



Abstract P278 Figure 1 Kaplan-Meier survival curve for SpO₂ min <88% (red line) and >88% (blue line). The green dashed line plotted shows survival of 365 days of 90%. The blue and red dotted lines are the 95% confidence interval for survival.

For an SpO₂, min cut-off of 85%, survival was 791 (<85%) and 1181 (>85%) days (p < 0.05; hazard ratio 3.356). With a cut-off of 88%, survival was 757 (<88%) and 1272 (>88%) days (p = 0.0012; hazard ratio 3.161). Survival at one year as 84% (<88%) and 91% (>88%) (Figure).

Distanced walked was not significantly different at cut-offs of 250 m or 350 m.

Conclusions From this retrospective analysis, these results suggest that a cut-off for SpO₂, min of 88% may be a useful predictor of survival at one year and in the longer term. Distance walked appears to contribute little to prediction of survival.

P279 FEASIBILITY OF AN 8-WEEK OUT-PATIENT INSPIRATORY MUSCLE TRAINING (IMT) PROGRAMME IN PATIENTS WITH INTERSTITIAL LUNG DISEASE (ILD)

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Introduction The 2013 ATS/ERS guidelines on Pulmonary Rehabilitation suggest that IMT confers significant improvements in various outcomes in chronic obstructive pulmonary disease (COPD). IMT may play a role in dyspnoea and exercise tolerance in patients with ILD; Feasibility of delivering an outpatient IMT programme for ILD is yet to be determined.

Aim The aim of this pilot-feasibility study was to assess the acceptability and practicality of delivering an outpatient IMT programme in patients with ILD.

Methods Randomised trial recruited 17 patients with ILD from St George's Hospital chest clinic, London. Inclusion criteria were: ILD patients on stable medical treatment, with breathlessness MRC >3. 9 patients (intervention group); median (IQR) DLco predicted 44 [28, 45]% underwent HI-IMT; exercised at 60% of sustained maximal inspiratory pressure (SMIP); 8 patients (control group) median (IQR) DLco 39.5 [24, 60]% underwent low intensity IMT (S-IMT); exercised at 15% of SMIP. Data collection included pre-post IMT in the following outcomes: six minute walk test (6MWT), quality of life (SGRQ-I), dyspnoea:

(Borg and Dyspnoea-12), maximal inspiratory pressure (MIP) and sniff nasal inspiratory pressure (Sniff-P).

Results 76 patients were screened; 26 meet the criteria to participate. 19 (75%) consented to partake in the study. Completion rates for HIIMT was 89% (8/9), and 75% (6/8) for LIMT. HI-IMT-G exhibited significantly higher MIP compared to LI-IMT-G (p = 0.043). There were no significant between-group differences in the other parameters. Within group analysis demonstrated that: HI-IMT improved significantly on 6MWT, MIP, Sniff-P, and SGRQ-I. LI-IMT, improved significantly on 6MWT, Borg and D-12 (Table 1).

Conclusions HI-IMT was well tolerated and accepted by ILD patients, and it demonstrated improvements in measured outcomes; IMT requires close monitoring and input to enhance motivation; this type of training can only fit small groups of patients and the extra cost should be considered. IMT may be an alternative option to exercise training for ILD patients to ameliorate dyspnoea and combat exercise deconditioning; larger studies are required to explore effectiveness and cost effectiveness of IMT in ILD.

Abstract P279 Table 1

	Training group (n = 9)		Control group (n = 8)		Between group changes
	Change from baseline	P value	Change from baseline	P value	P value
6MWT-D (m)	57.50 [11.25, 120]	0.027*	60 [30, 98.5]	0.027*	0.9
Borg-D	-1.00 [-1.00, (-2.00)]	0.059	-1.5 [0.00, (-2.00)]	0.015*	0.9
(D-12)-D	-1.00 [-0.75, 4.00]	0.462	-1.5 [-1.00, (-11.00)]	0.026*	0.282
MIP-D (cmH₂O)	15.00 [11, 25.50]	0.012*	3.50 [-2.50, 11.50]	0.207	0.043*
Sniff-D (cmH₂O)	15.00 [5.50, 26.00]	0.025*	4.40 [3.25, 11.25]	0.027*	0.142
CAT-D	-0.50 [-4.75, 1.50]	0.248	-1.50 [-4.25, 2.50]	0.500	0.9
(SGQ-I)-D	-10.61 [-14.5, (-5.05)]	0.025*	-8.8 [-27.1, (-2.9)]	0.075	0.9

P280 PULMONARY REHABILITATION (PR) FOR INTERSTITIAL LUNG DISEASE (ILD). DO PATIENTS' PERCEPTIONS MATCH FUNCTIONAL OUTCOMES?

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Introduction ILD refers to a group of fibrotic lung conditions that differ in terms of treatment, prognosis and association. The NICE quality statement (2015) supports PR for patients with IPF, the most common form of ILD. There is no clear guidance for delivery of PR to ILD patients, so current practice is to extrapolate from the benefits of PR in COPD (Spruit *et al*, 2013), despite the differing pathophysiology.

