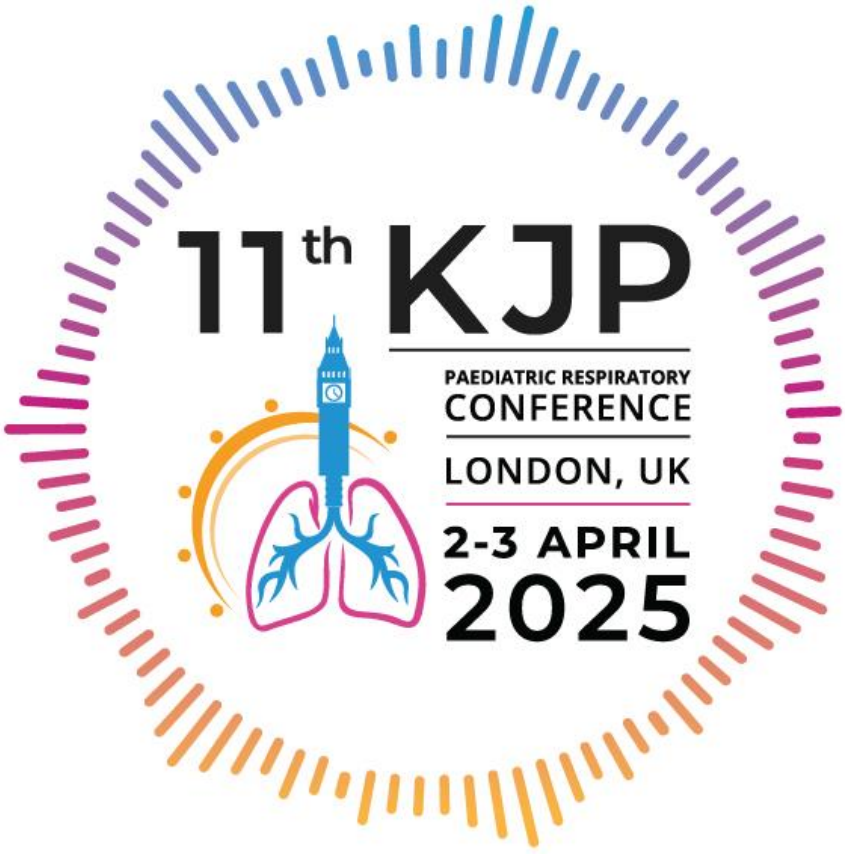

ORAL PRESENTATIONS

44

‘Asthma 48’: implementation of telephone follow-up and triage post discharge after an acute exacerbation of asthma.

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SESSION 3C: Oral Abstract Presentations, April 2, 2025, 1:30 PM - 3:00 PM

Background: Clinical guidelines recommend review within 48 hours of discharge for all patients admitted with an acute exacerbation of asthma. This recommendation arose from NRAD analysis as one of the key changes to reduce the number of asthma deaths. Despite this >12000 have died of asthma in the 10 years since the report. A recent publication has shown that only 15% of patients received a review within the recommended time frame.
Aims: Follow up all children reviewed in LTHT with an exacerbation of asthma within 48 hours of discharge by telephone. Funding was available to support the project for 6 months.
Methods: A database was developed for use in the project capturing all children attending with wheeze or asthma to ED. A pathway (Figure 1) and telephone triage tool (Figure 2) were developed for all children (age 5 to 16) who attended hospital for an exacerbation of asthma. Telephone follow ups were made within 48 hours of discharge. Patients were RAG (Red, Amber, Green) rated using the triage tool and recommendations for follow up care were given.
Results: 728 children were seen with an asthma exacerbation between Oct 23 and March 24. Telephone follow ups were attempted for 463 patients and completed for 346 children. 309 children were rated as Green, 31 as amber and 6 as Red.
For every 9 completed telephone follow ups 1 child was RAG rated amber or red.
Conclusion: The recommended follow up within 48 hours of an exacerbation of asthma is not being met. From this follow up ‘Asthma 48’ project 1 in 9 children who have been seen acutely require further clinical input.
The implementation of a nurse led telephone follow up is achievable and could be piloted in primary care hubs to identify those at risk after admission and hopefully lead to a reduction in preventable asthma deaths.
Achieving the 48 follow up guidance needs a significant increase of resources in primary care with high numbers of patients presenting acutely or should prevention be the priority?

Investigating Variations and Five-Week Temporal Changes in Oxygen Saturation Indices Between Late Preterm and Term Infants: A Cohort Study

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SESSION 3C: Oral Abstract Presentations, April 2, 2025, 1:30 PM - 3:00 PM

Background: The immaturity of the neonatal respiratory system results in unstable breathing patterns during sleep, leading to respiratory events and intermittent hypoxia (IH). Recent literature correlates an increased frequency of respiratory events with adverse early neurodevelopmental outcomes.

Aims: This study aimed to determine whether differences exist in oxygen saturation indices between healthy moderate-late preterm (born 32+0 to 36+6) and term (born 37+0 to 41+6) infants and how these change over the first five weeks of life.

