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ABSTRACTS **OPEN**

Meeting Abstracts from the 2016 Primary Care Respiratory Society UK (PCRS-UK) Annual Conference: Fit for the Future—A Holistic Approach to Respiratory Care

Telford International Centre, Telford, UK, 14–15 October 2016

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1. Concordance between self-reported and GP-reported treated asthma in Wales

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Aim: Analysis of concordance between case identification criteria helps judge their reliability. We analysed the agreement between GP-reported data-driven and self-report case identification of current treated asthma (CTA) in Wales.

Method: We accessed a subset from the Welsh Health Survey (WHS) 2014 results including 6,702 individuals aged 15+. We excluded those with invalid CTA responses or whose records could not be linked to the GP dataset in the Secure Anonymised Information Linkage Databank. From the GP dataset, we used observed variables about asthma diagnosis and prescriptions to perform latent class analysis (LCA). In the best fitting model, latent classes consistent with CTA were combined into a "GP-reported CTA" group. We then estimated the concordance between self-reported CTA from the WHS and both GP-reported CTA and ever-diagnosed-or-treated asthma.

Results: We included 4,187 people, of whom 439 (10.5%) had self-reported CTA but of these 13% had no recorded asthma diagnosis or prescriptions in the GP data. The best fitting LCA model contained 7 classes; 5 classes including 346 people (8.2%) were consistent with CTA. The share of ever-diagnosed-or-treated asthma was 16.1%. Only 246 (5.9%) people had both self-reported and GP-reported CTA; Cohen's kappa for agreement between the two classifications was 0.59. This increased to 0.62 when self-reported CTA was compared with GP-reported ever-diagnosed-or-treated asthma.

Conclusion: Self-reported current treated asthma has only moderate to good agreement with both GP-reported treated asthma and ever-diagnosed-or-treated asthma. This could be explained by over-self-reporting and/or under-reporting of diagnosis and prescriptions by GPs.

Conflicts of interest: None.

Funding: Health and Care Research Wales and Abertawe Bro Morgannwg University Health Board. Supported by Asthma UK Centre for Applied Research [AUK-AC-2012-01] and The Farr Institute@CIPHER (MRC Grant No: MR/K006525/1).

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2. Use of blood eosinophil count to predict inhaled steroid responsiveness in patients with COPD using UK primary care health records

Ashdown HF, McFadden E, Smith M, Thomas DM, Pavord ID, Bafadhel M, Butler CC
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Aim: This study aims to evaluate whether initiating inhaled corticosteroid (ICS) treatment in patients with COPD is more effective in those who have higher levels of pre-treatment blood eosinophils compared to those with lower levels of blood eosinophils.

Method: This is a cohort study using the Clinical Practice Research Datalink (CPRD) which collects routine data from UK primary care, linked with Hospital Episode Statistics (HES) data. Inclusion criteria will be patients with a diagnosis code for COPD and spirometry diagnosis, aged ≥ 40 years with smoking history, who are not already treated with ICS (ICS-naïve), starting a new inhaled maintenance medication for COPD (intervention group: ICS; comparison group: long-acting bronchodilator).

A descriptive component will examine routine blood eosinophil testing in primary care and stability over time. The hypothesis-testing component will test whether baseline blood eosinophils predict disease outcomes, and outcomes under treatment (ICS responsiveness). The primary outcome will be acute exacerbations of COPD. Disease outcomes over time will be compared between intervention and comparison group, with adjustment for baseline characteristics, and this will be stratified by baseline blood eosinophil values to determine whether this modifies effectiveness of treatment.

Results: We have obtained relevant ethical approvals and data management will commence shortly. Further discussion of the planned project and any preliminary results will be presented.

Conclusion: Characterising blood eosinophils in the primary care COPD population and their role in predicting disease outcomes under ICS treatment may enable eosinophil-guided ICS treatment in future.

Conflicts of interest: None.

Funding: National Institute for Health Research.

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3. Clinical characteristics of pertussis-associated cough: a diagnostic accuracy systematic review

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Aim: *Bordetella pertussis* (whooping cough) is an important cause of persistent cough in patients presenting to primary care, but presentation is not always classical, and can be along a clinical severity spectrum from minor cough to repeated severe paroxysms. This systematic review aimed to determine the diagnostic accuracy of different clinical features of pertussis.

Method: Searches were conducted in CINAHL, Embase, Medline and Science Citation Index, including conference proceedings. Studies from any health care setting were included if they compared clinical features in patients with laboratory-confirmed pertussis against those without. Study authors were contacted for clarification and/or additional data if needed. Quality of included papers was assessed using the QUADAS-2 framework. The index tests were clinical features of pertussis, and the reference test was confirmed pertussis diagnosis.

Results: 3993 papers were identified through the initial database search, of which 331 were selected for full text review. Of these, 49 met the criteria for study inclusion, from which data has been extracted. A variety of history, examination and basic investigations potentially associated with pertussis have been assessed. Meta-analysis of results and an updated search is currently underway. A diagnostic scoring system based on different clinical features will be created if possible.

Conclusion: This systematic review will draw together findings from many observational studies, to provide a greater understanding of characteristics of pertussis cough and other associated clinical features. This could help primary care clinicians to differentiate cough due to pertussis from other causes of persistent cough, which could help prevent unnecessary investigations and offer patients a more accurate cough prognosis.

Conflicts of interest: None.

Funding: None.

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4. Lung health screening in male construction workers

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Brief outline of context: To identify those at risk and raise awareness of lung disease in men working in construction.

Outline of problem: Men who work are less likely to seek advice about disease conditions or symptoms. Construction workplace exposures are likely to contribute to COPD. Smoking remains the key risk factor; prevalence amongst Southampton's manual working group is high at 32.3%.

Assessment: World COPD Day provides an opportunity to raise the profile of Respiratory health and COPD to an at risk group seldom seen in primary care.

Table 1 Measurement of improvement.

- * 18 men voluntarily attended with a mean age of 43
- * 8/18 ex-smokers
- * 4/18 current smokers
- * 2/18 FEV1/FVC < 70% predicted; 1 asthmatic, 1 with symptoms suggesting COPD
- * 3/18 known asthmatics; 100% with poor control
- * 2/18 symptoms suggesting other respiratory diseases
- * 1/18 anxiety symptoms

Referral to primary care provider:

- * 3/18 poor asthma control
- * 1/18 confirmation of COPD diagnosis
- * 2/18 further investigation of respiratory symptoms

Other interventions:

- * 4/4 smokers requested smoking cessation advice
- * 1/18 referred to talking therapies

Strategy: A multidisciplinary team with research and clinical backgrounds approached construction companies on site at Southampton Hospital to release employees to attend a pop-up lung screening clinic.

Effects of changes: Intervention required in over half of attendees (see Tables 1 and 2).

Lessons learnt: Workers cited peer encouragement and clinic accessibility (permission, proximity, paid work time) as integral to attendance. The managers reported a number of current smokers declined to attend. Respiratory awareness days are an opportunity to target high risk seldom heard groups.

Conflict of interest: None.

Funding: National Institute for Health Research Collaboration and leadership in applied research and care Wessex and Southampton Integrated COPD Team.

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5. What is the association between Chronic Obstructive Pulmonary Disease (COPD) and health-related quality of life in Manchester in 2011?

Beaumont-Kellner H, Frank T, Caress A

University of Manchester, UK

Aim: This study examines the association between COPD and health-related quality of life (HRQoL) in Manchester in 2011 using a generic health-related quality of life questionnaire and was part of a Masters in Clinical Research. The study formed part of a larger primary care study, which covered 20 general practices in Greater Manchester. This number of practices will yield a large volume of responses; therefore, a smaller sub group of COPD and comparator patients from six practices is used for this MClIn Res project. It is evident in the literature that there is no recent information on this group of patients in the UK. Confounding variables such as age, socioeconomic status, demographics and co-morbidity in this sample are also discussed.

Method: This quantitative cross-sectional questionnaire comparator study collected data from six practices using the EQ-5D and EQ-5Dvas from a primary care patient population with COPD and co-morbidity. Patients were identified from the practice QOF registers using Apollo Medical software (read codes are supplied to Apollo Medical and anonymous data is extracted and matched up with the completed patient questionnaire) or manually by the author.

A 5% randomly selected of patients aged 16 years and over without a chronic condition were included in the comparator group. An alert was put on each patient record to assist GPs and nurses at the practice to avoid opportunistic comparator group sampling. HRQoL was measured and analysed alongside demographic information, which was supplied by the patient. Data was collected over a 6-month period.

Results: Statistical analysis was used to test the null hypothesis of no association between HRQoL and COPD, using the Chi-squared test for association and Fishers Exact on categorical ordinal data. To look for a difference between the two groups the Mann-Whitney U test and Wilcoxon test were used due to the non-normal distribution of the data (Machin *et al.*, 2007).

A total of 88 patients with COPD or in the comparator group were selected from the total sample ($n=1000$). Current or ex-smokers were more likely to have COPD ($P=0.0001$). Patients with COPD reported a lower 'health state' score compared to the comparator group using the EQ-5Dvas ($P=0.007$). In addition there was a significant association between further or higher education after the age of 16 years and COPD ($P=0.0008$).

Conclusion: This study contributes to current literature, by supporting and validating previous arguments. COPD patients in Manchester had a lower health state compared to the comparator group, and responders with COPD were more likely to smoke and did not complete further education over the age of 16 years. These results emphasize the importance of individual patient experience, their perceived health state and the need to continually improve disease management by applying HRQoL measurements. However, limitations of the study results include the small sample size and confounding variables such as age.

Conflicts of interest: None.

Funding: This project was supported by the Greater Manchester Clinical Research Network.

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6. Stepping down high dose steroids in asthma patients using (smoking, inhaler technique, monitoring, pharmacotherapy, lifestyle, education, support) SIMPLES approach

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Outline: The British Thoracic Society BTS/SIGN guideline on the management of asthma recommends that reductions in inhaled corticosteroid (ICS) dose should be considered every 3 months. The guideline states that stepping down therapy once asthma is controlled is recommended but is often not implemented, leaving some people over treated.

Outline of problem: Combination therapy with anICS and an addition of a long-acting beta₂ agonist (LABA) is the preferred treatment at step 3, when the use of an ICS alone is insufficient for the control of persistent asthma. However research has found that when initiating a combined inhaler this has resulted in widespread increase in ICS dose.

Assessment: Our practice is situated in a deprived area, asthma prevalence is currently 6.3% and the national prevalence is 6.0%. The national prevalence for COPD is 1.7% our practice is 3.9%. We also have high prevalence for mental health and smoking rates that have an impact on asthma management.

Strategy: We ran reports to identify asthma patients on high dose steroids and called them in for a review. The SIMPLES approach (smoking, inhaler technique, monitoring, pharmacotherapy, lifestyle, education, support; Ryan *et al.*, 2013) was used to review these patients and step them down.

Measurement of improvement: Every quarter the practice receives an MOT report from the Clinical Commissioning Group (CCG), with prescribing costs, smoking cessation rates and hospital admissions. Every week we run a report to see who has attended A&E and we have not increased our admission rates for asthma.

Effects of changes: Our respiratory prescribing costs have dramatically reduced since 2012/2013 from £123,818 to £74,816 in 2014/2015 saving £49,002 most practices in the CCG also made respiratory savings with an average saving of £13,811. These savings do also include stepping down steroids in COPD as per previous poster. But the reduction of high dose steroids reduces costs and also reduces side effects leading to improved quality of life.

Lessons learnt: Most symptomatic asthma patients do not need high dose steroids, other factors need addressing such as inhaler technique and co-morbidities in the first instance before increasing inhaled therapy.

Message for others: Reviewing patients using the SIMPLES approach has helped to reduce the steroid dose for asthma patients, but can also be used during routine appointments to prevent over treatment.

Conflict of interest: None.

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7. Admission Avoidance for COPD patients: a Specialist Nurse approach

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Abstract

Aim: To evaluate the safety and effectiveness of a specialist nurse-led Acute Respiratory Assessment Service (ARAS) for COPD patients.

Background: COPD is the second highest cause of emergency admissions of any chronic disease in the UK (DH, 2010). ARAS was developed with the aim to provide a safe, effective model of care and reduce unnecessary hospital admissions.

Abstracts

Design: A retrospective case-note audit of patients referred to ARAS over a 12 month period from April 1st 2014–March 31st 2015.

Methods: Data was collected and analysed for: length of time patients received the service, number and type of contacts, treatment prescribed and mortality and admission rates due to respiratory reasons and all causes.

Results: One hundred and twenty eight patients (Mean \pm standard deviation; age 74.2 \pm 11.0 years) with confirmed COPD were referred and received care for 16.0 \pm 8.8 days. Number of visits and telephone reviews was 3.5 \pm 1.4 and 1.5 \pm 1.4 respectively. Ten patients (7.8%) were admitted to hospital due to all causes with six (4.6%) of these being respiratory reasons. Mortality rate was nil.

Conclusion: An ARAS service led by Respiratory Nurse Specialists skilled and competent in prescribing and reassessing specialist interventions (e.g. nebulised therapy and emergency oxygen therapy), is a safe and effective model for treating COPD patients at home. This service reduces the number of patients presenting to emergency departments and being admitted to hospital. This has important economic benefits to healthcare whilst also having beneficial effects on patient experience and satisfaction.

Conflicts of interest: No conflict of interest has been declared by the author(s).

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8. Feedback from chronic respiratory disease education on community-based nurses in Dorset

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Dorset County Hospital NHS Foundation Trust, UK

Brief outline of context: A competency-based, multiprofessional educational course was delivered to improve the skills of community nurses about the broad range of chronic respiratory disease. The feedback from six courses was evaluated, exploring their value and improvement options.

Outline of problem: Training for staff in the community about respiratory disease is needed to increase staff confidence and reduce the burden on secondary care.

Assessment: Whilst training in asthma and COPD management is generally available, training on the assessment of the breathless patient and the management of the rarer lung diseases is less established.

Strategy: A 3-day multiprofessional education programme covering COPD, bronchiectasis (BE), interstitial lung disease (ILD) and the assessment of the breathless patient was delivered, supported by a portfolio of ongoing learning, aimed primarily at community nurses.

Measurement of improvement: Written feedback from 72 of the 77 delegates on the 6 courses over 2 years, assessing the areas that are most valued by them.

Effects of changes: The feedback was overwhelmingly positive. The most valued sessions covered BE, ILD, end of life care, inhalers, pulmonary rehabilitation, respiratory history taking and the breathless patient. Case studies and the delivery of the training by local respiratory consultants were appreciated.

