statistically significantly different between all groups (Table). It also correlated statistically significantly with both the D12 score (r = 0.586, N = 23, p = 0.003) and Nijmegen score (r = 0.418, N = 24, p = 0.042) in the BPD group. There was no relationship between BPAT and FEV_1% predicted or 6MWT distance.

Conclusion The BPAT score was higher in those patients diagnosed with BPD both with and without asthma. The BPAT score also correlates with both the D12 and Nijmegen score in patients diagnosed with BPD. This suggests it detects and characterises common aspects of BPD. Further work is now needed to validate the BPAT and determine its responsiveness to intervention.

Abstract P228 Table 1 Median scores of outcomes per group

Group (M:F)	Asthma n = 14 (6:8)	Asthma+BPD n = 37 (9:28)	BPD n = 24 (6:18)
Age median (range)	44.5 (17–67)	42.5 (19–59)	45 (16–73)
BPAT	3 (0–8)*#	7 (2–12)#	6.5 (3–13)*
D12	19 (6–29)	23 (5–37)	18 (4–32)
$FEV_{1\%}$	59.4 (114.5–32.6)	76.5 (127.2–39)	99.8 (60.7–132.4)
AQLQ	3.53 (2.10–5.30)	2.7 (1.2–4.47)	3.6 (2.9–4.73)

(p<0.05 *Asthma v BPD, #Asthma V Asthma+BPD, **BPD v Asthma+BPD)

P229 BREATH-TAKING OUTCOMES: EVALUATION OF A SPECIALIST BREATHLESSNESS CLINIC

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Background Breathlessness is distressing for patients and is a common reason for emergency department attendance. Chronic refractory breathlessness is associated with anxiety, embarrassment and fear, and effective management is essential to improve quality of life and reduce hospital admissions.[1] Interventions such as breathing control, activity pacing and anxiety management are beneficial.[2] This study examined the effect of attending a dedicated respiratory physiotherapist led breathlessness service on patient reported outcomes.

Method Patients attending the breathlessness clinic between April 2015 and April 2016 completed Numerical Rating Scales (NRS) out of 10 to grade their breathlessness. Data were collected before and 1–2 weeks after clinic attendance. Lower NRS scores represented a lower symptom burden. A change of 1 or more on the NRS was considered clinically significant. Responses were compared using t-tests and Wilcoxon signed-rank tests. Data are presented as mean ± SD.

Results Fifty-two patients attended the breathless clinic during the study period (mean age 73, range 49–92 years). Patients had a range of diagnoses causing their breathlessness with idiopathic pulmonary fibrosis (44.2%), lung cancer (19.2%), and non-specified interstitial lung disease (11.5%) being most common.

Significant improvements were observed across all domains. Average breathlessness experienced in the past 24 hours reduced from 3.9 ± 1.7 to 3.6 ± 1.6 (p = 0.001). The worst breathlessness experienced in the past 24 hours reduced by 1 point to 6.3 ± 1.9 (p < 0.001). The distress experienced from breathlessness reduced from 5.8 ± 6.4 to 4.8 ± 4.8 (p < 0.001). Patients' perceived ability to cope with their breathlessness improved by 1 point (p < 0.001).

Conclusions A specialist breathlessness clinic provided a valuable service for patients with chronic refractory breathlessness. Significant, clinically meaningful benefits were observed in terms of the severity of breathlessness that patients experienced. Furthermore, patients perceived a reduction in distress and increased ability to cope.

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P230 EVALUATION OF A NOVEL DYSFUNCTIONAL BREATHING SERVICE

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Introduction and objectives Despite multiple trials, there remains a lack of consensus on the optimum management of dysfunctional breathing patients.[1] This service evaluation considers the effectiveness of a novel, multi-factorial intervention, consisting of cardiopulmonary exercise testing (CPET), explanation of physiological findings and breathing retraining, for those suffering from dysfunctional breathing.

Methods Patients who had a history of likely dysfunctional breathing combined with CPET evidence of dysfunctional breathing, hyperventilation or lack of underlying pathology were invited to attend a joint consultation with a respiratory physician and a physiotherapist. To date, fourteen patients have attended initial consultation and six patients have completed full follow up. All patients received chest consultant clinical consultation where their CPET findings were reviewed with them, with particular emphasis on fitness, evidence of underlying disease and breathing pattern. Initial physiotherapist consultation was followed by a bespoke breathing retraining programme. The Nijmegan questionnaire and the self-evaluation of breathing questionnaire formed the main outcome measures. Patients also completed a service satisfaction questionnaire, rating 6 aspects of the service on a scale of 1–5, with 5 being most satisfied. Paired t-tests were used to calculate significance of pre and post values.

Results Fourteen patients have so far been assessed in the initial consultation. Their diagnosis and breathing patterns, demonstrated on CPET, are described in Table 1. Average pre-trial Nijmegan Questionnaire scores demonstrated an improvement post-intervention from the 6 patients who have completed the intervention (26.5 pre to 21.2 post, p = 0.0465). Patients also completed the self-evaluation of breathing questionnaire, before and after the intervention. The average score decreased from 27.2 pre-trial to 15.0 post-trial (p = 0.0098). No changes in functional residual capacity controlled pause (10.0s pre to 11.8s post, p > 0.05) or total lung capacity breath hold (11.8s pre to 21.0s post, p > 0.05) were evident. The average patient satisfaction score was 28.6/30.

