Abstract P78 Table 1. Results of the Asthma and COPD Reviews

Exacerbations in previous 12 months	Asthma	COPD	
	Oral antibiotics and/or oral steroids per patient	2.2 per patient	3.1 per patient
Number of A&E attendances (n)	14	33	
Number of hospital admissions (n)	5	31	
Inhaler technique	Good technique (n)	21% (11)	42% (13)
	Moderate technique	19% (10)	29% (9)
	Poor technique	60% (31)	29% (9)
Beclomethasone dipropionate equivalence	pre review	1656.6mcg	NA
	post review	1000.0mcg	NA
Smoking history (n)	Current	26.4% (14)	29.0% (9)
	Agreed to stop following review	78.6% (11)	77.8% (7)
	Ex smoker	17.0% (9)	71.0% (22)
	Mean pack year history	29.4	37.4
Adherence to medicines in previous 12 months (mean)	Maintenance	6.4 inhalers	10.3 inhalers
	ICS/LABA or ICS		
	LAMA	NA	10.8 inhalers
On correct therapy based on symptoms, diagnosis and disease severity (n)	Reliever inhaler	8.3 inhalers	8.7 inhalers
		26.9% (14)	45.2% (14)
If not on correct therapy, intervention made (n)	Step down	59.6% (31)	NA
	Stopping a part of treatment	3.8% (2)	25.8% (8)
	Querying the correct diagnosis	5.8% (3)	22.6% (7)
	Change drug class	NA	9.7% (3)
FEV1 % of predicted mean		NA	52.2%
ACT score mean		16.9	
CAT score mean		21.5	

had asthma (n = 53) with 37% COPD (n = 31), with a mean age 56.3 and 67.0 years respectively.

Table 1 shows a significant proportion of patients had uncontrolled disease based on their quality of life scores (QoL), use of reliever inhalers and frequency of exacerbations. Despite use of high dose medicines, this was likely to be due to poor adherence to maintenance inhalers and poor inhaler technique in a large proportion of patients. Interventions were made in most patients, including reducing the beclomethasone dipropionate (BDP) equivalence in the asthma group by 60.4%. Follow up showed that despite a reduction in inhaler therapy, QoL, peak flow measurements and reliever use all improved.

Conclusions Tailored reviews by the pharmacist resulted in significant interventions that improved QoL, adherence to therapy, reduced unnecessary over prescribing of high dose medicines and resulted in a large proportion of patients to successfully stop smoking.

From screening to treatment of children with chronic lung disease

P79 THE IMPACT OF SOCIAL DEPRIVATION ON CLINICAL OUTCOMES IN CHILDREN WITH CYSTIC FIBROSIS (CF) IN A DEPRIVED AREA OF SCOTLAND

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Introduction Lung function tests and BMI are widely-used outcome measures in children with CF, and their preservation requires adherence to exacting treatment regimens.

We hypothesised that deprivation might affect the adherence to therapy of children in a deprived area of Scotland, thus reducing BMI and FEV₁ scores and increasing clinical input required.

Schechter (2003) demonstrated a link between deprivation and mortality in children with CF, although the mechanism remained unclear, and the study has not been repeated elsewhere. In an adult CF population in an affluent area of England, Jarad (2005) found no correlation between deprivation and FEV₁. This question has not previously been examined in a deprived paediatric population.

Method In February 2013, RHSC Glasgow had 95 children (4946) with CF under its care. All children over 2 years had their BMI centile calculated. In all children over four years, mean FEV1% predicted was calculated. The number of outpatient clinics and inpatient admissions over a three year period was noted for all children over three years old.

The Scottish Index of Multiple Deprivation (SIMD) ranks the 6505 postcode districts in Scotland in order of deprivation, and a rank was obtained for each child's postcode.

SMID rank was plotted against BMI, mean FEV1% predicted, outpatient appointments and inpatient admissions, with any correlations noted.

Result 83 children had BMI centile recorded (mean 45.4, range 0.4–98), 66 children had FEV1 % predicted calculated (mean 92.4%, range 50.4–146%). Mean SMID ranking was 2763 (range 33–6499.). The mean number of respiratory outpatient clinics attended was 23.1 (range 18–33), total outpatient clinics attended was 25.8 (range 18–48) and inpatient admissions was 4.3 (range 0–20) over three years.

No correlation was shown between SMID rank and BMI centile ($r^2 = 0.0025$), mean FEV1% predicted ($r^2 = 0.0025$), respiratory clinics attended ($r^2 = 0.0121$), total outpatients attended ($r^2 = 0.0263$) and inpatient admissions ($r^2 = 0.0078$).

Conclusion Relative deprivation does not correlate with BMI centile or FEV1% predicted in this population of CF children and is not associated with the level of clinical input required.

P80 ANTIBIOTIC USAGE AS A RISK FACTOR FOR NON-TUBERCULOUS MYCOBACTERIUM INFECTION IN CHILDREN WITH CYSTIC FIBROSIS

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Background There is a growing incidence of Non-Tuberculous Mycobacterium (NTM) in children with Cystic Fibrosis. This audit aimed to determine relevant risk factors for NTM acquisition in paediatric cystic fibrosis patients.

Methods Data was obtained from clinical notes for 66 patients aged 5–18 years old in a North-East CF clinic who had sputum or bronchoalveolar lavage screened for NTM between 2011 and 2012.

Results Patients who isolated NTM had higher exposure to intravenous antibiotic courses than comparison group: 53 vs. 21% having 3 or more courses per year (p-value 0.039). 77% of NTM positive patients vs. 47% of non-NTM were taking long-term azithromycin (p-value 0.07).

Conclusion Higher exposure to intravenous antibiotics courses is a risk factor for isolation of NTM in CF children. This highlights the importance of close monitoring until more is known about the long term health implications of this group of pathogens.

