Selected abstracts from the PCRS-UK National Primary Care Respiratory Conference, Telford, October 2013

1. Patient reported satisfaction of a proactive post hospital discharge telephone service in patients with Chronic Obstructive Pulmonary Disease
Bahadur KJ, Chauhan D, McDonnell L, Osman L
Physiotherapy Department, Guy’s and St. Thomas’ NHS Foundation Trust (GSTFT), London, UK

Aim: Background: Although post hospital discharge telephone support (PHDTS) is a common feature of many clinical services, there is little published evidence evaluating the benefits in patients admitted with an exacerbation of chronic obstructive pulmonary disease (COPD). Recently GSTFT introduced proactive telephone support as part of routine post-discharge care in the community for patients admitted with an COPD. PHDTS was provided weekly for the first month and monthly for two months thereafter.

Method: Patient satisfaction survey was developed with the Patient Experience Team. A convenience sample of 22 patients who received PHDTS during December 2011 was used. Patients were contacted by a single member of the Integrated Respiratory Team (IRT) and the survey completed over the telephone.

Results: 21/22 (95%) patients completed the patient survey. 70% rated it “very useful” and 25% “good”. Patients reported that calls were made at convenient times, appropriate frequencies and that regular contact with staff was useful. 67% of patients thought that PHDTS helped to prevent them from visiting hospital. 71% of patients thought that PHDTS decreased their need to contact their GP.

Conclusion: Patient satisfaction was high. PHDTS may augment self-management strategies which can help to improve outcome. This survey suggests that pro-active PHDTS is effective in the management of patients with COPD. This could potentially reduce primary and secondary care attendances and healthcare utilisation.

Conflict of interest and funding: Nil
Corresponding author: Mr Kristopher Bahadur Email: kris.bahadur@gstt.nhs.uk Phone: 07967707472 Institution: Guy’s and St. Thomas’ NHS Foundation Trust Westminster Bridge Road London United Kingdom SE1 7EH

2. Step-down of well-controlled paediatric asthma patients in primary care: A pharmacist led primary care service
Bhalla MK, Abdalla H
Walsall Medicines Management, Walsall Clinical Commissioning Group (CCG)

Brief outline of context: A pharmacist independent prescriber undertook a pilot project in two practices to identify well-controlled paediatric asthma patients and safely step-down their treatments.

Brief outline of problem: Accurately diagnosing asthma in children can be difficult leading to some receiving inappropriate diagnoses. Moreover, many young asthmatics outgrow their condition. Nevertheless, a structured step-down is seldom offered to these patients.

Assessment of problem and analysis of its causes: Asthma UK reports 1.1 million children with asthma but there is little information on how many are suitable for treatment step-down or how to do it safely.

Strategy for change: A pharmacist conducted consultations with selected patients to: • review medication • check inhaler technique, • conduct an Asthma control test (ACT) • issue a self management plan • implement treatment step down for suitable patients. The pharmacist followed this with a telephone consultation 6-8 weeks later.

Measurement of improvement: The methodology was reviewed weekly, based on attendance rates and number of patients stepped down. For those patients, ACT scores were recorded again at follow up.

Effects of changes: 25 patients were seen and reviewed and all had concordance issues addressed. 14 (56%) of these were stepped-down, releasing efficiencies of £103.55/month. All those stepped down had a follow-up ACT score of the same or higher, showing maintained asthma control.

Lessons learnt: Results highlight the gap in current service provision for step-down in treatment in well-controlled paediatric asthma patients.

Message for others: Many children diagnosed with asthma can be stepped down safely by a trained pharmacist, whilst consolidating concordance and releasing cost savings.

Conflict of interest and funding: None
Corresponding author: Ms Mindy Bhalla Email: Mindy.bhalla@walsall.nhs.uk Phone: 07843428487 Institution: Walsall clinical commissioning group Bloxwich lane Jubilee house Walsall United Kingdom WS27J

3. Are secondary care to blame for the large healthcare costs incurred by COPD patients?
Bhogal P, Baker E
St George’s University of London, United Kingdom

Aim: Over €900 million is being spent on healthcare cost for COPD patients over two thirds of which are encountered in secondary care. The new Wardsworth Tier System (based on NICE Guidelines) aims of reducing costs by providing guidelines to primary and secondary care in offering appointments to COPD patients. The aim of this audit was to determine whether COPD patients were seen by the correct healthcare professionals and were offered appointments efficiently in accordance to the new guidelines.

Method: A cross sectional study was done where clinical letters from St George’s respiratory clinics over a 6 month period were searched to identify: all COPD patients attending clinic, the time and reason for those receiving follow up appointments. Demographic and spirometry results were recorded from electronic patient records. The proportion of patients offered a follow up appointment was determined, along with indications and mean time to the next appointment.

Results: 169 clinics in 6 months were screened, with a total of 330 COPD patients seen (mean age 68 ± 11 years). 194 (59%) COPD patients were offered a secondary care follow up appointment. 19% of which were offered not in accordance with the new guidelines (including 7% unnecessary routine appointments). 28% of appointments were offered with inappropriate time intervals.

Conclusion: 19% of appointments appeared unnecessary and referral of these patients back to primary/community care could increase the efficiency of the clinic as well as allowing patients to receive care closer to home. This would make clinic space for more timely follow up of patients needing appointments, hence improving use of healthcare resources.

Conflict of interest and funding: Healthcare costs of COPD patients
Corresponding author: Mr Palveer Bhogal Email: palvz4@hotmail.com Phone: 07908537742 Institution: St George’s University of London Cranmere Terrace London United Kingdom SW17 0RE

PRIMARY CARE RESPIRATORY JOURNAL
www.thepcrj.org
http://dx.doi.org/10.4104/pcrj.2013.00105
4. Older People with Asthma: A General Practice Perspective
Carnegie E
Asthma UK

**Aim:** To discover whether asthma management in primary care addresses the concerns, or achieves the desired outcomes, of older people with asthma.

**Method:** This was an exploratory qualitative study utilising a participatory approach. We used a purposive convenience sample from one Scottish region accessed through a range of community organisations spanning urban and rural areas. Unstructured, face-to-face interviews were conducted with 30 adults aged between 60 and 90 in 2011-12. Thematic analysis was conducted using iterative and interpretative qualitative methods. Emergent themes and supporting evidence were discussed with participants to gain further understanding, enhance theory development and to identify issues for clinical practice.

**Results:** The opportunity to discuss their asthma in depth was missing from the care experience of most of the participants. Even though some perceived their asthma to be under control, the data revealed complex, unresolved issues underlying the care of the majority of participants: 1) minimal understanding of asthma, asthma medicines and emergency advice; 2) confusion over diagnosis; 3) ambivalence towards medicines and their effectiveness; 4) no written personal asthma plan; 5) irregular asthma reviews; 6) over-deference towards healthcare professionals. These perceptions and conditions led to feelings of anxiety and defeat, threatening their autonomy and ability to self-manage. Additionally, they cited age-related changes such as atypical symptoms and trigger factors; low expectations; the risk of isolation and depression; as being key asthma-related problems.

**Conclusion:** In this sample of older adults with asthma, many do not feel equipped to deal with their asthma and so identification of clinical and psychosocial factors is essential. Clinicians should be aware of pulmonary-age-related changes and their accompanying risk factors and base consultations on respectful dialogue to enhance self-management and personal capacity.

**Conflict of interest and funding:** None

**Corresponding author:** Dr Elaine Carnegie Email: ecarnegie@asthma.org.uk Phone: 0131 202 1833 Institution: Asthma UK 4 Queen Street Edinburgh United Kingdom EH2 1JE

5. Spirometry in primary care in Oxfordshire: an educational intervention
Carr RG
OCCG

**Brief outline of context:** An audit of the county was followed up by an educational intervention, provision of equipment, and nurse educational groups.

**Brief outline of problem:** 85 practice in Oxfordshire found that all had a spirometer but very few had calibration syringes and fewer still had recent training in performing spirometry and interpretation.

**Assessment of problem and analysis of its causes:** Primary care spirometry quality control requires the equipment be verified or calibrated regularly and be documented.

There was a need for basic training in how to conduct spirometry and how to recognise poorly performed spirometry.

**Strategy for change:** The SHA supplied funds
Calibration syringes were bought and distributed
40 places for a half day spirometry course on conducting spirometry for Health care professionals were commissioned along with 40 COPD Diplomas.
6 places for spirometry Diploma/Degree were commissioned for 6 lead nurses, from each locality

**Measurement of improvement:** Key indicators were, emergency admissions, actual /predicted prevalence, referrals,inhaled ICS and LABA’s, respiratory questionnaire.

**Effects of changes:** Emergency admissions: 2008/9 to 2010/11, 12.5/100 to 11.8/100
Prevalence: 1.1% in 2009 has increased to 1.2% 2001/12
Referrals to cpd: work in progress
Pulmonary rehabilitation: has increased dramatically
Inhaled medication: has changed dramatically
PFT’s: have remained very low

6. Raising the standard of COPD care from QOF to NICE in Primary Care
Decker NA
North Hampshire CCG Respiratory Lead

**Brief outline of context:** A one year project involving engagement with primary care doctors and nurses to encourage behavioural change to improve the care of patients with COPD.

