symptom diaries, we employed a relatively novel method of recruitment involving approaching patients to participate via the Clinical Practice Research Datalink (CPRD), an anonymised general practitioner (GP) records database containing ongoing primary care medical data.

Methods Patients registered at general practices within Greater London whose GP practices were part of the CPRD network were identified anonymously by CPRD using a validated codelist and algorithm developed by our team (Quint *et al*, 2014). GPs were able to verify the suitability of the potential participants identified and post information about the study to them. Patients could register their interest in the study directly with the research team to be enrolled in the study.

Results Feasibility screening by CPRD between January and July 2016 indicated 675 potential study participants at 20 practices and from the CPRD-supplied practice screening lists GPs identified and deemed eligible 462 patients. 462 patients were contacted and the response rate was 136/462 of which 43 (32%) were enrolled and 93 (68%) declined. The main reason for declining was related to the demands that the project entailed of looking after the air monitor and diary for 6 months.

Conclusion Patients with COPD from GP practices within Greater London were successfully screened and recruited through CPRD to participate in research over a 6 month period thus providing access to a milder cohort of research naive patients who better represent the majority of the COPD population and this method minimised input needed by the GP. This is a novel method of using EHRs to recruit participants for research that is currently underutilised.

P212

INTERVENTIONS TO INCREASE REFERRAL TO AND UPTAKE OF PULMONARY REHABILITATION PROGRAMMES FOR PEOPLE WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD): A SYSTEMATIC REVIEW

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Introduction and objectives Pulmonary Rehabilitation (PR) reduces the number and duration of hospital admissions, readmissions and improves health-related quality of life, e.g. breathlessness and fatigue, in patients with COPD. Despite evidence, guidelines and quality standards, PR is significantly underutilised with under-referral (15% of normative need) and limited uptake (<70% of those referred attend initial assessment) contributing to poor treatment access.

We aimed to address the research question: How effective are interventions to improve referral to and uptake of exercise-based pulmonary rehabilitation programmes in patients with COPD when compared to standard care or no intervention?

Methods Systematic review following recognised methods, including all published observational, interventional, qualitative and quantitative studies of interventions specifically intended to increase levels of referral and/or uptake of pulmonary rehabilitation in patients with COPD.

Abstract P212 Table 1 Summary of interventions to increase referral to and uptake of Pulmonary Rehabilitation (PR) programmes for people with Chronic Obstructive Pulmonary Disease (COPD)

Authors, Date, Setting	Design	Participants	Intervention	Outcomes	Results/Effect
Angus <i>et al.</i> , 2012, UK	Observational/feasibility study covering several aspects of COPD management	293 patients	Computer-guided review by practice nurse	% referred to PR	24% of patients referred
Foster <i>et al.</i> , 2016, UK	Participatory action research with strategies for increasing referrals for PR	22 clinicians 126 patients	Included in-house education sessions, changes to practice protocols, and 'pop-ups' and memory aids (mugs and coasters) to prompt clinician/patient discussions about PR.	Patient survey	Survey reports expectation of increased access to benefits of PR
Graves <i>et al.</i> , 2010, UK	Before/After comparison	600 patients (200 control/400 intervention)	Group opt-in session prior to individualised assessment and entry to PR	% taking up baseline assessment, % attending and completion of PR	No effect on initial uptake
Harris <i>et al.</i> , 2009, Australia	Controlled Before/After study	249 patients	Patient-held manual of recommended COPD management	% enrolment to PR, other indicators of COPD management	Increased enrolment in PR seen only in most socioeconomically disadvantaged participants (outcome change + 12%)
Hull <i>et al.</i> , 2014, UK	Quality improvement with repeated audit cycles	3391 patients on COPD registers across network	Establishment of networks of GP practices with supported case management, education and financial incentives for clinical performance	% PR referrals, other indicators of COPD management	PR referrals rose 25% from 45% to 70%
Roberts <i>et al.</i> , 2015, UK	Pragmatic non-randomised controlled study	1235 patients (640 intervention/595 control)	Patients provided with individualised COPD care quality "score cards"	% PR referrals	6.1% increase in referrals in intervention group
Zwar <i>et al.</i> , 2012, Australia	Cluster randomised controlled trial with blinded outcome assessment	451 patients (257 (57.8%) confirmed to have COPD)	Home visit by nurse with specific COPD training working with GP to implement individualised care plan based on guidelines	% attendance at PR, other indicators of COPD management	21.5% increase in PR attendance (31.1% v 9.6%; OR, 5.16; 95% CI: 2.40–11.10)

Exclusion criteria: individual case studies, conference abstracts and opinion pieces. No date or language restrictions.

Search terms included: 'pulmonary rehabilitation' AND 'referral' OR 'uptake' applied to MEDLINE, EMBASE, CINAHL, PsychINFO, ASSIA, BNI, Web of Science and Cochrane Library from inception to June 2016 supplemented by review of reference lists and citation search. Titles, abstracts and full papers were reviewed independently, quality appraised (using Cochrane Collaboration's tool for RCTs and ROBINS-I, AMSTAR) and entered into summary tables. The protocol was registered (PROSPERO) and reported according to PRISMA guidelines.

