MDI versus DPI initiating with 500 mcg/day of FP/SAL; no significant difference was observed between MDI and DPI for those initiating at 1000 mcg/day. There were no significant differences in the odds of diagnosis of diabetes mellitus or pneumonia between MDI and DPI, irrespective of the initiation dose of FP/SAL (Table 1). LAMA prescription during the outcome period was significantly lower for patients prescribed MDI versus DPI initiating at 1000 mcg/day; no significant difference was observed between MDI and DPI for those initiating at 500 mcg/day.

Conclusions This study showed greater reduction in exacerbations for patients using MDI than those using DPI when initiating with FP/SAL 500 mcg/day; no differences in exacerbation reduction and safety were seen for FP/SAL at 1000 mcg/day. Fewer patients using MDIs than DPIs at 1000 mcg/day were prescribed LAMAs, suggesting less need for treatment intensification.

P131 EFFICACY OF TIOTROPIUM AND OLODATEROL COMBINATION IN PATIENTS WITH COPD ON β-BLOCKERS

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Rationale The efficacy and safety of a new once-daily combination with tiotropium (T), a long-acting muscarinic antagonist, and olodaterol (O), a long-acting β_2-agonist, was established for the treatment of chronic obstructive pulmonary disease (COPD) in the TONADO studies (NCT01431274; NCT01431287). This analysis evaluates the efficacy of the combination in a subpopulation of patients receiving β-blockers in these studies.

Methods Two replicate, randomised, double-blind, parallel-group, 52-week, Phase III trials assessed the efficacy and safety of T+O (2.5/5 μg; 5/5 μg; via Respimat® inhaler) once daily compared to the monocomponents. Key primary end-point data for the combined analysis of the replicate trials in patients with COPD receiving β-blockers during treatment are presented.

Results 5136 patients were evaluable; 556 (10.8%) received β-blockers. At 24 weeks, similar improvements in mean forced expiratory volume in 1 s (FEV_1) area under the curve from 0–3 h (AUC_{0-3}) responses for T+O compared to monocomponents were seen across β-blocker subgroups (Table 1), with no significant treatment interaction effect observed. A similar trend was observed with trough FEV_1 and quality of life scores.

Abstract P131 Table 1 Efficacy of T+O versus monocomponents by β-blocker use

	Treatment difference	
	Adjusted mean FEV_1 AUC_{0-3}, L [95% confidence interval]	
Treatment comparison, μg	β-blockers (n = 556)	No β-blockers (n = 4580)
T+O 5/5 – O 5	0.114 [0.06, 0.169]	0.129 [0.111, 0.147]
T+O 5/5 – T 5	0.078 [0.025, 0.131]	0.114 [0.097, 0.132]
T+O 2.5/5 – O 5	0.122 [0.069, 0.174]	0.114 [0.096, 0.132]
T+O 2.5/5 – T 2.5	0.108 [0.058, 0.158]	0.113 [0.095, 0.130]
T+O 2.5/5 – T 5	0.085 [0.034, 0.136]	0.099 [0.081, 0.117]

Conclusions While the β-blocker patient group analysed was small, these data demonstrated similar sustained improvements in lung function, irrespective of β-blocker use. These data support the efficacy of T+O in this patient group.

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P132 HEALTH CARE UTILISATION AND COSTS AMONG COPD PATIENTS NEWLY PRESCRIBED MAINTENANCE THERAPY IN THE UNITED KINGDOM (UK)

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Aim To characterise disease burden, health care resource utilisation (HCRU), and costs among a cohort of COPD patients newly prescribed maintenance therapy in UK general practice.

Method A retrospective cohort of COPD patients aged ≥40 yrs and newly prescribed COPD monotherapy (long acting beta-agonists [LABA] or long acting muscarinic antagonist [LAMA]), dual therapy (LABA+LAMA; LABA+inhaled corticosteroid (ICS); LAMA+ICS) or open triple therapy (LAMA+LABA+ICS) between 1/1/2009 and 30/11/2012 was identified from UK Clinical Practice Research Datalink (CPRD).

Health care resource utilisation assessed in the 12 months prior to maintenance therapy initiation included moderate (community treated) and severe (hospital or A&E treated) COPD exacerbations (rate per 100 person years [PY]), general practice (GP) interactions, other COPD treatments, and non-COPD related hospitalisations. The costs associated with HCRU were calculated using National Health Services reference costs for 2013–14 and PSSRU costs for 2014.

Results A total of 39,639 COPD patients were included (54% male, mean age 68 yrs (SD: 11)). LABA+ICS (39%) and LAMA (34%) were the most commonly initiated LABD; 13% were first exposed to LABD as part of an open triple regimen (Table 1). Patients initiating an ICS-containing regimen had a higher exacerbation rate (moderate or severe) in the 12 months prior to maintenance therapy initiation (LABA+ICS: 0.74 per PY [95% CI:0.72–0.75]; LAMA+ICS: 0.86 per PY [0.82–0.90] and LAMA+LABA +ICS: 0.83 per PY [0.80–0.85]) compared to patients on bronchodilators alone (LAMA: 0.55 per PY [0.54–0.57]; LABA: 0.56 per PY [0.54–0.59]; LAMA+LABA: 0.50 per PY [0.44–0.56]). Patients on open triple therapy demonstrated the highest rates of non-COPD related hospitalisations. The annual per patient cost ranged from £2,139 (LABA) to £2,876 (LAMA+LABA+ICS); approximately half were due to GP visits and a third resulted from non-COPD related hospitalisations (Table 1).

