control and were potentially at risk of severe exacerbations, hospital admission and early progression to COPD.

Four further LHOp studies are planned: a pharmacy based intervention to improve asthma control/uptake of preventive interventions (smoking cessation; vaccinations); a case control study of GP asthma medication prescribing; prospective prognostic respiratory health cohort studies; and a qualitative study of asthmatic OMUs' perspectives on respiratory health and inhaler use.

M10 THE DEVELOPMENT OF A VOCAL CORD DYSFUNCTION LARYNGOSCOPIC APPEARANCE SCALE

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Introduction Vocal cord dysfunction (VCD) typically involves abnormal vocal cord movement during inspiration. The recognised gold standard for diagnosis is fiberoptic laryngoscopy (FOL) during a symptomatic attack. Despite this there are no reported VCD FOL assessment scales to facilitate agreement in presentation, disease severity and treatment monitoring. Our VCD tertiary airways clinic receives over 300 referrals a year. We run a weekly diagnostic FOL list and identified the need for a VCD FOL classification for optimal care.

Aims To gain consensus for a VCD FOL appearance scale and identify its interrater reliability.

Methods An expert consensus group was convened comprising two respiratory consultant physicians and two respiratory speech and language therapists (SLTs). All have significant experience in VCD FOL interpretation. The group met, discussed and agreed on the VCD FOL appearance scale (Table 1). Two assessment teams were identified, each comprising a respiratory physician and a respiratory SLT. Each team rated patients, referred for FOL with a clinical suspicion of VCD, in three consecutive diagnostic FOL lists. All procedures were recorded and then blindly re-rated during playback by the other assessment team.

Abstract M10 Table 1 Vocal cord dysfunction laryngoscopic appearance scale

Scale	Classification
0	Normal vocal cord movements observed during respiration throughout assessment
1	Transient abnormal vocal cord movements observed during inspiration, with large proportions of normal vocal cord movements during respiration
2	Mild abnormal vocal cord movements observed during respiration (up to 50% vocal cord closure during inspiration)
3	Moderate abnormal vocal cord movements observed during inspiration (50% or more, but not total closure, i.e. gap still visible between the cords)
4	Total apposition of the vocal cords (i.e. 100% closure) observed during respiration

Results Eighteen patients received ratings; the mean (range) age was 51(19–80) and 78% were female. The assessing teams agreed on the rating for seven patients. For nine patients there was disagreement but adjacent classifications. Interrater agreement was performed using a weighted kappa (1 = complete agreement in classification; 0.5 = disagreement but adjacent classifications; 0 = disagreement and non-adjacent classifications). There was moderate agreement between the teams; 0.44 with a

95% confidence interval of 0.18–0.70. There was no bias between the assessment teams, as each had mean ratings for all patients of 2.4.

Conclusions The VCD FOL appearance scale is a promising clinical assessment tool for the VCD population. We expected further interrater agreement; interestingly the majority of disagreement would not have changed management as classification still yielded a positive diagnosis. The differential maybe attributed to whether ratings were performed live or in playback, and this should be investigated. With further development, standardisation of application and robust validation it will be a useful assessment to direct appropriate management and facilitate accurate and consistent diagnosis.

M11 A PRELIMINARY BIOPSYCHOSOCIAL MODEL OF VOCAL CORD DYSFUNCTION (VCD)

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Introduction Vocal cord dysfunction (VCD) can have a significant impact on breathing ability and quality of life.¹ Psychological factors can contribute to the onset and maintenance of the condition.² Little has been written about the patient experience of VCD; therefore this study sought to understand what it is like to live with the condition and develop a preliminary model of VCD.

Methods Six adults diagnosed with VCD were interviewed and full transcripts of each interview were analysed via Interpretive Phenomenological Analysis.³ Six themes were generated reflecting the experiences of living with VCD. Next, the relationships between the themes were explored diagrammatically for each participant. Key phenomena or processes were fed into a summary cross-case diagram, which hypothesised how common aspects of the VCD experience may affect quality of life.

Results It is theorised that three key elements are interacting to influence quality of life: (1) bodily sensations, such as throat tightening, wheeze and cough can feed into a cycle of panic that exacerbates symptoms; (2) unpleasant or traumatic memories can lead to hyper-vigilance for symptoms, worry and social withdrawal; (3) enabling patients to understand, prepare and cope with the physical and mental aspects of VCD can reduce the impact of VCD on quality of life. Furthermore, environmental factors, such as the general lack of knowledge about the condition, can exacerbate negative experiences of VCD.

Conclusions We posit a biopsychosocial model of VCD which requires multidisciplinary treatment. In addition to speech and language therapy for throat-based symptoms, psychological interventions should be considered to address both thoughts about VCD and unpleasant memories. There is also an urgent need to improve and disseminate knowledge of the condition generally amongst medical professionals.

