P101 THE LONG-TERM EXPERIENCE OF COPD PATIENTS TAUGHT PLB: A MIXED METHODOLOGICAL STUDY

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Background Pursed lips breathing (PLB) is a breathing technique advocated for the treatment of exertional dyspnoea in COPD. Published studies to date have only reported on immediate or short-term effects.
Aim To investigate the long-term use of PLB in people with COPD trained to use this technique for dyspnoea management.
Method A purposive sample of 13 patients taught PLB 6–24 months previously were studied using semi-structured telephone interviews and a focus group. Where possible the technique of those reporting current PLB use was also observed.
Results 11 participants took part in the telephone interviews, mean age 64.6 yrs (SD11.81), mean FEV_1 44.3% predicted (SD 0.19). 5/11 participated in the focus group and 6/11 were observed performing PLB. Nine reported on-going use of PLB with 8 reporting definite benefit. Four distinct themes emerged from the analysis of the data: use of PLB when short of breath due to physical activity (8/9), increased confidence and reduced panic (4/9), use as an exercise (3/9), use at night (3/9). Observed technique showed ongoing ability for PLB to reduce respiratory rate and increase oxygen saturation. Those that had discontinued PLB had done so because it didn't help (2) and they had forgotten or were too busy to continue. No substantial adverse effects were reported.
Conclusion This study investigated, for the first time, the long-term use of PLB by patients with COPD. 62% of patients studied reported benefit from PLB up to 24 months after learning the technique. The role of PLB in increasing patients' confidence in their ability to manage breathlessness and, use at night, are also novel findings.

P102 POST-HOSPITALISATION OUTPATIENT PULMONARY REHABILITATION: A TRANSLATIONAL GAP?

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Background Recent trials and meta-analyses of early post-hospitalisation pulmonary rehabilitation (PR) in COPD have demonstrated improvements in exercise capacity, health-related quality of life and a reduction in hospital readmissions (Man *et al.*, 2004; Seymour *et al.* 2010; Puhan *et al.* 2011). However anecdotal observation and evidence from recent trials suggest poor uptake of outpatient PR. The aim of the study was to map patient journeys to identify gaps or deficiencies in the referral pathway.
Methods All 224 patients discharged from Hillingdon Hospital following an acute exacerbation of COPD between November 2011 and May 2012 were included in the analysis. Referrals for post-exacerbation PR from Hillingdon Hospital were monitored during the same time period. A collaborative of 18 stakeholders from seven organisations across primary, secondary and community care services was convened and performed local process mapping. Structured telephone interviews were held with a convenience sample of 36 COPD patients who declined post-hospitalisation PR.
Results Despite excellent compliance with a COPD discharge bundle (95%), only 63 (28%) of the 224 discharges from Hillingdon Hospital were referred to the local PR provider. All referrals were offered initial assessment for PR within 2 weeks of discharge but 18 failed to attend on at least 2 occasions. A further 9 patients failed to start PR despite attending initial assessment. In total, only 36 (16%) patients out of all hospital discharges over a 6-month period started outpatient PR. The main reasons for patients declining outpatient PR were accessibility issues (40%), commitment to PR "too time-consuming" (20%) or "too unwell" (13%).
Conclusion Despite a strong evidence base, there is poor uptake of post-hospitalisation early PR. The majority of missed opportunities occur at the initial referral stage, although there is a significant drop-out even in those referred. Ongoing experience based design work will explore staff and patient attitudes that may influence referral and uptake rates.

P103 CARDIOPULMONARY EXERCISE TESTING IN COPD: CYCLE ERGOMETRY OR TREADMILL WHICH IS BETTER?

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Introduction/Objectives Traditionally Cycle Ergometry is used for CPET to assess functional exercise capacity in COPD. However, walking is closely related to daily functional needs of COPD patients. The aim of this study was to evaluate the efficacy and tolerance of Naughton's treadmill protocol over Cycle Ergometry in COPD patients during maximal CPET.
Result All patients were able to complete the treadmill protocol in CPET, while on the Cycle Ergometry test it was symptom limited. The mean age was 58.0 + 10.1 years with mean FEV1% of 56.11+ 26.2%. VE, HR, VE/VCO2, VE/VO2, VD/VT and PETCO2 at the end of the exercise during treadmill and Cycle Ergometry were not statistically different. Hence all variables e.g. VO2 peak, VO2% predicted, duration of exercise and VO2 at LT were comparable. The VO2 Peak during treadmill was significantly higher during treadmill as compared to Cycle Ergometry (1347.5+308 ml/min vs. 1089.9+277.9 ml/min respectively; p=0.013). The duration of exercise was also significantly more during treadmill as compared to cycle ergometer (12.6+3.8 min. vs. 8.3+3.12 min. respectively p=0.002; p=0.68) although there was no significant difference in VO2 at LT (41.3 + 14.1% during treadmill vs. 33.4 + 10.6% during cycle ergometry; p-value- 0.087).
Conclusion Patients performing CPET on treadmill as compared to Cycle Ergometry showed increase exercise capacity. Hence in Indian COPD subjects treadmill CPET may be better for functional assessment.

P104 RESPONSE OF THE COPD ASSESSMENT TEST (CAT) TO PULMONARY REHABILITATION IN NON-COPD PATIENTS

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Background The COPD (chronic obstructive pulmonary disease) assessment test (CAT) is a recently introduced, simple to use health status instrument, which takes less time to complete than better-established health status instruments (Jones PW et al 2009, Ringbaek T et al 2012). In COPD patients, the CAT improves with pulmonary rehabilitation (PR) and correlates with improvements in longer established health status instruments such as the Chronic Respiratory

Disease Questionnaire (CRDQ) (Dodd et al 2011). As increasing numbers of non-COPD patients are referred for PR we investigated whether the CAT is responsive to PR in these populations.