The need for such a course was confirmed. Other elements desired were asthma management, spirometry, oxygen care and a need to strengthen ongoing mentorship for community staff. There is an enthusiasm for respiratory training in the community beyond the traditional areas of asthma and COPD.

Conflict of interest: None.

Funding: The programme was a collaboration between the National Health Services and J2S, supported by funding from Dorset Clinical Commissioning Group, GlaxoSmithKline, Pfizer, AstraZeneca, Boehringer Ingelheim, Chiesi, Teva.

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9. "Breathless not helpless": developing a community respiratory service for people with COPD

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Outline: An overview of a transformational change programme delivered in Angus Community Health Partnership (CHP) over a 10 year period to develop evidence based care for people living with COPD.

Outline of problem: Patients were often misdiagnosed as asthma and unlikely to be diagnosed with COPD until relatively advanced. There was little in the way of comprehensive review following diagnosis particularly for housebound patients. Pulmonary rehabilitation was 20 miles away and was usually accessed following an admission.

Assessment: There was limited access to diagnostic spirometry in community with few GP practice staff having any specialist COPD knowledge. No access to training locally - the nearest COPD and asthma diploma courses were delivered 70 miles away.

Strategy: A respiratory working group was established and the following steps milestones progressed: (1) Development of a local service model based on clinical evidence, including: Diagnosis and COPD management in primary care, Specialist nurses, Pulmonary rehabilitation, Housebound Service; (2) Peer support groups established; (3) Long Term Oxygen Therapy pathway; (4) Palliative care pathways; (5) Regular local COPD education and awareness events.

Measurement of improvement: Hospital admission rates, bed days and average length of stay were used as measures of improvement.

Effects of changes: This programme through its focus on collaboration with the local COPD population has greatly increased equality of access to evidence based care and has improved patient outcomes significantly.

Despite a significant increase in COPD prevalence, COPD related admissions, bed days and average length of hospital stay are decreasing. Small tests of change will show if something can be implemented easily and can lead to greater sustainable changes.

Message for others: Collaborative working between primary and secondary care and patient representatives can improve outcomes for people living with COPD.

Conflict of interest: None.

Funding: Core funding from Angus Community Health Partnership.

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10. Is the 'blue' colour convention for inhaled reliever medications important? A UK based survey of healthcare professionals and patients with airways disease

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Aim: In many countries, short-acting beta 2 agonist inhalers have traditionally been coloured blue. This inhaled therapy has also conventionally been known as a 'reliever' by patients and healthcare professionals (HCPs), in comparison with 'preventer' medications (inhaled steroids). With the rapidly changing market in inhaled therapy for COPD and asthma and growing numbers of devices, there has been some concern that the erosion of traditional colour conventions is leading to patients (and HCPs) becoming confused about the role of different therapies.

Method: In order to assess whether there was concern over the perceived changing colour conventions the UK Inhaler Group carried out a large online survey of patients and HCPs to assess the perception of the importance of inhaler colour and whether there was a requirement to formalise colour schemes.

Results: The results of the survey highlighted the importance of the term 'blue inhaler' for patients with only 11.3% never referring to the colour when referring to their inhaler. For HCPs 95% felt colour conventions were important when referring to reliever medication. Additionally, HCPs appear to refer to inhalers mainly by colour when talking to patients.

Conclusion: Our conclusions were that concept of a 'blue inhaler' remains important to tents and health care professionals. 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, since formalising this convention may be an important measure and contributor to patient safety. Our 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 and carers and HCPs.

Conflicts of interest: The authors are all members of the UK Inhaler Group.

Funding: None.

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11. Improving the management of patients' assigned COPD treatment (IMPACT): how to affect change in primary care

Freeman D, Gerrard V, Turton J

North Norfolk Clinical Commissioning Group (CCG), UK

Brief outline of context: The Project aimed to use a COPD risk algorithm designed by REG (Respiratory Effectiveness Group) and the author to assess its use in Primary Care. The data extraction used for the risk assessment was performed by OPC (Optimum Patient Care) and this process produced a detailed spreadsheet from which practices were able to identify patients who needed alternative treatments for their respiratory disease, including those patients with COPD who should have had their high dose inhaled corticosteroid (ICS) reviewed.

Outline of problem: Like many Clinical Commissioning Groups in England, North Norfolk Clinical Commissioning Group (CCG) has had to look at ways of reducing emergency admissions. Between 2013 and 2014 there was a 30% increase in COPD admissions and a three fold variation between practices within the CCG, and so the CCG decided to focus on ways to address this.

Separately the prescribing advisers had identified that many practices had large numbers of patients with COPD, on high doses of ICS (as part of ICS/ long acting beta₂ agonist combinations) who did not fit the guideline criteria for such therapies. Reducing these costs alongside reducing COPD exacerbations and admissions was the main aim of IMPACT.

Assessment: IMPACT was delivered in many ways, 15 out of 19 practices agreed to take part and the data extraction was performed by OPC in the middle part of 2015. The risk algorithm identifies patients at risk of 2 or more exacerbations in the next 12 months and practices were encouraged to identify this group of patients using the spreadsheet and also to identify a list of patients whose ICS should be reviewed. Mentored clinics were performed using DF, VG and other respiratory specialist nurses from Norfolk. The aims of the mentored clinics were to encourage nurses to use self management plans, refer to Pulmonary Rehabilitation and use strategies proven to help patients at risk, and to encourage them to use a simple algorithm to review those patients on high doses of ICS and step down or stop if the review process allowed.

Strategy: Performing the mentored clinics identified wide variation in the standard of respiratory nurses providing care across the CCG, from excellent to nurses who by their own admission, were neither expert or given sufficient time to do any more than a brief QOF review. Feedback was taken from the practice nurses about the mentored clinics and any further educational needs they may have. As a result a structured process of education has begun, and the CCG has identified that a formal respiratory team including the authors, a respiratory consultant, the PR lead and the local community matron should be formed and a respiratory pathway designed and implemented.

Measurement of improvement: Data extraction is underway for the exacerbation and ICS prescribing data. Already there has been a difference show in admission data between the practices which took part and those which did not. This part of the project focussed on the nurse education element. The vast majority of the feedback was positive, although some nurses felt the preparation could have been better in terms of help using the OPC spreadsheet.

Lessons learnt: In future if we were to repeat the mentored clinics, we would have a pre- clinic telephone call to review how the nurses had used the spreadsheet to select patients. Many nurses assumed that the search would be

complete and that no further work would be needed from them. There were also issues with some searches performed at some practices which had to be repeated. The main lesson has been that how starting with a project which fits the needs of the CCG can result in the fitting the desires of the authors - i.e. to have a fully integrated respiratory network fitting in with the "working at scale" ethos of forming an MCP.

Message for others: Use a computer based interrogation system as a start for a project, it saves time & standardises data across the CCG. Use the 5 year FV as a way into this, and galvanise practices into aspiring to provide the same level of care as the very best practice in the patch. This may mean that they have to provide care in a different way, so ensure that the route to that care pathway is well signposted for them, easy to follow, and allow them to go slowly - one step at a time.

Conflict of interest: DF has received payment from AstraZeneca, Boehringer Ingelheim, Novartis & Pfizer in the last 12 months for providing educational meetings or attending conferences. DF is paid by North Norfolk Clinical Commissioning Group for some of the education sessions and pathway development work.

Funding: The project was funded by a Quality, Innovation, Productivity, and Prevention (QIPP) project originated from North Norfolk Clinical Commissioning Group.

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12. Towards person-centred care: development of a patient support needs tool for patients with advanced chronic obstructive pulmonary disease (COPD) in primary care

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Aim: Patients with advanced COPD have difficulty reporting their support needs to health care professionals, undermining person-centred care and support. A new approach, the Support Needs Approach for Patients (SNAP), informed by, and modelled on, the evidence-based Carer Support Needs Assessment Tool (CSNAT), may enable patients to express their support needs and start person-centred conversations. SNAP is underpinned by an evidence-based tool to help patients consider and express their support needs. This study aims to develop the SNAP tool, suitable for use in clinical practice.

Method: Two-stage qualitative study. (1) Domains of need in advanced COPD were identified through a rapid review of the literature, analysis of data from the Living with Breathlessness Study ($n=20$ purposively sampled patients with advanced COPD) and patient focus groups. (2) A draft SNAP tool was developed based on the identified domains of need, then reviewed and refined in stakeholder workshops to ensure acceptability and suitability for clinical practice.

Results: The study is on-going but preliminary findings indicate that the tool will consist of a brief set of questions which ask patients to consider whether they need more support in relation to a range of broad areas (domains) of need such as practical help in the home, knowing what to expect in the future, understanding their condition and managing symptoms.

Conclusion: The tool has the potential to help patients with advanced COPD identify and express their support needs to enable delivery of person-centred care. Future work will test tool validity and feasibility.

Conflicts of interest: None.

Funding: This report is independent research funded by the National Institute for Health Research School for Primary Care.

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13. "What are the experiences of parents bringing their pre-school child with a cough to the GP, and what can clinicians learn about consultations with parents from parental descriptions of these experiences?"

Glaze J

University of West London, UK

Outline: The National Health Services (NHS) is under pressure to provide services, GPs are picking up work in commissioning services and trying to outwork them. The study offers a service user perspective in an attempt to understand if there is a better way to give parents the means of reassurance rather than resorting to the GP in all cases. The study outcomes highlight some misconceptions around parental expectation.

Outline of problem: One of the most common presentations in GP surgery is cough in the pre school age group. Parents worry about cough and have little knowledge about it's purpose as part of the bodies protective mechanism. Overworked GPs may find themselves unable to consult effectively due to time pressures. Children may be being taken to A/E unnecessarily.

Parents fear cough in this age group due to it's association with more serious disease. They see the GP as the expert and want their child to be seen by an expert. GPs are overworked and are attempting to move some disease management to nurses. There is still an international problem of overuse of antibiotics for self limiting disease. What happens in the consultation room makes a difference to patient understanding and ability to cope.

Strategy: An understanding of parental perceptions is needed to plan a strategy of culture change around when it is appropriate to see a particular health care professional. GPs and nurses need to be able to consult well in all cases so that outcomes are appropriate for parent, child and the service. Parents need to be convinced that they are able to keep children safe using a step wise approach to symptoms of disease. Tools to enable this approach need to be consistent and widely available.

Measurement of improvement: The study was a fact finding mission and will not demonstrate improvement at this time. Results did suggest that the more thorough the parent felt the consultation was, even without "treatment", the less likely they were to seek help elsewhere (A/E or 111). Inappropriate use of services will reduce overall cost of provision. Reduction in antibiotic use will reduce resistance. Parents value thoroughness at consultation above all else, they have a strong trust in GPs who exhibit this trait.

Message for others: We need to look at how the service is provided before we can change how we provide the service.

Conflict of interest: None.

Funding: Self funded

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14. 'I'm hoping for some advice...'. Barriers and facilitators to adherence to inhaler therapy in adolescents with asthma: insights from an online forum

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Aim: To explore the barriers and facilitators to inhaled asthma treatment in adolescents with asthma.

Method: Qualitative analysis to posts about inhaler treatment in adolescents, from an online forum for people with asthma, between 2006 and 2016. Analysis informed by a Perceptions and Practicalities Approach, Fifty-five forum participants (39 adolescents, 5 parents, 10 adults with asthma), identified using search terms 'teenager inhaler' and 'adolescent inhaler'.

Results: Adolescents, parents and adults with asthma contributed to online discussions. Forgetfulness, poor inhaler technique and routines, difficulties managing practicalities of medications, and families not understanding asthma were practical barriers. Prompting and monitoring inhaler treatment were described as helpful, with adolescents benefiting from self-monitoring through diary or digital apps.

Denial of asthma, age-related immaturity and not-taking-inhalers as attention seeking were recognised perceptual barriers. Adolescents and adults with asthma (but not parents) additionally described concerns related to attributed side effects (e.g. weight gain, spots, tremor) and social stigma, i.e. asthma being seen as weakness and confused with anxiety or attention-seeking, resulting in 'embarrassment of taking inhalers in public', especially in mild-moderate or no-wheezes-asthma. Building a good rapport with own doctor, actively seeking inhaler adjustments and learning to deal with side effects were facilitators to optimal adherence. Parents were instrumental in promoting sense of responsibility for asthma treatment. Adolescents and adults with asthma reported advice/techniques to deal with people reactions and acceptance of asthma.

Conclusion: This online forum reveals a rich insight into the practical and perceptual barriers to adherence to asthma inhaler treatment experienced by adolescents. Interventions that prompt and monitor inhaler use hold potential. Exploring parents' beliefs about asthma diagnosis and their role in dealing with practical barriers of treatment in clinical consultations might be beneficial. The social stigma of asthma and its role in adherence to inhaler taking might be underestimated and warrant further research. There is need to improve public awareness of mild/moderate and no-wheeze asthma.

Conflicts of interest: none.

Funding: Anna De Simoni is funded by a National Institute for Health Research Academic Clinical Lectureship.

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15. The introduction of a hospital at home (HAH) service for acute exacerbation of COPD (AECOPD) patients

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Liverpool Community Health NHS Trust, UK

Brief outline of context: The addition of a HAH service to an existing early supported discharge (ESD) service was introduced to positively impact on hospital admission numbers and move care from hospital to home.

Outline of problem: COPD is a common cause of emergency admission, with emergency hospital admissions increasing nationally by 13% from 2008-2015 (Stone *et al.* 2015). This represents a significant cost to the National Health Services (NHS) of between £810m to £930m yearly (www.dh.gov.uk).

Assessment: ESD has successfully reduced number of in-patient bed days. Scope for admission avoidance by the addition of HAH was identified.

Strategy: Patient is seen within 2 hours of GP HAH referral and provided support until no longer hospital admission risk. COPD management optimised prior to discharge from service.

Measurement of improvement: Ninety-one percent of HAH patients successfully managed at home, 24.5% reduction in admissions, 88% of patients rated service as excellent, 12% as very good.

Effects of changes: Seven percent increase in referrals to ESD and HAH combined. HAH as a percentage of total referrals has increased from 31% 2013-14 to 52.5% 2015-16. The introduction of HAH service has increased service demand. However, there has been a significant shift in activity from secondary care to the home setting and a positive impact on hospital admissions. HAH is a safe alternative to hospital admission for a significant cohort of AECOPD patients.

Conflicts of interest: None.

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16. The power of spirometry as a "teachable moment" to "INSPIRE" smoking cessation

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Respiratory Training Services, UK

Outline: In the course of a 5-year project Public Health Blackpool took the offer of a Lung Health Check (spirometry and lung health information) out into community and workplace settings across the Blackpool Clinical Commissioning Group (CCG) area.