**Brief outline of problem:** There is evidence that outcomes are improved when patients are diagnosed early and accurately, and have a clear understanding of how to manage their condition. This project aimed to improve care and avoid unnecessary admissions by developing innovative approaches to implementing expert guidance.

**Assessment of problem and analysis of its causes:** Making an early, accurate diagnosis and encouraging patient self-management, particularly by the use of personalised care plans, are essential factors for the implementation of NICE guidance. However this is a significant challenge requiring a systematic critique of the local care pathway and the identification of appropriate levers to encourage behaviour change within primary care.

**Strategy for change:** A modest financial lever (LES) was combined with face-to-face meetings with personal action plans for each practice, educational programmes for practice nurses and regular COPD newsletters.

**Measurement of improvement:** Before and after audit of 10 factors in each practice.

**Effects of changes:** Audit data showed broad improvement. There appeared to be greater engagement with NICE guidance, more emphasis on patient self management, and an increase in recorded prevalence of COPD.

**Lessons learnt:** Despite the relative simplicity of the guidance, implementation requires a detailed understanding of the local patient pathway and the ability to inspire change at a number of levels. Both require time and stakeholder buy-in.

**Message for others:** Allow more than a year to plan and implement such a project.

**Conflict of interest and funding:** NICE Fellow since April 2013

**Corresponding author:** Dr Nicola Decker Email: nicoladecker@nhs.net Phone: +44 1256 770212 Institution: North Hampshire Clinical Commissioning Group and Overton Surgery Station Road, Overton Basingstoke United Kingdom RG253DU

7. Asthma UK: Children and Young People Asthma Impact Project: Achieving better outcomes for Children and Young People with Asthma through audit in the Yorkshire and Humber Region
Dumble P
Asthma UK

**Brief outline of context:** Improving outcomes for children and young people with Asthma is at the heart of the work that Asthma UK undertakes this includes working with GPs, CCGs and secondary care providers to audit pathways of asthma care and support analysis of the data.

**Brief outline of problem:** Variation in asthma care is evident across Yorkshire and Humber and there are high hospital admission rates in some areas in relation to the 0-18 population.
Assessment of problem and analysis of its causes: In the areas with the highest hospital admission rates, audits and analysis of the available data has been undertaken to understand the problem.

Strategy for change: We have been working with a number of commissioners and GPs through a unique commissioning approach to audit practice. This approach includes working with GPs with commissioning responsibilities in CCGs across the Yorkshire and Humber area. A number of solutions and strategy for change have been tested.

Measurement of improvement: ChiMat provided a detailed report on hospital admission 0-18 years which demonstrates improvements have been made. Effects of changes: A better understanding of local need across the asthma pathway and reduced hospital admissions.

Lessons learnt: One size does not fit all. Audit and commissioning to improve outcomes can drive asthma service improvements.

Message for others: Understand the whole asthma pathway and identify the local picture problem, through audit and analysis of local data. Get it right for children then you get it right for adults.

Conflict of interest and funding: None

Corresponding author: Ms Pauline Dumble Email: Pauline.dumble@caresolutionsyorkshire.com Phone: 01482 888189 Institution: Asthma UK 70 Wilson Street London United Kingdom EC 2A

8. Paediatric Asthma in Heart of Birmingham Teaching Primary Care Trust: An Audit

Fisher P, Kara E, Cotter M, Akbar A, Ramachandram R, Jyothish D and Harrison W

Walsall Healthcare NHS Trust, Walsall, England

Brief outline of context: The 2007 Asthma UK report, The Asthma Divide, showed the risk of having an asthma attack that needs hospital treatment is not evenly spread across the country.

Brief outline of problem: Asthma admission rates were the highest in Heart of Birmingham Teaching Primary Care Trust.

Assessment of problem and analysis of its causes: An audit was undertaken of asthma admissions for children under the age of 18 years who attended two Birmingham hospitals. 378 children met the criteria and 272 were interviewed. Over a third of respondents never considered going to their GP whilst another third mentioned access problems. Just over half received asthma management plans. Fewer than half the respondents knew where to get appropriate asthma information and only a fifth had heard of the Asthma UK Adviceline.

Lessons learnt: New Asthma Care Pathways have been designed and packs were distributed. The participants were distributed into three groups. A jam-like paste was prepared, which consisted of “honey plus coffee” for the first group, “prednisolone” for the second group and “Guaifenesine” for the third group. These participants were told to dissolve specified amount of their product in warm water, and drink the solution every eight hours for one week. All the participants were evaluated before their treatment and one week after completion of the treatment to measure the severity of their cough.

Conflict of interest and funding: None

Corresponding author: Mr Paul Fisher Email: paulfisher@nhs.net Phone: 01216952349 Institution: Walsall Healthcare NHS Trust Moat Road Walsall United Kingdom WS2 9PS

9. How do UK asthma patients use and rate information sources?

Fletcher M

Education for Health, Warwick, UK

Aim: A survey published in 2012 showed that 70% of asthma patients feel responsible for their own asthma management. Patients, therefore, need reliable information sources. Here we report UK data from the Realise European Asthma Survey, which included questions on where asthma patients look for information about their condition, and how reliable they believe this information is.

Method: Online surveys were conducted with 8,000 asthma patients (aged 18-50 years, ≥2 prescriptions in the last 2 years, active on social media) from 11 European countries, recruited via validated consumer panels.

Results: Of the 1,000 UK respondents, 31% were male and 36% were <30 years old. 92% of patients had a good relationship with their HCP and 74% used them as their main source of information. They were perceived as reliable and trustworthy sources (66% rated them as very trustworthy).

67% of patients would also use online information sources and 35% would recommend them. The most popular sources were search engines (55%) followed by specific health/disease websites (26%); the least popular source was Twitter (2%). 76% of patients thought search engines were trustworthy. Up to 45% of patients felt that an online resource would help in asthma management; the most valued resource would be talking to a doctor online.

Conclusion: Whilst this survey confirms that patients have a good relationship with their HCP, they are also looking online for further information. This is an opportunity for primary care health professionals to help patients identify the most appropriate and trustworthy online resources to help with long-term management of asthma.

Conflict of interest and funding: Survey funded by Mundipharma International. Education for Health has received funding from TEVA, Chiesi, Napp Pharmaceuticals Limited, Almirall and Novartis.

Corresponding author: Ms Monica Fletcher Email: m.fletcher@educationforhealth.org Phone: 01926 836841 Institution: Education for Health The Athenaenum 10 Church Street Warwick United Kingdom CV34 4AB

10. "Honey plus Coffee" Versus "Systemic Steroid" in the Treatment of Persistent Postinfectious Cough - A Randomized Clinical Trial

Raeessi MA, Aslani J, Raeessi N, Gharaiie H, Karimi Zarchi AA, Raeessi F

Department of Otolaryngology, Baqiyatallah University of Medical Sciences. Tehran, Iran

Aim: Persistent postinfectious cough (PPC) is a cough that remains after a common cold or an upper respiratory tract infection for longer than three weeks or perhaps for many months. Two of the suggested treatments for PPC are “Systemic Steroid” and “honey plus coffee”. The aim of this study was to scientifically evaluate and compare the therapeutic effects of these two regimens.

Method: This was a double blind randomized clinical trial, from 2008 to 2011, at the Baqiyatallah University Hospital, Tehran, Iran. Included in this study were 100 adults that had experienced PPC longer than three weeks. Patients with other causes of chronic cough, or systemic disease or abnormal routine laboratory tests were excluded. The participants were distributed into three groups. A jam-like paste was prepared, which consisted of “honey plus coffee” for the first group, “prednisolone” for the second group and “Guaifenesine” for the third group. These participants were told to dissolve specified amount of their product in warm water, and drink the solution every eight hours for one week. All the participants were evaluated before their treatment and one week after completion of the treatment to measure the severity of their cough.

Results: Comparing the effectiveness of all three treatment regimens, this study found “honey plus coffee” as the most effective treatment modality for PPC (P< 0.001).

Conclusion: Combination of honey and coffee can play the role of an alternative medicine in the treatment of PPC.

Conflict of interest and funding: All the authors declare that there are no conflicts of interest and funding regarding this project.

Corresponding author: Dr Homa Gharaiie Email: raeesi_neda@yahoo.com Phone: +9821-88020514 Fax: +9821-66405568 Institution: Assistant Professor, Chief Expert of Natural Medicines Office in Ministry of Health & Medical Education Fakhr-e-Razi St.Enghelab Ave. Tehran Iran 1435913118
11. Learning from asthma exacerbations
Goodwin DP
Wand Medical Centre, Birmingham, UK

Brief outline of context: A general practice of 6,500 registered patients in a deprived, multicultural, multilingual urban area. We had been documenting exacerbations of asthma from 2009 onwards.

Brief outline of problem: Exacerbations of asthma may be seen as a breakdown of pro-active preventative care. Looking at causes of exacerbations may give answers about where and how this breakdown occurred and how to prevent future exacerbations.

