freeman** PCRS-UK East of England lead and GP with a special interest in respiratory care, about her work in North Norfolk setting up a fully integrated respiratory community service.

The idea for the North Norfolk CCG Community Respiratory Service grew out of a risk profiling study called the IMPACT project, carried out in 19 practices, to identify COPD patients at high risk of exacerbations and COPD patients eligible to have their triple therapy reduced.

Having identified these patients, the next step was to provide training for practice nurses who had variable levels of expertise in managing high-risk patients. This was done by producing support tools setting out how to manage high-risk patients, how to step down patients from inhaled corticosteroids (ICS) and a CCG-wide self-management plan. Nurses were given additional training from Daryl and specialist respiratory nurses in mentored clinics.

Following on from this work, the CCG agreed with Daryl that they should continue with the project's impetus of improving respiratory care and gave her the go-ahead to set up an integrated community respiratory service focused on primary care. The service specification is currently being written with the aim of the service going live in December.

A four-layered bottom-up service

The service is designed to have four layers operating from the bottom up, in a pyramid form, to serve the different needs of patients. The first stage, some of which is already underway as a result of the IMPACT project, involves work to 'beef up' primary care respiratory services.

Each practice is receiving one or two visits from either Daryl, Val Gerard, a PCRS-UK committee member or another local respiratory nurse specialist, who look not only at the work of the practice nurse but also at the way the entire practice treats respiratory patients. The aim is for everyone in the practice to be made aware of respiratory patients' needs. Practices are being asked to consider: how they are scanning documents, how they are identifying that Mrs X has been in hospital

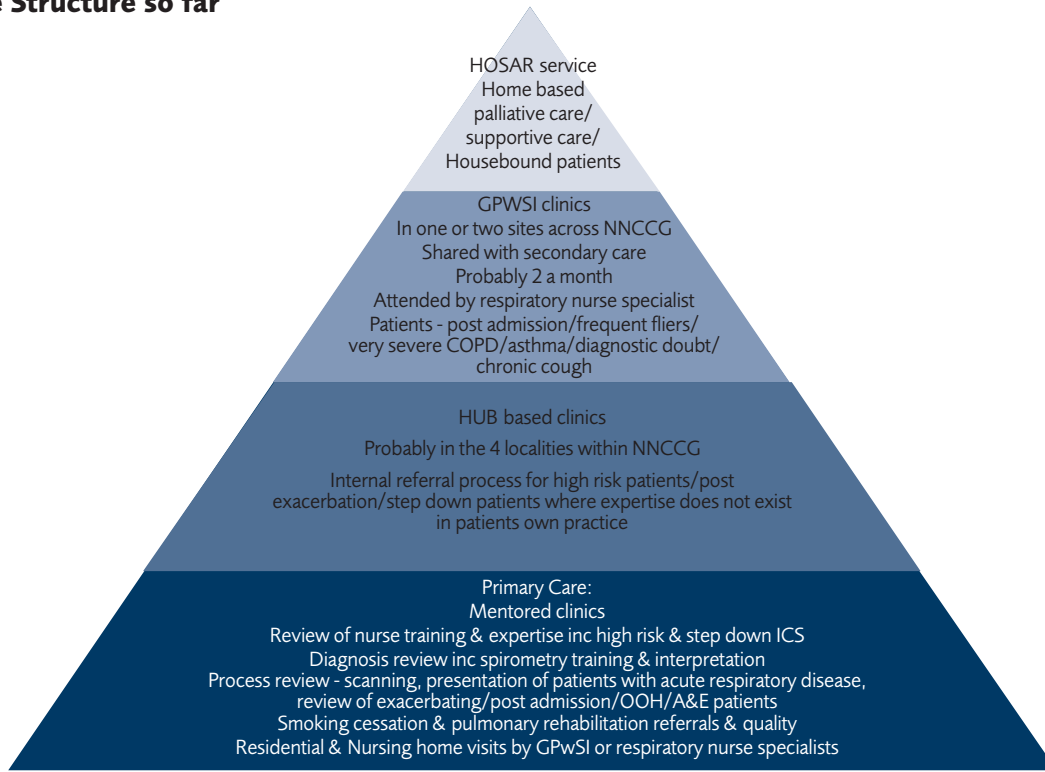
with a COPD exacerbation, whether they are looking at their out-of-hours and their A&E attendances, and how patients are followed up after they leave hospital. Does somebody ring them within 48 hours? Are they reviewed within two weeks by a member of the respiratory team?

