Abstract S134 Table 1

	Honeycombed IPF profile	Non-honeycombed IPF profile	
	UIP	NSIP	Indeterminate pattern
n	38	44	14
Male	29 (76%)	29 (66%)	9 (64%)
Female	9 (24%)	15 (34%)	4 (36%)
Age (median)	76 (range 49–90)	74 (54–90)	77 (65–91)
FVC % pred. (mean)	83.0% (n=34)	83.3% (n=40)	82.6% (n=12)
DL_{CO} % pred. (mean)	47.6% (n=30)	50.9% (n=35)	48.8% (n=10)
Smoking status			
Never	11 (29%)	18 (41%)	6 (43%)
Ex	26 (68%)	25 (57%)	8 (57%)
Current	1 (3%)	1 (2%)	0
Body mass index, BMI (median)	26.3 (17.6–45.7)	29.1 (22.3–42.9)	26.6 (19.3–34.4)
Ischaemic heart disease (IHD)	22/38 (58%)	18 (41%)	7 (50%)
IHD diagnosed pre-IPF	18/22 (82%)	12/18 (67%)	6/7 (86%)
IHD diagnosed post-IPF	4/22 (18%)	6/18 (33%)	1/7 (14%)
ST elevation myocardial infarction	8 (21%)	5 (11%)	1 (7%)
CABG (bypass grafting)	4 (10.5%)	6 (13.6%)	4 (30.8%; n=13)
Cerebrovascular ischaemia (TIA or infarct (CVA)	7 (18%)	2 (4.5%)	0
Statin use at time of IPF diagnosis	20 (53%)	23 (52%)	8 (57%)
Cardiovascular co-morbidities			
Diabetes mellitus (DM)	9 (24%)	13 (30%)	3 (23%; n=13)
Hypertension (HTN)	27 (71%)	29 (66%)	9 (69%)
Hypercholesterolaemia	20 (53%)	24 (55%)	9 (69%)
Surgical lung biopsy rate	4/38 (11%)	10/44 (23%)	3/14 (21%)

key determinants of smoking, gender, DM, HTN, hypercholesterolaemia and BMI. On univariate analysis, BMI was significantly higher in the NSIP subgroup (p=0.025 vs UIP or INDET). Rates of STEMI and strokes were highest in UIP cases (n/s) whereas that of CABG was highest in the INDET subgroup. These observations were corrected for IPF severity in so far as FVC and DL_{CO} were decreased comparably across all three radiological subgroups. Evaluation of co-existing COPD was not undertaken; however, mean FEV_1 did not differ between groups.

Conclusions Amongst patients with clinical IPF, UIP morphology correlates with the highest risk of cardiovascular morbidity compared to NSIP. A tendency for ischaemic heart disease to precede IPF in the majority of cases suggests the possibility that broader systemic or cardiac-specific factors may influence the pathogenesis of these pulmonary disorders.

| S135 | **A RETROSPECTIVE MULTI-CENTRE STUDY OF THE EFFECTS OF ALLOGENEIC HAEMATOPOIETIC STEM CELL TRANSPLANTATION ON PULMONARY FUNCTION** |

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Introduction Allogeneic haematopoietic stem cell transplantation (HSCT) is often complicated by serious pulmonary complications including severe infections, drug toxicity and graft vs host disease. However, there is limited data on the prevalence of significant lung function defects in long-term survivors.

Method We undertook a UK wide, multi-centre, retrospective study of the effects on pulmonary function in adult patients undergoing HSCT over a 4-year period. Pulmonary function tests (PFT) were evaluated at baseline (pre-transplant) and 12 months post-transplant. Impaired pulmonary function was defined as FEV_1 or FVC less than 80% predicted.