Results We screened 3217 references, from which 7 papers including 6345 patients and 22 clinicians met inclusion criteria. Most studies (n = 5) were UK based.

Designs, interventions and scope of studies were diverse with interventions often part of multifaceted evidence based management of COPD. Examples included computer based prompts at practice nurse review, patient information, financial incentives. Most studies (n = 5) reported improvements in referral or uptake of PR (range 0% – 25% increase), however most had methodological limitations with risk of bias. Due to heterogeneity, studies were not considered combinable and meta-analysis was inappropriate.

Conclusions There is limited evidence for the efficacy of interventions to increase referral and uptake of PR. Existing studies are diverse and further testing using robust methods in various populations and settings is required to optimise access to PR.

P213 POSITIVE DRIVERS AND POTENTIAL BARRIERS TO IMPLEMENTATION OF HOSPITAL AT HOME SELECTED BY LOW RISK DECAF SCORE

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Background Despite endorsement in guidelines, many hospitals do not offer hospital at home (HAH) for COPD exacerbation (AECOPD), partly reflecting the previous lack of a robust prognostic score to guide selection. The DECAF score addresses this concern, and should be routinely scored on admission.¹ In a RCT we have shown that HAH selected by DECAF score 0–1 is safe and effective. Up to 50% of admitted patients are suitable. Our population included patients with higher medical dependency than earlier trials and HAH was supported by 24/7 specialist on-call. In an embedded qualitative study, we identified positive drivers for, and potential barriers to, use of HAH to inform service implementation.

Methods Patients, carers, clinicians and managers were purposely selected to ensure diversity. Semi-structured interviews were conducted and Thematic-Construct Analysis employed.²

Results 44 patients (HAH/inpatient care/declined randomisation), 15 carers, 14 consultants, 11 specialist nurses and 4 managers were interviewed. 'Positive drivers' were divided into two sub-constructs: 'Feeling more at ease and comfortable in own home environment'; and 'Feeling safe, reassured and appreciated through continuity of hospital care'. Positive influences on independence, perceived rate of recovery, sleep quality, mood and contact with friends and family were noted. At 14 days post-presentation, 90% of patients stated they would prefer HAH over inpatient care for subsequent exacerbations of similar severity.

Counter-intuitively, carers reported greater convenience rather than increased burden.

'Potential Barriers' were grouped into two sub-constructs: 'Personal preferences'; and 'Resistance to change'. Some patients highlighted fear of being alone at night and dislike of strangers visiting their home; nurses cited higher workload and greater responsibility (with experience, viewed positively); whilst operational concerns included keeping medical records in a patient's home and inability to capture activity within current payment systems.

Conclusions HAH selected by DECAF allows the inclusion of more patients than existing models, and is preferred to inpatient care by most patients and their families. During the trial few barriers to implementation were identified, and were effectively overcome. Hospitals planning to implement HAH selected by DECAF should pre-emptively address these issues.

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P214 THE PREVALENCE OF RESPIRATORY SYMPTOMS AND LUNG DISEASE IN A SOUTH LONDON "LUNG HEALTH IN ADDICTIONS" SERVICE

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Introduction and objectives Patients undergoing treatment for heroin addiction die on average 15 years earlier than the general population (Smyth *et al.*, 2006). Opioid-related deaths in England and Wales have increased by two-thirds since 2012 (Office for National Statistics 2015). Although smoking-related respiratory disease contributes to the excess mortality in drug and alcohol addiction, screening for lung disease is not routinely offered in community drug and alcohol treatment services (CDATs). We have established a "Lung Health Clinic" in our local CDAT (Brixton, Lambeth, SE London). Through this clinic we aimed to document the respiratory symptom burden, and COPD prevalence, in addicts accessing our local CDAT.

Methods Assessments: handheld spirometry (FEV₁, FVC, FEV₁/FVC ratio) and pulse oximetry (SpO₂%). We recorded breathlessness (mMRC Dyspnoea Scale), chronic cough and cigarette smoking status.

Results 112 patients (88 male, mean(SD) age 46 (9) years) attended Jan–Dec 2015. Current/previous addictions included: smoked heroin 66.3%, intravenous heroin 32.5%, crack cocaine 68.2%, cannabis 60.0%. 81.3% were current cigarette smokers. Only 41% had accessed smoking cessation services despite these being offered in-house.

61.5% reported chronic cough. 20% reported significant breathlessness (mMRC Dyspnoea ≥ 2). 5% had a pre-existing COPD diagnosis, whereas spirometry [Figure 1] and clinical history were consistent with COPD in 36.4%. SpO₂ ≤ 95% in 12.8%.

Conclusions There is a significant unmet burden of undiagnosed chronic lung disease, and respiratory symptoms, in our local