Abstract P132 Table 1 Annual per patient health care utilisation costs 12 months prior to LABD initiation

	LABA (N = 2899)	LAMA (N = 13511)	LABA +LAMA (N = 525)	LABA +ICS (N = 15374)	LAMA +ICS (N = 2370)	LAMA +LABA+ICS (N = 4960)
Total costs	£2,139	£2,223	£2,240	£2,334	£2,410	£2,876
GP visits	£1,230	£1,249	£1,237	£1,224	£1,313	£1,272
All exacerbations	£173	£192	£179	£247	£287	£400
Non-COPD hospitalisations	£709	£759	£795	£811	£703	£1,159
Treatment	£27	£23	£29	£51	£106	£46

Conclusion Patients with a higher baseline exacerbation rate were more likely to receive ICS- containing therapies compared to those taking bronchodilators alone. Across all maintenance therapy groups, GP visits and non-COPD related hospitalisations were the primary driver of total costs.

Pulmonary rehabilitation and physical activity

P133 A MULTIDISCIPLINARY PATIENT EDUCATION PROGRAMME SIGNIFICANTLY IMPROVES ASTHMA CONTROL AND QUALITY OF LIFE IN PATIENTS WITH SEVERE ASTHMA

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Background The impact of severe asthma upon quality of life is significant, as a consequence of unpredictable hospitalisations and life-threatening attacks. It is unknown whether patient education programmes in severe asthma improve self-management, quality of life or measures of asthma control.

A 12 week patient education programme was piloted within a severe asthma multi-disciplinary team. Sessions were 2 h duration fortnightly. The aim of the programme was to enable patients to gain greater insight into their disease, treatment options and lifestyle management with emphasis on improving asthma control and quality of life.

Aims Our aim was to assess the effect of the introduction of this programme upon participant's asthma control and quality of life.

Methods Prospective data collection was performed, including Asthma Quality of Life Questionnaire (AQLQ), Asthma Control Questionnaire (ACQ) and Hospital Anxiety and Depression (HAD) at week 1 and 12. Patient Satisfaction Evaluation forms were completed to facilitate ongoing programme development.

Results 21 patients entered with 16 (76%) completing the 12 week programme (12 female, 4 male). Dropout was attributed to difficulty attending on a regular basis. There was an improvement in mean total AQLQ of 1.3 (minimal clinically important difference >0.5). There was notable improvement in the AQLQ domains; symptoms (0.8) and emotional (0.7). Mean ACQ improved by 0.7 ($p < 0.05$), mean HAD anxiety and depression scores fell but this did not reach statistical significance (Table 1).

Conclusion A multidisciplinary patient education group for severe asthma patients significantly improves quality of life and asthma control. Longitudinal studies are required to determine impact upon exacerbations and hospitalisations.

P134 EXERCISE RESPONSES TO ONE-LEGGED CYCLING IN PATIENTS WITH IDIOPATHIC PULMONARY FIBROSIS

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Introduction Pulmonary Rehabilitation is recommended for patients with Idiopathic Pulmonary Fibrosis (IPF) although the magnitude of benefit appears less compared to those with other chronic lung diseases. Patients with IPF may not be able to sustain high-intensity training to induce physiological change due to a ventilatory limitation to exercise. One strategy to circumvent this in COPD has been to reduce the exercising muscle mass by cycling one leg at a time during the same exercise session. Randomised controlled trials have shown greater improvements in exercise capacity after training using one-legged cycling (OLC) compared to two-legged cycling (TLC).[1,2] We, therefore, compared OLC to TLC responses during incremental and constant work rate (CWR) exercise in patients with IPF.

Methods Patients were recruited from a tertiary referral centre if they met the current NICE diagnostic criteria for IPF with a MRC dyspnoea grade $\geq$2. Exclusion criteria included a requirement for long-term oxygen therapy. Participants completed four Cardiopulmonary Exercise Tests (CPETs) to intolerance on a cycle ergometer with expired gas analysis. The tests were completed on separate days: 1) two-legged maximal incremental test (TLC-ICE); 2) one-legged maximal incremental test (OLC-ICE); 3) two-legged CWR (TLC-CWR) test at 70% peak power achieved on the TLC-ICE; 4) one-legged CWR (OLC-CWR) test at 35% TLC-ICE peak power.

Results Twelve participants (11 male, mean [SD] 73 [8] yrs, BMI 30.6 [4.8] kg/m^2, FVC% predicted 71.8 [20.3]%, resting SpO_2 98 [1]%) completed all four CPETs demonstrating a ventilatory limitation to exercise (92 [14]% maximum voluntary ventilation [MVV]). Although the OLC-ICE peak oxygen uptake (peak VO-$_2$) was significantly lower than the peak VO_2 TLC-ICE ($p < 0.001$) the OLC: TLC was high at 0.85. The OLC-CWR was endured for more than twice the TLC-CWR ($p < 0.001$) at the same muscle-specific power leading to almost double the work being performed (Table 1).

Abstract P133 Table 1

	AQLQ Total (mean)	AQLQ Symptoms (mean)	AQLQ Activity (mean)	AQLQ Emotional (mean)	AQLQ Enviro (mean)	ACQ 6 (mean)	HAD Anxiety (mean)	HAD Depression (mean)
Week 1	2.6	2.7	2.6	2.9	3.08	3.9	9.6	9.1
Week 12	3.9	3.5	3.1	3.6	3.22	3.2	8.5	7.5
Change from Baseline	↑1.3	↑0.8	↑0.5	↑0.7	↑0.1	↓ 0.7-	↓1.1	↓1.6
p value	p = 0.06	p = 0.04	p = 0.1	p = 0.07	p = 0.3	p = 0.05	p = 0.27	p = 0.18

The patient evaluation forms demonstrated significant patient satisfaction with the programme, highlighting the positive impact that the sessions have had had upon their life.