Outline of problem: Blackpool has one of the lowest life expectancy for men in England. Smoking related diseases account for at least half of the health inequalities.

Aim: As the intervention evolved a series of scripts were devised tailored to the individual, having a common theme of plain non-clinical language, lung health, lung disease and lung age. The aim being to increase the motivational tension and trigger a quit attempt in the smokers.

Strategy: Three-hundred and twenty-seven events were held over the 5 years, testing 4660 individuals, 2051 of whom were smokers.

Measurement of improvement: In a sample audit 49% of the smokers tested subsequently registered a quit attempt with the local National Health Services (NHS) Stop Smoking Service. The "INSPIRE" intervention does have the potential to act as a "teachable moment" triggering behavioral change and adopting more positive health enhancing behaviours, which if adopted more widely particularly in a primary care setting could help towards increasing the number of quit attempts and reducing the burden of lung disease.

Lessons learnt: When explaining spirometry readings it is vital to use plain non-clinical language and in order to trigger a quit attempt use positive messages stressing short term quick gains for the individual.

Message for others: Plans are now in place to deliver training on the "INSPIRE" model to all primary care and community teams across the Blackpool CCG area and we hope to report the outcomes in the future.

Conflict of interest: None.

Funding: None.

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17. The features patients 'want' in a smartphone app to support asthma self-management: a review of the online discussion forums

Hui CY, Walton R, McKinstry B, Wolters M, Vasileiou E, Pinnock H

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

Aim: Self-management with an action plan, as opposed to passive self-monitoring, improves health outcomes. Mobile technology, incorporating education, personalised asthma action plans and facilitating professional support, is an option for supporting asthma self-management. Clinical research has focussed on health-related outcomes rather than informing the features that patients want and will use in a self-management app. We therefore reviewed conversations in online discussion forums to answer the questions: Which mobile technology features are widely discussed by people with asthma? How do people feel about those features? What are the features they 'want' in an app?

Method: We systematically searched Google for 'asthma' 'forums'. Eligible posts were assessed by two reviewers and we identified the frequency with which features were mentioned and synthesised the perceptions thematically.

Results: From 25 forums, we included 22 posts (November, 2013 – November 2015). 42 people with asthma commented on 44 application features which we grouped into five categories (self-monitoring, feedbacks/advice, professional/carer support, reminders, and others e.g. stress management). Feelings ranged from 'positive', 'appreciative but worried (e.g. about confidentiality)', 'nothing unique', 'doubtful' and 'negative'. The majority of comments about apps incorporating monitoring peak flows, symptoms and medication usage were positive, but without explicit mention of action plans. Smart gadgets, such as electronic inhaler logs provoked a range of responses from positive to negative.

Conclusion: Smartphone apps for people with asthma have generated a range of comments on social forums, with the most interest in logging health status with symptoms or peak flows (sometimes with novel gadgets). The lack of discussion about action plans, suggests that today's apps are limited to self-monitoring rather than self-management. Further research is needed to understand this limitation and the features associated with adoption and adherence to self-management.

Conflicts of interest: None.

Funding: CYH is funded by a PhD studentship from the Chief Scientist Office.

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18. The impact of incentives on the implementation of asthma or diabetes self-management: a systematic review

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Aim: To systematically review the evidence investigating the impact of financial incentives for implementation of supported self-management on organisational process outcomes, individual behavioural outcomes, and health outcomes for individuals with asthma or diabetes.

Method: We followed Cochrane methodology, using a PICOS search strategy to search 8 databases, including a broad range of implementation methodologies. Studies were classified by robustness of methodology, number of participants and quality score (Cochrane). We used narrative synthesis due to heterogeneity.

Results: We identified 2017 articles; 11 met our inclusion criteria. Self-management outcomes identified were practice or practitioner performance scores for HbA1c testing ($n=9$), asthma self-management plan ($n=1$) and emergency department (ED) visits ($n=1$). Three studies were part of a larger incentive scheme; one focused on asthma; seven focused on diabetes. In one asthma study, the proportion receiving 'perfect care' (which includes written self-management plan) increased, and there were fewer ED visits in another study. In 9 diabetes studies, GP performance scores improved in 2/9, were unchanged in 6/9 and deteriorated in 1/9.

Results for the impact of FI on the implementation of self-management were mixed. Overall, the evidence suggests no impact in diabetes and a single study showed improved processes in asthma. Further research is needed to confirm these findings and understand how FI impact on care.

Conflicts of interest: None.

Funding: The University of Edinburgh College of Medicine and Veterinary Medicine (CMVM) PhD Studentship [Asthma UK Centre for Applied Research PHD/14/16].

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19. Implementing structured Medicine Use Reviews (MURs) for people with Asthma

Jongepier L, Murphy A, Leong N, Ord C, Donyai P

East of England Respiratory Clinical Network (CN), UK

Outline: We examined the use and practical implementation of the SIMPLE Asthma IT Platform (SAP) with community pharmacists.

Outline of problem: Forty-three percent of people who died of asthma did not have regular primary care asthma reviews in the last year before death. Twenty-two percent of patients miss their GP appointment (NRAD, 2014). Enhancing the role of the community pharmacists is key to achieving good asthma outcomes.

Assessment: Little guidance is given on what constitutes a good quality MUR, resulting in variation of the quality of MURs. The SAP provides a structured template of asthma care for pharmacists, designed to ensure high-quality MURs are delivered consistently.

Strategy: We facilitated the implementation of the SAP in 6 community pharmacies, preceded by asthma training. We collaborated with the University

of Reading to examine the effects on the quality of the asthma MURs by independently measuring patient satisfaction.

Measurement of improvement: Structured pharmacists' feedback and analysis of non-identifiable patient service data. Ten patients received a comprehensive asthma review. Patients were advised on self-management, inhaler technique and smoking. 4 patients did not have an asthma review during the past 12 months. Only 2 patients had well controlled asthma defined by the RCP 3 Questions.

Lessons learnt: Pharmacists valued the training and the SAP highly, however its implementation was challenging and its use was poor. The main reasons given were time constraints and IT issues. The SAP is a promising tool to support MUR delivery. A larger and longer study is required to fully evaluate its practicability and impact.

Conflicts of interest: None.

Funding: The Clinical Network provided £3,500.00 funding.

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20. Owning my asthma; An enhanced self-management initiative for 14-19 year olds

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IW NHS Trust, IW CCG, Wessex AHSN, Message Dynamics and University of Portsmouth

Brief outline of context: Over 1.1 million children in the UK are currently being treated for asthma. The equivalent of a classroom full of children dies every year from asthma.

Outline of problem: People without asthma action plans are four times more likely to need to go to hospital for their asthma. Only a third of children asked said they had a written asthma action plan and just a quarter were getting all three elements of routine management for their asthma.

Assessment: A year on year increase in A&E attendances for asthma in 14-19 year cohort shows that there is a need for a clinically appropriate programme/ to promote effective and enhanced asthma self-management; a key recommendation from the National Review of Asthma Deaths.

Strategy: An asthma review with a Respiratory Nurse where they were issued with a digital Peak flow meter, an Asthma Action Plan and signed up to receive weekly automated calls. They were reviewed after two months and offered an incentive if they completed the project.

Measurement of improvement: Evidence of improved concordance through review of prescribing data, exacerbations, hospitalisation rates and self-reported wellbeing. A total of 83% felt better able to control their asthma, 75% said that they understood their asthma better. More than 50% felt that their asthma symptoms had improved, 60% ACT score had improved.

Lessons learnt: Teenagers require more input and it is important to build relationships with them. This group engages readily with technology. Engaging colleagues from other practices proved challenging.

Conflict of interest: None.

Funding: Wessex Academic Health Science Network Funding, support from Isle of Wight Clinical Commissioning Group and IW National Health Services Trust. Message Dynamics provided licences at a reduced fee.

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21. The use of electronic alerts in primary care computer systems to identify the over-prescription of short acting beta₂-agonists in people with asthma: a systematic review

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Aim: Frequent use of short-acting beta₂-agonist (SABA) inhaler medication is an indicator of poor asthma control and a risk factor for asthma exacerbations. Furthermore, the National Review of Asthma Deaths (NRAD, 2014) identified the excessive prescribing of SABA as a modifiable risk factor for asthma deaths. Clinical guidelines recommend those using more than one SABA per month

should have an early clinical review with recommendations supporting the electronic surveillance of SABA prescribing in primary care. This review aims to evaluate the effectiveness of electronic prescribing alerts within computerised clinical decision support systems (CDSSs) in primary care to identify the over-prescription of SABA in patients with asthma.

Method: We included randomised controlled trials that used electronic alerts within CDSSs to identify SABA over-prescribing in primary care. We systematically searched five electronic databases from January 1990 to July 2016. The primary outcome was SABA over-prescription/100 patients. Secondary outcomes were changes in prescribing (health care process measures) and asthma exacerbations and health service use (clinical outcomes). Study quality was assessed using the Cochrane Risk of Bias Tool.

Results: We have identified 2930 titles from January 1990 – July 2016 with less than 5 studies eligible for inclusion. The systematic review is ongoing and we will present our analysis of included papers.

Conclusion: A small number of trials exist that examine the use of alerts in CDSSs to identify excessive SABA prescribing. We will use our findings to inform the development of electronic alerts to identify patients over-prescribed SABA in primary care.

Conflicts of interest: None.

Funding: Queen Mary University of London/Asthma UK Centre for Applied Research.

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22. Evaluation of the PREPARE self-management education programme for patients with mild to moderate COPD

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Aim: To establish if an education-only intervention for patients with mild to moderate COPD is effective in changing knowledge and confidence in disease management.

Method: Patients with COPD and a Medical Research Council (MRC) breathlessness score of less than 3 referred by GP practices in the Forest of Dean and Stroud districts of Gloucestershire between April 2015 and March 2016 were offered the PREPARE programme: three two-hour sessions of group education. Eligible patients who were unable to attend a Pulmonary Rehabilitation course were also offered places. Classes were offered on weekdays, evenings and weekends and included: understanding your lung condition, benefits of exercise, medication and inhaler technique, managing a flare-up, managing breathlessness and continuing to exercise. All patients were issued with an exercise DVD and COPD resource materials. Outcome measures were the Bristol Knowledge and Skills Questionnaire (BCKQ) and the Mastery component of the Chronic Disease Questionnaire completed at the start and finish of the course.

Results: Of 136 referrals, 85 people (62%) attended the programme with a completion rate of 92%. Overall 92% of patients increased their BCKQ scores, 6% decreased and 2% were unchanged. Of 49 Mastery scores, 55% increased, 24% decreased and 20% remained unchanged. Sixteen patients requested referral to local Respiratory Exercise groups. Ongoing six month follow-up is suggestive that gains have been maintained.

Conclusion: An education-only intervention for patients with mild to moderate disease is effective in improving the knowledge and confidence of patients with COPD and may be a cost – effective method of offering improved self-management at an early stage of disease.

Conflicts of interest: None.

Funding: Half by Boehringer Ingelheim, who also donated the educational materials, and half by the National Health Services Gloucestershire Clinical Commissioning Group.

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23. Effect of structured intervention on unscheduled asthma care in North London

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City & Hackney GP Confederation/Homerton University Hospital, London, UK

Outline of problem: Asthma has been reported as one of the main causes of frequent Emergency Department (ED) attendances. The National Review of Asthma Deaths (NRAD), Royal College of Physicians report 'why asthma still kills' published in 2014 highlights that frequent attenders to ED have an increased risk of requiring further medical intervention.

Assessment: A gradual rise in unscheduled ED attendances among > 16 year old population with asthma had been recorded over the previous 2-3 years. The pilot sought to understand why these attendances occurred and whether targeted intervention by a respiratory clinical nurse specialist would improve outcomes.

Strategy: A pilot scheme was initiated in City & Hackney in January 2015 funded by City & Hackney Clinical Commissioning Group (CCG) for 14 months to audit ED asthma attendances and admissions among the > 16 years old population and offered a targeted intervention programme to improve outcomes and reduce ED attendances. An integrated approach was proposed with a respiratory clinical nurse specialist liaising across primary and secondary care offering integrated and patient-centered care to impact ED frequent and infrequent asthma attendances.

Measurement of improvement: This work elaborates on the work of the previous poster submission entitled 'What impacts on ED Attendances' presented at the PCRS annual conference in 2015 and evaluates the outcome of a robust programme of structured care for adult asthma patients and the impact of the integrated primary and secondary care intervention by the respiratory clinical nurse specialist on asthma attendances and admission, particularly among the frequent ED attenders.

Effects of changes: Attendances of frequent and infrequent asthma attenders were audited over the span of the pilot scheme Measuring patient outcomes, medication adherence and asthma control.

Lessons learnt: Educational intervention and case management of frequent asthma attenders can positively impact hospital attendances and admissions. Easy integrated access to secondary care clinicians benefits patients and primary care clinicians. Targeted educational sessions within primary and secondary care increases clinician confidence and expertise. The large percentage of first time attenders at ED in 12 months with asthma symptoms highlights the need for better access and education of asthma within primary care.

Clinical Commissioning Groups and secondary care providers need to consider sustainable longer term funding of pilots and programmes to ensure the improved longer term outcomes and care continue among this cohort of patients. Asthma and respiratory symptoms in the paediatric population continues to generate uncertainty amongst primary care clinicians, an integrated strategy incorporating and transitioning paediatrics into adult respiratory care requires greater priority.

Conflicts of interest: None.

Funding: None.

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24. Development of Foundation Level e-Asthma E-learning Resource

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²Education for Health; ³Health Education England

Outline: E-Asthma resource specifically targeting non-asthma specialist healthcare professionals who come into contact with children/adults with asthma. Development commissioned and led by EoE Respiratory and Paediatric asthma CNs, a key deliverable for National Paediatric Asthma Collaborative. Three way partnerships between East of England Respiratory Clinical Network, Health Education England e-learning healthcare programme

who designed, developed and host the e-Learning sessions and Education for Health who wrote the content.

Outline of problem: National Review of Asthma Deaths and EoE audit identified lack of asthma knowledge and confidence. Development of online educational resource may address key unmet need in current system. National reports and EoE strategy meetings identify gaps in access to learning. Supported by range of documents.¹⁻³

Aligns with Five Year Forward View - Project team developed e-Asthma. Clinical reviewers ensured content accuracy. Three Clinical Commissioning Groups (CCG) approved as early adopters and evaluators.

