who experience life-threatening episodes of acute respiratory distress.

Results Fifty-four children were admitted on 72 occasions with wheeze. 32 children with asthma, 19 children with wheeze. Three children, admitted on 4 occasions, were excluded for alternative diagnoses. Unsurprisingly children with asthma were older (mean 92.54, sd 53.8 months) than children with wheeze (mean 24.79, sd 17.52 months).

Children with asthma were each admitted to PICU more frequently than children with wheeze (mean 1.97, sd 1.43 vs mean 1.26, sd 0.56). For the 68 included episodes, respiratory support was needed on 26 occasions (formal ventilation on 12).

In 49% of cases children lived in a household where a family member smoked (15 asthma; 5 wheeze). On 15 occasions household smoking status was not documented. In 16 cases of asthma there were documented social concerns (compliance, clinic attendance, formal safeguarding) compared to only 1 case of the 19 children with wheeze. Children in the asthma group came from larger families with 3.5 children (IQR 2,4 max 11) per family compared to 2.4 children (IQR 1,3 max 7) in the wheeze group.

Conclusion Children with the most severe episodes requiring critical care often present on multiple occasions and come from large families with household smoking exposure. Concerns regarding the inappropriately low priority of the children's health by their families are common.

G457(P) INVESTIGATING THE EFFICACY OF HOME RESPIRATORY SURVEILLANCE IN THE MANAGEMENT OF RESPIRATORY CYSTIC FIBROSIS DISEASE IN PAEDIATRICS

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Background Cystic Fibrosis (CF) is an autosomal recessive condition in which much of the morbidity and mortality is attributed to the respiratory component of the disease. Microbiological surveillance of respiratory flora is vital in CF management. In addition to traditional clinic-based sampling, Wythenshawe hospital's paediatric CF department has been training parents to take cough swabs at home.

Aims To assess how effective home sampling is in the monitoring of respiratory flora of CF paediatric patients.

Methods Data on respiratory samples were collected for the year 01/01/2016- 31/12/2016. Patients notes, electronic patient records and Lorenzo were accessed. Kappa testing was used to determine the level of agreement home and clinic samples.

Results 21 patients were identified for this study.

- A total of 172 home samples were collected
- On average, each patient had 8 home samples collected
- Absolute agreement between home and clinic samples was 91.92%
- Number of home and clinic samples having excellent agreement was 10 (52.63%)
- There were several bacteria which were grown only in home or clinic samples. These bacteria are not commonly known to be contaminants
- On average home sampling lead to antibiotic treatment occurring 44.17 days before a clinic attendance

Conclusion The strong level of agreement between samples collected at home and in clinical settings suggests that the bacteria being detected at home is similar to what is detected in the clinics. The differences seen in bacteria grown in these two settings is likely to be a result of differences in the respiratory flora and not due to contamination of samples taken at home.

On average, home sampling resulted in antibiotic treatment 44.17 days before a clinic attendance would have occurred. This reduces the amount of time for inflammatory damage and antibiotic resistance to occur.

This study recommends the continuation of home sampling to boost sampling rates, thereby increasing the clinician's confidence in the each patient's microbiological profile.

Moving forward research should focus on gathering more information on the health benefits to patients receiving home sampling and on cost-benefit analysis.

G458(P) ASSESSMENT OF THE SHORT-TERM CLINICAL OUTCOME OF CHILDREN WITH POLYARTICULAR AND SYSTEMIC ONSET JUVENILE IDIOPATHIC ARTHRITIS: A RETROSPECTIVE COHORT STUDY IN A TERTIARY CENTRE SAMPLE

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Objectives To determine the early clinical improvement and short-term outcome of patients with polyarticular and systemic onset Juvenile Idiopathic Arthritis (JIA) achieved with current therapeutic agents and treatment strategies by analysing the early disease course and one-year outcome of a tertiary centre cohort of patients.

Methods All patients with a diagnosis of polyarticular or systemic onset JIA seen at a paediatric tertiary hospital were identified from the rheumatology clinic registry. Inclusion criteria was a time period of at least one year since the diagnosis. Patients were excluded if they were discharged or transferred to adults' service. Clinical records from the hospital database and medical charts were reviewed for data collection. The collected data was analysed using qualitative measures and results were drawn from observational findings. The outcomes reported in this study include: number of joints with active inflammation, systemic disease features, C-reactive protein (CRP), and functional ability of the child as recorded in the clinical letters.

Results A total of 45 patients were identified, of which 32 were eligible. The frequency of JIA subtypes: 19 patients with RF-negative polyarthritis, 7 with RF-positive polyarthritis and 6 with systemic onset disease. Out of the total, 9 (28%) were completely asymptomatic and did not show any sign of active joint inflammation or residual joint changes at one year from diagnosis. Also at one year, 15 (47%) had no signs of active disease on physical examination but musculoskeletal pain seems to persist in some. For functional ability, 81% did not have any limitation to their physical ability, while the rest 19% had variable degrees of ongoing restrictions to their mobility or activity.