P81 LONG-TERM EFFECT OF COMBINED ANTERIOR AND POSTERIOR SPINAL FUSION ON PULMONARY FUNCTION AND QUALITY OF LIFE IN YOUNG PEOPLE WITH ADOLESCENT IDIOPATHIC SCOLIOSIS

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Background The deleterious effects of progressive adolescent idiopathic scoliosis (AIS) on lung function and quality of life are cause for concern. Although surgical correction of AIS aims to halt progression of restrictive lung disease, evidence from current literature is conflicting with minor improvement, no change, or minor decline in lung function all reported in case series 2–5 years post-operatively. The longer term follow-up of lung function and quality of life of those who underwent surgery for AIS in adolescence are not well documented with only one study extending beyond 2 years.

Aim To evaluate the long-term change in pulmonary function and quality of life in children with adolescent idiopathic scoliosis (AIS) following anterior and posterior spinal fusion (APSF).

Methods Subjects who underwent APSF for AIS in the period 2005–2007 at RHSC Edinburgh were prospectively studied during 2011/2012. Data were collected for lung function by forced spirometry (Jaeger Masterscreen), and measurement of quality of life using the SRS-22 questionnaire. Paired t-test was used to compare data pre- and post-APSF.

Results Paired pre- and post-operative data were available for 12 patients who underwent scoliosis correction at mean 13.8 (11.8–15) years. 9/12(75%) were female. Follow-up occurred 5.8(4.1–6.7) years after surgery.

Patients' height increased from mean (sd) 169(9) cm pre-operatively to 175(5)cm at follow-up ($p < 0.01$). Scoliosis corrected from 100(15) to 29(11) degrees ($p < 0.001$). FEV₁ was 60 (19)%predicted pre-operatively versus 62(19) post-operatively ($p = 0.32$); FVC was 62(19)%predicted before and 64(13) after surgery ($p = 0.67$).

Overall SRS-22 scores improved from mean (sd) 3.6(0.3) before surgery to 4.6(0.4) at follow-up ($p < 0.001$). Improvements in individual SRS-22 domains for function [3.9(0.2) vs. 4.9(0.2), $p < 0.001$], pain [3.5(0.4) vs. 4.5(0.5), $p < 0.001$], self-image [3.3(0.3) vs. 4.4(0.5), $p < 0.001$] and mental health [3.7(0.5) vs. 4.4(0.6), $p < 0.001$] were also noted. High rates of patient satisfaction [4.8(0.3)] were recorded. No correlation was noted between changes in FEV₁ ($r = 0.08$, $p = 0.8$) or FVC ($r = 0.01$, $p = 0.97$) with change in SRS-22 score.

Conclusion Long-term follow-up of a single surgeon's cohort of AIS patients suggests no deficit in pulmonary function, whilst quality of life and patient satisfaction are high 6 years after combined APSF.

P82 INDUCED SPUTUM IS A FEASIBLE DIAGNOSTIC TOOL IN CHILDREN WITH CHRONIC COUGH POSSIBLY DUE TO ASTHMA

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Background Chronic cough is a common childhood symptom, reported in 22% of preschool children. Many are misdiagnosed as asthmatic. Induced sputum (IS) using hypertonic saline (HTS) has been used as a diagnostic tool in patients with cough; its bronchoconstriction effects being used as a test for the bronchial hyper-reactivity (BHR) in asthma (ISSAC study). Conversely it is used as a bronchodilator in the treatment of bronchiolitis and pre-school wheeze. Sputum eosinophilia indicates airway inflammation in keeping with a diagnosis of asthma.

This study aimed to determine if IS is a feasible diagnostic tool in children with problem cough query asthma. In addition we wished to determine the relationship between BHR to HTS and the eosinophil count in sputum.

Methods A retrospective review of children with problem cough who underwent sputum induction with nebulised 3% HTS. Sputum samples were obtained for microbiology, virology and differential cell count. Spirometry was performed before and after administration of 3% HTS. Change in FEV₁ (Δ FEV₁ = FEV₁ post HTS minus FEV₁ pre HTS) was used as a measure of BHR. Correlation between Δ FEV₁ and sputum eosinophilia was calculated using Spearman rank coefficient.

Results 146 patients referred for IS between 2001 and January 2013 were included. Mean age = 8 years (range = 2 to 13), mean cough duration = 4.25 years (range 0.17 to 11.5). Sputum induction was successful in 131 patients (89%). 12 children (8%) became symptomatic; 4% required test termination. 44 children increased FEV₁ with 12 having >9% FEV₁ increase. 63 children reduced FEV₁ with 21 having > 9% reduction.

Viral or bacterial pathogens were identified in 29% of samples obtained. Sputum eosinophilia (eosinophil count > 3%) was present in 66% of samples obtained. There was no correlation between FEV₁ and sputum eosinophilia ($R = 0.04$).

Conclusions IS is a feasible and safe tool in children with problem chronic cough, aiding diagnosis with spirometry and sputum analysis. However BHR induced with HTS does not correlate with sputum eosinophilia. Several children increased FEV₁ with HTS administration, suggesting it may have a therapeutic role in the treatment of some children with chronic cough.

P83 SHOULD CHILDREN FROM HHT FAMILIES UNDERGO SCREENING THORACIC CT SCANS FOR THE DIAGNOSIS OF PULMONARY ARTERIOVENOUS MALFORMATIONS? SURVEY DATA ON BREAST CANCER INCIDENCE

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Background Limiting thoracic radiation burden is a driving force for development of diagnostics, with the use of childhood CT scans particularly linked to increased cancer incidence [1]. Imaging of children with known or suspected hereditary