evidence for programme content, evidence is less on the optimum duration or comparative efficacy in different settings.

Two English NHS pulmonary rehabilitation services used different service models for COPD patients. An acute based service offered up to nine weekly sessions of pulmonary rehabilitation using a multi-disciplinary team. Another service based in a community gym offered up to ten sessions provided by respiratory nurses and a physical activity co-ordinator.

We hypothesised that outcomes would not improve after eight pulmonary rehabilitation sessions and would be similar for the two services.

Methods A pragmatic service evaluation with before-after design was used. Self-reported chronic respiratory questionnaires (CRQ) measuring four quality of life domains (dyspnoea, fatigue, emotional function, mastery) were completed by patients at baseline and again on completion of pulmonary rehabilitation. For each service, baseline scores were subtracted from completion scores to measure change in respiratory related quality of life outcomes and compared to minimum clinically important difference (MICD) of 0.5 (Williams *et al*, 2003).

The effect of number of sessions attended by patients on respiratory outcome scores was tested using linear regression.

Results Baseline and follow-up CRQ scores were available for 149 patients (89 in the acute based service).

In the community based service, improvements in dyspnoea and emotion were statistically significantly greater than the MCID whereas for the acute service, improvements in emotional function and mastery were significantly greater than MCID (Table 1). The overall proportion of patients experiencing CRQ increases greater than the MCID for both services were dyspnoea: 62.4%; fatigue: 57.7%; emotional function: 61.7%; mastery: 59.1% at follow up.

The effect of duration on CRQ outcomes will be reported.

Conclusions A community based pulmonary rehabilitation service obtained similar CRQ outcomes to an acute based service suggesting community based services may achieve equally good outcomes to acute based services.

Abstract P117 Table 1. CRQ outcomes in a community based and acute based pulmonary rehabilitation service.

Service	CRQ Dimension	Mean pre- score	Mean post- score	Difference	95% CI	Proportion >MCID (%)
Community	Dyspnoea	2.48	3.51	1.03	0.66 1.40	63.3
	Fatigue	3.23	4.05	0.82	0.47 1.17	51.7
	Emotion	3.88	4.79	0.91	0.59 1.24	61.7
	Mastery	4.06	4.74	0.68	0.29 1.07	55.0
Acute	Dyspnoea	2.79	3.61	0.83	0.60 1.06	61.8
	Fatigue	3.07	3.89	0.82	0.60 1.03	56.2
	Emotion	4.03	4.60	0.57	0.38 0.77	51.7
	Mastery	4.19	4.85	0.65	0.42 0.88	50.6

Minimum clinically important difference (MCID) (Williams EA, S J Singh, L Sewell, M D L Morgan. Health status measurement: sensitivity of the self-reported Chronic Respiratory Questionnaire (CRQ-SR) in pulmonary rehabilitation. Thorax 2003;58:515–518)

P118 POST DISCHARGE PULMONARY REHABILITATION FOR ACUTE EXACERBATION COPD DOES NOT ALWAYS REDUCE RE-ADMISSION RATES

[1]SE Roberts, [1]N Kodumooru, [2]S Purcell, [2]A Williamson, [2]H Broomfield, [3]LJ Restrick, [3]M Stern; *[1]Whittington Hospital Physiotherapy, Whittington Health, London, UK; [2]Community Respiratory Team, Whittington Health, London, UK; [3]Dept Respiratory Medicine, Whittington Health, London, UK*

10.1136/thoraxjnl-2013-204457.268

Introduction Post-discharge pulmonary rehabilitation (PR) within 7–10 days after discharge from hospital admission for acute exacerbation of COPD (AECOPD) has been shown not only to result in the well-described benefits of PR (reduced breathlessness, improved exercise performance and health-related quality of life), but also to reduce emergency department attendances over a 3 month period. We report the outcomes of a locally-provided post-exacerbation PR (PEPR) pilot study for patients admitted to hospital with AECOPD, and compares outcomes and subsequent 90-day re-admission rates with published RCT data showing re-admission reduction from 33 to 7%[1].

Methods Patients were recruited during AECOPD admission to start PR within 10 days of discharge from hospital. Taxi transport was offered to all patients.Outcome measures chosen were change in: 6-Minute Walking Test (6MWT), Hospital Anxiety and Depression Score (HADS), Chronic Respiratory Disease Questionnaire (CRDQ), and 90-day re-admission rates.

Results 43 patients were offered PEPR, 32 started and 21/32 (66% of starters, 49% of all referrals) completed the course (>11/16 sessions). Mean (range) age was 67(40–86) years and mean (SD) %predicted FEV_1 32(15)%. Median time (range) between discharge from hospital and starting PEPR was 8(0–17) days. There were clinically significant improvements in 6MWT median (range) 27%(-40- + 233) and CRDQ dyspnoea domain 0.79(-0.60– + 3.00). There was no clear effect on 90-day re-admission rate: 45% patients who started PEPR were re-admitted v 58% who were offered but declined PEPR. Local 90-day re-admission rate for all 2012 AECOPD admissions was 39%.