The team also asks whether dispensers can identify patients who are having too many repeat and emergency packs, what happens to patients when they present at the front desk. Does the receptionist know how to recognise somebody who is breathless and do they have a way of flagging patients who may be at risk of a COPD exacerbation?

Daryl and her team are continuing with the mentored clinics which are also providing them with insights as to where there are pockets of good care to help them to identify one practice for each of the four localities in the CCG that can act as an internal referral hub for level two of the service. These hubs, running once a week, will manage high-risk, post-exacerbation and step-down patients where expertise does not exist in the patient's own practice. Patients discharged from hospital/out-of-hours or A&E will be sent to the hubs for their two-week review where appropriate.

The third level of the service will provide fortnightly specialist clinics run by a GPwSI, a respiratory nurse specialist and a hospital consultant who will see the more complex patients such as those post admission, frequent fliers, patients with very severe COPD or asthma, who have chronic cough or whose diagnosis is doubtful. This process is being discussed with the local acute trust with a view to ways the community service could help to reduce pressures on their outpatient appointments benefitting both the trust and patients.

Level four will provide a home oxygen assessment and review service, and treat housebound patients and those needing palliative or supportive care.

The Structure so far

The first and lowest layer of the service will provide residential and nursing home visits by a GPWSI or respiratory nurse specialist, a priority they are trying to get off the ground as soon as possible. This will involve going out and doing medication reviews in nursing homes and probably changing all the medication to metered dose inhalers with a spacer and mask so that carers only have to be taught how to use one device.

The Challenges

Daryl says she has encountered several challenges as she has worked to get the service up and running. One of the biggest hurdles has been persuading practices of the advantages of working at scale with the CCG and that high-risk patients will benefit from being treated by community specialists.

The acceptability of this idea, recommended by the 'Five Year Forward View', is by no means universal across practices, and even within practices there are differing views between partners/salaried GPs and practice managers. The CCG hopes to move towards forming a Multispecialty Community Provider (MCP) organisation, although this may be some way away, and this project is a small beginning to encourage joint working. The ambitions of the new service also chime

with themes emerging from Sustainability and Transformation Plans (STPs) such as improving out-of-hospital care, keeping patients care closer to home and using local experts (GPs and pharmacists with a special interest).

"When discussing these plans with local GPs I point out that we are now looking after patients who 20 years ago would have been cared for in secondary care. We have sick patients with multiple comorbidities and so it makes sense to develop expertise within the CCG and to use that expertise to benefit all the patients across the CCG."

"It's a really enormous culture change, a number of CCGs are already forming MCPs and working at scale, however it is easier to do this in a city where the GP surgeries are all very close together. In rural communities like ours, where general practice isn't perhaps struggling as much as it is in other areas, the thinking is – we are doing fine, thank you very much, we will carry on as we are," says Daryl.

The second challenge is there is no new money in the system and the only way to get funding is to do something new. *"Setting up a community respiratory service based in primary care is very exciting and it's what should happen because a lot of community respiratory projects are secondary care-driven. There is a lot of evidence that good care in*

primary care reduces short-term admissions, so if we can get this right, this should start to happen."

"STPs say that out-of-hospital care in the community has to improve and that primary, secondary and community services have to work together. The CCG and secondary care consultant have been very supportive; however, the money has to come from secondary care. The local hospital run by the Norfolk and Norwich University Hospitals Trust is in financial turnaround but does recognise that the solution to their problems cannot be to see more and more patients. So my argument is that setting up a community respiratory service would be a win for everybody," says Daryl.

IF YOU DON'T ASK YOU DON'T GET

Daryl says the service she is setting up could be easily replicated in other areas:

"The first stepping stone was doing the IMPACT work. Optimum Patient Care (OPC) was invited in to do the data search to identify the high-risk patients."

"OPC is a not-for-profit organisation based in Cambridge that has extensive expertise in interrogating GP clinical systems, producing reports which sit on the nurse's PC desktop enabling better identification of patients who may need an adjustment to their management. The other part of this project was aimed at reviewing and reducing ICS prescribing, something that will win instant buy-in from the CCG in terms of reducing cost of inhalers and reducing complications from high-dose ICS usage."

"This risk profiling work is the first stage in persuading the CCG to work with you and it doesn't involve a lot of effort because OPC come in and do most of the donkey work for you. They don't charge for the service and they will teach the nurses and practice managers how to use the data in order to focus the respiratory reviews."