Measurement of improvement: QA process throughout content development phase. E-Asthma being tested across whole CCGs with questionnaires completed pre, post and 3 months post.

Effects of changes: Yet to be formally evaluated, anticipated benefits of rolling out training across whole system include increased healthcare professionals confidence, consistency of care, appropriate prescribing, reduced admissions, better compliance, increased use of asthma action plans, improved patient/family experience.

Lessons learnt: Feedback will be analysed. Anonymised data will be published alongside national release of e-Asthma. E-Asthma free of charge. System is fully auditable for monitoring uptake across local systems.

Conflicts of interest: None.

Funding: East of England Respiratory Clinical Network on behalf of National Health Services England with ongoing support from Health Education England (HEE). Project funding £37,000.

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References

1. NICE Quality Standards for Asthma (Feb 2013).
2. National Review of Asthma Deaths (May 2014) Designing and Commissioning Services for Children and Young People with Asthma: A Good Practice Guide (Dec 2012).
3. British Guideline on Management of Asthma (British Thoracic Society BTS/SIGN n101).

25. Aneurin Bevan University Health Board Community Pharmacy Respiratory Medicines Adherence Project

Curson MC, Reynolds J, Evans RJ, Bright S

Aneurin Bevan University Health Board, UK

Aim: The project explored the practicality and benefit of providing an asthma review service in a community pharmacy setting. By providing patients who fail to attend annual reviews at the GP practice with a review at the place where they collect their medication, the project aimed to improve patient outcomes, support prudent prescribing and quantify the benefit of pharmacist intervention.

Method: Pharmacists and GPs worked collaboratively to identify suitable patients who were then reviewed in the pharmacy utilising a consultation framework. Smoking status, asthma control, ACT score, inhaler technique and understanding were assessed and recorded. Records were shared with the GP and the pharmacists followed up the patient 6-8 weeks later. Patients, pharmacists and GPs were asked for feedback on the service.

Results: A total of 5 pharmacies took part in the project and 2 were able to collaborate with a GP practice to perform 45 initial reviews. Pharmacists made an average of 2.6 interventions per review. Poor inhaler technique, poor expectations as to what good asthma control was and misunderstood treatment regimes were common themes. Over use of SABA and underuse of inhaled corticosteroid (ICS), was identified in 24% and 22% of patients respectively. A total of 29 patients were followed up and 22% had a clinically significant increase in ACT score. Feedback from patients, GPs and pharmacists was positive.

Conclusion: The project proved the concept of a community pharmacy service to improve the use of respiratory medicines in patients who don't attend GP asthma reviews.

Conflicts of interest: None.

Abstracts

Funding: Existing community pharmacy funding allocation. Aneurin Bevan University Health Board.

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26. Do children really outgrow asthma?

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Outline: Parents used to be told not to worry about being informed their child had asthma as they "would most likely grow out of it". Literature searches show there are some characteristics that are correlated with the veracity of this advice, but it does seem at odds with the phenotypic expression of a genetic tendency – which would make the diagnosis lifelong and dependent upon the trigger to be expressed again.

Having conducted longitudinal audits of asthma exacerbations over several years I observed that children were susceptible to these mainly through lack of compliance. Looking at the status of all our asthma patients it was apparent that we were good at "stepping up" the asthma treatment, but not "stepping down".

Outline of problem: Any asthma medication use after the age of 13 years will cause difficulty if not disqualify any application to join the British armed services.

Age at diagnosis and practical difficulties lead to a variety of methods being used to make an asthma diagnosis. Once made, there is seldom use of reversibility tested spirometry when the child has competence.

Strategy: I suggest that the diagnosis made on pragmatic, but less exact methods may not be asthma. By obliging those with asthma to have a reliever inhaler available at all times, we are penalizing the compliant in future career choices.

Measurement of improvement: The youngest age at which asthma was "diagnosed" was 10 months to 18 years.

Effects of changes: The main method of diagnosis was peak flow diary with improvement on use of beta agonists. The least used was reversibility spirometry.

Lessons learnt: Record asthma control step at each review and step down as readily as stepping up. Invite all 11 year olds to have reversibility spirometry for security of diagnosis.

Conflict of interest: None.

Funding: None.

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27. An electronic resource to map respiratory inhaler prescribing options against the major respiratory pathways

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NHS London Procurement Partnership (LPP), UK

Brief outline of context: Sanchis *et al.* (Chest 2016) demonstrated again that patients are still not using inhalers properly in the UK, there are 100+ unique drug and device dose combinations with 18 different device types.

Outline of problem: Primary care healthcare professionals (HCPs) struggle with the permutations available and where to direct patients to reinforce inhaler technique. Many patients therefore end up inadvertently moving up or down pathways inappropriately demonstrated in COPD by White *et al.* (PLoS ONE 2013).

Resources are limited in provision of device information and focus on drug constituents. Resources for inhaler technique video demonstrations are scattered across different domains. Primary care HCPs are often uncertain where to direct patients to reinforce inhaler technique.

Strategy: Electronically mapping every inhaler option against their correct place in the national respiratory guidelines whilst providing inhaler technique videos at source (for both clinicians and patients).

Measurement of improvement: A website and app with reproductions of the national respiratory pathways with inhalers mapped against each step and inhaler technique video links at each prescribing option.

Effects of changes: Changes to prescribing patterns, analytics of; clinician, patient and geographical use.

Lessons learnt: Still learning and producing the content, so much learning to show/share.

Respiratory prescribing is complex and ever changing with device and drug issues, we need dynamic resources to cater for these complexities.

Conflict of interest: Azhar Saleem - honoraria speaking fees from AstraZeneca, Pfizer and TEVA, Ben Rehman - as above only for TEVA.

Funding: Dr Azhar Saleem - National Health Services London Procurement Partnership, Mr Ben Rehman - UKMI. Cost of the website and app- unrestricted MEG from AstraZeneca, Boehringer Ingelheim, Chiesi, National Association for Patient Participation (NAPP), Pfizer and TEVA.

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28. Lay health workers in pulmonary rehabilitation-recruitment and training of COPD patient volunteers

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Aim: Pulmonary Rehabilitation (PR) is the most effective treatment for the symptoms of COPD but less than half of referred patients complete it (1) Lay health workers (LHWs) have improved uptake of healthcare interventions in other settings (2) but have not previously been used in PR. To test the feasibility of using COPD patients, trained as LHWs, to enable other COPD patients to benefit from PR.

Method: Patients successfully completing PR were invited to volunteer as LHWs. Training included confidentiality, role boundaries and the learning and application of behaviour change techniques to address known barriers to PR attendance. Patients newly referred for PR were invited to accept LHW support by letter, phone and face to face interaction.

Results: Twenty three (21%) of 110 patients approached applied to become LHWs. Fifteen (14%) completed 3 training days and joined a mentored group prior to supporting newly referred patients. Reasons for non-completion of training included health and social issues and concerns about impact on benefits of payments for research participation.

Letters and information leaflets were ineffective in recruiting newly referred patients for LHW support (< 1% response). Telephone and face to face recruitment (at initial assessment) by the PR teams were effective (20 – 25% response in different National Health Services Trusts). This became the main recruitment mode.

Conclusion: COPD patients can be recruited and trained as LHWs to encourage participation in PR. Personal contacts were the most effective method of recruiting patient participants for LHW support. The effectiveness of LHWs will be tested in a definitive clinical trial following this feasibility study.

Conflicts of interest: None.

Funding: National Institute for Health Research Research for Patient Benefit (RfPB) Programme.

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29. Community Pharmacist interventions and improved COPD management

Attar-Zadeh D, Guirguis A, Heading CE, Shah S, Shah U, Bancroft S

London North West Local Practice Forum of the Royal Pharmaceutical Society, UK

Outline: Community pharmacists are well placed to help the management of patients with long-term conditions such as COPD.

Outline of problem: Many factors can prevent optimal care for COPD patients; some can be addressed within a pharmacy setting by improving patient understanding of how their condition can be managed.

Assessment: A project was undertaken by community pharmacies to support patients in managing their condition. Data collected also provided an overview of care patterns in the localities involved.

Strategy: The project involved 18 pharmacies, in and around NW London. Over a 4-week period, pharmacists undertook consultations in the pharmacy with consenting patients who were receiving medicines prescribed for COPD.

Measurements: Patients were asked questions from a semi-structured questionnaire. Information was collected and action taken to provide inhaler training, guidance and referral, where appropriate.

Changes: Of 135 patients, 75 were provided with inhaler training, 88 patients were offered Medicines Use Reviews, 23 patients received guidance regarding rescue packs, 38 patients were referred to GPs and 32 of 39 smokers were referred to stop smoking services.

A total of 93 patients were using an inhaled corticosteroid (ICS) plus long acting beta₂ agonist (LABA) Given the low rate of hospital admissions recorded (18% in the previous 12 months), LABA + ICS use is much higher than would be expected for the patient group if GOLD guidelines were followed.

Lessons: Participating pharmacists reported improved patient engagement in managing their condition, improved compliance and device use, and positive actions from GPs such as alteration of medication dose; and issue of rescue packs.

Message for others: Community pharmacists can improve care of COPD patients, potentially reducing hospital admissions.

Conflict of interest: None.

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30. How can we reduce the prevalence of smoking further in London in our battle to treat tobacco dependency

Attar-Zadeh D

London Clinical Senate Helping Smokers Quit, London Procurement Partnership (LPP)

Brief outline of context: How can we reduce the prevalence of smoking further in London in our battle to treat tobacco dependency? Evidence based National Health Services (NHS) support combined with pharmacotherapy has shown to improve a smokers chances of stopping up to four times. Varenicline has shown to be the most effective licensed treatment to help smokers stop alongside NHS behavioural support. It plays a vital role in our challenge to treat tobacco dependency and help many smokers including the sick smokers with long term conditions. One of the ways is to increase the usage of varenicline alongside behavioural support in primary and secondary care. Medication is normally initiated to treat nicotine withdrawal after routine carbon monoxide monitoring.

Outline of problem: Smoking cessation by some is seen as a public health issue. However smoking now needs to be seen as a chronic relapsing long term condition that needs to be treated as well as prevented e.g. cessation in COPD is the most effective treatment and extremely cost effective. A number of barriers may come up in our battle against tobacco dependency: (1) Seen by some as costly to treat and prevent; (2) As prevalence drops and at times of austerity, this most cost effective intervention to the National Health Services (NHS) may be squeezed; (3) Clinicians often raise a number of concerns about varenicline that make them cautious about prescribing; (4) This is compounded by varenicline prescribing historically having been the responsibility of smoking cessation specialists. Therefore many clinicians have not been trained, and do not have experience, in prescribing varenicline (or nicotine replacement therapy).

Strategy: Varenicline plays a vital role in our challenge to treat tobacco dependency and help many smokers including the sick smokers with long term conditions. The LPP was asked to help the LCS with extracting data from ePACT for varenicline across London Clinical Commissioning Groups (CCG) and also secondary care over a 3 month period. Once this data was captured, then the LCS wanted the data on a heat map with the usage per CCG and superimposed secondary care data so the image could tell an important story of activity across London.

Measurement of improvement: Mapping of LPP and ePACT data for London shows very significant variation and overall underuse of this important cost

effective treatment. By benchmarking the CCG and Trust average it may encourage further usage and instil further confidence. The data produced would be relatively clean. However some CCGs have PGDs in place meaning all varenicline use wouldn't be captured.

Effects of changes: With the LCS guide 'Why and how to prescribe varenicline in hospital', these maps have informed review of hospital and CCG formularies with the aim of raising awareness, encouraging appropriate prescribing and increasing access to varenicline. <http://www.london-senate.nhs.uk/wp-content/uploads/2015/04/Why-and-how-to-prescribe-varenicline-in-hospital.pdf>.

Lessons learnt: Clinicians often raise a number of concerns about varenicline that make them cautious about prescribing. This is compounded by varenicline prescribing historically having been the responsibility of smoking cessation specialists. Therefore many clinicians have not been trained, and do not have experience, in prescribing varenicline (or nicotine replacement therapy). With the LCS guide 'Why and how to prescribe varenicline in hospital', these maps have informed review of hospital and CCG formularies with the aim of raising awareness, encouraging appropriate prescribing and increasing access to varenicline.

Message for others: Start or continue to offer cost effective life saving interventions e.g. varenicline, bupropion, or NRT plus support to treat tobacco dependency. It is good news that the number of people dying from smoking continues to fall, however, smoking remains the single biggest cause of preventable ill-health and death in the UK and the number admitted to hospital with smoking-related diseases is still going up. If we are to reduce the burden of smoking-related disease on the over-stretched NHS it is essential that smokers are given the best possible support to quit.

Conflict of interest: Attar-Zadeh D has accepted honoraria from all pharmaceutical companies involved in evidence based stop smoking treatment alongside behavioural support.

Funding: London Clinical Senate (LCS) with the support of the NHS London Procurement Partnership (LPP) and London Clinical Senate (LCS) funded the whole project.

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31. Seasonal Influenza Vaccine effectiveness in Asthma: a systematic review

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The University of Edinburgh, UK

Aim: To assess the effectiveness and safety of the seasonal influenza vaccination in people with asthma.

Method: Systematic search of published literature has been conducted through electronic databases ranged from 1970 to 2016 for experimental and observational studies. The search has been complemented by searching reference lists, citations and communication with vaccine manufacturers for the identification of additional published or unpublished literature. Both reviewers have completed the extraction of data of eligible studies.

Results: Twenty six trials and ten observational studies were eligible for inclusion. The majority of studies were conducted in Europe and in the USA and including children in about half of them. The inactivated influenza vaccine was the most common intervention and the safety of the vaccine was more often assessed than its protective effects, especially in trials. The effectiveness of the vaccination was assessed in all, but one observational study. Low risk of bias was assigned in half of the randomised controlled trials (RCTs) based on Cochrane tool. Similarly, the quality of evidence was strong in about half of the non-RCTs and observational studies according to the Effective Public Health Practice Project (EPHPP) tool.

Conclusion: The safety of the influenza vaccination has been extensively assessed in experimental studies. However, there is lack of strong evidence regarding the protective effects of the vaccine against major clinical outcomes such as primary care consultations and hospital admissions for influenza and related complications such as asthma exacerbation.

Conflicts of interest: None.

Funding: The work is funded by the Chief Scientist Office of the Scottish Government under grant (AUKCAR/14/03). This work is carried out with the support of the Asthma UK Centre for Applied Research (AUK-AC-2012-01).