Methods: The sleeping post-ductal oxygen saturations of preterm (group I) and term (group II) infants were measured using overnight pulse oximetry at 7, 14, 21, 28, and 35 days (± 3 days) postnatal age. Pulse oximetry recorded mean saturations, minimum saturations, and the number of IH episodes per hour (defined as desaturations greater than 3%, 4%, and 10% below the preceding SpO_2).

Results: Thirty-four infants completed the study (17 per group). The median gestation was 35+0 weeks for group I and 39+5 weeks for group II. Generalised linear mixed modelling indicated increasing mean saturations throughout all weeks ($p < 0.001$), rising from 94.99% in week 1 to 96.70% in week 5, with no significant group differences. Group I's average minimum saturations were 73.93%, compared to 79.66% for Group II ($p = 0.005$), stable across all weeks. Group I's ODI3 was highest in weeks 1-3, peaking in week 3 (median 70.59 dips/hr; IQR 71.72) and subsequently decreasing; group II exhibited a consistent decrease from week 1 ($p < 0.001$). Group I had a modelled average of 59.58 ODI3 dips/hr, 2.01 times higher than group II's 29.68 dips/hr ($p < 0.001$). Additionally, group I experienced 2.37 times more ODI4 dips/hr ($p < 0.001$) and 4.31 times more ODI10 dips/hr than group II ($p = 0.002$), indicating a greater frequency and depth of desaturations in the preterm cohort.

Conclusion: This study demonstrates significant differences in oxygen saturation indices between preterm and term infants, particularly in the frequency and severity of IH episodes and how these differences change over time. Further research is needed to determine whether these differences in IH episodes impact neurodevelopmental outcomes in this population.

Novel Outpatient Non-Invasive Ventilation (NIV) Initiation Pathway: 7 Years of Experience at a regional specialist paediatric centre

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SESSION 3C: Oral Abstract Presentations, April 2, 2025, 1:30 PM - 3:00 PM

Background
The growing need for domiciliary nocturnal non-invasive ventilation (NIV) in children and young adults (CYP) has increased hospital bed demand, prolonging waiting times for NIV initiation. To address this, a novel respiratory specialist nurse-led outpatient pathway for NIV initiation was introduced aiming to reduce inpatient bed use and improve outcomes. Historically, acute ward beds were used at our centre with mean 4-nights' stay per patient and waiting times varied from 4 weeks to 6 months.

Objectives
1)Assess the feasibility of using a nurse-led NIV pathway
2)Evaluate the effectiveness of the nurse-led pathway in reducing hospital admissions and improving outcomes

Methods
Retrospective database review of CYP initiated on NIV through the pathway from 2018 to 2024 was conducted. Patients attended a nurse-led clinic for mask acclimatisation, NIV education and training, followed by a two-night sleep unit admission for NIV initiation and sleep study. Adherence was reviewed after four weeks in nurse-led clinics, and further appointments for settings adjustment as needed.

Results
Ninety two CYP with mean age 10.5 years had their NIV established via the nurse-led pathway. NIV was successfully established in 87(94.5%), including 33(37.8%) on BiPAP and 54(62.2%) on CPAP. Among these, 41(44.6%) had learning disabilities, with Down's and Prader Willi Syndromes being the most common. 4-week nurse-led review was carried out in all patients. The ventilator compliance data of usage >6 hours in past 28 days, showed variable compliance between 0-100%, with average compliance recorded as 56% in 66(71%) patients with available data. As a result of this pathway, an estimated 348 acute bed days were saved. All patients had reduced waiting times with their first nurse-led clinic appointment within 2 weeks of decision to start NIV. Parent feedback indicated high satisfaction, reporting improved confidence in using NIV machines at home.

Conclusions
The novel nurse-led outpatient NIV initiation pathway demonstrates high feasibility, cost-effectiveness, and success, including in CYP with learning difficulties. It significantly reduces acute bed usage, minimizes waiting times, and provides positive patient experience. This model offers a sustainable approach to NIV initiation in resource-constrained healthcare settings.

Working collaboratively with educational colleagues to proactively identify children and young people with sub-optimally controlled asthma, optimise their care and reduce school absence.

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SESSION 3C: Oral Abstract Presentations, April 2, 2025, 1:30 PM - 3:00 PM

The Hillingdon Children's Asthma Team (HCAT) and School Nursing Team (SNT), who are patch based, have worked collaboratively with the aim of improving the management of children with asthma throughout the borough of Hillingdon. A robust Asthma Friendly Schools (AFS) programme was initiated in 2017 to encourage schools to achieve the Asthma Friendly School Certification (AFSC).

Aims:
Proactive identification of children and young people with risk factors indicative of poorly controlled asthma.

Method:
Specific focus on identifying those children whose asthma is sub-optimally controlled and attempt to intervene to prevent an exacerbation.
Completion of a monthly form documenting school absence due to asthma or inhaler use.
HCAT monitor data.
HCAT alert School Nurse (SN) of children who meet the threshold for intervention - three or more day's absence in any one month, > 1 absence in any three-month period and inhaler use four or more times a month.
SN supports the family to address asthma control, referral to the GP or referral to HCAT (Figure 3).