"Once you have the data, you have to work out what to do with the high-risk patients and a community respiratory service can be the next logical step."

"This whole project began as a throw-away comment I made at a meeting with the CCG contract manager. I said: 'If you asked me where I would like to be in five years' time ... it would be working as a community respiratory physician ...'. Shortly after that they asked me to set up the service. So my advice is: if you don't ask you don't get."

Affiliated Group Leaders Workshop

Fit for the Future: Fit for Practice



Francesca Robinson reports on the PCRS-UK Affiliated Group Leaders meeting held in October and talks to an enthusiast preparing to set up a new group.

Making the most of your consultation skills and an overview of feedback and appraisal were the topics discussed at the Affiliated Group Leaders workshop in October.

The effective consultation

"An essential consultation skill is being able to really listen to the patient and hear and understand what they have got to say," said Ren Lawlor, an advanced nurse practitioner with a special interest in respiratory and senior lecturer at University of Greenwich who led this session.

Quoting the physician William Osler, she said a good consultation involved listening to your patient because he is telling you his diagnosis.

The problem with the traditional consultation style of taking a history and generating a diagnosis is that this process is often led by the clinician's agenda.

Every patient is different, so it is important to create an environment where the clinician can bring out what the patient wants to tell them. This involves being on a level with the patient and creating an environment of trust.

Ren said that Dr Roger Neighbour, who writes, teaches and lectures about the relationship between the doctor and the patient, defined the consultation as a journey with five checkpoints.

These are:

- Connecting: establishing a relationship and building rapport. First of all - introduce yourself, this is so important in building a relationship, especially if you have never met the patient before.
- Summarising: history taking, listening to what the patient says and reflecting back to them to make sure there are no misunderstandings.
- Handing over: agree agendas and develop a management plan, be helpful.
- Safety netting: ensure the patient knows what to do if things don't go according to plan.
- Housekeeping: the practitioner should make time to look after themselves.

Ren also covered what can happen if the consultation goes wrong and the patient becomes angry. This could have a profound impact on the

clinician too, who may carry his/her emotions into the next consultation and then home to family and friends.

Strategies for pulling a consultation back to a more positive experience include:

- Take a deep breath, stay calm and neutralise your feelings.
- Be aware of your non-verbal negative cues.
- Don't fight anger with anger, don't be defensive.
- Look for the reason for the reaction and remember it is usually not personal.
- Recognise and accept your feelings as natural and reasonable.
- The irrational component of anger may have its origins from previous experiences and you may need to explore this.

The ideal consultation involves shared decision-making. "Remember the patient can only make an informed decision if you have given them the information to do so," said Ren.

Feedback and appraisal

Dr Steve Holmes, GP and trainer and PCRS-UK Education Lead, said sometimes when we give feedback it is not heard, so it is important to understand the principles of giving and receiving feedback; the two are often interlinked.

A simple definition of feedback is that it is an objective message about behaviour and consequences – it can be given as praise and it can be a suggestion on how to improve. Positive feedback is important. Feedback should not be a blow to the jaw. It should be given in a way that helps the person being appraised to develop.

It was important to remember that feedback is a gift and should always be for the benefit of the receiver, not the giver. Done well, the learner is helped to improve but done badly it is destructive.

Key points for an appraiser:

- Be balanced, establish empathy, comment on improvements and qualities first.
- Pull solutions from the learner – handle mistakes indirectly, let the learner go first.

- Be non-judgmental, describe.
- Have the evidence to hand.
- Offer suggestions, not solutions.
- Encourage self-belief and allow face saving.
- The person being appraised should leave feeling positive and that their achievements have been recognised. They should leave with a personal development plan (PDP).

Key points for the appraisee:

- Know your job/competencies. This should be an opportunity for you to showcase your achievements and share your challenges.
- Set time aside to log/provide evidence of your professional progression.
- Be honest.
- Be prepared to discuss your challenges and ask for guidance.
- Set your own objectives (PDP). This should be an opportunity for you to develop professionally.

Alison Hughes, respiratory nurse specialist from Portsmouth and executive committee member Association of Respiratory Nurse Specialists said she found the Affiliated Group Leader meetings refreshing because they provided practical tips about ways that everyone could improve care. "Reflecting on these issues, such as the elements of a good consultation, helps to remind us of what we should be doing."