Aim The focus of the study was to observe the patients' perceptions of a modified ILD PR programme against functional and health related quantitative measures.

Methods Patients were recruited to the program either by self-referral or by ILD clinicians. Seven participants were recruited. The 6-week PR program consisted of 60 minutes exercise and 30 minutes education with the emphasis on strength training over endurance. Focus group interviews were used to collect qualitative data and analysed using an inductive approach utilising thematic analysis as a method.

Results 7 patients completed the programme (5M:2F, mean age 73.4). Initial qualitative analysis demonstrates psychological benefit from the sharing of disease experiences, prioritising exercise as a means of management, empowerment and understanding. 6MWT and Kings Brief ILD questionnaire showed no significant change pre and post PR, see Table 1. These quantitative results do not reflect patient perceptions of improved functional status.

Conclusion Patients perceptions were positive regarding the content and impact it had on their education needs concerning their disease. The predominant perceived benefit was that of the comradery found in sharing experiences with other ILD patients. No firm conclusions can be drawn from this study regarding the effectiveness of PR for patients with ILD due to small numbers. It is unclear whether the tools used to assess functional and health measures are suitable to detect changes in outcomes post PR or whether the effects of an ILD PR programme are predominantly that of disease management and education, explaining the disparity observed between quantitative and qualitative outcomes. Further appropriately powered controlled studies could examine the impact of PR and in particular that of PR education specifically for ILD patients, as supported by Holland *et al.* (2015).

Abstract P280 Table 1 Mean differences in pre and post scores for 6MWD and Kings ILD questionnaire.

Six Minute Walk Distance	Kings ILD Questionnaire		
	Breathlessness & Activities	Psychological	Chest Symptoms
12m	+0.5	-1	-0.5

P281 ANNUAL CHANGE IN PULMONARY FUNCTION IN ASBESTOSIS

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Introduction Asbestosis is commonly considered to be associated with slowly progressive pulmonary fibrosis. However, there is limited recent data to support this opinion. We set out to analyse the change in pulmonary function test (PFT) over time in a cohort of outpatients with asbestosis.

Methods Patients were identified retrospectively from a pool of clinic patients who had consented to participate in research. The diagnosis of asbestosis had been made on CT findings, history of asbestos exposure, exclusion of other causes of interstitial lung disease and agreement at occupational MDT. The PFT data from tests closest to the time of initial diagnosis were compared to the most recent PFT results. Parameters assessed were FEV₁, FVC, VC, TLC and KCO. The values were expressed as percentage predicted to ensure adjustment for age, weight etc. Annual

change was calculated by dividing the total change by the number of years elapsed between PFT. Smoking status was also documented.

Results 57 patients were identified with a diagnosis of asbestosis. 9 had only had 1 set of PFT (awaiting follow-up) and hence were excluded leaving 48 patients. The mean time difference between PFT was 3.0 years (range 0.2–6.1 years). In 21 cases TLC had not been measured in one or both PFT and in 10 KCO had not been measured.

Conclusions As expected baseline FEV₁ decreased with increased smoking exposure. The other parameters at baseline were lower in those with the highest smoking exposure with the exception of TLC which was more varied. The greatest rate of change was seen in KCO% predicted, consistent with previous research. Unexpectedly the groups demonstrating the maximal decline in KCO were those with a low (<20 pack year) smoking history (7.2% annual decline) followed by lifelong non-smokers (3.9% annual decline). Those with the heaviest smoking history showed a lower rate of decline in all parameters compared to both non-smokers and the population as a whole. KCO and TLC were not performed in those with the most severe disease due to breathlessness, thus these results are likely to be an under-estimate of lung function changes.

P282 COMPARITIVE USE OF NHANES III, ECCS AND GLI PREDICTION EQUATIONS IN DETERMINING SPIROMETRIC INDICES AND SUITABILITY FOR ANTI-FIBROTIC THERAPY IN PATIENTS WITH IDIOPATHIC PULMONARY FIBROSIS

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Introduction Prediction equations are used to assess disease severity and prognosis in respiratory disease; globally most laboratories utilise ECCS or NHANES III equations. The Global Lung Initiative (GLI) produced reference ranges for spirometry that are multi-ethnic and applicable for patients upto the age of 95. The choice of which equation to use becomes crucial in idiopathic pulmonary fibrosis [IPF] patients, in whom prescription of currently available anti-fibrotic agents, Nintedanib and Pirfenidone is dependent on a forced vital capacity [FVC] between 50 and 80% of predicted in England and Wales (Scotland only restriction is FVC above 80% predicted).

Methods Spirometric data recorded on 132 IPF patients were extracted from our BTS ILD Registry database. Values for FVC% predicted were calculated using the ECCS, NHANES III and GLI equations and compared to determine patient eligibility for anti-fibrotic treatment in line with published NICE Guidance.

Results Data on 132 consecutive patients is presented in Table 1. This demonstrates the FVC% predicted when the 3 separate equations are used. At our centre, where ECCS is routinely used to calculate FVC% predicted, 62 patients (47%) of patients had an FVC above the upper limit of the treatment threshold of 80%. Of this group, 8 had evidence of more than 25% emphysematous change on their HRCT scans.