Conclusion A novel combined physiological and physiotherapist based intervention may be effective in supporting symptoms in people with dysfunctional breathing.

Abstract P230 Table 1

Age (gender)	Relevant co-morbidities	CPET findings	Pre-trial questionnaire scores	Post-trial questionnaire scores
17 (F)	Asthma	Pre-test hyperventilation which resolved on exercise	NQ = 7, SEBQ = 5	To be completed
73 (F)	None	Mixed dysfunctional breathing and hyperventilation	NQ = 13, SEBQ = 21	To be completed
57 (M)	None	Normal	NQ = 18, SEBQ = 11	NQ = 19, SEBQ = 6
77 (F)	Asthma	Mixed dysfunctional breathing and hyperventilation	NQ = 20 , SEBQ = 20	NQ = 21, SEBQ = 15
36 (F)	Fibromyalgia, Anxiety	Pre-test hyperventilation which partially resolved on exercise	NQ = 39, SEBQ = 44	NQ = 32, SEBQ = 27
25 (M)	Asthma	Mixed dysfunctional breathing and hyperventilation	NQ = 42, SEBQ = 69	To be completed
20 (F)	Asthma	Pre-test hyperventilation which resolved on exercise	NQ = 34, SEBQ = 64	To be completed
59 (F)	None	Mixed dysfunctional breathing and hyperventilation	NQ = 16, SEBQ = 21	NQ = 7, SEBQ = 9
75 (F)	Pulmonary embolism, Anxiety	Hyperventilation	NQ = 27, SEBQ = 19	NQ = 18, SEBQ = 9
62 (F)	Asthma	Normal	NQ = 39, SEBQ = 48	NQ = 30, SEBQ = 24
68 (F)	None	Normal	NQ = 19, SEBQ = 31	To be completed
63 (M)	Pulmonary fibrosis	Hyperventilation	To be completed	To be completed
26 (F)	Fibromyalgia, Anxiety	Mixed dysfunctional breathing and hyperventilation	To be completed	To be completed
25 (M)	Respiratory arrest, Asthma,	Mixed dysfunctional breathing and hyperventilation	To be completed	To be completed

Mean [SD]

REFERENCE

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P231 BREATHING PATTERN DISORDERS IN A COMPLEX BREATHLESSNESS SERVICE; CLASSIFICATION AND CLINICAL CHARACTERISTICS

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Background and aim Many patients presenting to our complex breathlessness service appear to have breathing pattern disorders (BPDs). When suspected clinically, they are referred to a specialist respiratory physiotherapist for assessment and treatment. Here we describe the prevalence of identifiable breathing patterns and their clinical characteristics

Methodology We performed a retrospective review of our clinical database including patients seen for initial physiotherapy assessment between December 2015 and June 2016. Patients underwent a standardised diagnostic assessment (clinical history, physiotherapy assessment, lung function and Nijmegan questionnaire).

Results Data from 43 patients with confirmed BPD were included, 77% female, mean age 58 yrs. Relevant respiratory comorbidities included chronic cough (33%), asthma (30%) and vocal cord dysfunction (30%), with no comorbidity in 23%. Other associated conditions included musculoskeletal conditions (47%), chronic pain (44%), obesity (44%), nasal blockage (42%) and anxiety (31%). Four categories of breathing patterns were identified: thoracic dominant (58%), irregular/crescendo (51%), forced abdominal expiration (30%), and thoraco-abdominal asynchrony (2%). More than one BPD was seen in 35% of patients; only forced abdominal expiration and thoracic dominant didn't co-exist. Conversely all pattern types could be found in isolation, although irregular/crescendo was more likely to co-exist with another pattern type.

Conclusion Four separate breathing pattern types were identified, in isolation or in combination. Although anxiety was fairly common, many other associated disease and conditions were seen, especially relating to biomechanical factors. This preliminary data may enable clinicians to identify breathing pattern types, lead to the development of targeted treatment options and promote screening of particular conditions associated with BPD.

P232 DOES ONE MODEL OF PULMONARY REHABILITATION FIT ALL? A MODIFIED APPROACH TO PULMONARY REHABILITATION

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Introduction and objectives Pulmonary Rehabilitation (PR) is defined as a multidisciplinary programme for patients with chronic respiratory impairment that is individually tailored and designed to optimise each patient's physical and social performance and autonomy (NICE, 2010). Our service was involved in RCP PR Pilot Accreditation Scheme.

Individuals MRC 2–5, functionally limited by breathlessness are referred to PR (BTS, 2013). There is a wide spread of functional disability and breathlessness for these individuals. Does one approach to PR address the needs of all patients within these broad groupings?

Aims Modifying PR may improve attendance and completion of full PR for patients MRC5.

Methods Following service review, Modified Programme was offered; 2 × Gym Sessions and education. Session one; patients difficulties were discussed. Breathing control techniques, improved posture and lung inflation were demonstrated. Daily home exercises were promoted. Following 2 weeks of homework, the patients were invited to a review. Any improvement in breathlessness and confidence was discussed with the patients offered Full PR where appropriate.