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32. British Thoracic Society (BTS) step therapy and control status in a large cohort of patients in the UK

Pertsovskaya I, Christine M, Brown S, McKnight E, Haughney J

National Services for Health Improvement Ltd (NSHI), UK

Aim: In 1999, Neville *et al.* (1) reported the British Thoracic Society (BTS) asthma step and a proxy measure of control in a large population of people with asthma. We sought to replicate this work.

Method: National Services for Health Improvement Ltd (NSHI) conducted a review of patients with asthma, part of the "IMPACT" programme. Ninety-two practices from across the UK participated in 2015-2016 and gave consent to use the data for research purposes. Data was extracted from GP practices' databases. Patient demographics and asthma therapy were obtained and BTS asthma step was calculated. Asthma control was defined according to the Global Initiative for Asthma (GINA) recommendations. A proportion of these patients were invited for clinical review.

Results: An assessment of BTS step was made in 31657 patients. Asthma control could be determined in 28653. The number of uncontrolled patients was over 40% across all steps and increased significantly from Step 1 to Step 4 (P -value < 0.0001). A subpopulation of patients was reviewed clinically by NSHI nurses. From 2362 patients invited for review, 1926 attended and an asthma control set was available for 1699. A similar rate of control was observed in this cohort of patients. (46% uncontrolled at Step 1, 53% at Step 2, 58% at Step 3 and 57% at Step 4).

Conclusion: In agreement with Neville's results, a large number of patients remain uncontrolled. Unlike Neville, current thinking includes assessment of inhaler technique, compliance, and other factors before increasing therapy (2). Despite guidelines, staff training and initiatives, asthma remains poorly controlled across BTS steps.

Conflicts of interest: None.

Funding: Funded by Teva UK Ltd.

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33. Patient satisfaction with structured Medicines Use Reviews (MURs) for people with asthma

Hindi A, Jongepier L, Murphy A, Leong N, Ord C, Donyai P

University of Reading, Berkshire UK

Aim: To assess patient satisfaction with the SIMPLE Asthma IT Platform (SAP) for Medicines Use Reviews in community pharmacies in the East of England.

Method: We compared patient satisfaction with MURs conducted with patients who had asthma as well as those who did not. A validated 12-item MUR patient satisfaction questionnaire (5 response options: Strongly Agree to Strongly Disagree) was distributed by two participating community pharmacies for patient completion and return during late February to April 2016; 40 questionnaires were provided to one pharmacy to distribute and 20 to the other. On receipt of completed questionnaires, individual scores given for each item were summed, with a score of 60 indicating maximum MUR patient satisfaction. These were compared between the two groups of patients (asthma vs. no asthma) using analysis of variance.

Results: A total of 26 questionnaires were returned (43% response rate). A comparison of total scores revealed that patients with asthma ($n=11$) were marginally more satisfied with their MUR service (mean satisfaction score 52, standard deviation 8) compared to those ($n=15$) without asthma (mss 50, SD 8). This difference was not statistically significant because a low effect size

(0.15) would have required a sample size of 420 participants for sufficient power to detect statistically significant differences.

Conclusion: Patients with asthma were potentially more satisfied with the MUR service which used the SAP compared to those who did not have asthma for whom the service involved practice as usual. This hints at an improvement in the quality of the MURs delivered using the SAP. A larger sample size is needed to verify these findings.

Conflicts of interest: None.

Funding: None.

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34. "It lifts your spirits and you come away feeling lighter" - patient experience of British Lung Foundation singing groups

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British Lung Foundation, London, UK

Brief outline of context: Small randomised controlled trials in secondary care^{1,2} have raised interest in singing as a possible strategy.

Outline of problem: Strategy to improve health status in people with chronic respiratory disease. The aim of this evaluation was to understand patient motivation and experience as part of a program of developing singing groups undertaken by the British Lung Foundation (BLF), a UK charity for supporting people with lung disease.

Strategy: The BLF trained 10 singing leaders to establish and deliver group singing classes for people with lung disease recruited from the community. Participant (mean age 70, 75% female) diagnoses were; 58% COPD, 34% chronic asthma, 8% bronchiectasis. 18 individuals from 3 out of 10 of these pilot groups were interviewed.

Measurement of improvement: We employed validated questionnaires to measure physical, psychological and general wellbeing outcomes in pilot participants. These questionnaires were disseminated at baseline, 3 months and are to be disseminated at 6 month intervals. Our evaluation has shown that participants maintained their physical and psychological functionality over the first three months. This is welcomed given the expected declines in functionality seen in patients with COPD.

Effects of changes: Our evaluation has shown that participants maintained their physical and psychological functionality over the first 12 weeks. Further our qualitative feedback revealed they experienced a multitude of physical and psychological benefits of singing including improved quality of life, reduced depression, improved social health and having less exacerbations and medical visits.

Lessons learnt: The main reason reported for taking part was to improve lung condition but social aspects were also important. Respondents were overwhelmingly positive about the experience and valued both the singing itself and the breathing exercises and relaxation techniques that were taught. As well as immediate improvements in mood associated with attendance, participants also felt that the classes had improved their day to day quality of life. Participants were themselves eager to promote singing as a useful activity with some already volunteering to put up posters in local clubs or at their GP's surgery. These data extend previous hospital-based studies to show that singing classes are perceived as an effective and valued intervention by participants recruited in a community setting.

Conflicts of interest: None.

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35. Development of a whistling facemask for young children

Sanders MJ, Bruin R, Tran CH

Clement Clarke International Ltd, Harlow, UK

Aim: In a previous study of 24 volunteers aged 1.6-9.2 years, a valved holding chamber (VHC) facemask incorporating an audible inspiratory flow rate whistle was used successfully by children >3.0 years ($P < 0.05$).¹ In this study, we compare the in vitro aerosol performance of Ventolin Evohaler® via the whistling facemask with the corresponding non-whistling facemask used in conjunction with the VHC Able Spacer-2®.

Method: The facemasks were compressed via the study rig to a representative paediatric use-volume (63mL) and five replicate aerosol actuations per mask were prepared, assessed and analysed with the Next Generation Impactor (NGI) employing standard procedures.

Results: The in vitro aerosol distribution profiles and performance parameters for salbutamol aerosol were similar, irrespective of facemask type. The whistling and non-whistling facemasks gave similar NGI particle size distributions for all elements; the Spacer, facemask, 'face' (rig board), induction port, stages 1-7 and MOC; with the majority of drug recovered from the Spacer and from stages 3,4,5 and 6 (D50 stage particle diameters at 30L/min, 3.99-0.83µm). Key aerosol parameter data (mean ± SD) for the whistling and non-whistling facemask, respectively, were: metered dose 100.4 ± 7.0µg and 95.0 ± 5.7µg, emitted dose 86.4 ± 6.1µg and 82.7 ± 5.7µg, fine particle fraction (% < 5µm) 46.1 ± 3.5 and 48.5 ± 4.2, and fine particle dose (< 5µm) 39.9 ± 5.4µg and 40.3 ± 5.7µg.

Conclusion: Integral whistles on VHCs are frequently compromised by aerosol resistance properties² and user misunderstanding.³ The information we have to date indicates that a whistle located on the facemask is patient-friendly—particularly important for young children—and does not affect the drug aerosol.

Conflicts of interest: MJS and RB are employees of Clement Clarke International which provided study funding.

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36. Use and misuse: salbutamol through an emergency spacer device

Sanders MJ, Bruin R, Tran CH

Clement Clarke International Ltd, Harlow, UK

Aim: The single-use valveless DispozABLE Spacer™ has shown aerosol in vitro characteristics that (i) are comparable to the rigid re-useable valved holding chambers (VHCs) (28L/min), (ii) superior to the OptiChamber® Diamond VHC and the disposable LiteAire® VHC¹ at paediatric flow rates (12L/min), and (iii) surpass Ventolin® without a VHC following a one-second delay between actuation and function measurements.²

Method: In this study, the effects on delivered dose of simultaneously exhaling through the DispozABLE Spacer during actuation with Ventolin Evohaler® (i.e. simulating poor co-ordination) was determined with Dose Unit Sampling Apparatus (DUSA). A volume-limited 1L Vitalograph calibration syringe was used to simulate the 160mL tidal exhalation of a young patient, with DispozABLE Spacer and Ventolin Evohaler® without exhalation as control ($n = 5$ replicates).

Results: Salbutamol recovery with and without (control) simulated exhalations, respectively, were: metered dose 82.3 ± 7.8µg and 94.7 ± 3.3µg, emitted dose 63.9 ± 7.3µg and 81.3 ± 3.8µg, actuator recovery 18.4 ± 2.2µg and 13.3 ± 0.7µg, Spacer recovery 54.7 ± 7.5µg and 64.8 ± 5.6µg, and DUSA recovery 9.2 ± 3.0µg and 16.6 ± 3.8µg. Simulated exhalation therefore reduced DUSA recovery by 44%.

Conclusion: We have described a validated methodology which involved a 2-second connection/disconnection to a syringe for both test (operated) and control (not operated) evaluations. Methodological recovery losses will have occurred that prevent correlation with routine testing; the DUSA dose during simulated exhalation relative to DUSA dose in normal use being the key data. These data demonstrate a reduction of nearly one-half but indicate that in sub-optimal use, mimicking an emergency or poor patient

coordination, the young patient could receive a suitable dose via the DispozABLE Spacer.

Conflicts of interest: MJS and RB are employees of Clement Clarke International which provided study funding.

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37. Keeping respiratory patients active post pulmonary rehabilitation

Green A, McKee H, Hobbs J

British Lung Foundation (BLF), UK

Brief outline of context: Due to a lack of available places for respiratory patients on existing post pulmonary rehabilitation maintenance exercise classes in Portsmouth the BLF successfully secured funding from Portsmouth Clinical Commissioning Group (CCG) via Breathe Easy Portsmouth South to deliver 2 extra maintenance exercise classes to meet this demand.

Outline of problem: Patients with chronic obstructive pulmonary disease (COPD), interstitial lung disease (ILD) and bronchiectasis attended these classes which were delivered by Band 4 and Band 3 Physiotherapy Technicians from Solent NHS Trust.

The British Thoracic Society (BTS) Guideline on Pulmonary Rehabilitation in Adults concludes that "continuation of supervised exercise training beyond pulmonary rehabilitation protects the patient from a decline in exercise capacity compared with a control group" and recommends that "all patients completing PR should be encouraged to continue to exercise beyond the programme". Maintenance programmes help people with lung disease to sustain their exercise capacity over the short to medium term. Therefore in order for patients to be able to maintain their wellbeing they needed to be able to access maintenance exercise classes. (a) 2 classes successfully delivered between March 2015–March 2016; (b) a total of 103 different patients attended more than 1 exercise session from the 2 maintenance classes over the year; (c) of these patients were new to the classes and (d) of these 55 patients 56% of them completing 6 weeks of their 12 week course.

Measurement of improvement: Attendance at the maintenance exercise classes has delivered either a continuum in breathlessness levels or in the majority of cases there has been an overall improvement in breathlessness levels and improved exercise tolerance. This has included: (a) of those patients who completed the classes 54% have continued to improve their distances walked from starting pulmonary rehab, completing the 7 week programme and then completing the 12 sessions at their local maintenance class; (b) 63% of patients have increased their distance between finishing pulmonary rehab and completing the 12th session of the maintenance exercise class.

- 68% of the patients have improved their distances walked comparing with their initial assessment and 12th session at maintenance.
- There have also been instances where 2 completers patients have increased their walking distances up to 83% and 120%! This is showing a great improvement and a maintained amount of fitness from their first initial assessment prior to any exercise intervention.

Effects of changes: We measured the impact of long term lung conditions on the patients' lives and how this has changed over attending the exercise classes via the COPD Assessment Test (CAT score), the Hospital Anxiety and Depression Score (HAD), and the Dyspnoea section of the Chronic Respiratory Disease Questionnaire (CRDQ) to measure the patients quality of life/well-being. See below for results: CAT score

- 42% of the patients had improved or maintained their scores achieved after completing their original pulmonary rehabilitation class to completion of the maintenance exercise class.
- 63% have improved or maintained their scores from their initial assessment prior to starting pulmonary rehabilitation to completion of the maintenance exercise class.

Abstracts

HAD score

- 79% of those patients who completed the maintenance exercise class had shown improvements on their HAD score upon completion of the original pulmonary rehabilitation class.

CRDQ Dyspnoea

- 42% of the patients had improved or maintained their scores achieved upon completion of the original pulmonary rehabilitation class.
- 92% of the patients had improved or maintained their scores from their initial assessment prior to starting pulmonary rehabilitation.

Lessons learnt: The involvement and attendance of members from BLF Breathe Easy Portsmouth South (patient self-help support group) has been invaluable to the numbers of people attending and completing the classes. Breathe Easy input via peer support, encouragement and leadership has been a pivotal factor in ensuring the maintenance exercise classes have been fun (being breathless & exercising isn't always fun!) and that patients continued to regularly attend the classes.

There is real desire from the patients who have attended and benefited from pulmonary rehabilitation to be able to continue exercising in a supervised and structured environment. The findings show that all of the patients who attended the maintenance exercise classes have continued to make improvements in one or more of their outcome measures (breathlessness levels & exercise tolerance, and/or quality of life measures) demonstrating positive patient outcomes.

Conflict of interest: None.

Funding: Portsmouth Clinical Commissioning Group – Public Sector Challenge Fund for the voluntary & community sector.

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38. Innovative approach to COPD improves disease impact, quality of life and reduces hospital admissions in Glasgow

Milligan M, Marshall S, Marshall S, Anderson D

National Health Services (NHS) Greater Glasgow and Clyde, UK

Aim: The risk of COPD is 44% higher for patients in Glasgow than the rest of Scotland and accounts for 44, 000 emergency annual bed days. A Specialist multidisciplinary Community Respiratory team was introduced to provide an alternative pathway to hospital admissions for exacerbations in patients with severe COPD and to decrease length of hospital stay. The team adopted a person centred approach with goal setting to facilitate confidence and knowledge in self management.

Method: A pre and post intervention observational study was performed using validated measures of impact: (1) COPD Assessment Tool (CAT) -a measure of impact of disease, (2) EQ5DL- a measure of quality of life. Semi structured telephone interviews of 58 patients.

Results: A total of 266 patients completed an intervention, 63% were female; mean age 72, 88% had a MRC of 4 or 5, 60 % of patients from the lowest deprivation quintile. Mean input: 8 sessions over 8 weeks. Quantitative analysis: A Paired sample *T* test on CAT score showed a significant improvement ($P=0.001$) with an mean change of 6. A Paired sample *T* test on EQ5DL showed significant improvement ($P<0.001$). 6 patients stopped smoking. There was 85% achievement of goals. There was a 60%reduction in hospital admissions one year post intervention. Qualitative analysis demonstrated increased confidence and improved knowledge to self manage particularly during exacerbations. Patients also reported heightened activity levels, resulting in being less housebound.

