

feasibility, process indicators, outcome measures, local adaptability, compliance and potential cost benefit.

Methods An outpatient based complex intervention was developed by doctors, allied health professional and patients to optimise physical status, prepare for inpatient journey and support through recovery after surgery. Tested in an enriched cohort study over 11 months 45 patients received the intervention compared to 198 who received standard care.

Results Potential surgical candidates at a regional thoracic unit were identified early at lung cancer multidisciplinary team meetings and enrolled on a COPD-type rehabilitation programme which included exercise classes, smoking cessation, dietary advice and patient education. Patients attended exercise classes twice a week until surgery, (which was not delayed). On average patients waited 7 days (range 0–29) to be seen in a rehabilitation class and attended on 5 sessions (range 1–12) resulting in 39 m improvement in 6-minute walk test. The education classes were delivered by lung cancer nurse and addressed diet, smoking, lifestyle change, inpatient expectations, preparation for discharge, and pain management. Six patients identified as potentially or at risk of being malnourished received nutritional supplementation. 5 out of 10 current smokers agreed to be fast tracked into locally available smoking cessation pathways and were biochemically proven to have given up. In the two referring hospitals one delivered classes in outpatient individualised setting while the other in community based group class. An additional four patients following further investigations did not receive surgery. Both groups were matched for age, lung function comorbidity and type of surgery and outcomes are presented in Abstract S28 table 1. The intervention resulted in cash releasing saving to the PCT of £938 per patient.

Abstract S28 Table 1

	Intervention (n=45)	Non Intervention (n=198)	p Value
PPC rate %	11.1	16.2	0.08
ITU admission %	2.2	3	
Hospital LOS	5	5	
Readmission rate %	4.4	13.6	0.08

Comparison of primary outcome measures of enriched cohort study in patients who received the intervention compared to those who received standard care.
Readmission to hospital within 30 days due to complications secondary to surgery.
PPC, postoperative pulmonary complications defined by Melbourne group scale; LOS, length of stay.

Conclusion A viable outpatient based complex intervention pathway of enhanced recovery/pulmonary rehabilitation has been developed and tested. Initial results are promising but a multicentre randomised controlled trial is warranted to test efficacy.

S29 ASSESSING THE EDUCATIONAL IMPACT OF PULMONARY REHABILITATION IN NON-COPD PATIENTS USING THE LUNG INFORMATION NEEDS QUESTIONNAIRE

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Background There is increasing evidence to suggest that pulmonary rehabilitation (PR) improves exercise capacity, health status and dyspnoea in non-COPD chronic respiratory disease patients. However it is not clear how to assess the education component of PR on these patients. The Lung Information Needs Questionnaire (LINQ) is a self-complete tool, which assesses, from the patient's perspective, the information they need to adequately understand their lung disease and to maximise their self-management skills. This has been validated in COPD patients (Hyland *et al, Resp Med*

2006), and improves significantly with PR in COPD (Jones *et al, Resp Med* 2008). We hypothesised that the LINQ would also be sensitive to change with PR in non-COPD patients.

Methods In 77 non-COPD patients referred to the Harefield Pulmonary Rehabilitation programme, the LINQ and other measures (incremental shuttle walk, Hospital Anxiety Depression scale and Chronic Respiratory Disease Questionnaire) were measured pre- and post-PR. A group of 128 COPD patients completing PR at the same time acted as controls. Within group pre- to post- PR changes in mean LINQ score were compared using paired t tests. Between group changes were compared using unpaired t tests.

Results The composition of the non-COPD group comprised 31 interstitial lung disease, 15 asthma, 16 bronchiectasis, 7 post-lung cancer surgery, and 8 extra-thoracic restriction patients. PR improved mean (SD) LINQ score from 10.34 (3.71) to 5.53 (2.91) (95% CI –4.01 to –5.60; $p < 0.001$) in the non-COPD group with large effect size ($t = 12.07$, $df = 75$, $r = 0.81$). Pre- to post-PR changes in LINQ were not significantly different between non-COPD and COPD patients (95% CI –1.45 to 0.70; $p = 0.49$). ISW, HAD-A, HAD-D and CRDQ all significantly improved with PR in the non-COPD group.

Conclusion The LINQ is sensitive to change after PR in non-COPD patients, and may be a useful tool to assess the educational needs of non-COPD patients.

S30 AN EVALUATION OF THE SYSTEMIC INFLAMMATORY RESPONSE TO ENDURANCE WALKING IN PATIENTS WITH COPD: COMPARISON WITH HEALTHY INDIVIDUALS

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Introduction Chronic low grade systemic inflammation is well described in stable COPD and may affect exercise tolerance in this population (Broekhuizen *et al*, 2006). Some studies investigating the systemic inflammatory (SI) response to exercise in COPD have reported increased cytokine responses to exercise in COPD patients (Rabinovich *et al*, 2003) and all have used protocols where the individual patient and healthy comparator perform exercise at a percentage of their own maximal oxygen consumption or muscle strength. This inevitably leads to discrepancies in exercise duration and absolute intensity between COPD and healthy groups, meaning we are unable to determine the effect of COPD on the exercise-induced cytokine response. We hypothesised that COPD patients would have an enhanced systemic inflammatory response compared with healthy comparators completing an identical walking protocol.

Method 16 clinically stable COPD patients (5M: 11F) completed one treadmill endurance walking test at 85% $\dot{V}O_{2max}$ until volitional exhaustion. Following this 16 age, sex-matched healthy participants completed identical walking protocols (speed, distance, duration) to that achieved by the 16 COPD patients. The concentration of systemic inflammatory markers (CRP, IL-6, TNF- α , IL-17) were analysed from venous blood taken at rest and post-walk. The exercise induced CRP and cytokine response was evaluated within groups using paired t tests or Wilcoxon sign tests. Comparison of the cytokine response data between groups was analysed using Wilcoxon sign tests.

Results Results are presented as median (25th, 75th percentile) or mean change (95% CI). Baseline concentrations of the systemic inflammatory markers were not significantly different between the COPD (FEV₁ 50 (38 to 87) %) and healthy participants (Abstract S30 table 1). IL-6 increased significantly post-walk in the COPD group