Conclusion This study failedto replicate published reductions in re-admission rates in a patient population that was more severe than the comparison study, mean%predicted FEV_1 32% v 52%[1]. Value of PEPR programmes in reducing AECOPD re-admission rates needs further investigation across disease severity spectrum. An additional area that would benefit from further investigation is completion rate for PEPR[2]; completion rate from referral for PEPR at 49% compares to 43% for our standard PR programme.

REFERENCES

1. Seymour *et al*. Outpatient pulmonary rehabilitation following acute exacerbations of COPD. *Thorax* 2010;65:423–428
2. National Institute of Health Research, HTA no 13/24 'does starting PR early following AECOPD improve adherence and outcomes compared to starting rehabilitation later?'

P119 RESPONSIVENESS OF THE CAT (COPD ASSESSMENT TOOL) IN A STABLE AND POST EXACERBATION PULMONARY REHABILITATION POPULATION

[1]EJL Chaplin, [2]EJL Chaplin, [1]M Gibb, [1]L Sewell, [1]S Singh, [3]S Singh; *[1]Pulmonary Rehabilitation Department, Glenfield Hospital, University Hospitals of Leicester NHS Trust, Leicester, UK; [2]Centre for Exercise and Rehabilitation Science, NIHR Leicester Respiratory BRU, UHL NHS Trust, Leicester, UK; [3]Faculty of Health and Life Sciences, Coventry University, Coventry, UK*

10.1136/thoraxjnl-2013-204457.269

Introduction The CAT is an eight item questionnaire used to assess health status. It has previously been used in stable COPD and non COPD patients (Kon *et al*, 2012) and as an outcome measure for pulmonary rehabilitation (PR) in the short term in a

stable population (Dodd *et al*, 2012). However the CAT has not been used in a post exacerbation rehabilitation programme.

Aim The aim of this study was to investigate whether there were any differences in response to the CAT between stable and post exacerbation patients undertaking rehabilitation.

Methods Patients attending a 7 week out patient PR programme were given a CAT questionnaire pre and post rehabilitation. Patients included were diagnosed with COPD and were either from the stable waiting list or patients who had been referred to PR following a hospital admission for exacerbation of COPD in the last 6 weeks.

Results 200 consecutive patients completed the CAT questionnaire -125 stable patients [74 male, MRC 3 (IQR 3–4), mean (SD) age 71.1 (± 8.9) years, FEV_1 1.39L (± 0.6), BMI 28.5 (± 6.7)] and 75 post exacerbation patients [23 male, MRC 4 (IQR 3–5), mean (SD) age 70.6 (± 8.6) years, FEV_1 1.16L (± 0.5), BMI 25.8 (± 7.3)]. There was a significant difference in baseline characteristics (BMI, FEV_1 and MRC) between the groups (p = 0.05). A statistically significant difference between the stable and post exacerbation patient groups CAT score pre rehabilitation (p = 0.05) was observed. However there was no significant difference in post rehabilitation CAT scores (p = 0.12) and the change in CAT scores between the 2 groups (p = 0.63).

There was a significant difference between the groups' pre and post walking tests. The improvement in the ESWT (endurance shuttle walking test) in the stable group was greater (p< 0.05).

Conclusion Post exacerbation PR patients have a worse CAT score prior to PR when compared to a stable PR population but both groups make improvements in CAT following completion of PR.

Abstract P119 Table 1. Relationship of the CAT, ISWT and ESWT following PR between stable and post exacerbation patients

	STABLE (n = 125)	POST EXACERBATION (n= 75)	Difference between groups (p value)
Pre CAT score	21.4 ± 7.4	23.7 ± 8.0	0.05
Post CAT score	19.9 ± 7.2	21.9 ± 8.2	0.12
Change in CAT	-1.4 ± 5.2	-1.0 ± 4.9	0.63
Pre ISWT (m)	243.9 ± 156.6	118.9 ± 141.4	p ≤ 0.001
Post ISWT	300.6 ± 158.1	183.4 ± 151.0	p ≤ 0.001
Change in ISWT	58.7 ± 57.1	44.7 ± 45.5	0.1
Pre ESWT (sec)	203.3 ± 133.6	129.7 ± 118.0	p ≤ 0.001
Post ESWT	574.0 ± 377.8	403.6 ± 390.0	0.007
Change in ESWT	371.8 ± 345.3	254.1 ± 353.8	0.04

All values are mean (± SD). ISWT, Incremental shuttle walk test; m, metres; ESWT, endurance shuttle walk test; sec, seconds