Why run a local affiliated group?

- It develops your personal and professional skills.
- It is an opportunity to share best practice with and learn from your peers and local practices.
- It supports improved respiratory care in your area.
- Experience as a respiratory group leader enhances your career.

How PCRS-UK can help

- Affiliation with PCRS-UK offers enhanced credibility to the group, access to other group leads and free membership for local leads.
- Our resource pack contains lots of useful materials to help you start a group with guidance on running meetings, checklists, templates and FAQ. Download it here: <https://www.pcrs-uk.org/resource-pack-help-you-get-started>
- We run an annual meeting for the leaders of PCRS-UK affiliated local groups.
- We offer buddy support from an experienced group leader. Contact info@pcrs-uk.org to be put in touch with a leader of a similar group to your own

That's the whole ethos of this group everybody feels comfortable sharing their experiences and learning."

Carol Stonham, PCRS-UK Nurse Lead who chaired the meeting, said: "The Affiliated Group Leaders were all really positive and really engaged with the topics we discussed. These respiratory leaders have all recognised the importance of setting up a group of like-minded individuals in their local areas. Groups like these are important because often clinicians working in primary care can be very isolated. In these situations it can be very easy to get stuck into your own way of working and not challenge your thinking. To be able to go along to a local group that isn't too far away provides an opportunity to learn something new, hear what our colleagues are doing and ask questions of each other."

A new group in the making

Laura Rush, a respiratory lead practice nurse from Bridgwater, Somerset and an independent trainer, is in the process of setting up an affiliated group.

"There's a real need for something practical and educational for practice nurses in our area around respiratory. When we are all so busy in general practice, it can be challenging to keep up to date with new guidelines and new research evidence that are important to improve our everyday practice. Also, part of our learning comes from sharing experiences and acknowledging best practice; a local group is a great way to meet people and to do this."

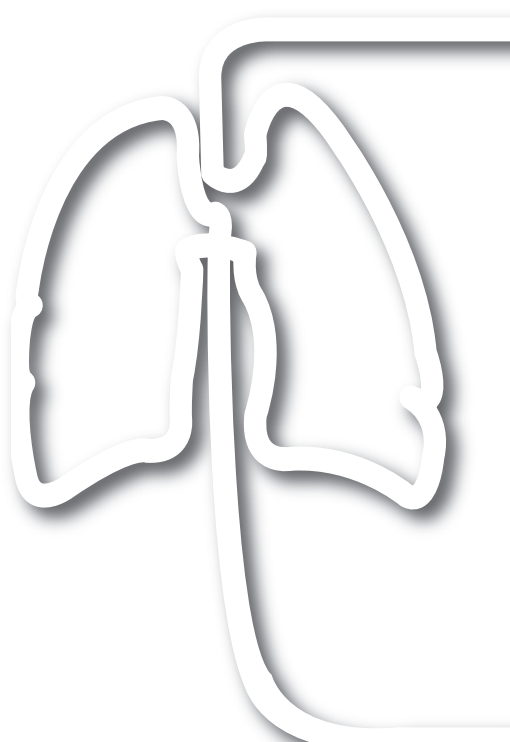
"I've put the word around that I'm looking into setting up a group and I've had quite a bit of interest. I have collected some email addresses from people who are interested and am setting up a database."

"I've got the starter pack on setting up a group from PCRS-UK and I'm already in talks with pharmaceutical companies about sponsorship, engaging speakers and have a venue in mind. There's quite a lot to think about and I want it to be well organised so I am looking at next year."

"I'm doing this because I'm very passionate about respiratory medicine. I developed my interest right at the beginning of my career when I went into general practice soon after I qualified. The Affiliated Group Leaders meeting is a great place to network and meet new people. I feel very supported by PCRS-UK and will be utilising all the learning resources they provide for my group."

"I don't mind using my own time to set up the group because I think I, personally, will get a lot out of it, not only the learning and networking, but it will also look good on my CV, which is a bonus for me as a leader. If I can inspire others to keep up to date and share my passion for respiratory through the group, hopefully this will help to improve the care given to patients with respiratory conditions."