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M12 THE UTILISATION OF HELIOX21 IN A TERTIARY VOCAL CORD DYSFUNCTION SERVICE

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Introduction Heliox21 reduces the work of breathing in patients with extra-thoracic airway obstruction, is not curative or intended to replace other treatments. In our specialist service we have significant numbers of patients whom have history of regular hospitalisations, relating to poorly controlled vocal cord dysfunction (VCD). The gold standard for treatment is respiratory speech and language therapy (rSLT). We increasingly value Heliox21 as an early adjunct to rSLT in severe patients who are establishing management strategies.

Aims To assess the impact of Heliox21 on patient admission rate and self-reported experience, for patients with severe VCD.

Methods We retrospectively reviewed the rSLT caseload from June–December 2014. All patients with endoscopically confirmed VCD, greater than five VCD related hospitalisations prior to the commencement of VCD treatment and who were prescribed Heliox21 for use in the community were included. We requested hospital admission data (from patient's GP and secondary care physicians) between June 2013–June 2015, and reviewed medical and rSLT notes for demographic information/co-morbidity data/opinions of Heliox21.

Results Five patients met the inclusion criteria, three were available for analysis; one male and two female (aged 23,43,57 years). All had treated co-morbidities of asthma (BTS step 5) and reflux. One patient had treated nasal disease. Six-months prior to community Heliox21 administration the mean (range) number of hospital admissions was 11 (8–13); after instigation, during the same follow-up period, this reduced by 81% (2 admissions) and two patients had no hospitalisations. In all patients rSLT occurred simultaneously. Patient opinions included, 'heliox gives me time to start my therapy and means I don't ring 999 straight away,' and, 'heliox stops me from going to A&E all the time.' Two patients, who had completed rSLT, had Heliox21 removed as it was no longer needed.

Conclusions Heliox21 has a positive impact on reducing VCD hospital admissions and is a low cost short-term solution (£160 set-up, £8.50 month). This retrospective review has limitations; the impact of rSLT alone on admission rates needs to be compared. Further investigation is needed to examine the worth of Heliox21 as an initial adjunct to rSLT, with consideration of how to prevent reliance.

M13 CLINICAL CHARACTERISTICS AND MANAGEMENT OF PATIENTS PRESENTING TO THE "AIRWAYS CLINIC"; A SPECIALISED TERTIARY MULTI-DISCIPLINARY RESPIRATORY SERVICE

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Introduction Our specialist service manages patients with vocal cord dysfunction (VCD), chronic cough (CC) and dysfunctional breathing (DB), and referrals have grown exponentially since we introduced this novel multi-disciplinary (MDT) model in 2006.

The team comprises two severe asthma specialist physicians, two respiratory speech and language therapists (rSLT), a severe asthma nurse specialist, respiratory physiotherapist and clinical psychologist.

Aims To describe the clinical characteristics of those referred and assess utilisation of the multi-disciplinary structure.

Methods Patient demographics and clinical data were retrospectively collated from clinical records of patients referred between January and December 2014.

Results The service received 249 referrals. Excluding patients still in treatment or who failed to attend initial assessment, 141 complete data sets were available for analysis: 71% female; mean (range) age 55 (18–79) years. Assessment requests were for VCD (71%), CC (28%) or both (1%) and over half were from NW severe asthma centres or extra-regional specialist centres. The majority of referrals were from hospital consultants (72%), with the remainder from GPs (17%) and AHPs (11%). For VCD there was 73% agreement between the clinical suspicion on referral and nasendoscopic assessment. Approximately half had evidence of co-existent reflux (52%) and a third (29%) had nasal disease.

The majority were seen by more than one member of the MDT team; all by a specialist physician and a rSLT, 43% by respiratory physiotherapy, and 7% clinical psychology.

In the VCD cohort 64% had a previous asthma diagnosis and this was confirmed in the majority (93%) – 49(82%) were ≥Step 3 on BTS/SIGN guidelines; 43% were additionally referred for DB assessment; 78 flow volume loops were available and 31 (40%) were suggestive of extra thoracic inspiratory airway obstruction.

Sixty-seven patients (48%) received rSLT management [median (range) 4(1–8) sessions] with a further 16(11%) scheduled to receive it post medical intervention. Of those who completed treatment, 63% had clinically improved presentation on discharge nasendoscopy.

Conclusions A large proportion of patients referred to a specialist service for patients with complex breathlessness require multi-disciplinary intervention. There is a significant incidence of VCD and DB in patients with severe complex asthma. Of those receiving rSLT interventions, outcome was extremely effective at reducing symptoms.

Improving quality of care in COPD**M14 SURGICAL INTERVENTIONS FOR EMPHYSEMA: THE EXPERIENCE OF A COMMUNITY BASED COPD SERVICE**

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Methodology Surgical interventions for emphysema have become more accessible in the last few years.¹ We have reviewed the referral rate and outcomes from our community based COPD service to a tertiary surgical centre. Our COPD service includes a respiratory consultant and nurse specialist and has access to secondary care respiratory investigations such as HRCT and pulmonary function testing.

Results During the period April 2013–March 2015 202 new referrals were made to the consultant led clinic of which 181 were subsequently diagnosed with COPD. 10 referrals for