Conclusion: This pilot study was not a randomised controlled study, but demonstrated improved health outcomes in patients with severe COPD from deprived areas using a community person centred model. It may also have an impact on hospital admissions. Future work with control groups is planned.

Conflicts of interest: None.

Funding: Funding for the Project for 2 years through Scottish Government Change Fund.

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39. Integrating Smoking Cessation

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George Eliot Hospital, UK

Brief outline of context: Benefits of developing a Stop Smoking service as part of a respiratory team and then creating sustainability by integrating into the development of an ambulatory care team that facilitates smoking cessation as part of a range of pathways.

Outline of problem: We recognised the importance of smoking cessation as a respiratory treatment. In 2010 we won a 3 year tender to facilitate a service and needed to ensure this was sustainable and to integrate to allow flexibility both in terms of 7 day cover and across primary/ secondary care boundaries. Obtaining funding

Sustainability

Smoking cessation being seen as a treatment

Flexible service with minimal costs & community provision

Strategy: Tender to provide community smoking cessation in the neighbouring PCT. This funding was utilised to fund a full time stop smoking adviser and we upskilled one of our respiratory team support workers. A range of respiratory MDT became qualified advisers to increase reach and integrate service. Became provider for our local stop smoking service and when the PCT's were devolved the community service became part of our trust. We developed a Public Health strategy and ensured smoking cessation is included in all pathways and documents, becoming a smoke free site in 2016. Medication is available in all areas and the smoke free site strategy has strengthened this with a local protocol for prescribing. When we developed our respiratory support service into an ambulatory care unit (that is the GP interface for medicine) we ensured all staff could be trained as stop smoking advisers to provide a 7 day service. The stop smoking adviser is part of this team also which gives a very cost effective and sustainable service that can follow up patients/ carers/ staff/ public for a full 12+ treatment.

Measurement of improvement: We have integrated measurements with an ambulatory quality dashboard and share the community service database regarding smoking cessation.

Effects of changes: The respiratory team champion smoking cessation as a treatment and as British Thoracic Society (BTS) Stop Smoking Champion I have found it easier to achieve change. By applying for a 'any willing provider' tender we gained an initial funding stream which allowed service development and then by collaborating and integrating we have achieved a very flexible and cost effective service for patients and the wider community.

Lessons learnt: Plan for sustainability from the start of a project

Upskill existing staff - much easier to embed change

Having smoking cessation as a treatment/ pathway helps integrate into 'normal' service and being part of community provision helps sustainability

With recent Public Health cuts having smoking cessation woven into many systems and pathways would make stopping the service noticeable

smoking cessation is the most important treatment for current smokers. A full National Health Services (NHS) stop smoking service should be available across the health economy and we should not underestimate the positive effect health care professionals can have to prompt a quit attempt.

Education grants, Speaker payments -various pharma

Vice-Chair of ARNS

Funding: None.

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40. Optimising outcomes in asthma and COPD: consensus-driven recommendations for future service development

Baskaran L, Dunford C, Gwynn S, Khambh J, Ledson M, Prigmore S, Scullion J, Warren T

Baskaran L on behalf of consensus steering group

Aim: In the UK, premature mortality from COPD is almost twice and asthma over 1.5 times the European average. Earlier diagnosis may reduce morbidity and improve quality of life. This project identifies differences in the

perceptions of various stakeholder groups regarding effective outcome improvements in asthma and COPD and offers 10 key recommendations for optimising outcomes in asthma and COPD.

Method: In meetings sponsored by Teva, a group met to define consensus statements, subsequently tested by questionnaire. A Delphi consensus methodology was used to assess levels of agreement with each statement. Respondents included health care professionals across a range of specialties at UK meetings sponsored by Teva between June 2015 and January 2016.

Results: A total of 184 respondents completed questionnaires. A total of 24 out of 42 statements (57.0%) exceeded the agreement threshold (>66.0%) and are thus regarded as validated by the respondents. Differences were seen between care settings, with primary care commonly indicating lower levels of agreement than their secondary care colleagues.

Conclusion: Most respondents indicate that it is possible to deliver effective care across all care settings with a need for further development of locally integrated care. Clear definition of appropriate outcomes will support value-based care models and thus effective integration of care. Primary care respondents agree that healthcare professionals (HCPs) should seek products with the lowest acquisition cost where there is clinical equivalence (75.0%). The need for branded prescribing of inhaler therapies in asthma and COPD to ensure patient safety and support device familiarity is recognised. Clear referral pathways will support patient care (69.8% agreement) with the MDT being available in the same building.

Conflicts of interest: None stated.

Funding: Teva initiated and funded this project, which was independently facilitated by Triducive Ltd. Teva had no editorial input, but did review the material for factual accuracy.

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41. Bridging the smoke free gap: A collaborative measure to meet health improvement needs of people with severe COPD in Glasgow

Milligan M, Sim M, Hunter S, Sherwood L, Mulhall L, Marshall S, Preece R, Smith A

National Health Services (NHS) Greater Glasgow and Clyde, UK

Aim: The risk of COPD is 44% higher for patients in Glasgow than the rest of Scotland. Smoking cessation is the single most effective and cost effective therapy and can provide access to long term oxygen therapy. Specialist smokefree services are traditionally located in clinics, however due to physical limitations resulting in being house bound, patients with severe COPD were unable to access this. This collaborative, person-centred approach between the Community Respiratory Team and the Health Improvement Team remedies this.

Method: The Community Respiratory Team (CRT) supports patients with severe COPD within the home setting to improve self management and enhance physical activity. The CRT identified patients who were unable to access smoke free services outside the home and demonstrated motivation to quit. A joint review was carried out between the health improvement practitioner and the CRT clinician within the patients home. Motivation to quit & previous attempts were discussed. Individualised care plan including relevant GP/ pharmacy liaison produced. Ongoing support by telephone or 1:1 by the health improvement practitioner and ongoing CRT interventions.

Outcome measures: 4 & 12 week quit rates, Carbon Monoxide Measures, qualitative analysis.

11 patients have been supported through the service so far.

100% demonstrated high willingness to quit & good engagement levels.

Patients reporting greater benefit with direct contact than by telephone only advice.

50% set a quit date, compared to 20% of local specialist service GP referrals. Early indicators demonstrate heightened levels of smoking cessation success than previous system (telephone only advice). Providing a collaborative effort with specialist services within the home can benefit health outcomes for patients with severe COPD.

Conflicts of interest: Nil.

Funding: The Community Respiratory Team is funded through Scottish Government Integration Care Fund.

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42. PLEASANT: Preventing and lessening exacerbations of asthma in school-age children Associated with a New Term – A Cluster Randomised Controlled Trial and economic evaluation

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Aim: Asthma episodes are known to be seasonal. Reports have shown peaks in asthma episodes in school-aged children associated with the return to school following the summer vacation. A drop in prescription collection in August has been observed which is associated with an increase in the number of unscheduled medical contacts after the return to school in September.

Method: Cluster randomised trial with health economic analysis.

Setting: Primary care. Participants: School aged children aged 5-16 with asthma.

Interventions: A letter sent, from the GP to parents/carers of school-aged children with asthma, prior to the start of school summer holidays, reminding them of the importance of taking their medication and to ensure they have sufficient medication prior to the new school year starting. The control group was usual care.

Primary outcome: proportion of children who had an unscheduled contact in September 2013. Supporting endpoints included the proportion of children who collected prescriptions in August and unscheduled contacts through the following 12 months.

Results: For unscheduled contacts in September there is no evidence of effect: the odds-ratio was 1.09 (95% CI 0.96 to 1.25) against the intervention. The intervention did increase the proportion of children collecting a prescription in August (odds-ratio 1.43; 95% CI 1.24 to 1.64) as well as scheduled contacts in the same month. For wider time intervals (Sep-Dec 2013 and Sep-Aug 2014) there is evidence the intervention reduced contacts. The economic analysis estimated a high probability that the intervention was cost saving. There was no increase in quality-adjusted life-years.

Conclusions: The intervention succeeded in increasing prescriptions collected in August as well as increasing scheduled contacts in August. The intervention did not reduce unscheduled care in September but after September there is evidence in favour of the intervention. The reduction in medical contacts lead to a favourable impact on costs.

Conflicts of interest: None.

Funding: The research reported in this abstract was funded by the Health Technology Assessment (HTA) programme as project number 11/01/10.

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43. Implementing improved asthma self-management as routine treatment (IMP2ART)

Daines L, Morrow S, Wiener-Ogilvie S, Taylor SJC, Pinnock H on behalf of IMP2ART team

University of Edinburgh, UK

Aim: Supported self-management for asthma, which is a cost effective intervention that reduces unscheduled care and improves asthma control, is poorly implemented in routine clinical practice. The IMP2ART study aimed to explore the perspectives of health care professionals (HCPs) providing, and patients using supported self-management, on the best way to embed self-management into routine asthma care.

Method: Recruitment of participants from 10 general practices across the UK started in March 2016. Data were collected from individual interviews and focus groups. Audio recordings were transcribed and analysed thematically.

Results: Data collection is on-going. Early data (from the first 10 patients) identified individualised education at the time of diagnosis as important in understanding why and how to self-manage. Experienced patients reported learning intuitively how to self-manage over years; reducing the value they placed on a written asthma action plan.

Emerging themes from 10 HCPs (4 interviews; 6 in a focus group) identified improved access to and use of asthma action plans, personalisation of asthma templates and better accessibility to clinical updates and education as factors they felt would enable self-management to become a routine part of asthma care.

Conclusion: Patients regarded personalised care most highly: at the time of initial diagnosis and during their regular review. HCPs seek greater availability of resources and education and integration with their electronic health record. Data from this qualitative study will inform the development of a whole systems approach to embedding optimal asthma self-management in routine care.

Conflicts of interest: None.

Funding: Programme development grant funded by the National Institute for Health Research.

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44. What drives initial inhaled corticosteroid prescribing decisions in newly diagnosed COPD? A Clinical Practice Research Datalink (CPRD) study

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Aim: GOLD guidelines for COPD do not recommend inhaled corticosteroids (ICS) as initial therapy for COPD patients in GOLD stage A or B. Nevertheless, in clinical practice initial use of ICS is common. This study investigated predictors of ICS use in newly diagnosed COPD patients in the UK.

Method: This is a retrospective descriptive cross-sectional study using the UK Clinical Practice Research Datalink (CPRD). The patient cohort included people with a new diagnosis of GOLD category A or B COPD registered at a CPRD practice between June 2005 and June 2015. Patients initially prescribed an ICS containing regime were compared with those receiving bronchodilators without ICS (non-ICS group).

Results: A total of 29,815 patients with spirometry-confirmed COPD were identified in the study. The average age was 67 years and 54% were male. Overall, 63% of those treated with maintenance therapy in the first three months after diagnosis were prescribed ICS-containing therapy vs. 37% prescribed non-ICS therapy, although ICS prescribing reduced over the study duration (from 77% in 2005 to 47% in 2015). The strongest predictors of ICS use were concurrent diagnosis of asthma (OR: 3.49; $P < 0.0001$) and geographical region ($P < 0.0001$). When concurrent asthma patients were excluded, region remained a statistically significant predictor ($P < 0.0001$). Other significant predictors included GP practice, younger age and co-prescription with short-acting bronchodilators ($p < 0.0001$).

Conclusion: ICS prescribing is common in GOLD A/B patients, and is more likely to be determined by regional variation in prescribing practices than by patient characteristics.

Conflicts of interest: JC has received funding from Boehringer Ingelheim (BI). AbT, AG, AnT and NR are employees of BI.

Funding: The study was funded by Boehringer Ingelheim.

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45. Tailored intervention for anxiety and depression management (TANDEM) in COPD: protocol for a randomised controlled trial

Taylor SJC, Sohanpal R, Pinnock H on behalf of the TANDEM investigators

Barts and The London School of Medicine and Dentistry, Queen Mary University of London, UK

Rationale: The National pulmonary rehabilitation (PR) audit revealed only 42% of those referred to PR complete a course. Attendance/completion rates are especially poor in people with anxiety/depression.

Aim: To refine, pilot and evaluate a tailored, psychological intervention which immediately precedes, and optimises the benefits of, routine PR. The overarching aim is to reduce mild/moderate anxiety and/or depression in people with moderate or severe COPD.

Method: Tailored intervention for anxiety and depression management (TANDEM) is a tailored, one-to-one, domiciliary/ clinic-based, psychological intervention with an emphasis on managing breathlessness. It is based on cognitive behavioural approaches, The Lung Manual for anxiety (Heslop-Marshall) and COPD SPACE (Singh) for practical COPD advice. It is delivered by trained respiratory health professionals supervised by a clinical psychologist. Participants will be recruited from primary/secondary care and PR services. PRE-PILOT developmental work (on-going),

PILOT RCT and PROCESS EVALUATION to inform: the feasibility of delivering the intervention and trial processes. We will randomise 45 patients across two sites (London and Leicester). If no protocol changes are required we will proceed immediately to a full-scale trial.

FULL SCALE TRIAL of the intervention across four sites in London and The Midlands (December 2018 to April 2020). Co-primary outcomes are anxiety and depression at 6 months. We will recruit 430 participants in total and follow them up for 12 months. We will conduct a full economic evaluation alongside the effectiveness study.

Results: We describe a study protocol.

Conclusion: If successful the intervention is likely to change the way PR is delivered.

Conflicts of interest: None.

Funding: This project was funded by the National Institute for Health Research Health Technology Assessment (HTA 13/146/02) The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the HTA, NIHR, NHS or the DH.

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46. Signs of breathlessness: integrated case-finding project

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Portsmouth Hospital Trust, Wessex Academic Health Science Network (AHSN) and National Health Services Improving Quality (NHS IQ), UK

Brief outline of context: Breathlessness is one of the most common symptoms in the UK 43.5% of acute admissions and causes significant impact on hospital utilisation.¹

Outline of problem: Despite patients consulting for years with respiratory symptom, they are often diagnosed several years later or not at all.²

Breathlessness is overlooked and has no core funding. A generic approach to provide early diagnosis would be highly beneficial.

Strategy: Patients were identified with breathlessness symptoms, but no diagnosis, using GRASP case-finding suite tools of in primary care. They were invited to attend 'carousel' practice clinics run by specialist respiratory secondary care MDTs working in partnership with primary care healthcare professionals (HCPs) resulting in same day accurate diagnosis and patient education.

