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 ($p < 0.001$). FEV_1 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 FEV_1 ($r = 0.08$, $p = 0.8$) 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 A/PSF.

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 FEV_1 (Δ FEV_1 = FEV_1 post HTS minus FEV_1 pre HTS) was used as a measure of BHR. Correlation between Δ FEV_1 and sputum eosinophilia was calculated using Spearmen 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 FEV_1 with 12 having >9% FEV_1 increase. 63 children reduced FEV_1 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 FEV_1 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 FEV_1 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

haemorrhagic telangiectasia (HHT) has been performed for more than 30 years, in order to diagnose and/or treat pulmonary arteriovenous malformations (PAVMs). Childhood screening thoracic CT scans are currently recommended international practice [2]. Our aim was to explore if breast cancer rates differed in HHT patients compared to controls.

Methods To provide sufficient power to compare breast cancer rates in HHT patients and controls, we developed a questionnaire capturing data on multiple relatives per respondent, powered to detect differences in breast cancer rates. Blinded to cancer responses, reports of HHT-specific features allowed assignment of participants and relatives as HHT-subject, unknown, or control.

Results By data download on 30.6.2012, 1,307 participants (including 1,012 HHT-subjects, 142 controls) had completed the international questionnaire, with the majority of respondents residing in North America. Ages (medians 55/53 ys), gender (65/65% female) and general demographics were similar between the groups. Combining data of participants and relatives resulted in a control-arm of 2,817 (52% female), and HHT-arm of 2,166 (58% female). Median ages were 77ys [IQR 65–82] and 66ys [IQR 53–77] respectively. Rates of breast cancer in the control group matched the age standardised frequency reported by Globocan for the general population, with a ratio of observed/expected incidence of 1.22. As expected, cancer rates increased with age ($p < 0.0001$, all cancers). Following age-adjustment, breast cancer was reported significantly more frequently for the HHT group than controls (quadratic regression age-adjusted OR 1.52 (1.07, 2.14, $p = 0.018$).

Conclusions Individuals with HHT may be more likely to develop breast cancer. Further study is required to validate, and to assess if any excess is related to radiation exposure, or other factors. Nevertheless, given the rationale for PAVM screening programmes relates to risk reductions in adult life, the data support the widespread view that PAVM screening CT scans should be postponed until after puberty.

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P84 HOW WAS IT FOR THEM? EXPERIENCES OF PARENTS OF CHILDREN UNDERGOING SURGICAL TREATMENT FOR EMPYEMA THORACIS

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Introduction Opinion is divided regarding the management of empyema thoracis in children. There is wide regional variation in treatment, which is only partially related to variations in the availability of skills and resources. There is currently no published evidence of parent experience of treatment of empyema thoracis in children.

Objective To explore the experiences of parents of children who have undergone definitive surgical treatment for empyema thoracis.

Methods Qualitative, face-to-face, semi-structured interviews with parents of children who had undergone definitive surgical treatment for empyema thoracis. Methodology: interpretative phenomenological analysis. Participants were recruited from a large UK teaching hospital between December 2012 and March 2013. They were interviewed in hospital just before discharge. Parents of 8 children aged 11 months to 6 years, 8 mothers and 2 fathers (2 sets of both parents).

Results The overarching theme revealed in all of the parents' accounts was trust. The parents' perceptions of development or undermining of trust was influenced by several factors. They include: communication and interactions with staff; information provision and methods used to provide explanations including use of visual aids; staff competence demonstrated by knowledge and experience; evidence of team-work and non-verbal actions such as smiling, eye contact and perceived attitude. The establishment of trust also differed through the stages from GP referral, admittance to secondary and tertiary hospitals, peri- and post-operative phases.

Additionally the accounts revealed that parents were relieved when surgery was undertaken. Most parents were pragmatic about the scars following surgery, but considered that *all* of the scars were significant, not just the thoracotomy scar.

Conclusions Verbal and non-verbal communication used by staff when talking to families can have a significant impact on the development or undermining of trust. This can affect parental perception of competence and care provided by practitioners.

P85 HOME AND SCHOOL DIRECTLY OBSERVED THERAPY IN A CHILD WITH DIFFICULT AND LIFE THREATENING ASTHMA

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Background and aim We report the case of a child with difficult and life- threatening asthma whose control improved with directly observed therapy (DOT). School based DOT improves adherence[1] but to date there are no publications of combined home and school DOT.

Case report The child was commenced on Beclomethasone aged 4 years following repeat admissions with asthma. Clinic attendance was erratic. Occasionally she arrived in clinic with wheeze and saturations in the 80's. Health behaviour did not change despite warning parents about risk of death. A common assessment framework (CAF) was initiated.

Following a life threatening asthma episode (aged 6 years) maintenance therapy was increased to Seretide 250 mcg bd (spacer) and Montelukast 5mg od. IgE was 1556 and House Dust Mite RAST positive. Clinic attendance and asthma control temporarily improved. Following another two admissions with life threatening attacks SloPhylline 250mg am/125mg pm was added. Theophyline levels were found to be <2 mg/l after a further serious admission. Maintenance oral prednisolone was commenced and she was referred to tertiary hospital for consideration of Omalizumab. She was concurrently referred to Social services.

At case conference she was put under a child protection plan for reasons of child neglect. DOT service at home and school was commenced. Non-attendance to clinics immediately ceased. There were no further hospital admissions. She was weaned off prednisolone. SloPhylline was reduced to 125mg bd. A lower dose of Seretide was attempted but unsuccessful.

DOT was funded by Social services. The cost was £24.24 per week term- time and £37.66 per week during school holidays.