Conclusion Significant improvement in disease activity was noted in all patients with the current therapeutic strategies in clinical practice. However, low levels of disease activity persisted in many

at one year after diagnosis. We found that a significant improvement was achieved across all the different outcome measures from the first month of treatment in a good proportion of patients. The rate of improvement was slower after the first month and the maximum improvement was seen at six months, however, very little or no change at one year.

G459(P) ABSTRACT WITHDRAWN

G460(P) INTERVENTIONS FOR AUTUMN EXACERBATIONS OF ASTHMA IN CHILDREN: A SYSTEMATIC REVIEW

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Aims Asthma exacerbations peak in school-aged children following the autumn school return. Modifiable factors, including poor treatment adherence during the summer months and increased allergen and viral exposure may underlie these observations. Interventions implemented in anticipation of the autumn school return might lessen the burden upon patients and healthcare resources. We undertook a Cochrane systematic review to assess the effectiveness of interventions aiming to reduce asthma exacerbations in children returning to school.

Methods Randomised controlled trials (RCTs) were identified in searches of the Cochrane Airways Group Specialised Register (CAGR) and other supplementary sources. Eligibility criteria included study design (RCTs), intervention (intended to reduce autumn exacerbations) and population (participants aged 18 years or younger). We appraised the quality of trials using the Cochrane Risk of Bias tool.

Results 520 records were retrieved. 4 studies met the inclusion criteria and together randomised 14 048 children to receive an intervention or usual care. Two studies employed the leukotriene receptor antagonist (LTRA) montelukast, one used omalizumab or an inhaled corticosteroids boost and the last analysed the impact of a reminder letter sent to caregivers from Primary Care Providers about asthma medication. Quality ratings in most domains were low risk.

Risk of exacerbation were significantly reduced in single studies of omalizumab OR 0.48 (95% CI: 0.25 to 0.92) and montelukast OR 0.25 (0.08–0.79). Frequency of unscheduled contacts increased during September (OR 1.30 95% CI: 1.03 to 1.66) due to the reminder correspondence. The incidence of adverse events did not differ between trial arms. An updated search retrieved 25 further studies, including a randomised open trial of pranlukast. This un-blinded study was of poorer quality, relying largely upon subjective outcomes. Pranlukast was found to be superior to usual care in reducing worsening asthma symptoms only in boys aged 1–5 years.

Conclusion Omalizumab treatment initiated 4–6 weeks in advance of the school return might reduce autumn asthma exacerbations. This review identified a need for coordinated research employing validated measurement tools to explore patient-important outcomes including the impact of interventions on asthma control or quality of life. We would recommend that exacerbation definition be standardised in future trials.

G461(P) LUNG FUNCTION MEASUREMENT FOLLOWING SURGERY IN IDIOPATHIC SCOLIOSIS

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Background Idiopathic scoliosis accounts for approximately 80% of scoliosis cases and distorts the thoracic cavity during lung development causing a restrictive lung disease. We have recently shown that each 10° of curve accounts for a fall of approximately 4% in FEV₁/FVC.¹ However, little is known about whether spinal fusion improves lung function in these patients.

We performed follow up spirometry on 18 children who had undergone spinal fusion (age 11–16) and compared this to pre-operative values.

Aims To investigate the change in FVC and FEV₁ before and after surgery using spirometry, and the relationship between this and the age at surgery and degree of curvature at that time.

Methods Eighteen patients who had previously undergone surgery (aged 11–16) were studied. Current height and arm span (to allow comparison with pre-operative measurements) were measured and spirometry was performed by the lung-function department (who had also undertaken pre-operative measurements). Pre and post-operative data were compared as absolute measures, and as Z-scores, using parametric statistical methods.

Results Contrary to previous reports, there was an increase in lung function in most patients following surgery but this was much more apparent in younger children and in those with a greater Cobb angle. Improvement in FEV₁ was statistically correlated with Cobb angle at surgery (Pearson's coefficient=0.513 p=0.027) although changes in FVC did not reach statistical significance (Pearson's=0.42 p=0.07). Younger age at surgery was also significantly predictive of greater improvement for both FEV₁ and FVC (Pearson's coefficient=-0.77 and -0.85 respectively p<0.001). Worse lung function pre-operatively predicted greater improvement.

Conclusions Scoliosis surgery does seem to result in improved lung function, particularly FEV₁, and this is greater with Cobb angles over 50° and those with poorer lung function pre-operatively. At smaller angles there is little improvement in lung function. Younger patients may also see greater improvement.

REFERENCE

1. Saych L, et al. EAPS meeting. Barcelona 2014.

G462(P) ASTHMANAUTS ARE GO! THE LAUNCH OF A NEW EFFECTIVE EDUCATIONAL RESOURCE FOR ASTHMA

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Aims Asthma is the most prevalent long term childhood disease and remains the commonest reason for urgent admissions to hospital in England.¹ Providing effective asthma education is associated with reduced hospitalisations.²