Measurement of improvement: Percentage of patients diagnosed, treatment adherence, exacerbations, ED attendance, OOH visits, acute hospital admissions and patients feedback. Out of 42 patients reviewed: 97.2% were given a confirmed respiratory diagnosis resulting in an 89% reduction in exacerbations, 100% in acute hospital admissions, OOH and ED visits. Patients had greater confidence in managing symptoms and 100% would recommend the clinic.

Lessons learnt: Case-finding by symptoms rather than condition provides an extremely high diagnosis yield, health benefits and reduced healthcare care costs. Evaluating HCP training would be beneficial. Cost per patient of specialist clinic is £142 compared to £242 for respiratory multi-professional outpatient appointment. Specialist MDT working alongside primary care HCP's increased the skill level to diagnose accurately patients with breathlessness symptoms.

Conflict of interest: None. Funded by National Health Services Improving Quality (NHS IQ).

Funding: None.

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References

1. Evans 2015.
2. Jones *et al.* 2014.

47. Getting transition right for Young People (YP) with Asthma

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Whittington Hospital, London, England

Outline: Transition from paediatric to primary or hospital care is a challenging but inevitable step for young people (YP). A structured transition programme promotes YP's relationship with GP/hospital team, potentially improving health outcomes.

Outline of problem: Whittington Health Asthma Service transitions about 10 YP a year to GP/adult services. Paediatric care promotes dependence whereas adult services encourage independence, which is relative to patients' knowledge and attitude. Poor asthma understanding and anxiety can adversely affect management following transition to adult services.

Assessment: Previous transition clinics attendance and patient engagement were poor; these were offered to YP transitioning to hospital teams but not GPs. Pre-transition surveys showed anxieties mainly surround non-medical needs.

Strategy: A transition kit was developed, including transition pathway, information packs, healthcare checklist and transition passport. Literature highlights transition should incorporate holistic life skills besides medical needs. A transition workshop was trialled; incorporating question-and-answer sessions for YP and parents separately, allowing them to meet the adult team and learn about asthma management.

Measurement of improvement: Compared to transition clinics, the workshop had better attendance and engagement. Our post-workshop survey showed improved anxiety levels for YP but worsened for parents. Everyone found the workshop beneficial. They understood asthma care better, including how to arrange appointments and prescriptions. The workshop's impact will be assessed by quantifying adult services drop-out rates.

Lessons learnt: The synergy of YP and parents as a group gave them confidence to be vocal. We will continue bi-annual workshops, ideally involving GPs and adult teams.

Message for others: Adolescents appreciated meeting the teams informally, enabling them to understand transition. Parental anxieties, which featured greatly, should be addressed.

Conflict of interest: None.

Funding: Whittington Health National Health Services Trust.

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48. Is in-situ simulation training effective a community environment? An evaluation of the acute COPD Early Response Service (ACERs) Simulation Training Programme.

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Outline: Simulation training is effective in improving patient care, clinical and non-clinical skills, identifying latent safety threats and improving quality in practice. In-situ simulation training provides opportunities for multi-disciplinary training, facilitating team working and communication skills in a real life environment.

Outline of problem: In comparison to a simulation suite, training in the community environment can be challenging and often disrupt clinical practice.

To evaluate if a community simulation training program can be run effectively and is beneficial to staff.

Strategy: Simulation sessions were held between July 2015 and May 2016 in a community setting in City and Hackney. Scenarios were based on real clinical situations, where it was felt learning could be gained. All sessions were attended by the ACERs MDT, physiotherapists, nurses and psychologist, rehabilitation assistant and students.

Measurement of improvement: All attendees were asked to complete a self-reported, locally developed evaluation measure. This measured influence on clinical practice and allowed staff to report on how the session had done so.

Effects of changes: All 100% of participants 'agreed' or 'strongly agreed' simulation training influenced their clinical practice. Staff reported feelings of empowerment, improved confidence in managing difficult conversations or complex situations, identification of knowledge gaps, as well as action points to improve safety and communication skills.

Lessons learnt: Clinical action points were learnt, such as, need for easy identification of rescue medication when providing telephone support to patients. The ACERs simulation training programme, emphasised human factors skills which as part of the hidden curriculum that can't be taught, providing a platform for further discussion and learning. This audit has demonstrated that simulation training can be run effectively in a community environment, with minimal disruption to clinical practice.

Conflict of interest: Nil.

Funding: None.

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49. An audit to gain more understanding of current spirometry practice in City and Hackney General Practice

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Outline: To improve the quality of spirometry in practice in City and Hackney. Audit of current practice. Variety existed, but no current data or information to confirm this observation.

Assessment: Locally developed questionnaire, was sent to 43 GPs practices between August and November 2015. Response rate was 63% ($n=27/43$). A total of 52 medical or health professionals regularly practice spirometry, 73% ($n=38$) were nurses, 2% GPs ($n=1$) and 25% Health Care Assistants (HCA) ($n=13$). At 96% ($n=26$) of practices interpretation occurred by a member of staff who did not perform the original test, normally a GP (62% [$n=16$]). A total of 33% ($n=17$) of staff had received no training in the practice of spirometry. Of the 35 staff who had received some form of training, 14% ($n=5$) were internally trained by their colleague. 66% of staff trained, had been trained within the last 2 years ($n=22$), 17% ($n=6$) within 4 years and 23% ($n=8$) within 5 years.

Strategy: As part of the larger project, members of the respiratory team (ACERs) worked directly with practices to improve the quality of spirometry practiced and ensure staff received training.

Measurement of improvement: This audit was part of a larger ongoing project.

Effects of changes: Currently not measured. A wide variety of spirometry practice exists in City and Hackney. Staff performing spirometry, did not always

interpret results, potentially impacting on the diagnosis and management. Training was inconsistent and not always regular, with a third of staff untrained or unqualified to practice spirometry. Must ensure quality of spirometry performed in primary care follows national guidelines and anyone practicing spirometry has appropriate and regular training.

Conflicts of interest: Nil.

Funding: Funding for back fill staff involved by City and Hackney Clinical Commissioning Group.

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50. Acid-suppressive medications during pregnancy and risk of asthma and allergy in children: a systematic review and meta-analysis

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Aim: Synthesise and interpret the evidence on the association between maternal prenatal use of acid-suppressive medications and asthma and allergy risk in children.

Method: A systematic review and meta-analysis of observational epidemiological studies (cohort, case-control, and cross-sectional studies) was conducted. Eligible studies investigated women taking acid-suppressive medications during pregnancy and their children aged ≤ 17 years. Eleven electronic databases were searched from inception to the end of 2015. Databases of ongoing studies and reference lists of included studies were searched, and experts in the field were contacted. Two reviewers independently screened all records, extracted data, and assessed the risk of bias within studies using the Effective Public Health Practice Project (EPHPP). Disagreements were arbitrated by a third reviewer. Random-effects meta-analyses were conducted to synthesise the data. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach was used to evaluate the quality of the overall evidence base.

Results: The search retrieved 3282 records of which eight (enrolling 1,620,043 participants) met inclusion criteria. All were judged to be of high ($n=6$) or moderate ($n=2$) quality. In the pooled analysis, maternal use of any acid-suppressive medication (RR 1.36, 95%CI 1.16-1.61), H2-receptor antagonists (HR 1.46, 95%CI 1.29-1.65), and proton pump inhibitors (HR 1.30, 95%CI 1.07-1.56) were associated with increased asthma risk in children. Two studies which examined other allergic diseases reported an increased risk amongst children of mothers exposed to acid-suppressive medications.

Conclusion: Prenatal exposure to acid-suppressive medications is associated with an increased risk of asthma in children. Research is now needed to establish whether this is a causal relationship, or a result of residual confounding and/or confounding by indication.

Conflicts of interest: None.

Funding: None.

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51. Is it COPD? Using case discussion at multi-disciplinary team (MDT) meetings to improve accurate diagnosis and appropriate intervention and management of patients with chronic lung disease

O'Neil S, Hope S, Ahmad N

Shropshire Community Health NHS Trust, UK

Outline: COPD is a major health problem worldwide. Telford and Wrekin has a higher than national prevalence of COPD. An aim of our service is to provide accurate diagnosis, specialist review and evidence based management through a multidisciplinary community based service that will improve the care of people living with COPD.

Outline of problem: There is much consensus on finding the 'missing millions' of COPD patients; however what is arguably more surprising is how COPD is

often misdiagnosed or mismanaged. Many lung diseases share clinical and functional similarities consequently causing misdiagnosis and/or mismanagement playing an important role in the increase of mortality, morbidity and quality of life experiences in this patient group.

Strategy: Patients were referred by a Respiratory Consultant, Respiratory Specialist Nurses, Community Matrons and Respiratory Physiologists to be discussed at an multi-disciplinary team (MDT) meeting bimonthly over a 12 month period. Further investigations, medication review and direct referrals for instantaneous secondary care reviews were made as part of an ongoing individualised care plan.

Measurement of improvement: A service evaluation made between 2014-2015 found that of a cohort of 65 patients, 31% of patients had treatment optimised, 15% received an alternative respiratory diagnosis and a further 8% were referred onto specialist centres for surgical interventions and management.

Effects of changes: We now have an allocated Respiratory Nurse with every local GP practice, to offer accessible specialist advice and enable links to the multidisciplinary integrated service.

Lessons learnt: Community MDT meetings are an effective way to optimising treatment, establishing accurate diagnosis and improving quality of patients with COPD. It helps to enable links with primary care clinicians and achieve an ideal integrated service for our patients. Early detection and treatment of correct diagnoses may improve long term prognoses and prevent irreversible loss of lung function in patients with lung disease.

Conflicts of interest: None.

Funding: None.

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52. Self-fill oxygen systems - benefits for patients, healthcare providers and the environment

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To explore the role and evidence base for 'Non-delivery' Home oxygen systems that allow self-filling of ambulatory oxygen (AO) cylinders in people with Chronic Lung disease. They may offer an unlimited supply of AO in suitably assessed people who require Long term oxygen therapy (LTOT) provided they can use these systems safely and effectively, allowing users of LTOT to be self-sufficient and facilitating longer periods of time away from home.

Methods: A national review of the home oxygen service in Scotland was conducted resulting in consolidation of all home oxygen delivery systems under a single contractor with the transition to this new service delivered over 2013. A health economics analysis was conducted following the transition to compare the differences between the previous conventional AO cylinder delivery and the HomeFill (HF) system.

Results: Conservative calculations indicate a cost for 3 AO cylinders of about €100 per week, or €5200 per year, compared with a cost for HF of €1100 per annum, giving a benefit of around €4000 for each patient. The costs savings related to reduced travel and delivery in 1213 HF users compared to the AO cylinder delivery model is 1.25million Km's and the estimated carbon emission (CO₂e) reduction for the HF system is 261.29 tonnes of CO₂e.

Conclusion: Evidence is emerging that 'Self-fill' / 'non-delivery' oxygen systems can meet the AO needs of many patients using LTOT and can have a positive impact on quality of life; increased time spent away from place of residence and can offer significant financial savings to health care providers. Even with conservative estimates in the health economics analysis, the provision of the HF system to around 1000 patients saves about €2 million per year in Scotland.

Conflicts of interest: see below.

Funding: York Health Economics Consortium, University of York received funding from Invacare for the Health economics analysis work. This was conducted after the National project was completed.

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53. Improving Secondary Care/Primary Care communication using integrated multidisciplinary team meetings

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Outline: COPD is a major health problem world-wide, ranking fifth for global burden of disease. Managing exacerbations is a significant source of COPD health care expenditure.

Outline of problem: 10% of patients with COPD, who experience acute exacerbations and hospital admissions, account for over 70% of COPD health care costs. With limited health care resources, efficient management involves identifying patients most at risk of exacerbations and integrated management between primary and secondary care.

Assessment: IT services available for Primary Care and Secondary Care are not directly compatible. Secondary Care in National Health Services (NHS) Lothian uses the TRAK system with TRAK Alerts that is not accessible in Primary Care. Primary Care uses Key Information Summaries (KIS) which can be read by Secondary Care and Community Care, but cannot be created in Secondary Care.

Strategy: 1. Integrated multidisciplinary team meetings (iMDT's) discussing high risk patients identified by two or more hospital admissions within twelve months. 2. Documenting TRAK Alerts to guide management during acute admissions. 3. iMDT summaries sent to GP's including TRAK Alert, to guide KIS documentation and management in Community and Primary Care settings.

Measurement of improvement: A service evaluation identified all 252 high risk patients managed in iMDTs, 90.1% had TRAK alerts (95% CI 85.8-93.2). 69.8% had a KIS (95% CI 63.9-75.2). Comparing 495 patients in NHS Lothian with long term conditions at high risk of hospital admission (SPARRA score 60+%), 61.2% had a KIS (95% CI 56.8-65.4).

Effects of changes: Integrated multidisciplinary team meetings documentation with alerts increased Primary Care documentation which encouraged effective management between all hospital and community teams. iMDT documentation with specific recommendations to Primary Care to create or update patients KIS can encourage effective communication and management within hospital and community settings.

Proactive patient identification and enhanced iMDT documentation can improve communication between Community and Secondary care, improving medical management and patient safety.

Conflict of interest: None.

Funding: None.

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54. Improving care for patients with COPD using a care bundle in primary care

Matthew D, Elkin S, Woodcock T, Chopra R, Armstrong S, Hamerton V

National Institute for Health Research Collaboration and leadership in applied research and care NWL, UK

Outline: COPD is a common long-term condition characterised by breathlessness and acute exacerbations associated with hospital admissions and poor quality of life.

Outline of problem: With care shifting to out of hospital it's important to up skill primary care in delivering correct treatment options when patients attend surgeries. Patients attend GP surgeries when they have exacerbations of their

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dition, which is an opportunity to assess their condition and refer onto pulmonary rehabilitation or a more in depth review.

Assessment: Fragmentation in the National Health Services (NHS) results in inconsistent treatment of patients with COPD. Currently GPs have to search through the entire patient history to check for previous COPD care and must look up guidelines separately. This is challenging in a 10-minute consultation.

Strategy: The secondary care COPD discharge bundle has delivered high value care across the UK. This now needs to be delivered 'downstream' to primary care to ensure best practice.

Measurement of improvement: The primary care bundle has helped 2 GP practices deliver high quality care while also providing insight into that patients COPD history over the last 12 months.

Effects of changes: Patients with COPD receive evidenced based care by GPs using the bundle, including referral to pulmonary rehabilitation.