Assessment of problem and analysis of its causes: Between 1/1/2010 and 31/3/2013 159 different patients had a total of 281 exacerbations ranging from 1 to 9 in that time. There was an excess of females, older people and infection was the commonest cause. A method for determining cause was developed and there were two causes in some cases. The exacerbations could all be classified as caused by: infection; lack of compliance; environment; allergy or anxiety.

Strategy for change: Where compliance had been identified as a trigger to educate the patient about medications. To promote immunisation using the information about frequency of infection as a trigger.

Measurement of improvement: In most cases where compliance had been identified subsequent exacerbations (if any) were not due to this.

Effects of changes: We continue to be committed to honest and accurate recording.

Lessons learnt: Either we are very good at preventing seasonal allergic triggers or they do not present as exacerbations. Most lack of compliance was not using inhalers available. Older patients with repeated infections may be better classified as COPD if smoking history although dual diagnosis may be justified.

Message for others: Documenting and studying episodes of exacerbation can yield information about your performance and efficacy in patient care.

Conflict of interest and funding: None

Corresponding author: Dr Daryl Goodwin Email: darylgoodwin@doctors.org.uk Phone: +44 (0)7966 292999 Institution: Wand Medical Centre 15 Frank Street Birmingham United Kingdom B12 0UF

12. Season spotting
Goodwin DP
Wand Medical Centre, Birmingham, UK

Brief outline of context: Practice in urban multicultural, multilingual deprived area. 446 patients on our asthma register out of a 6,500 population. Almost all patients don’t pay for prescriptions (charged at £7.60/item in England).

Brief outline of problem: Allergic rhinitis is a feature of atopy and can lead to asthma exacerbations. Seasonal rhinitis is associated with airborne allergens, usually pollens. The season of pollen exposure can predict the allergen: trees in spring and grasses in summer.

Assessment of problem and analysis of its causes: The weather can effect plant growth and flowering with release of pollens. 2013 has seen a cold spring and local analogies. A series of verbal scrips were devised, tailored to the individual, promoting use of usual medicines to prevent exacerbations.

Strategy for change: Between 1/1/2010 and 31/3/2013 159 different patients had a total of 281 exacerbations ranging from 1 to 9 in that time. There was an excess of females, older people and infection was the commonest cause. A method for determining cause was developed and there were two causes in some cases. The exacerbations could all be classified as caused by: infection; lack of compliance; environment; allergy or anxiety.

Measurement of improvement: In most cases where compliance had been identified subsequent exacerbations (if any) were not due to this.

Effects of changes: Aspects are not seen identified as exacerbations. Most lack of compliance was not using inhalers available. Older patients with repeated infections may be better classified as COPD if smoking history although dual diagnosis may be justified.

Message for others: Documenting and studying episodes of exacerbation can yield information about your performance and efficacy in patient care.

Conflict of interest and funding: None

Corresponding author: Dr Daryl Goodwin Email: darylgoodwin@doctors.org.uk Phone: +44 (0)7966 292999 Institution: Wand Medical Centre 15 Frank Street Birmingham United Kingdom B12 0UF

13. Home Oxygen Service- Assessment and Review- Portsmouth
Hobbs J
Solent NHS Trust, Portsmouth, UK

Brief outline of context: The Department of Health figures indicate that 85,000 patients in England have oxygen at home at an annual cost of about £120 million (DOH, COPD Commissioning toolkit 2012).

Brief outline of problem: It is thought that between 24% and 43% of oxygen that is prescribed to these patients is not used or derives no clinical benefit. The NHS is currently charged for each patient who is supplied with home oxygen, whether it is used or not. This leads to waste and poor compliance.

Assessment of problem and analysis of its causes: Home oxygen is prescribed by health care professionals with no specialist training in oxygen prescription. Patients on home oxygen are not regularly reviewed so prescriptions are not checked and changed according to the current need.

Strategy for change: The introduction of a specialist assessment and review service to reduce the annual spend on home oxygen and to ensure patients are on the correct prescription of home oxygen. One Band 7 Physiotherapist was appointed to assess and review patients in Portsmouth.

Measurement of improvement: The total annual saving in the first year, 2011-2012, of the Service was £126,000.

Effects of changes: At present there are 230 patients already under review by the Service and further patients being discharged from hospital on home oxygen. New patients are assessed for home oxygen.

Lessons learnt: An assessment and review service reduces waste and ensures patients’ are on the correct oxygen prescription.

Message for others: Home Oxygen Assessment and Review Services provide information to patients and their carers regarding oxygen and give a central point on contact for Home Oxygen users.

Conflict of interest and funding: No conflict of interest. PCT/CCG funded.

Corresponding author: Mrs Joanna Hobbs Email: joanna.hobbs@solent.nhs.uk Phone: 02392685098 Institution: Solent NHS Trust The Turner centre, St James Hospital Locksway Road Portsmouth United Kingdom PO4 8LD

14. The power of spirometry as a “teachable moment”: triggering smoking cessation
Houghton I, Roberts J
Public Health Blackpool council Blackpool

Aim: COPD is a major cause of illness and death in the UK. The average cost per year of treating a severely affected patient is £6475 as opposed to £98 for mild disease. People benefit from stopping smoking at all stages of COPD. A model originally developed in primary care has now been trialed in workplaces and community settings across Blackpool. Our aim being to assess whether proving lung health checks and brief intervention advice will promote behaviour change in smokers.

Method: The intervention consisted of the offer of a lung health check (spirometry) followed by a detailed, personalised explanation of the findings. The results were delivered in plain non-clinical language, using lung age visual tools and local analogies. A series of verbal scrips were devised, tailored to the individual, having a common theme of lung health, lung disease and lung age. Training on the model has now been delivered in primary care.

Results: to date
1360 smokers have undertaken the lung health check
639 (47%) subsequently registered with the stop smoking service
In addition the primary care pilot has resulted in a 20% reduction in the number of smokers on the practice COPD register in the six-months following their adoption of this model.

Conclusion: This intervention appears to have the potential to act as a powerful “teachable moment” triggering behaviour change, which if adopted more widely particularly in primary care could help towards reducing the burden of lung disease and improving outcomes in primary care.

Conflict of interest and funding: nil
15. Clinical Leadership and Network Development

Hurd J, Whittamore A
South Central Respiratory Programme

**Brief outline of context:** The loss of Strategic Health Authorities and the Department of Health Respiratory Programme left a vacuum of local clinical leadership.

**Brief outline of problem:** There was no structure for disseminating examples of good practice for wider implementation.

Assessment of problem and analysis of its causes: N/A

**Strategy for change:** South Central invested in local leadership development by creating a network of respiratory interested clinicians and commissioners. They employed a Quality Improvement Fellow who could coordinate network development across the region.

We tasked each network to work across NHS boundaries, with patients/carers and develop close working relationships with industry and charities.

We wanted them to assist CCGs with needs-analysis, education, and implementation of clinical improvement programmes.

**Measurement of improvement:** N/A

**Effects of changes:** Increased engagement by each network.

Clinical leaders have emerged from all groups. Statistically significant improvements in skills and confidence as a result of leadership-based education.

Increased uptake of PCRS-UK membership and resources.

Increased attendance at events with high satisfaction scores.

Increased activity from each network.

**Lessons learnt:** Investment in clinical leadership is an important part of quality improvement work.

Clinicians do not always realise they are leaders and need support/mentorship to utilise their knowledge strategically.

Having a central focus of support is important for networks and individuals. Rate of development varies.

More advanced networks produce more outputs.

**Message for others:** The small amount of investment in this project has provided momentum and support for developing networks, fostering a shared agenda for clinical leadership for respiratory services.

With more investment we expect to have seen greater clinical improvements due to network and leadership development.

**Conflict of interest and funding:** N/A

**Corresponding author:** Mrs Jo Hurd Email: jo.hurd@nhs.net Phone: 07799831014 Institution: South Central Respiratory Programme Crookhorn Surgery Crookhorn Lane Waterlooville United Kingdom PO7 5XP

16. Demonstrating therapeutic equivalence between Sandoz and GlaxoSmithKline salbutamol inhalers

Jones S, Carl K, Weber K
Sandoz International GmbH Holzkirchen/DE

**Aim:** Inhaled bronchodilators are the mainstay of treatment for patients with asthma and COPD, with long-term safety and efficacy records for CFC-free pressurised metered-dose inhaler (pMDI) delivery. Generic formulations are attractive alternatives regarding health economics and provide opportunities for design improvements; here, more compact design with an ergonomic deeper thumbgrip. European guidelines for licencing orally inhaled products include establishing equivalent aerodynamic particle size distribution with ≤5 µm) ± spacer devices; under different humidity conditions and at different times post-manufacture. Therapeutic equivalence has therefore been concluded, allowing patients smooth and straightforward switching between devices.