Methods 365 consecutive patients (255 COPD, 110 non-COPD) completing an eight week outpatient pulmonary rehabilitation programme were recruited. For the non-COPD group, disease classifications included interstitial lung disease (n=27), asthma (n=37), bronchiectasis (n=29), extrathoracic restriction (n=12) and thoracic surgery for lung cancer (n=5). CAT, CRDQ and incremental shuttle walk (ISW) were collected prospectively. Paired t-tests were used to assess the CAT in COPD and non-COPD patients, and a Pearson's correlation coefficient used to assess the relationship between change in CAT and change in CRQ with PR for non-COPD and COPD patients.

Results Following PR there was a significant improvement in the CAT, CRDQ and ISW in both non-COPD and COPD ($p<0.001$). There was a similar improvement in the mean (95% confidence interval) CAT score in both non-COPD and COPD patients (non-COPD: –2.1 (–1.0, –3.2) versus COPD: –3.0 (–2.2, –3.8); $p=0.19$). Change in CAT was significantly correlated with all domains of the CRQ in non-COPD patients (all $p<0.01$ see Table 1).

Conclusions As in COPD patients, the CAT is immediately responsive to PR in non-COPD patients. Even in unselected patients undergoing PR, the CAT is a practical but robust health status instrument.

Abstract P104 Table 1 Relationship between change in CAT and change in CRQ with PR for non-COPD and COPD patients

Non-COPD	r	p-value
Δ CRQ Dyspnoea	–0.29	0.003
Δ CRQ Fatigue	–0.33	0.004
Δ CRQ Emotion	–0.38	<0.001
Δ CRQ Mastery	–0.25	0.009
COPD	**r**	**p-value**
Δ CRQ Dyspnoea	–0.32	<0.001
Δ CRQ Fatigue	–0.38	<0.001
Δ CRQ Emotion	–0.43	<0.001
Δ CRQ Mastery	–0.39	<0.001

Δ = Change with PR; CRQ = self-report Chronic Respiratory Questionnaire; r=Pearson Correlation Coefficient.

P105 IDENTIFYING MISSED OPPORTUNITIES FOR REFERRAL TO PULMONARY REHABILITATION

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Introduction and Objectives UK COPD standards require that patients are referred to pulmonary rehabilitation (PR) following hospitalisation for acute exacerbations of COPD (AECOPD).

The Hillingdon pulmonary rehabilitation service established a "fast-track" route for patients admitted to Hillingdon Hospital with AECOPD in November 2011.

Knowledge of current referral patterns and identification of missed opportunities can provide a strategy for improving access to PR services.

Methods Data including residential postcode and registered GP were extracted for patients that were admitted to an acute hospital with AECOPD during a 6 month period (November 2011 to April 2012). Data were cross-referenced to referrals to the PR service.

Admissions were mapped by residential postcode to provide a geographical distribution of patients that were referred to PR and those that were not.

Admissions and subsequent referral status were analysed by GP practises; identifying practises with relatively high AECOPD admissions and low PR referrals

Results There were 240 admissions during the 6 month period of analysis and 36 (15%) of the patients were referred to the pulmonary rehabilitation service via the "fast-track" route.

Admissions mapped by residential postcode demonstrated a clustering of admissions in parts of the south of the borough, compared to the north. Although absolute numbers of PR referrals were similar in the north and south of the borough, there were far fewer in the south as a proportion of admissions.

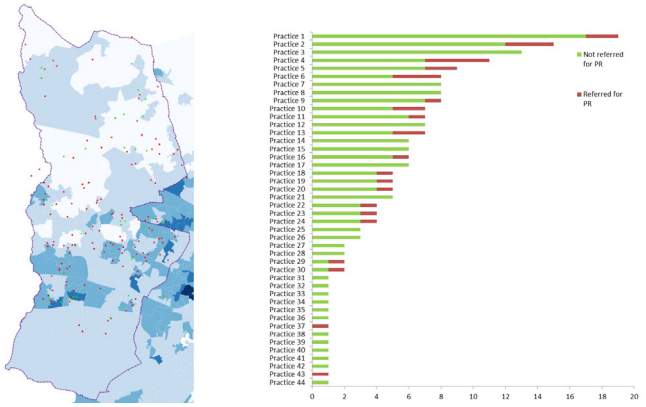
Analysis of admissions and PR referrals by GP practise identified a number of "high-value" practises that could be targeted to improve PR referrals.

Conclusions Improving access and the uptake of PR remains challenging within the post-hospitalised AECOPD patient group.

Analysing local data can generate an understanding of the bottlenecks in the system and develop strategies improving access and uptake.

Transport is an often cited reason for patients declining referral. Analysis of geographical data can inform decisions on the location of community PR services.

Identifying GP surgeries for targeted intervention to improve PR referral provides an opportunity to engage with GPs and support them in delivering high-quality, evidence based care.



Abstract P105 Figure 1 A) demonstrates geographical spread of admissions highlighting those that were referred (light gray) and those that were not referred (dark gray) to PR. B) Shows the distribution of patients admitted for AECOPD during the period of analysis by GP surgeries and the proportion referred to PR.

P106 VALIDITY OF THE CLINICAL COPD QUESTIONAIRE (CCQ) IN NON-COPD PATIENTS

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Background The Clinical COPD Questionnaire (CCQ) is a 10-item health status instrument that takes only two minutes to complete, and has been shown to be reliable and valid in patients with COPD (van der Molen T et al 2003, Damato S et al 2005). In COPD patients, the CCQ correlates with established health status instruments such as the Chronic Respiratory Disease Questionnaire (CRQ), COPD Assessment Test (CAT) and St George's Respiratory