Helping you to deliver high value patient centred respiratory care



- ✓ Quarterly membership publication Primary Care Respiratory Update providing an overview the latest respiratory research, policy and best practice
- ✓ Membership emails and news alerts making it easy to keep up to date
- ✓ Huge savings on registration for our annual national primary care conference
- ✓ Professional development support including access to our clinical leadership programme
- ✓ Friendly community of like minded peers passionate about respiratory care



It pays to join if you are a respiratory lead for your practice or a respiratory health professional working in the community -
annual membership just £59 inclusive of VAT

BTS/SIGN Asthma Guideline – Summary of Diagnostic Tests

Strategy	Description*	Parameter*	Range of predictive values* (Note that a single value indicates data from a single study)				Comments**	
			Sens ⁱ	Spec ⁱⁱ	PPV ⁱⁱⁱ	NPV ^{iv}		
Clinical assessment								
Symptoms and signs	The commonest symptoms assessed were cough and wheeze and, in adults, shortness of breath.	Cough in adults	16–66%	26–64%	8–44%	18–92%	As isolated symptoms cough, wheeze and shortness of breath are neither sensitive, nor specific for asthma. Most children with asthma have intermittent cough, wheeze and exercise-induced symptoms, but only about a quarter of children with these symptoms have asthma. Note that the single study in pre-school children compared current symptoms with a diagnosis of asthma two years later.	
		Wheeze in adults	9–76%	34–87%	10–81%	28–94%		
		Dyspnoea in adults	11–73%	38–71%	41–59%	26–70%		
		Cough in schoolchildren ²⁰	63%	75%	14%	97%		
		Wheeze in children ²⁰	59%	93%	34%	97%		
		Cough in pre-school children	88%	7%	76%	15%		
Symptom variability	Symptom variability	Wheeze in pre-school children	54%	57%	80%	27%	Note that the single study in pre-school children compared current symptoms with a diagnosis of asthma two years later.	
		Shortness of breath in pre-school children	76%	52%	84%	40%		
		Episodic symptoms in adults	9–40%	36–91%	14–86%	18–93%		Asking about episodic symptoms improves the positive predictive values in children compared to current symptoms.
		Diurnal symptoms in adults	30–56%	36–83%	48–76%	18–67%		
		Symptoms after exercise in adults	5–40%	32–93%	5–81%	58–84%		
		Episodic symptoms in children ^{21,22}	36–93%	35–93%	40–94%	62–90%		
Symptoms after exercise in children ^{21,22}	82–94%	59–73%	54–86%	79–91%				
Combinations of symptoms (typically cough, wheeze, chest tightness, dyspnoea, exercise symptoms)	Combinations of symptoms (typically cough, wheeze, chest tightness, dyspnoea, exercise symptoms)	Nocturnal symptoms in children ^{21,22}	57–84%	58–78%	64–85%	57–82%	Combinations of symptoms are clinically more helpful than isolated symptoms, especially in children. For example, two thirds of children with a cluster of cough, wheeze, chest tightness, dyspnoea and exercise symptoms have asthma. Asthma is unlikely if a child does not have at least some of these symptoms.	
		Symptom scores in adults	60%	66%	44–94%	66–97%		
		Symptom scores in children ^{20,22}	45–83%	85–97%	80%	51%		
		Symptoms of cough and wheeze in pre-school children	49%	59%	80%	51%		
		Personal history of atopy in adults	54–55%	68–74%	46–76%	45–79%		Past history (personal or family) of atopic disease has poor sensitivity and specificity for asthma.
		Personal history of rhinitis/eczema in pre-school children	47–62%	20–75%	72–86%	14–30%		
History of atopy	Personal/family history of atopic/allergic diseases	Family history of atopy in adults	26–60%	56–83%	44–74%	38–70%		
		Family history of atopy in children	43–44%	57–70%	51–77%	24–62%		

*Table 1: Summary of individual diagnostic tests***Acknowledgements**

PCRS-UK wishes to thank the British Thoracic Society for permission to reproduce Table 1 – summary of diagnostic tests from the British Guideline on the Management of Asthma 2016. Please see the full guideline available at <https://www.brit-thoracic.org.uk/standards-of-care/guidelines/btsgn-british-guideline-on-the-management-of-asthma/> for more information and reference citations shown in the table