**Method:** Particle size distribution in vitro was measured (Anderson Cascade Impactor) for Sandoz salbutamol inhaler and Ventolin® Volumatic® a spacer device; AerosChamber® or Volumatic®. Multiple measurements per can were collected from several batches of each test formulation. Sandoz salbutamol was tested at release, 3, 6 and 9 months post-manufacture; Ventolin® Volumatic® manufacture dates were unknown. Additionally, to demonstrate equivalent dosing in various climates, products were tested in highly humid conditions (90–94% relative humidity at 20–23°C).

**Results:** The aerodynamic particle size distribution for Sandoz salbutamol inhaler showed equivalence to Ventolin® Volumatic® over the range most relevant to respiratory efficacy (particles ≤5 µm) ± spacer devices; under different humidity conditions and at different times post-manufacture.

**Conclusion:** Aerodynamic particle size distribution of Sandoz salbutamol inhaler shows overall equivalence to the Ventolin® Volumatic®. Comparability of delivered dose, spray pattern, plume geometry and plume velocity between Sandoz salbutamol inhaler and Ventolin® Volumatic® have previously been established, as has bioequivalence via pharmacokinetic studies. Therapeutic equivalence has therefore been concluded, allowing patients smooth and straightforward switching between devices.

**Conflict of interest and funding:** This study was funded by Sandoz International GmbH

**Corresponding author:** Dr Spencer Jones Email: spencer.jones@sandoz.com Phone: 004980244762761 Institution: Sandoz International GmbH Sitz der Gesellschaft: Holzkirchen München Germany 157536

17. Achieving Excellence in COPD – The use of Action plans to guide self management of exacerbations

Kearney S, Day T, Lynch S
St Mary’s Hospital, Newport, IVW

**Brief outline of context:** This was an integrated care project. The focus was on patients with severe disease, significant exacerbation history, with the aim of improving treatment, management and outcomes.

**Brief outline of problem:** The Isle of Wight has low COPD admissions, a wide variation in prevalence amongst GP practices and high QOF exception reporting. There is high spend on respiratory medications and the highest spend on inhaled corticosteroids in the region.

**Assessment of problem and analysis of its causes:** Studies suggest that 30% of diagnosed patients may be on suboptimal treatment. Optimising treatment improves management and reduces frequency / severity of exacerbation and reliance on urgent care.

**Strategy for change:** This poster focuses on the use of an adapted exacerbation action plan to support patients with 3 or more exacerbations in the last year. PDSA cycles highlighted issues around processes practices had in place for managing follow up and review.

**Measurement of improvement:** One practice reviewed 20 patients and initiated a self management plan. All contacts with the surgery, as well as use of antibiotics and admissions were recorded for the 6 months prior to and after the review.

**Effects of changes:** There was a reduction in urgent appointments for 11 patients from 27 in the 6 months pre-use of the plan to 8 in the 8 months afterwards (33%).

**Lessons learnt:** Message delivery is as important as the message itself – how and when you say it, not just what you say.

**Message for others:** People need to be supported at a practical level to review their practice and implement change.

**Conflict of interest and funding:** none

**Corresponding author:** Mrs Sarah Kearney Email: sarah.earney@iw.nhs.uk Phone: 07826908704 Fax: 01983 552333 Institution: IV NHS & IV CCG Parkhurst Road Newport Isle of Wight United Kingdom PO30 5TG

18. Effectiveness of personalized written asthma action plans in the management of children with partly controlled asthma in Trinidad: A randomized controlled trial

Khan RA, Maharaj RG, Seerattan N, Babwah F
North Central Regional Health Authority, Mt Hope, Trinidad

**Aim:** To evaluate the effectiveness of adding a personalized written asthma action plan in the treatment of children with partly controlled asthma.

**Method:** Children with partly controlled asthma were randomized to receive a personalized written asthma action plan or no plan, in addition to standard...
care including education. They were followed up with serial measurement of outcome variables. The primary outcome measured was the number of Emergency Room revisits.

**Results:** Ninety-one children participated, 45 in the intervention group and 46 in the control group. Comparison with pre-trial data revealed significantly improved outcomes with respect to the numbers of Emergency room visits (p=0.005 and 0.0002) and acute asthmatic attacks (p=0.0064 and 0.0006) in both arms of the study. Children in receipt of a personalized WAAP had fewer emergency room visits (p=0.78), asthma attacks (p=0.84), missed school days (p=0.28), night-time awakenings (p=0.48) and unscheduled doctor visits (p=0.69) than those who did not receive a plan.

**Conclusion:** The results of this study suggest that the provision of personalized written asthma action plans (WAAPs) may play a useful role in the management of children with partly-controlled asthma but is no better than standard care. Asthma education is a critical component in the prevention of exacerbations in children with partly-controlled asthma.

**Conflict of interest and funding:** I declare no conflict of interest.

This study was self-funded.

**Corresponding author:** Dr Raveed Khan Email: raveed01@hotmail.com Phone: 1 868 740 6289 Fax: 1 868 662 6791 Institution: North Central Regional Health Authority Building 39, Eric Williams Medical Sciences Complex Mt Hope Trinidad & Tobago 0000

19. Retrospective Audit of Clarithromycin Prescribing in Community Acquired Pneumonia

Lee W, Dihan T
Bassetlaw Hospital, Blyth Road. Worksop. S81 0BD

**Brief outline of context:** 45 patients (mean age 75 years old) with community acquired pneumonia admitted to Bassetlaw Hospital between July – December 2012.

**Brief outline of problem:** Appropriate clarithromycin prescribing is needed to ensure rapid resolution of pneumonia and to minimise side effects (e.g. risk of clostridium difficile, drug interactions). The following were the standards for all patients:
1. Documented CURB65 score.
2. CXR changes suggestive of community acquired pneumonia.
3. CURB65 score ≥3 prompts testing for urine legionella antigen and/or mycoplasma serology. If negative to stop clarithromycin.
4. Clarithromycin is prescribed if CURB65 score ≥2.
5. Antibiotics reviewed within 48 hours.

**Assessment of problem and analysis of its causes:** 43% patients had documented CURB65 scores, all of which had correct clarithromycin prescribing. Urine legionella antigen testing was done in 11% of patients with scores ≥3. Mycoplasma serology was never requested. 91% patients had pneumonia on CXR. All antibiotics were reviewed within 48 hours. 3 patients had their clarithromycin stopped.

The cause for this was inadequate documentation of CURB65 scores and insufficient microbiology testing to facilitate stopping of clarithromycin.

**Strategy for change:** Medical team was informed at a local meeting. Measurement of improvement: Repeat audit, January 2013.

**Effects of changes:** 64% documentation of CURB65 scores, with increased frequency of urine legionella antigen testing and cessation of clarithromycin.

**Lessons learnt:** To more frequently document CURB65 scores and to request appropriate microbiology testing.

**Message for others:** CURB65 scores can facilitate the use of appropriate antibiotics and prompt further microbiological testing to prevent unnecessary antibiotic usage. Additional clinical correlation is needed in using this score, especially in older people with renal impairment.

**Conflict of interest and funding:** None.

**Corresponding author:** Dr. William Lee Email: william.22_lee@hotmail.co.uk Phone: 07792986864 Institution: Bassetlaw Hospital Blyth Road Worksop United Kingdom S81 0BD

20. Chiltern CCG Project: An example of micro-commissioning excellence

Masters N, Tutt C, Plummer M
Highfield surgery

**Brief outline of context:** Chiltern clinical commissioning group (formerly Bucks primary care Collaborative) contracted a part time COPD project team comprising two lead nurses, a GP advisor and a pharmacist. This team covers 325,000 patients in 35 practices.

**Brief outline of problem:** ---

**Assessment of problem and analysis of its causes:** ---

**Strategy for change:** The plans developed by this team stress working together with all healthcare agencies but at a primary care level the emphasis is on developing an educated doctor and nurse respiratory duo in each practice. Support for this duo have included education packages e.g. Education for Health Asthma and COPD diploma and degree level courses, computer template design and computer web materials. The pharmacist visited each practice and added clinical indications to the complete list of all COPD patient prescriptions which are now a General Medical Council recommendation for all doctors. She also determined the use of statins in this group of patients as cardiac morbidity is common and cardiovascular checks were incorporated into the COPD templates. The use of pulse oximetry to prevent admissions and the recording of smoking pack years (smoking calculator developed by this team) to case-find COPD patients was also promoted.

**Measurement of improvement:** Since 2009 and on-going Chiltern CCG has the lowest COPD admission rate in England with rates falling from 11% to 6.7% over five years. Since 2009 the cost of this team has been less than 100 thousand pounds but saved more than one million pounds by having fewer and shorter hospital admissions and reduced outpatient attendances.

**Effects of changes:** ---

**Lessons learnt:** ---

**Message for others:** Message for others: Websites to visit are www.copdprojectpack.co.uk, www.clinicalindications.com and www.smokingpackyears.com The project team would like to thank Jeremy Newton CCG operations director for his loyal support in this venture.

**Conflict of interest and funding:** None

**Corresponding author:** Dr Nigel Masters Email: nigel@masters0072.freeserve.co.uk Phone: 07956971305 Institution: Highfield Surgery Highfield way Hazlemere United Kingdom HP157UU

21. A UK feasibility study on the value of singing for people with Chronic Obstructive Pulmonary Disease (COPD) September 2011 to June 2012

Morrison I, Clift SM
Canterbury Christ Church University

**Aim:** To explore weekly community singing for people with COPD and to assess impact on lung function, functional capacity, and quality of life.