Results 532 allogeneic HSCTs were registered in the BSBMT database, having been performed at 6 centres over the 4-year study period. 157 patients underwent PFT pre-HSCT and at least 6 months post-BMT, with 12-month data available for 90 patients (Abstract S135 table 1). The median age was 42 years (range 18–69) and 59% of patients were male. Median FEV_1 and FVC were 98.9% and 101% predicted respectively for patients pre-HSCT, with 25 (15.9%) patients having impaired lung function pre-HSCT. For patients with normal PFT pre-HSCT, 13 (10%) had impaired PFT at 12 months with median reduction in FEV_1 of 1.33 L (33.5%) (range 0.59–2.25) and FVC of 1.29 L (28.9%) (range 0.17–3.33). 38% had obstructive, 46% restrictive and 15% mixed picture spirometry pattern. 69% of patients with newly impaired PFT had acute graft vs host disease, (p=0.068). No statistically significant predictive factors were identified for newly impaired PFT: age, sex, total body irradiation, Alemtuzumab treatment, transplant intensity and type of donor. For patients with impaired PFT at baseline, 11 (44%) remained impaired at 12 months with no significant fall in spirometry values (median FEV_1 fell 2% and FVC rose 2%).

Abstract S135 Table 1 PFT data pre and 12 months post-HSCT

PFT	Normal PFT n	Impaired PFT n	Median FEV_1 Litres (% predicted)	Median FVC Litres (% predicted)
Pre-transplant (baseline)	132	25	3.33 (98.9)	4.25 (101)
At 12 months				
Normal	63	3	3.26 (98.9)	4.16 (105.5)
Impaired	13	11	2.36 (67.5)	3.38 (72.3)
Died	3	0	NA	NA
Unknown	53	11	NA	NA

Conclusion Although these data represent only a proportion of patients undergoing allogeneic HSCT, we found 10% of patients developed impaired PFT at 12 months with large falls in FEV_1 and FVC. These data suggest there may be as many as 60 to 120 HSCT recipients each year developing major impairment of lung function. Multi-centre prospective studies are required to fully characterise the frequency and risk factors for impaired PFT post-HSCT.

| S136 | **THE ASSOCIATION BETWEEN COUGH REFLEX SENSITIVITY AND SERUM ACE LEVEL IN PATIENTS WITH SARCOIDOSIS** |

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Introduction Up to 80% of patients with sarcoidosis report a chronic cough. The aim of this study was to investigate whether heightened cough reflex sensitivity (CRS) is an important mechanism and to

establish if factors such as gender, serum ACE level and radiographic stage influence sensitivity thresholds.

Methods Twenty-four patients with sarcoidosis (mean (SEM) age 49 (2) years, 63% female) were recruited from a specialist clinic and underwent assessment of CRS by a single-breath inhalation capsaicin cough challenge test to determine the concentration causing 5 or more coughs (C_5). Anthropometric data, spirometry, serum ACE levels and radiographic stage were recorded. The effects of gender, age, ethnicity, radiographic stage and serum ACE levels on cough reflex sensitivity were investigated. CRS data of 134 healthy subjects from a previous study were used for comparison (Prudon B et al, Chest 2005;127:550).

Results CRS was heightened in patients with sarcoidosis compared to healthy subjects (geometric mean (logSD) C_5 13.5 (0.5) vs 158.5 (0.6) µmol/l, p<0.001). Female patients had a more sensitive cough reflex compared to males (geometric mean (logSD) C_5 8.1 (0.5) vs 31.8 (0.5) µmol/l, p=0.007). Seven patients did not complain of cough; there was no difference in CRS compared to patients who reported cough (p=0.68). There was no difference in CRS between patients of Afro-Caribbean origin compared to non-Afro-Caribbean patients (geometric mean (logSD) C_5 10.1 (0.5) vs 24.3 (0.6) µmol/l, p=0.09). Serum ACE levels correlated significantly with $logC_5$ (r=0.74, p<0.001), with lower ACE levels being associated with a more sensitive cough reflex. There was no relationship between $logC_5$ and age (r=−0.40, p=0.054) or radiographic stage (p=0.83).

Conclusions Patients with sarcoidosis have a heightened CRS. This was increased to a greater degree in females, but age or radiographic stage had no effect. We report for the first time a link between serum ACE levels and cough reflex sensitivity, and hypothesise that low concentrations of serum ACE lead to increased airway tussigenic mediators such as bradykinin. Further studies should investigate whether cough receptors such as TRPV1 are upregulated in sarcoidosis.

S137 **THE NATURAL HISTORY OF IPF IN PATIENTS ELIGIBLE FOR CLINICAL TRIALS VS PATIENTS NOT ELIGIBLE**

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Recruitment to clinical trials is a key objective in the management of IPF. For phase 3 trials, the inclusion and exclusion criteria are stringent. It is not known if the natural history of IPF in patients eligible for clinical trials differs from that in non-eligible patients.