BTS/SIGN Asthma Guideline – Summary of Diagnostic Tests

Strategy	Description*	Parameter*	Range of predictive values* (Note that a single value indicates data from a single study)				Comments**
Strategies for demonstrating airway obstruction							
Spirometry	Regard a FEV ₁ /FVC ratio of less than 70% as a positive test for obstructive airway disease.	Obstructive spirometry in adults Obstructive spirometry in children (5-18 yrs)	23–47% 52%	31–100% 73%	45–100% 75%	18–73% 49%	In the four larger studies (adults and children), the NPV was between 18% and 54% which means that more than half of patients being investigated who have normal spirometry will have asthma (ie false negatives).
Strategies for demonstrating variability in airway obstruction							
Broncho-dilator reversibility	In adults, regard an improvement in FEV ₁ of ≥12% and ≥200 ml as a positive test. In children regard an improvement in FEV ₁ of ≥12% as a positive test.	Bronchodilator reversibility in adults Bronchodilator reversibility in schoolchildren (using a threshold of 9% change in FEV ₁) ⁷⁰	17–69% 50%	55–81% 86%	53–82%	22–68%	In these secondary care populations, about 1 in 3 people with a positive reversibility test will not have asthma (the cohorts all included people with COPD); and at least 1 in 3 people with a negative bronchodilator reversibility test will have asthma.
Challenge tests	Regard a PC ₂₀ value of 8 mg/ml or less as a positive test.	Methacholine challenge in adults. ^{30,42,71} Methacholine challenge in children	51–100% 47–86%	39–100% 36–97%	60–100% 20%	46–100% 94%	Challenge tests are a good indicator for those with a definitive diagnosis of asthma already (based upon clinical judgment, signs and symptoms and response to anti-asthma therapy)
	Fall in FEV ₁ ≥15% at cumulative dose of ≤635 mg is positive	Mannitol in adults Mannitol in children	56% 63%	75% 81%	80%	49%	These data are from a single study in adults and children with symptoms of asthma on questionnaire.
	Exercise challenge	Exercise challenge in adults Exercise challenge in children	26–80% 69–72%	100% 69–72%	100% 90–99%	0% 5–73%	The studies in adults had very small sample sizes. The larger study in children had a false positive rate of 1% (PPV 99%).
Peak flow charting	Monitor peak flows for 2-4 weeks, calculate mean variability. Regard ≥20% variability as a positive test.	PEF charting in adults in a population study - using mean variability of >20% - using mean variability of >15% - using diurnal variation >15% on >3 days/week PEF charting in children - using variation >12.3% (95 th centile)	46% 3–5% 20% 50%	80% 98–99% 97% 72%	97% 60–67% 82% 48%	10% 60% 64% 74%	It is not clear whether the patients in these studies were symptomatic at the time of the charting, and results may not reflect clinical use in symptomatic populations. One study concluded that the number of days with diurnal variation was more accurate than calculating the mean variation.

Acknowledgements

PCRS-UK wishes to thank the British Thoracic Society for permission to reproduce Table 1 - summary of diagnostic tests from the British Guideline on the Management of Asthma 2016. Please see the full guideline available at <https://www.brit-thoracic.org.uk/standards-of-care/guidelines/bssign-british-guideline-on-the-management-of-asthma/> for more information and reference citations shown in the table

BTS/SIGN Asthma Guideline – Summary of Diagnostic Tests

Strategy	Description*	Parameter*	Range of predictive values* (Note that a single value indicates data from a single study)					Comments**
Strategies for detecting eosinophilic inflammation or atopy								
FeNO	Adults: Regard a FeNO level of 40 ppb or more as a positive test Children 5–16yrs: regard a FeNO level of 35 ppb or more as a positive test.	FeNO in adults FeNO in schoolchildren	43–88% 57%	60–92% 87%	54–95% 90%	65–93% 49%	These studies are all in secondary care populations. Approximately 1 in 5 adults with a positive FeNO test will not have asthma (ie false positives) and 1 in 5 adults with a negative FeNO test will have asthma (ie false negatives).	
Blood eosinophils	Suggested thresholds for blood eosinophils: Adults >4.15% Children ≥4% ⁶⁴	Blood eosinophils in adults Blood eosinophils in children	15–36% 55–62%	39–100% 67–84%	39–100% 56–69%	27–65% 73%	Elevated blood eosinophil level is poorly predictive. The threshold varies in these studies from 4.0 to 6.3%.	
IgE		Any allergen-specific IgE >0.35 kU/l in adults Total IgE in adults >100 kU/l	54–93% 57%	67–73% 78%	5–14% 5%	95–99% 99%	A normal IgE substantially reduces the probability of asthma in adults with a false negative rate of less than 1 in 10, although a positive result is poorly predictive.	
Skin prick testing		Any positive test (wheal ≥3 mm) in adults Any positive test (wheal ≥3 mm) in children	61–62% 44–79%	63–69% 56–92%	14–81% 65–92%	39–96% 36–79%		