**Method:** An uncontrolled observational study of a weekly group singing programme was undertaken over ten months. The primary outcome was St. Georges Respiratory Questionnaire (SGRQ), administered at baseline, mid-point and end of study, and spirometry to assess lung function was assessed at baseline and study end.

**Results:** SGRQ showed a 3.29 point change in the direction of health improvement [-3.29 (-6.14; -0.45) p=0.024]. Improvements were also found in FEV1 %, FVC and FVC %.

**Conclusion:** Health improvements are encouraging as COPD is a progressive illness and a decline in health would be expected over ten months. The study provides a good foundation for designing a more robust controlled community trial. Regular group singing is an innovative, cost-effective initiative to help people with COPD engage in physical and social activity to support independence and quality of life.

**Conflict of interest and funding:** No conflict of interest.

Funded by The Dunhill Medical Trust

**Corresponding author:** Dr Ian Morrison Email: ian-.morrison@virgin.net Phone: 44 1227 710954, 44 7790 373775 Institution: Canterbury Christ
22. ‘Light Touch’ telemonitoring for people with COPD in Lothian: patient characteristics and acceptability

Pinnock H, Macnab, M, Lee S, McCloughan L, Hanley J, McKinstry B, Lindsay A.
Centre for Population Health Sciences, University of Edinburgh, Edinburgh, Scotland, UK

Aim: To evaluate the acceptability, perceived utility and impact of the NHS Lothian COPD Light Touch Service.

Method: A before and after assessment of quantitative outcomes (St George’s Respiratory Questionnaire, Hospital Anxiety and Depression Scale, Euroqol 5D, Patient Activation Measure and service use), with nested qualitative study (semi-structured interviews with patients at baseline and six months and staff at points throughout the study).

Setting: Community Physiotherapy Team (CRT) in Edinburgh, Improved Anticipatory Care Service and Treatment (IMPACT) in Edinburgh and Nursing team from the East and Midlothian Anticipatory Care Service (EMACS)

Participants: 50 patients with chronic obstructive pulmonary disease recruited between February and July 2013.

Intervention: The Light touch approach is the self-monitoring of COPD symptoms and self-referral to clinical teams by patients when they consider appropriate. All patients are given a symptom diary and a pulse oximeter which they are asked to use daily. They are also given a self-management plan which outlines the circumstances (symptoms and/or physiological measures) under which they should seek telephone advice from their Light Touch professional. These are respiratory trained specialist clinicians from the community teams.

Results: Preliminary results from the baseline quantitative data collection indicate a mean SGRQ overall score of 62.09%. More than 66% of participants have some problems with mobility, self care and usual activities, and around 50% have problems with pain or discomfort and anxiety or depression. These will be presented in more detail, along with qualitative data on its acceptability from patient participants and staff.

Conclusion: ---

Conflict of interest and funding: None

Funder: Edinburgh and Lothians Health Foundation

Corresponding author: Dr Hilary Pinnock Email: Hilary.Pinnock@ed.ac.uk Phone: 0131 650 9474

University of Edinburgh Doorway 3, Medical School, Teviot Place, Edinburgh United Kingdom EH8 9AG

23. The relationship between anxiety and depression to exacerbations of COPD resulting in hospital admissions; a narrative systematic review

Pooler A, Beech R, Reed SE
School of Nursing and Midwifery, Keele University, Staffordshire, UK

Aim: Exacerbations due to COPD are the third largest cause of emergency hospital admissions in the UK. This systematic literature review explored the relationship between hospitalisation rates and the COPD co-morbidities of anxiety and depression

Method: The Centre for Research Dissemination’s framework for systematic reviews was followed using search terms relating to COPD, anxiety, depression and hospital admissions. Papers identified were assessed for relevance and quality using a suitable CASP tool and the Mixed Methods Assessment Tool (MMAT)

Results: Quantitative studies (18) indicated that anxiety and depression led to a statistically significant increase in the likelihood of COPD patients being hospitalised. These co morbidities also led to an increased length of stay and a greater risk of mortality post discharge. Other significant factors included lower BODE scores, female gender, lower socioeconomic status, poorer patient perceived quality of life, increased severity of lung function and less improvement in dyspnoea from admission to discharge. It also highlighted that only 27-33% of those with depression were being treated for it. Qualitative studies (6) revealed that patients saw anxiety and depression as a major factor that affected their ability to cope with and self manage their condition

Conclusion: Findings from the review have highlighted a need for better recognition and treatment of anxiety and depression amongst individuals with COPD. On going research should develop and test strategies for promoting better management and self management as a means of reducing hospital admissions

Conflict of interest and funding: funded through a post doctoral fellowship from Keele University. No conflicts of interest

Corresponding author: Dr Alison Pooler Email: a.pooler@keele.ac.uk Phone: 07747800570

Institution: Keele University clinical education centre UHNS, Newcastle Road stoke on trent United Kingdom ST46QG

24. LABA/LAMA dual bronchodilation as a paradigm shift in COPD therapy: overview of the QVA149 IGNITE programme

Price D, Mezzi K, Fedele MJ, Banerji D
University of Aberdeen, Scotland, UK

Aim: The IGNITE program investigated the efficacy and safety of dual bronchodilation with once-daily QVA149 (fixed-dose combination of indacaterol (IND; LABA) and glycopyrronium (GLY; LAMA)) for the treatment of patients with COPD.

Method: This overview of data from 4 QVA149 IGNITE trials (5138 patients) reports lung function, transitional dyspnoea index (TDI), health status (via the SGRQ), exacerbations, and safety.

Results: QVA149 provided statistically significant sustained bronchodilation (p<0.001) versus all comparators. QVA149 significantly improved the TDI and SGRQ scores, and lowered the rate of exacerbations versus comparators (Table1). QVA149 demonstrated a similar safety and tolerability profile versus all comparators and placebo.

Table 1: IGNITE data overview

| Lung function | Treatment differences (QVA149 vs comparator) |
|---------------|---------------------------------------------|
| SPARK (2224)  | -                                          |
| SFAR (2144)   | -                                          |
| ILLUMINATE   | -                                          |
| BLAZE (247)   | -                                          |
| Dyspnoea     | 1.37***                                    |
| SGRQ total score | -2.07***                           |
| Rate reduction of exacerbations, % | -2.69***                              |

*p<0.05; **p<0.01; ***p<0.001; RR=rate ratio

Conclusion: These results demonstrate that dual bronchodilation with once-daily QVA149 provides therapeutic benefits for patients with COPD as demonstrated by improved lung function, dyspnoea, health status, reduced exacerbations, and a favourable safety profile.

Conflict of interest and funding: IGNITE program was funded by Novartis

Corresponding author: Professor David Price Email: david@respiratoryresearch.org Phone: +44 (0)1224 554588 Fax: +44 (0)1224 840683 Institution: Centre of Academic Primary Care, University of Aberdeen, Foresterhill Health Centre Westburn Road Aberdeen United Kingdom AB25 2DD

25. Night-time symptoms in COPD: a real-life study in Europe

Price D, Small M, Milligan H, Higgins V, Garcia Gil E, Estruch J
Centre of Academic Primary Care, University of Aberdeen, Aberdeen

Aim: To evaluate the level of disconnect between physician and patient perceptions of the presence of night-time symptoms (NTS), and to compare the characteristics of patients with and without NTS.

Method: A total of 251 primary care physicians and 251 respiratory specialists completed record forms on 2807 patients with COPD. Patients completed self-
Abstracts

Report questionnaires capturing data on the impact of COPD on their ability to get up in the morning and on sleep. Data were compared between groups (those with and without NTS) using t-tests or Wilcoxon signed rank tests.

**Results:** Most patients (78%) reported night-time disturbance. Patients with NTS experienced more daytime breathlessness (mean mMRC score 2.4 vs 1.1), more exacerbations in the previous 12 months (mean 1.7 vs 0.4), and received more maintenance therapy (mean of 2.8 vs 2.3 products) than those without NTS. Concordance between the frequency of physician- (67.9% of patients) and patient-reported (68.5% of patients) NTS was good. Physicians significantly underestimated the impact of COPD on patient’s ability to get up in the morning and on sleep (fair-moderate agreement). Physician-reported NTS were present for 41.2% of patients who could be categorized by GOLD group (A-D; N=937), increasing from 20.9% of those in Group A (low-risk) to 77.4% of those in Group D (high-risk).

**Conclusion:** Patients with COPD experience NTS regardless of GOLD group, which impacts on their ability to get up in the morning and on sleep quality.

**Conflict of interest and funding:** The author and his institution have received consulting and lecture fees from Almirall S.A. in association with the aclidinium development program, but no fees for the writing of this abstract.