P120 AMBIENT EXPOSURE TO DIESEL TRAFFIC PARTICLES AND CARDIO-RESPIRATORY OUTCOMES IN HEALTHY AND IN COPD SUBJECTS: 'OXFORD STREET 2'

[1]R Sinharay, [2]B Barratt, [1]JP Rocha, [2]W Meesang, [1]P Collins, [2]F Kelly, [1]KF Chung, [1]P Cullinan; [1]*Imperial College, London, UK;* [2]*Kings College London, London, UK*

10.1136/thoraxjnl-2013-204457.270

Introduction and Objectives Chamber studies using reconstituted diesel exhaust with healthy volunteers have shown enhanced lung inflammation resulting in vascular dysfunction. We hypothesised that inhalation of ambient levels of diesel emissions (DE) in patients with COPD or ischaemic heart disease (IHD) would induce oxidative stress with an acute airway inflammatory response and up-regulation of systemic inflammatory responses, reflected in abnormal cardiovascular physiology.

Methods Using a randomised, cross-over design, healthy non-smoking volunteers (n = 40) and patients with Stage 2 COPD (n = 40) are invited to walk in Oxford Street (only diesel traffic) and, on a separate occasion 3–8 weeks later, in Hyde Park, London. Personal particulate and gaseous exposures are measured in real time. Following baseline measurements, participants walk for two hours in either exposure location; a series of cardio-respiratory measurements are performed at intervals during and after each exposure. Here we report lung function and arterial stiffness measurements in the first 20 volunteers (10 with COPD).

Findings Compared to Hyde Park, exposures in Oxford Street had higher levels of black carbon (7.5μm/m^3*vs.* 1.2μm/m^3, p < 0.001), and ultrafine particle counts (28692/cm^3 vs. 4989/cm^3,p < 0.001). In comparison with Hyde Park, healthy volunteers had a mean fall in FEV_1 from baseline of -1.9% (p = 0.04) one hour after arrival in Oxford street; at 22 hours they had a mean

Abstract P120 Table 1. Mean changes in FEV1, FVC, augmentation index (AI) and pulse wave velocity (PWV), during and after exposures in Oxford Street (OS) and Hyde Park (HP).

Mean change from baseline	Time after exposure begins at each site			
Healthy	**OS 1hour**	**HP 1hour**	**Δ d**	**p value**
FEV1 (% difference)	1.9	3.8	-1.9	0.04 *
FVC(% difference)	2.8	3.3	-0.5	0.77
Healthy	**OS 2hours**	**HP 2hours**	**Δ d**	**p value**
FEV1 (% difference)	4.0	1.7	2.3	0.42
FVC(% difference)	7.4	3.6	3.8	0.28
Healthy	**OS 6hours**	**HP 6hours**	**Δ d**	**p value**
FEV1 (% difference)	8.2	9.9	-1.7	0.63
FVC(% difference)	7.6	9.9	-4.4	0.34
AI (% difference)	-3.96	-7.2	3.24	0.25
PWV (m/s)	0.21	-0.2	0.41	0.34
Healthy	**OS 22hours**	**HP 22hours**	**Δ d**	**p value**
FEV1 (% difference)	-1.5	6.5	-8.0	0.03*
FVC (% difference)	-1.3	1.7	-3.0	0.46
AI (% difference from)	-2.37	-4.78	2.41	0.42
PWV (m/s difference)	1.13	-0.28	1.41	0.20
COPD volunteers	**OS 1 Hour**	**HP 1Hour**	**Δ d**	**p value**
FEV1 (% difference)	-0.4%	0.0%	-0.4%	0.69
FVC (% difference)	-1.0%	2.0%	-3.0%	0.27
COPD volunteers	**OS 2hours**	**HP 2hours**	**Δ d**	**p value**
FEV1 (% difference)	0.2%	-0.6%	0.8%	0.67
FVC (% difference)	-4.0%	5.0%	-8.0%	0.03*
COPD volunteers	**OS 6hours**	**HP 6hours**	**Δ d**	**p value**
FEV1 (% difference)	5.5%	2.6%	2.9%	0.08
FVC (% difference)	0.0%	3.0%	-3.0%	0.37
AI(% difference)	-2.71	-5.56	2.85	0.56
PWV (m/s difference)	-0.04	-0.30	0.26	0.40
COPD volunteers	**OS22hours**	**HP 22hours**	**Δ d**	**p value**
FEV1 (% difference)	4.5%	3.6%	0.9%	0.75
FVC (% difference)	1.0%	5.0%	-4.0%	0.46
AI (% difference)	-1.66	-4.18	2.51	0.66
PWV (m/s difference)	0.53	-0.11	0.64	0.06

* p<0.05

Δ d Mean difference of difference between each exposure site