Notes:

* Data derived from NICE evidence tables unless otherwise specified.¹⁹ Only studies reporting sensitivity, specificity, PPV and NPV are included here

** Comments have been added by the guideline development group as an aid to interpretation of the data presented.

i Sensitivity (Sens) is the probability of a test being positive when asthma is present

ii Specificity (Spec) is the probability of a test being negative when asthma is absent

iii Positive predictive value (PPV) is the proportion of patients with a positive test who actually have asthma (100 minus the PPV is the proportion of patients with a false positive test)

iv Negative predictive value (NPV) is the proportion of patients with a negative test who do not have asthma (100 minus the NPV is the proportion of patients with asthma but in whom test was negative)

Reference tests

In most of the studies, the reference test was spirometry plus either bronchodilator reversibility or a challenge test, although some studies also included a 'typical history of attacks' or diurnal variation, or used physician diagnosis. Studies evaluating methacholine challenge tests used physician diagnosis or bronchodilator reversibility and/or diurnal peak flow variability. In children, the reference tests used were physician diagnosed asthma plus spirometry, or documented history of wheeze on at least two occasions, and variability in FEV₁ over time or on exercise testing.

Acknowledgements

PCRS-UK wishes to thank the British Thoracic Society for permission to reproduce Table 1 – summary of diagnostic tests from the British Guideline on the Management of Asthma 2016. Please see the full guideline available at <https://www.brit-thoracic.org.uk/standards-of-care/guidelines/bliss-sign-british-guideline-on-the-management-of-asthma/> for more information and reference citations shown in the table

Call for Papers



npj Primary Care Respiratory Medicine is an online-only, open access journal, publishing papers representing important advances of significance to specialists within the fields of primary care and respiratory medicine.

Submit your manuscript, and benefit from:

- Comprehensive and rigorous peer review.
- Wide visibility through inclusion in leading indexing and abstracting services.
- Manuscripts submitted to *npj Primary Care Respiratory Medicine* do not need to adhere to our formatting requirements at the point of initial submission; formatting requirements only apply at the time of acceptance.
- Professionally written Editorial Summaries accompany each article, opening up your research to the wider primary care community.

Published in partnership with



EDITORS-IN-CHIEF

Professor Aziz Sheikh

The University of Edinburgh, Edinburgh, UK

Dr. Paul Stephenson

Honorary Clinical Research Fellow, Allergy and Respiratory Research Group, Centre for Population Health Sciences, The University of Edinburgh, Edinburgh, UK

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

2015 IMPACT FACTOR*

Primary Care Respiratory Journal: 2.434*

npj Primary Care Respiratory Medicine: 1.447**

2015 Journal Citation Report (Thomson Reuters, 2016)

* Due to the change of title in April 2014, the journal has been assigned two Impact Factors: one relating to the old title and one relating to the new title.

** *npj Primary Care Respiratory Medicine* has only received a partial Impact Factor due to its launch midway through the Impact Factor calculation.

Part of the Nature Partner Journals series

npj nature partner
journals

ENCOURAGE YOUR COPD PATIENTS TO GET MOVING



Duaklir® Genuair® is indicated as a maintenance bronchodilator treatment to relieve symptoms in adult patients with chronic obstructive pulmonary disease (COPD)

Duaklir® Genuair® significantly improves lung function (trough and 1-hour morning post-dose FEV₁; co-primary endpoints) at week 24 vs. its monocomponents^{1,2}

Duaklir® Genuair® improves overall symptoms throughout the 24-hour day vs. its monocomponents^{3,4}

References: 1. Singh D et al. *BMC Pulm Med* 2014; 14: 178. 2. D'Urzo AD et al. *Resp Res* 2014; 15:123. 3. Bateman ED et al. *Respir Res* 2015; 16:92. 4. Bateman ED et al. *Respir Res* 2015; 16:92 - supplementary data.

PRESCRIBING INFORMATION

Duaklir® Genuair® ▽ 340 micrograms /12 micrograms, inhalation powder (aclidinium/formoterol fumarate dihydrate)

Consult the Summary of Product Characteristics before prescribing.

