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.

Abstract P281 Table 1 showing mean baseline lung function and annual decline. All values are expressed as percentages and based on predicted values for age, weight and sex (percentage predicted values). Ranges are in brackets.

	Baseline FEV1	FEV1 annual change	Baseline FVC	FVC annual change	Baseline VC	VC annual change	Baseline TLC	TLC annual change	Baseline KCO	KCO annual change
Whole population (n = 48)	89.4 (51.0– 136)	–0.2	96.7 (47.0– 139.0)	–1.0	94.9 (51.0–134)	–0.7	77.5 (44.0–121.0)	–2.0	94.6 (49.0–135– .0)	–2.5
Lifelong non smoker (n = 6)	105.8 (77.0–36.0)	–1.2	108.7 (91.0– 139.0)	–2.5	105.0 (94.0– 134.0)	–2.32	83.2 (64.0–100.0)	–4.9	106.5 (90.0–130.0)	–3.9
Ex smoker <20 pack years (n = 13)	91.9 (51.0–133.0)	–1.8	93.8 (54.0– 133.0)	–2.8	90.4 (51.0–127)	–2.61	70.1 (44.0–88.0)	–1.1	109.2 (78.0–135.0)	–7.2
Ex smoker 20–40 pack years (n = 16)	96.0 (69.0–125.0)	0.0	103.8 (67.0– 134.0)	–1.2	99.9 (65.0– 125.0)	–0.2	83.9 (53.0–121.0)	–3.5	95.6 (70.0–147.0)	–1.0
Ex smoker >40 pack years (n = 9)	67.5 (53.0–98.0)	+1.0	80.3 (47.0– 107.0)	+1.0	81.9 (57.0– 108.0)	+0.7	70.8 (48.0–98.0)	+1.9	78.4 (57.0–112.0)	–1.4
Current smoker (n = 4) >40 pack years	80.0 (72.0–86.0)	+1.01	97.0 (84.0– 109.0)	+1.75	102.0 (88.0– 115.0)	+0.18	Not calculated	Not calculated	68.5 (49.0–109.0)	–2.39

Abstract P282 Table 1 Demographic data of the analysed cohort 132 patients with IPF, showing the proportional variation across the 3 prediction equations for determining eligibility for anti-fibrotic treatments using NICE cut-off ranges. Data are presented as mean values with standard deviations in parentheses

Age (years)	72.4 (8.3)
M:F	100:32
FVC (L)	2.7 (0.8)
Mean FVC% Predicted ECCS	80.6 (19.8)
Number of Patients with FVC 50–80% ECCS	66
FVC% Predicted NHANES III	74.2 (17.1)
Number of Patients with FVC 50–80% NHANES III	80
FVC% Predicted GLI	75.6 (17.3)
Number of Patients with FVC 50–80% GLI	78

Conclusions Using ECCS, 50% of patients met the NICE criteria for anti-fibrotic treatment. When NHANES III and GLI are used, patient eligibility for treatment increases to 61% and 59% respectively. Interestingly both the NHANES and GLI equations decrease the % predicted, and those patients that are just above the 80% cut off when ECCS is used become eligible for treatment just by using alternative prediction equations. The NICE Guidance does not specify which equation to use when assessing patients; in our patient cohort, the NHANES III or GLI would allow more patients to meet NICE eligibility for treatment. These data question, the use of predictive FVC cut-offs in prescribing anti-fibrotic treatments in a progressive lung disease without providing a national reference standard, especially when the particular prediction equation used could significantly impact on patients' eligibility for treatment.

P283 AN ELEVATED PEF/FVC RATIO IS A MARKER FOR ILD AND IS ASSOCIATED WITH TRACTION BRONCHIECTASIS ON CT SCAN IMAGING

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Introduction ILD is physiologically characterised by restrictive ventilatory pattern, impaired gas exchange, maintained airway patency and increased elastic lung recoil pressure. Spirometric values are often well-preserved but the shape of the flow volume (FVL) can suggest enhanced mechanical emptying of the lungs. Previously spirometry has identified upper airways obstruction,¹ but limited data exists for the use of an index to describe possible ILD.

Method Retrospective PFT data was analysed (n = 119). The slope of the line from PEF to RV (PEF/FVC ratio) was calculated and correlated against other PFT variables. Pearson's correlation was applied between the ratio and markers of ILD, data from table previously presented at the ARPT conference 2015*. 30 patients (27♂, 3♀) were selected for CT analysis and qualitative verification of Traction Bronchiectasis (TBX). CT scan had to be within 6 months of PFTs, FVC >70% predicted and a PEF/FVC > 2.0 (range 2.11–4.36). Information on location within the lung and level of severity was obtained.

Results Of the 30 patients, 27 were found to have TBX, (3 mild, 17 moderate and 8 severe), 3 patients had no evidence of TBX. No correlation was found between magnitude of PEF/FVC and severity of TBX.