**Corresponding author:** Professor David Price Email: david@rirl.org Phone: 01223 9698O8 Institution: University of Aberdeen, Academic Primary Care Division of Applied Health Sciences, Polwarth Building Foresterhill Aberdeen United Kingdom AB25 2ZD

26. The role of exhaled nitric oxide in guiding asthma management
Ryan D, Thomas M, Dorinsky P, Burden A, von Ziegenweidt J, Chisholm A, Price D
Woodbrook Medical Centre, UK

**Aim:** Identifying patterns of use of fractional exhaled nitric oxide (FeNO) assessment and effects of this assessment on physician and patient behaviour.

**Method:** Patients from Optimum Patient Care Research Database (≥6 years) received FeNO assessment via NIOX MINO® or Flex® devices and had ≥1 year practice data prior to assessment. For patients not on asthma therapy at assessment, we described FeNO levels of a) patients starting inhaled corticosteroid (ICS) one month following assessment and b) patients not starting ICS. In patients prescribed ICS prior to assessment, relationships between FeNO and ICS adherence (days of therapy supply divided by total prescribing period) were explored, along with adherence change following assessment. Normal, intermediate and high FeNO levels were <25, 25-50 and >50 ppb respectively (<20, 20-35, >35 for children ≤12).

**Results:** 678 patients received FeNO assessment, of which 48% (n=327) were not on asthma therapy. Of patients initiating ICS in the first month (n=151), 27% had normal FeNO levels, of patients not initiating ICS (n=176), 52% had normal FeNO. 260 patients were on ICS therapy prior to FeNO assessment, and had recorded FeNO readings. Patients with normal FeNO (n=127) had median (IQR) adherence of 100% (68-143) compared with 81% (35-102) for high FeNO (n=37); p=0.005 (Kruskal Wallis). Following assessment 17% of patients with normal FeNO increased ICS adherence, compared with 43% with high FeNO; p=0.017 (chi square).

**Conclusion:** Patients with normal FeNO were less likely to start ICS. Those receiving ICS with high FeNO were more likely to be non-adherent. Patients with high FeNO and poor adherence appeared to improve adherence following assessment.

**Conflict of interest and funding:** Funded by Aerocline and RRL

**Corresponding author:** Professor David Price Email: david@rirl.org Phone: (+44) 01223 967 855 Institution: Research in Real Life 5 Coles Lane Oakington Cambridge United Kingdom CB24 3BA

27. COPD patients remain symptomatic despite current treatment: a UK primary-care setting analysis
Price D, Hutton C, Stewart R, West D
Centre of Academic Primary Care, University of Aberdeen

**Aim:** According to international COPD treatment guidelines, appropriate pharmacologic therapy can reduce symptoms, reduce the frequency and severity of exacerbations, and improve health status and exercise tolerance (GOLD 2013, www.goldcopd.org). However, evidence suggests treatment is not always prescribed according to guidelines, and that many patients remain symptomatic. This analysis aimed to describe prescribing patterns in patients with moderate airflow limitation (GOLD Stage II, FEV1 ≥50–<80% predicted) in UK primary care.

**Method:** A search of the Optimum Patient Care Research Database (OPCRD), a quality controlled, longitudinal, primary respiratory care database of anonymous data from over 300 UK practices, was performed on 15.04.2012. Data were analysed according to GOLD Stage; Medical Research Council (MRC) questionnaire and COPD Assessment Test (CAT) scores; and exacerbation history.

**Results:** Of the 19,425 patients assessed, 10,064 (51.8%) were classified as GOLD Stage II. The majority of these (61.8%) were receiving ICS (ICS/LABA+LAM, 26.3%; ICS/LABA, 25.9%; ICS monotherapy, 7.1%; ICS+LAMA, 2.5%). Of those receiving treatment, the majority were still affected by symptoms (91.4% had a MRC score ≥2; 95.0% had a CAT score ≥11). Contrary to recommendations, 11.6% (n=1163) of patients with GOLD Stage II were not receiving treatment. Importantly, of the patients with ≥2 exacerbations in the preceding year, 27.7% were not receiving recommended treatment. Updated analyses and other GOLD stage data will be presented.

**Conclusion:** Most patients with moderate COPD in the UK are prescribed ICS, either as monotherapy or in combination with LABA and/or LAMA. Many patients who receive treatment nonetheless remain symptomatic and more than one in ten patients receives no treatment at all.

**Conflict of interest and funding:** Click here for more information

**Corresponding author:** Prof David Price Email: david@respiratoryresearch.org Phone: 01223 967 855 Institution: Centre of Academic Primary Care, University of Aberdeen Polwarth Building Aberdeen United Kingdom AB25 2ZD

28. Impact of the Optimum Patient Care Service on Outcomes for Adult Asthmatic Patients
Ryan D, Burden A, West D, Hutton C, Price D
Woodbrook Medical Centre, UK

**Aim:** The Optimum Patient Care (OPC) service provides comprehensive asthma assessments, analysing GP-recorded and patient-reported outcomes to provide patient-specific management recommendations based on British asthma-management guidelines. This study evaluates the effect of the OPC service evaluation on real-life asthma control outcomes in a UK primary care adult asthma population compared with a control population.

**Method:** Routine and patient-reported questionnaire data were collected for patients with clinician-diagnosed asthma from practices across the UK. The effect of the OPC service was evaluated by assessing change in number of exacerbations over 1 year compared with a control group of patients not receiving OPC management. Exacerbation defined as diagnostic code for acute exacerbations, use of acute oral steroids or hospital, A&E or inpatient admission. Exacerbation rate ratios for review group relative to control group was calculated, adjusted for baseline confounders.

**Results:** There were 13,656 OPC review patients from 53 practices compared with 22,095 control patients. The severe exacerbation rate ratio (95% CI) for the review patients was 0.45 (0.42-0.48) relative to control group (1.00). At baseline, 13.5% of review patients had 1 exacerbation during the previous year, while 6.4% with ≥2; compared with 11.5% of control patients with 1 exacerbation and 6.4% with ≥2; p<0.001 (chi squared). 16.5% of OPC review patients showed a reduction in their exacerbations after one year while 5.0% increased exacerbations. In contrast 11.6% of patients in the control group reduced exacerbations, and 12.1% increased their exacerbations.

**Conclusion:** The data indicates that the OPC asthma review service is associated with a significant decrease in patient exacerbations, compared with minimal change seen in control practices.

**Conflict of interest and funding:** Funded by RRL

**Corresponding author:** Professor David Price Email: david@rirl.org Phone: (+44) 01223 967 855 Institution: Research in Real Life 5 Coles Lane Oakington Cambridge United Kingdom CB24 3BA
29. Comparative cost-effectiveness of therapy change from fluticasone/salmeterol to beclometasone dipropionate/formoterol (Fostair 100/60)

Price D, Small I, Haughney J, Ryan D, Gruffydd-Jones K, Lavorini F, Harris T, Burden A, Papi A
University of Aberdeen, UK

Aim: To evaluate whether changing therapy to beclometasone dipropionate/formoterol (BDP/FORM) is a cost-effective treatment option compared with remaining on fluticasone/salmeterol (FPSAL) in UK asthma patients.

Method: Optimum Patient Care Research Database and Clinical Practice Research Database identified primary care patients (aged 18–80) with asthma (diagnostic code and ≥2 prescriptions for FPSAL in previous year) changing therapy from FPSAL to BDP/FORM at ≤ same dose (from practices changing ≥5 patients) or remaining on same dose of FPSAL. Patients with other chronic respiratory diseases or prescribed maintenance oral steroids during prior year were excluded. BDP/FORM FPSAL patients matched 1:3 on baseline demographic and disease characteristics. Total asthma-related costs included asthma drug prescriptions, asthma-related primary care consultations and respiratory-related hospital costs. Effectiveness outcomes were severe exacerbation prevention (ATS/ERS definition) and risk-domain asthma control (no severe exacerbations, antibiotics for lower respiratory tract infections or out-patient-department attendance) over one year. Differences in asthma-related healthcare costs and proportions achieving effectiveness outcomes were modeled using generalized linear models: log link and gamma distribution for costs; logit link and binomial distribution for effectiveness. Bootstrapping methods used to calculate confidence intervals using 1000 random samples.

Results: BDP/FORM patients recorded significantly lower asthma-related costs during outcome year compared with FPSAL patients with an adjusted mean difference (95% CI) of £-93.63 (£-114.27, £-73.65). Using exacerbation prevention as a measure of effectiveness there was 75% probability switching to BDP/FORM was less costly and more effective and 87% probability using risk-domain asthma control as the effectiveness measure.

Conclusion: The study indicates that switching to BDP/FORM from FPSAL is a cost-effective treatment option.

Conflict of interest and funding: Funded by Chiesi
Corresponding author: Professor David Price Email: david@hirf.org Phone: (+44) 01223 967 855 Institution: Research in Real Life 5 Coles Lane Oakington Cambridge United Kingdom CB24 3SA

30. Management of asthma in children – are we falling short?
Rose S
The University of Nottingham, Nottingham, UK

Brief outline of context: Asthma is a chronic respiratory condition characterised by airway hyper-responsiveness, inflammation and increased mucus production. This causes narrowing of the airways and the classic symptoms of cough, wheeze, shortness of breath and chest tightness. It is estimated around 1.1 million children in the UK suffer from asthma, making it the most common long term medical condition in this age group.