Use: Duaklir Genuair is indicated as a maintenance bronchodilator treatment to relieve symptoms in adult patients with chronic obstructive pulmonary disease (COPD).

Presentation: Inhalation powder. Each delivered dose contains 396 micrograms of aclidinium bromide (equivalent to 340 micrograms of aclidinium) and 11.8 micrograms of formoterol fumarate dihydrate.

Dosage and administration: The recommended dose is 1 inhalation twice daily.

Contraindications: Hypersensitivity to the active substance(s) or to the excipient lactose monohydrate

Precautions: Should not be used to treat asthma or for treatment of acute episodes of bronchospasm, i.e. rescue therapy. In clinical studies, paradoxical bronchospasm was not observed at recommended doses. Paradoxical bronchospasm has been observed with other inhalation therapies. If this occurs, stop medicine and consider other treatment. Use with caution in patients with a myocardial infarction during the previous 6 months, unstable angina, newly diagnosed arrhythmia within the previous 3 months, QTc above 470 msec or hospitalisation within the previous 12 months for heart failure functional classes III and IV as per the "New York Heart Association". β_2 -adrenergic agonists may produce increases in pulse rate and blood pressure, electrocardiogram (ECG) changes such as T wave flattening, ST segment depression and prolongation of the QTc-interval in some patients. If effects occur, treatment may need to be discontinued. Use with caution in patients with severe cardiovascular disorders, convulsive disorders, thyrotoxicosis and phaeochromocytoma. Hyperglycaemia and hypokalaemia may occur at high doses. Use with caution in patients with symptomatic prostatic hyperplasia or bladder-neck obstruction or with narrow-angle glaucoma due to anticholinergic activity. Dry mouth has been observed and may in the long term be associated with dental caries. Patients with lactose intolerance should not take Duaklir Genuair. **Interactions:** Co-administration with other anticholinergic and/or β_2 -adrenergic agonist containing medicines has not been studied and is not recommended. Although no formal *in vivo* drug interaction studies have been performed with Duaklir Genuair, it has been used concomitantly with other COPD medicinal products including short-acting β_2 -adrenergic bronchodilators, methylxanthines, and oral and inhaled steroids without clinical evidence of drug interactions. Caution is advised in concomitant treatment with methylxanthine derivatives, steroids, or non-potassium-sparing diuretics as this may potentiate the possible hypokalaemic effect of β_2 -adrenergic

 **Duaklir®Genuair®** ▽
aclidinium bromide/formoterol

**Make it your first-choice maintenance
bronchodilator for COPD patients**

AstraZeneca 

agonists. If β -adrenergic blockers are required (including eye drops), cardioselective beta-adrenergic blockers are preferred, and these should be administered with caution. Concomitant treatment with MAOIs, tricyclic antidepressants, antihistamines or macrolides can prolong the QTc interval and increase the risk of ventricular arrhythmias and should be administered with caution. **Fertility Pregnancy and lactation:** It is considered unlikely that Duaklir Genuair administered at the recommended dose will affect fertility in humans. Use only during pregnancy and breast-feeding if the expected benefits to the mother outweigh the potential risks to the infant. It is unknown whether aclidinium bromide (and/or its metabolites) or formoterol are excreted in human milk.

Undesirable events: Consult SmPC for full list of side effects. **Common:** Nasopharyngitis, urinary tract infection, sinusitis, tooth abscess, insomnia, anxiety, headache, dizziness, tremor, cough, diarrhoea, nausea, dry mouth, myalgia, muscle spasm, peripheral oedema, blood creatine phosphokinase increased. **Uncommon:** Hypokalaemia, hyperglycaemia, agitation, dysgeusia, blurred vision, tachycardia, ECG QTc prolonged, palpitations, dysphonia, throat irritation, stomatitis, rash, pruritus, urinary retention, blood pressure increased. **Rare:** Hypersensitivity, bronchospasm including paradoxical. **Not known:** Angiodema, anaphylactic reaction.

Legal Category: POM

Marketing Authorisation Number(s): EU/1/14/964/001 - Carton containing 1 inhaler with 60 unit doses.

NHS Cost: £32.50 (excluding VAT)

Further information is available from: AstraZeneca UK Ltd., 600 Capability Green, Luton, LU1 3LU, UK.

Duaklir and Genuair are both trademarks of the AstraZeneca group of companies.

Date of preparation: 08/2016

RSP 16 0022

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 AstraZeneca on 0800 783 0033.