Aims To determine the natural history of IPF in patients eligible for phase 3 trials vs those not eligible

Methods Since 1/1/2002, all patients with IPF presenting to the Edinburgh Royal Infirmary lung fibrosis clinic have been recruited
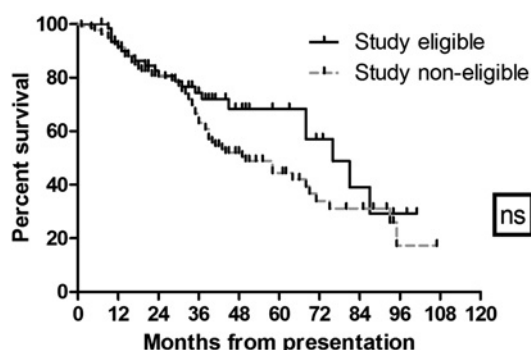
Abstract S137 Figure 1 IPF survival.

prospectively to a database. The diagnosis of IPF was made by multi-disciplinary consensus after integration of clinical, HRCT and pathological data, based on ATS/ERS criteria. Management and follow-up was by standardised protocol. IPF-directed therapy, including corticosteroids, azathioprine and anti-oxidants, was considered only in advanced disease, acute exacerbation or in those who exhibited pre-specified fall in lung function. Patients were grouped into those eligible for phase 3 clinical trials and those ineligible, based on the major inclusion/exclusion criteria used in a recently published study (CAPACITY, Lancet 2011 377;1760−1769).

Results Of 199 consecutively presenting patients with IPF, 61 (31%) were eligible for a phase 3 trial. The proportion of males in the eligible and ineligible groups was similar, but eligible patients were younger (68 vs 74 yrs, p<0.0001), comprised fewer individuals with >20 pack/year smoking history (50% vs 65%, p=0.057), had lower % predicted VC (82.6 vs 95.8 p=0.0003) and higher % predicted TLCO (56.6 vs 51.9, p=0.07). Eligible patients had less % emphysema on HRCT scoring compared to non-eligible patients (0.74% vs 6% p<0.0001). The 3yr-survival of eligible and ineligible patients were not significantly different (Abstract S137 figure 1 74% vs 63%, p=0.3). Event-free survival, defined as time to death *or* =10% fall in VC *or* =15% fall in TLCO *or* acute exacerbation of IPF *or* hospital admission with respiratory illness, was not significantly different between eligible and ineligible groups, such that in both groups 40% and 60% experienced a progression-defining event by 12 -and 24-months respectively.

Conclusions Trial ineligible patients are demographically and phenotypically different from eligible patients, but have identical mortality and progression-free survival. These data have important implications for translation of trial data to clinical practice and for IPF trial design.

S138 **TREATING IDIOPATHIC PULMONARY FIBROSIS WITH THE ADDITION OF CO-TRIMOXAZOLE**

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Background Idiopathic pulmonary fibrosis is a fatal condition with limited treatment options; however in a previous small study co-trimoxazole has been shown to be beneficial.

Methods In a double-blind, multi-centre study, 181 patients with usual interstitial pneumonia (n=166) or fibrotic non-specific interstitial pneumonia (n=15) were randomised to receive co-trimoxazole 960 mg twice daily or placebo for 12 months in addition to their usual care. Measurements were made of forced vital capacity (FVC), total lung capacity, total lung diffusing capacity of carbon monoxide, Medical Research Council dyspnoea score, St George's Respiratory Questionnaire and quality adjusted life years (QALYs). All cause mortality, costs and adverse events were recorded.

Results Co-trimoxazole had no effect on FVC or other measures of lung function. However in the per-protocol analysis, co-trimoxazole resulted in a significant reduction in mortality (HR of 0.2 (0.06, 0.78)), significant improvements in the symptom domain of St George's Respiratory Questionnaire (mean difference −5.30 (−11.99, 1.40) units) and QALYs gained (mean difference 0.12 (0.01, 0.22) QALYs), and a reduction in the percentage of patients requiring an increase in oxygen therapy (OR 0.05 (0.00, 0.61)) compared to placebo. Furthermore, the use of co-trimoxazole reduced respiratory tract infections. The incremental cost per QALY gained was £21 391 (52.74% probability of being below £30 000; intention to treat analysis, UK societal perspective).