Brief outline of problem: The majority of these cases of asthma are managed in primary care. BTS guidelines on the diagnosis and management of asthma were published in 2008 and provide a strong stepwise framework to base asthma management on.

This audit investigates current management of asthma in 5-12 year olds at a large practice with 20,000 patients. For this audit, all patients between the ages of 5 and 12 who had asthma coded into their notes were selected, giving a result of 258 patient experience questionnaires were received. 93% reported being shown how to use an inhaler and 91% explained how their medicines/inhalers benefitted them. 84% reported receiving a SMP and 71% were asked to complete the ACT.

Conclusion: A structured education programme can upskill professionals and improve the quality of patient reviews.

Conflicts of interest and funding: MH is Dudley Respiratory Local Implementation Group Chair. JH has received speaker fees from Almirall, Astra Zeneca, Chiesi, Novartis and GlaxoSmithKline. DS/ML are employees/shareholders of GlaxoSmithKline.

Corresponding author: Dr Duncan Short Email: duncan.2.short@gsk.com Phone: 07827282971 Institution: GlaxoSmithKline 44 Collett Way Telford United Kingdom TF29SL

32. Impact of a youth culture event on cigarette smoking in young people
Small I, Beal D, McReady D, Bartlett Z
University of Aberdeen

Brief outline of context: The Rock challenge (TRC) is a global dance event providing young people with credible alternatives to smoking alcohol and drugs.

Brief outline of problem: UK cigarette smoking is increasing in young people, particularly teenage girls, despite falling prevalence in older age groups. Assessment of problem and analysis of its causes: Adolescents smoking is a complex issue, due to issues such as image, peer pressure, body shape and weight management. An alternative activity dealing with such issues but precluding smoking may influence choices.

Strategy for change: Introducing adolescents to a competitive dance competition, including drug/alcohol/smoking education provides solutions to the issues discussed. Within a strict rules framework, fostering acceptance, positive body image and popularity, peer pressure is reversed encouraging smoking cessation.

Measurement of improvement: Self reported data on current smoking status and cessation were recorded from 2004 across all competing schools. we
present data for 5729 competitors in Scotland (12-18yrs).

**Effects of changes:** 'Current smokers' have fallen from 6.6% to 4%. Of those surveyed, between 27% (2004 Aberdeen) and 64% (2011 Inverness) had stopped in order to compete.

**Lessons learnt:** Although self-reported data not supported by CO monitoring, there is clear impact on smoking in competing teams. Rates in all teams are lower than national prevalences. Joining a team reduces cigarette intake for individuals and smoking prevalence in schools.

**Message for others:** Community involvement and positive social experiences such as TRC can make a lasting impact on future lung health.

**Conflict of interest and funding:** DB, DMcR and ZB are employees of Be Your Best Foundation who organise The Rock Challenge. IS has no conflict

**Corresponding author:** Iain Small Email: iain.small@nhs.net Phone: 01779474841 Institution: Peterhead Health Centre Links Terrace Peterhead United Kingdom AB42 2XA

33. Estimating participation rates of COPD patients in pulmonary rehabilitation and self-management programmes: the importance of defining participation
Sohanpal S, Hooper R, Hames R, Priebe S, Taylor S
Queen Mary University of London, London, UK

**Aim:** To determine a true estimate of participation and dropout rates in pulmonary rehabilitation and self-management support programmes for patients with chronic obstructive pulmonary disease (COPD).

**Method:** A systematic review included controlled clinical trials of self-management (SM), pulmonary rehabilitation (PR) and health education (HE) programmes for COPD. Data extraction included 'participant flow' data using the Consolidated Standards of Reporting Trials (CONSORT) statement. Patient 'participation rates' (study participation rate (SPR), study dropout rate (SDR) and intervention dropout rate (IDR)) were calculated using definitions consistent with CONSORT. Random effects logistic regression analysis was also conducted.

**Results:** 56 studies evaluated PR (n=31), SM (n=21) and HE (n=4) programmes. 'Patient participant flow' was generally incomplete and underreported in studies: 'numbers of potential participants identified' (16%); 'numbers assessed for eligibility' (39%); although 'numbers eligible' were better reported (77%), we were unable to calculate SPR for 23% of studies. Regarding 'participation rates': Of 43 only 19% of studies had <50% SPR; of 56 studies, 93% and 94% of studies had >30% SDR and IDR. There was no evidence of effect of study characteristics on SPR.

**Conclusion:** Unlike previous reports, we found high participation and low dropout rates in studies of PR and COPD SM programmes. Previous studies adopted different participation definitions; some reported proportions without stating definitions clearly, thereby obscuring whether proportions referred to the study or intervention. Researchers should provide clear definitions of participation to better inform understanding and the wider implementation of effective interventions.

**Conflict of interest and funding:** None, National Institute for Health Research
**Corresponding author:** Ms Ratna Sohanpal Email: r.sohanpal@qmul.ac.uk Phone: 02078822492 Institution: Queen Mary University of London Turner Street London United Kingdom E1 2AB

35. Why do self-management support programmes appeal to some patients with COPD and not others? A qualitative study
Sohanpal R, Russell J, Priebe, S, Taylor, S
Queen Mary University of London, London, UK

**Aim:** To gain a better understanding of the factors relating to the participation of pulmonary rehabilitation (PR) and self-management (SM) programmes amongst patients with chronic obstructive pulmonary disease (COPD).

**Method:** A total of 22 semi-structured, in-depth interviews were conducted with a mix of people with COPD who had mostly attended PR and/or SM programmes previously. Thematic framework data analysis was used.

**Results:** The following themes emerged from the interviews: Participation in PR or SM programmes might be affected by patients' perception of their illness and PR or SM programmes. Some patients (1) do not want to discuss their illness or hear 'stop smoking' messages, (2) believe the 'damage is already done' and the wait is too long to get on the programme, (3) find their breathlessness affects motivation and confidence to get out of the house, particularly if they live alone, (4) do not see the benefit in self-help or exercise or (5) experience physical or practical difficulties e.g. access to programmes is not easy and costly. In contrast, people with COPD who have previously attended SM support programmes prefer to keep attending the programmes again because of lack of confidence to exercise alone, exercising with others reduces loneliness, and motivation drops and it gets harder to keep up with the exercises at home.

**Conclusion:** The negative perceptions of patients towards their illness and PR and SM programmes needs to be assessed and addressed to help improve participation in these programmes and improve health outcomes.

**Conflict of interest and funding:** None, National Institute for Health Research
**Corresponding author:** Ms Ratna Sohanpal Email: r.sohanpal@qmul.ac.uk Phone: 02078822492 Institution: Queen Mary University of London Turner Street London United Kingdom E1 2AB

36. Can theory help us understand the reasons for patient attendance and non-attendance in pulmonary rehabilitation and COPD self-management programmes?: A qualitative synthesis and application of theory
Sohanpal R, Steel L, Mars T, Priebe S, Taylor S
Queen Mary University of London, London, UK

**Aim:** To explore factors that might explain patient participation and dropout behaviour in studies of pulmonary rehabilitation (PR) and self-management (SM) programmes by patients with chronic obstructive pulmonary disease (COPD).

**Method:** A systematic review of qualitative studies was conducted. Thematic framework synthesis identified emergent themes and subthemes which were mapped onto the adapted 'attitude-social influence-external barriers' and 'self-regulation' theory to produce analytical themes.

**Results:** Six studies for identified, PR (n=5), SM (n=1). Three main descriptive themes with 34 subthemes emerged. Application of the themes and subthemes onto the two theories generated five analytical themes. Participation behaviour was influenced mainly by a participant's 'attitude' or 'intervention' and 'illness representations'. The following factors influenced (1) attendance: perceived positive benefits of the intervention (e.g. to see health improvements), positive past experience of intervention (e.g. staff supervision), and perception of controllability (e.g. to cope with condition); (2) non-attendance: perceived negative benefits of the intervention (e.g. worsen breathlessness), negative past experience of intervention (e.g. with exercise), perceived physical or practical concerns (e.g. prior commitments) and perceived negative influence of others; and (3) dropout: unmet expectations from intervention (e.g. no health improvements).

**Conclusion:** Psychosocial factors including the perceived practical or physical concerns related to attendance influenced participation behaviour of COPD patients in PR and SM programmes. Addressing the negative perceptions via behaviour change interventions may help to improve participation in COPD PR and SM programmes and patient outcomes.

**Conflict of interest and funding:** None, National Institute for Health Research
**Corresponding author:** Ms Ratna Sohanpal Email: r.sohanpal@qmul.ac.uk Phone: 02078822492 Institution: Queen Mary University of London Turner Street London United Kingdom E1 2AB

36. Can participation in self-management support programmes for COPD patients be improved? Qualitative study of health care professionals
Sohanpal R, Russell J, Priebe, S, Taylor, S
Queen Mary University of London, London, UK

**Aim:** To better understand factors that influence patient participation in self-management (SM) support programmes and how participation might be improved.