Lessons learnt: The template pops up at the end of the consultation when the GP clicks on the prescription, however after consultation we realise this needs to happen earlier in the consultation. Options are being explored for making this still a reliable pop up. The bundle is neat and aligned to the clinical guidelines for COPD, making it a useful tool for GPs practices to use.

Conflicts of interest: N/A.

Funding: Provided by the National Institute for Health Research (NIHR) Collaboration and leadership in applied research and care Northwest London (CLAHRC NWL).

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55. Building a Theoretical Basis for Exploring the Role of South Asian Culture on Asthma Self-Management Behaviour

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Background: Supported self-management improves asthma outcomes, but is less effective in South Asian minority communities. Guidelines recommend that interventions should be culturally tailored, but culture is not static as UK born South Asians have greater cultural flexibility compared to the first migrant generation, indicating differences in lifestyle and asthma needs.

Aim: To understand how to help people from different South Asian subcultures/generations to look after their asthma better, we need to consider subcultural heterogeneity and minority cultural shifts.

Method: We explored and mapped cultural shift theories in minority South Asians relevant to developing an intervention.

Results: We identified two useful theoretical models:

(1) Berry's¹ model of acculturation (i.e. cultural changes influenced by coming in to contact with another culture) suggests individuals adapt in one of four ways: integration, assimilation, separation or marginalisation. In the context of supported self-management, the mainstream culture can be viewed as the degree of acculturation amongst healthcare professionals whose adaptation

reflects: multiculturalism, melting pot, segregation, exclusion, and their ability to support various acculturated patients.

(2) Hall's² cultural hybridity theory suggests individuals with two or more cultures tend to become bi-culturally competent and typically seek out what aspects of their cultures are most significant to them e.g. religion, health/illness beliefs.

Building on our theoretical understanding of culture as a shifting and changing entity, our qualitative study will explore asthma self-management in South Asians across different generations and healthcare professionals who support these communities, to inform the development of a tailored intervention which adapts to generational cultural shifts.

Conflicts of interest: None.

Funding: Asthma UK Centre for Applied Research.

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References

¹Berry, JW (1997, 2005); Sam DL, Berry JW. (2010) *Perspectives on Psychological Science* 5: 472-481.

²Hall (1990) in Kelleher D, Hillier SM. (1996). *Researching Cultural Differences in Health*. Psychology Press.

56. Can we take adult asthma patients off the list if they don't come to clinic?

Goodwin D

GP, Shrewsbury, UK

Outline: Those diagnosed with asthma in adulthood are unlikely to "grow out of it". Once on this list, the practice has the task of regularly reviewing patients. This can be onerous for practices and unwelcome by patients. When I conducted a longitudinal audit of asthma exacerbations the longest interval from last clinic attendance to onset of exacerbation was 13 years. Lack of compliance/adherence was emerging as the most common cause of exacerbations. Panhuysen *et al.* in 1997 suggested that 11% of adults may no longer have asthma at a 25 year follow up, with earlier age of diagnosis, milder disease and earlier therapeutic intervention being predictive of this happening.

For every 10 patients on the asthma register a full review will take 15 hours and several visits by each patient. We are probably not using our time most efficiently in targeting the co-operative.

Assessment: Patients with no symptoms or no need for further medication (in their belief) are less likely to attend review appointments. The enquiry into asthma deaths showed that they can occur at any previous disease severity and age.

Strategy: Prioritise in this order: overuse of relief medication; exacerbations; using medications without attending review; persistent non-attendance or not using medications; recent review. Each should have spirometry and prescribe peakflow meter if confirmed asthma.

Effects of changes: Less waste of time and expertise.

Lessons learnt: If the original asthma diagnosis was made on secure grounds, then it is probably safer to assign the patient to British Thoracic Society BTS/SIGN step 1 with relief inhaler and conduct a telephone review. Pinnock *et al.* (2005) have shown this to be preferred by patients for this severity and others have shown to be more cost effective.

Conflict of interest: None.

Funding: None.

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57. Review of the use of high dose inhaled corticosteroids in people with asthma aged 12 or over in primary care

Knowles V, Mackay R, Watts D

Guildford and Waverley (G&W) Clinical Commissioning Group (CCG), UK

Outline: Inhaled corticosteroids (ICS) are the first choice preventer treatment for people with asthma for achieving overall treatment goals. British Thoracic Society BTS/SIGN guideline for the management of asthma recommends that

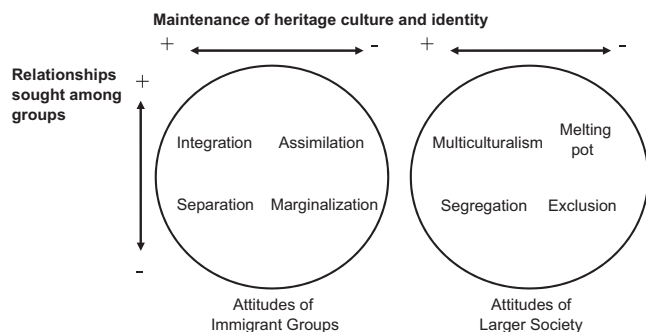


Figure 1. Acculturation strategies in ethnocultural groups and the larger society.¹

the dose of ICS should be titrated to the lowest dose at which effective control of asthma is maintained to minimise side effects of ICS.

Outline of problem: Seretide (fluticasone / salmeterol) is the most commonly prescribed combination inhaler in G&W with the highest strength devices being the most commonly prescribed doses accounting for 73% cost of all respiratory prescribing.

Assessment: Guidelines recommend that reductions in ICS dose should be considered every three months but often are not implemented leaving some people over treated. QOF data across G&W identified 813 asthma patients prescribed high dose ICS. 229 patients were excluded due to co-morbidities leaving 584 patients suitable for review.

Strategy: Virtual clinics carried out to discuss case management and patients invited in for review. Joint clinics carried out in practices where learning needs had been identified. Algorithms circulated to support step-down and action plans provided to support dose reduction with no loss of asthma control.

Measurement of improvement: RCP three questions, peak flow measurement, short-acting beta agonist use and ICS inhaler concordance.

Effects of changes: 218 patients (43%) were deemed to have good asthma control and treatment stepped down. 18 patients with poor asthma control were referred to specialist clinic for review.

Lessons learnt: Lessons learnt: Asthma step-down is recommended but it is often not implemented leaving some people over treated which was the case locally.

Message for others: Consultant respiratory nurse support to primary care enabled nurses to have more confidence in reviewing asthma patients enabling reduction of ICS without loss of asthma control.

Conflict of interest: None.

Funding: None.

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58. The Administration of Omalizumab in a Community Setting

Price K, Miles G, Miles J

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Aim: Omalizumab is licensed for the treatment of severe allergic asthma. It is currently recommended for use in a hospital setting on account of the potential of patients to suffer anaphylaxis following its administration. BreathingSpace is a specialist community-based respiratory unit run by nurses and supported by therapists and a visiting consultant physician once a week. The nursing staff are trained in intermediate life support, including the management of anaphylaxis and so this unit had the potential to provide Omalizumab to patients in a community setting. We report the findings of our experience with first 20 patients receiving Omalizumab therapy at BreathingSpace.

Method: Patients fulfilling the NICE and SIGN criteria for Omalizumab therapy were assessed at BreathingSpace by the asthma specialist nurse. They comprised a mixture of those patients currently already receiving Omalizumab at the local hospital or nearby tertiary centre, and those for whom Omalizumab had been recommended to commence as part of their ongoing asthma treatment. Those patients receiving their first injection were asked to remain on site for 60 minutes whereas those receiving the second injection onwards were allowed to leave immediately.

Results: A total of 22 patients (17 F Age range 22-63) were assessed at BreathingSpace between March 2015 and April 2016. Of these 22 patients 11 were already on maintenance Omalizumab therapy (without complication) and 11 were referred to commence treatment. 12 were receiving monthly injections and 10 fortnightly injections. A total of 1378 injections were given at BreathingSpace with no adverse reactions reported. In particular no reactions were reported by the 11 patients initiated on Omalizumab therapy.

In our hands Omalizumab is safe to administer in a community setting and therefore follow up hospital appointments merely for the purpose of Omalizumab administration are no longer required.

Conflicts of interest: None.

Funding: None.

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59. Rotherham's response to NRAD 2014

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Outline: Following the publication of the NRAD report in 2014 BreathingSpace reallocated its existing resource in order to provide 17 hours of specialist asthma liaison nurse time. We report on the characteristics of the patients referred in the initial 9 months of the asthma liaison nurse role and compare to those patients reported in NRAD.

Rotherham Foundation Trust did not have any specialist nurse post specifically for patients with asthma at the time of the publication of the NRAD report. Using this report as a lever we introduced an Asthma Liaison Nurse post (17 hrs a week over 3 days) in March 2015 to enhance the care of patients with difficult to control asthma and provide both support for general practice colleagues as well as ensuring the key recommendations from the NRAD report were met (see Table 1). This was a limited resource and so we needed to identify whether appropriate patients were being seen by our new incumbent.

Strategy: The post holder made her details available in the A+E department, Acute Admissions Ward and all other hospital Wards, encouraging referral during admission for acute Asthma. In addition she has offered a service for review of any difficult asthmatic patients via direct referral from GPs, PNs or other medical/nursing colleagues within the hospital.

Measurement of improvement: An increase in PAAP allocation from 4% to 96% between March 2015 and April 2016. All health care professionals involved in the care of patients with Asthma in Rotherham now have access to a Specialist service for advice during admission and follow up after admission. All primary care colleagues have access to advice for patients who are having frequent exacerbations or are otherwise difficult to manage.

[59]

Table 1.

Parameter	NRAD	Asthma Liaison Nurse
	Prevalence (n = 196)	Prevalence (n = 119)
Age >40	75%	74%
Sex F	59%	76%
Ethnicity White Caucasian	84%	92%
Lifelong Non-Smoker	52%	53%
Ex-smoker	25%	33%
Current Smoker	20%	14%
Anxiety/Depression	32%	32%
BMI < 20	17%	3%
BMI 20-25	26%	25%
BMI 25-30	25%	17%
BMI > 30	31%	56%
Step 1 BTS	9%	2%
Step 2-3 BTS	49%	52%
Step 4-5 BTS	42%	35%
Previous ICU admission	15%	8%
Personal Asthma Action Plan (PAAP)	9%	4%

BTS = British Thoracic Society.

Lessons learnt: Greater engagement with the ED is required to ensure frequent ED attenders who do not get admitted are not lost to follow up. A teaching session on a regular basis has been established to address this issue. Issues relating to excessive weight are prevalent in our asthma cohort and a more effective interventional strategy is required. The case load of an asthma liaison nurse in Rotherham reflects the patient population in NRAD and therefore has the potential to address many of the issues identified in the NRAD report.

Conflict of interest: None.

Funding: None.

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60. Reducing unplanned care through CBT for people with COPD

Lim KK, Bolton CE, Horrocks MD

Nottinghamshire Healthcare NHS Foundation Trust, UK

Outline: Evidence shows comorbidity between COPD and common mental health problems (CMHPs) is common, and can lead to worse prognosis, treatment non-compliance, increased admissions, and higher mortality.

Outline of problem: Within Nottingham West estimated prevalence levels of COPD are higher than comparator Clinical Commissioning Groups (CCG). Anxiety and depression are shown to affect more than 33% of people with COPD. This comorbidity can cause problems with treatment engagement and compliance.

Assessment: Cognitive Behavioural Psychotherapy (CBT) can provide a valuable treatment adjunct targeting symptoms associated with CMHPs, to reduce emotional distress, enhancing treatment engagement and increasing psychological coping skills. Between 2013 and 2016, COPD patients with comorbid CMHPs ($n=136$) accessed CBT delivered by psychotherapists working as integrated members of the community COPD service.

Measurement of improvement: (1) Patient self-reported outcome measures used to record severity of psychological distress: (PHQ-9, GAD-7). (2) Service utilisation tracked with the Client Service Receipt Inventory (CSRI). (3) Estimated impact on service costs was made with reference to the Unit Costs of Health and Social Care.

A total of 136 patients completed two or more CBT sessions. Significant improvement (decreased scores by 4 points or more) was reported, on PHQ-9 ($n=85$, 62.5%) and GAD-7 ($n=82$, 60%), reflecting reduced CMHP symptoms. Using the CSRI to contrast service use 4 months pre-treatment and during treatment, reductions were reported in acute admissions (13.25%), A&E visits (35.29%), Emergency Ambulances (23.53%), and emergency GP (51.06%), providing estimated cost savings of £59,016.

Lessons learnt: Integrating CBT psychotherapists into community COPD services can provide a valuable treatment adjunct.

Message for others: Providing CBT in COPD services, can contribute to reductions in comorbid symptoms and service utilisation.

Conflict of interest: None.

Funding: Nottingham West Clinical Commissioning Group funded the pilot service as a quality improvement initiative.

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61. Reaching the 'hard to reach' using an intensive approach within a hospital Complex COPD outpatient clinic

Perry MJ

Leicester, UK

Outline: This presentation will outline the planning, preparation, treatment methods and the subsequent successful outcomes that we have experienced from supporting outpatient's attending a complex COPD clinic one year on, some of which are higher than our regular population of service users.

Outline of problem: Around thirty to forty percent of patients attending the advanced COPD outpatient's clinic at Glenfield hospital continue to smoke, despite the fact that stopping is the most effective method of slowing down the progression of this disease. Smoking Cessation referral uptake, however, has been historically poor; therefore a new approach to capturing this patient group had to be implemented.

Assessment: Within secondary care we continuously strive to capture referrals, search for new and innovative ways to engage with patients with long term conditions, and aim to treat and improve our patients declining health.

Strategy: Though using an intensive approach, tackling patients with complex conditions could have significant impact on improving health amongst some of our previously hard to reach population.

Measurement of improvement: I was invited to work alongside the Complex COPD clinic to see if improvements could be made to the referral pathway, outcome and relationship.

Effects of changes: All patients that attend the clinic and who smoke were routinely seen, alongside the clinicians, by the specialist advisor who then guides them through the various treatment options available to them. By taking a pragmatic approach, we have eased the journey by taking away any pressure to quit immediately and used a harm reduction approach with a patient-led tailored programme motivating the patients to act straight away.

Lessons learnt: Patients with long term conditions who continue to smoke should still be actively encouraged to stop or reduce their exposure to the harms of tobacco by forming a non-judgemental relationship and providing ongoing support for their nicotine dependency. Through providing a dedicated service that is located directly alongside the clinicians within outpatients, we are reaping the benefits of a high quality specialised intervention right at the point of heightened motivation amongst our smoking population with substantial success.

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