**Method:** 14 semi-structured, depth interviews were conducted with experts involved and interested in the field of SM for chronic conditions including COPD. Thematic framework data analysis was used.

**Results:** Themes arising for poor patient participation in SM support programmes

---

**A10**

http://www.thepcrj.org
37. Systematic Review of Factors Associated with Future Asthma Attacks to Inform a Risk Assessment Questionnaire
JD Blakey, I Pavord, M Thomas, S Walker
University of Liverpool, UK

Aim: To develop an asthma attack risk assessment questionnaire underpinned by systematic literature review.

Method: Databases searched up to February 2012 using the terms: asthma* AND (exacerbat* OR admission) AND (risk OR predic* OR associat*). Included studies were those in individuals >12y with asthma. Outcomes were asthma attacks defined as: deterioration of symptoms, fall in objective measures of airflow, and need for a short course of augmented asthma therapy OR admission to hospital OR attendance at A&E. Statistical analysis was carried out using RevMan 5 and SPSS 19.

Results: 3536 unique publications were retrieved. Data extraction was undertaken on the remaining 143 papers. Of 18 research themes, 8 factors had a consistent and clinically important (OR>1.25) association with asthma attacks (below). Simplified weighting is proportional to the effect size when expressed as an odds ratio (in brackets).

I smoke (3)
I take fewer than 8 out of 10 prescribed doses of my regular preventer medication (3)
In the last month I have used my reliever inhaler more than once per day on average (3)
I sneeze, or get a runny, or blocked nose when I do not have a cold (2)
In the last 5 years, I have attended a hospital emergency department because of asthma (2)
I have a body mass index of ≥30 (1)
I have not received asthma related education or a written asthma management plan (1)
I left school before sitting my A-levels/highers (1)

Conclusion: We systematically identified factors that are independently associated with the risk of asthma attack. These factors inform a questionnaire which will require validation.

Conflict of interest and funding: Funding; Asthma UK, NIHR, GlaxoSmithKline
Corresponding author: Dr Samantha Walker Email: swalker@asthma.org.uk
Phone: 020 7786 4918 Institution: Asthma UK 70 Wilson Street London United Kingdom EC2A 2DB

38. Development and validation of a screening tool to accurately predict non-atopic status in patients with suspected allergy
Hammersley V, Harris J, Davidson E, Sheikh A, Walker S
The University of Edinburgh, Edinburgh, UK

Aim: To develop and test a screening tool that can accurately discriminate between atopic and non-atopic individuals

Method: The screening tool was developed using questions from a large cohort study and through consultation with expert allergists. Participants were recruited from four general practices and the general public. Consenting participants answered the screening tool and were skin prick tested with appropriate controls and four aeroallergens (house dust mite, cat, dog and mixed grass). Participants were classified as atopic if any average weal diameter was ≥3mm greater than the negative control. Using the skin prick tests results as the gold standard for non-atopic status, negative predictive values were calculated using logistic regression techniques to identify the combination of questions with the strongest association with non-atopic status.

Results: 143 participants completed the questionnaire and underwent skin prick tests. A total of 81 (57%) were atopic. Negative predictive values for the individual questions ranged from 48% (55 not atopic /114 negative answers) to 72% (18/25). An optimum combination of 4 questions were identified, where a negative answer to all four questions was reported by 24 participants and 21 (87.5%) were not atopic.

Conclusion: We have been able to identify a set of questions that correctly predict a negative skin prick test 88% of the time. With further validation, this set of questions may be useful to exclude patients who do not warrant further investigation.

Conflict of interest and funding: The authors have no conflict of interest. The study was funded by the Scottish Chief Scientist Office.
Corresponding author: Dr Samantha Walker Email: swalker@asthma.org.uk
Phone: 020 77864918 Institution: Asthma UK 70 Wilson Street London United Kingdom EC2A 2DB

39. Screening for COPD in smokers in general practice
Williams A
GP UK

Brief outline of context: COPD kills nearly 25,000 people in the UK each year with an annual cost of £500 million

Brief outline of problem: 90% of COPD in the UK is due to smoking, current smoking rates in the UK is 20% of the adult population.

Assessment of problem and analysis of its causes: there is no current screening programme for COPD

Strategy for change: smokers aged between 35-60 were offered an appointment for spirometry screening over a two year period. Patients were asked to complete a questionnaire on symptoms of COPD, their current smoking habits and offered stop smoking advice.

Measurement of improvement: over 200 patients were invited for screening in the first 12 months - 76 has spirometry performed, 11 were identified with COPD. In the second year 53/76 patients had spirometry and 4 patients with COPD were also identified.

Effects of changes: Over 2 years the total number of cigarettes smoked was halved. The most successful technique for stopping smoking was willpower. Lessons learnt: copd screening is difficult to run over the winter months and during flu outbreaks, best attendance rates are in the spring & summer months. COPD patients are more likely to be identified (80%) if they answer yes to two or more of the following symptoms - shortness of breath, wheeze and/or cough. Running such a programme is time consuming due to spirometry and interpretation of results - a simpler approach is needed if this is to be run in general practice

Message for others: Funding is required to run such a service. How often patients should be screened has not been determined

Conflict of interest and funding: none - funding was part of a local primary care commissioning project

Corresponding author: dr andi williams Email: awilliams4@nhs.net Phone: 01432272181 Institution: dr turnbull 6 partners 22a king street hereford United Kingdom hr49da
40. Variation in primary COPD care: predicting the relationship between primary care outcomes and emergency secondary care admissions
Wright CE, Smith K, Peacey V, Doubleday P, Flowers J
Public Health England

Aim: National variation in primary COPD care exists and may be related to health outcomes. The association between primary care and COPD hospital admissions was investigated using evidence from INHALE, a new respiratory data tool.

Method: INHALE is an interactive web-based data-portal that brings together, for the first time, a comprehensive range of national respiratory disease indicators. GP and hospital activity data were selected to assess the relationship between COPD primary care and hospital activity. Four clinical COPD QOF indicators were ranked nationally for all CCGs. Ranked scores were then amalgamated to produce one primary care summary value. Hospital admissions and bed days were also ranked nationally for each CCG. Lower national rankings indicate greater hospital activity, more bed days or poorer primary care.

Results: Poorer quality primary COPD care was significantly correlated with more hospital admissions for COPD (r=.14, p=.04). Furthermore, there was no relationship between primary care and elective admissions (r=.05, p=.43), while a significant relationship between primary care and emergency admissions (r=.15, p=.03) was found. Poorer primary COPD care was also significantly related to shorter hospital stays (r=-.13, p=.05).

Conclusion: Results indicate that a lower quality of COPD care in primary practice is associated with a higher frequency of shorter-stay emergency admissions; admissions which may be preventable or more appropriately treated in a non-acute setting. It is important that evidence, which demonstrates variability in care, is used to ensure consistency of patient care across the healthcare pathway, to reduce costs and to drive service change.

Conflict of interest and funding: None

PHE

Corresponding author: Dr Caroline Wright Email: caroline.wright@phe.gov.uk
Phone: 01223 331765
Institution: Knowledge and Intelligence Team (East), Public Health England Institute of Public Health University Forvie Site, Robinson Way Cambridge United Kingdom CB2 0SR

Available online at http://www.thepcrj.org

41. INHALE: an innovative information-led approach to detecting variation in primary asthma care
Wright C, Doubleday P, Humphreys E, Flowers J
Public Health England

Aim: Asthma is a common condition affecting 1 in 14 people in England. Asthma responds well to appropriate management and is principally managed in primary care; however ineffective management can lead to poor health outcomes and more hospital admissions. It is important that robust evidence is used to identify unexplained variation in asthma care and outcomes. The new INHALE data tool was used to assess variation in asthma care across England.

Method: INHALE is an interactive web-based data-portal that brings together, for the first time, a comprehensive range of asthma-related indicators including primary and secondary care, spend and prevalence data.

Results: There is wide and unexplained variation in asthma diagnosis across England with some rural areas such as East Anglia having rates twice that of London. Marked variation in primary care quality also exists: 87% of patients in some areas received an asthma review in the last 15 months compared to 73% in others. Patients offered a test of variable lung function in the last 15 months varied from 79% to 92% and teenage patients who had their smoking status recorded varied from 84% to 95% in some areas.

Conclusion: It is crucial that asthma services are commissioned on the basis of need and that commissioning decisions are based on robust, reliable information. INHALE provides evidence that wide variation exists in the way patients are diagnosed and managed in primary care. Effective disease management has been related to better disease outcomes and fewer emergency hospital admissions. By identifying variation in care quality, it should be possible to determine which areas may benefit most from service improvement initiatives.

Conflict of interest and funding: None

PHE

Corresponding author: Dr Caroline Wright Email: caroline.wright@phe.gov.uk
Phone: 01223 331765
Institution: Knowledge and Intelligence Team (East), Public Health England Institute of Public Health University Forvie Site, Robinson Way Cambridge United Kingdom CB2 0SR

Available online at http://www.thepcrj.org