Results & Conclusions:
Significant positive relationships have developed between education staff, the school nursing service, primary care and HCAT.
Structured pathway for those identified school age children to be seen within 1-2 weeks of referral to HCAT.
AFS initiative has been embraced and is well embedded in the London Borough of Hillingdon.
80% of schools submit monthly forms.
Data collected demonstrates proactive identification by school staff of those children whose asthma is sub-optimally controlled.
A direct relationship between the number of Asthma Champions trained and the decrease in use of reliever inhalers at school.
Data analysis also suggests there has been a reduction in the number of children and young people absent due to asthma and the total number of days absence potentially attributable to AFSC.

Next Steps:
Overall aim is for 100% of schools to achieve AFSC and maintain certification each academic school year. It is hoped this will enable us to continue to identify children and young people with risk factors indicative of poorly controlled asthma, initiate early interventions and minimise the number of school age children requiring emergency hospital treatment.

Imaging lung structure and function in young children with PBB using 1H and 129Xe MRI

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SESSION 3C: Oral Abstract Presentations, April 2, 2025, 1:30 PM - 3:00 PM

Introduction and Objectives
Protracted Bacterial Bronchitis (PBB) diagnoses typically involve targeted investigations such as bronchoscopy, CT, and spirometry, which respectively are; invasive, expose to ionising radiation and mostly normal.
129Xe-MRI images the distribution of ventilation within the lungs in 3D and is highly sensitive to early airways disease(1). 1H ultra-short echo (UTE) is a free-breathing sequence providing 'CT like' images of lung structure and additionally quantifies airway dynamics. These techniques are free of ionising radiation and non-invasive. Here we explore the utility of 1H UTE and 129Xe MRI in the assessment of airways disease in young children with PBB.
Methods
Children with a suspected diagnosis of PBB (aged >5years) were recruited from Sheffield Children's Hospital and assessed at the University of Sheffield POLARIS centre, prior to undergoing a clinical bronchoscopy. Children performed 129Xe-MRI followed by 1H UTE-MRI. 129Xe-MRI was quantified by the ventilation defect percentage (VDP: the proportion of non-ventilated lung). UTE-MRI was clinically reviewed by a radiologist and the airway tree segmented at multiple tidal breath inflation states to assess for airway dynamics and to create a 'virtual bronchoscopy'.
Results
6 participants have been recruited thus far (median age = 7, 4F, 2M). Three children had no evidence of abnormality on MRI, however the remaining three had significant findings (Figure 1). Cases 1 (8y, F) and 6 (6y, F) had visible ventilation defects and an abnormally elevated VDP (>1.5%). Additionally, Case 1 had a focal area of depression on UTE-MRI 3D airway reconstruction (Image c), visible as a section of tracheal compression on bronchoscopy. Case 3 (9y, M) had measurable right main bronchomalacia on UTE-MRI, which correlated with the clinical bronchoscopy findings. Case 6 had previously undiagnosed bronchiectatic changes on UTE-MRI (Image f), that correspond with ventilation defects on 129Xe-MRI (Images e+g).
Conclusions
Early results have demonstrated that 1H-UTE and 129Xe-MRI can detect previously undiagnosed functional and structural lung disease in children with a suspected diagnosis of PBB. Additionally, UTE-MRI provides a comprehensive dynamic airway assessment, including quantification of airway malacia and construction of a "virtual bronchoscopy" for the clinician to review and utilise for immediate patient management decisions.

Modified Hypoxic Challenge Testing for Children on Long Term Nocturnal Ventilation

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SESSION 3C: Oral Abstract Presentations, April 2, 2025, 1:30 PM - 3:00 PM

Introduction and Objectives:
There is limited guidance on air travel for children receiving long-term nocturnal ventilation. Using a modification of the hypoxic challenge test (HCT), children have avoided supplemental oxygen use in flight by using their ventilatory support(1). We reviewed outcomes for all children after a modified HCT (mHCT) to i) assess if ventilator use altered the need for supplemental oxygen when in a hypoxic environment, and ii) learn if families followed guidance from the mHCT and had clinical stability in flight.
Methods:
We reviewed mHCT results of all children tested before future air travel from November 2022 to October 2024. The mHCT was performed in a body box with 15% inspired oxygen, achieved by entraining nitrogen, whilst monitoring oxygen saturation (SpO2) and transcutaneous carbon dioxide. If SpO2 fell <90%, the child was tested with supplemental oxygen (phase 1), and then their usual ventilation ± oxygen (phase 2), with the aim to restore SpO2 to baseline in air. Data were collected using EPIC software. Patients were contacted about their travel at routine clinic appointments or by telephone.
Results:
We studied 38 children with a median age 6.8 years (range 3 mo – 18 y) of whom 11 had neuromuscular disorders, 11 central hypoventilation disorders (eg CCHS, ROHHAD) and 16 had other diagnoses. Most were mask ventilated but 5 patients had tracheostomy insitu and one had phrenic nerve pacing. In phase 1, 21/38 children (55%) met criteria for supplemental oxygen. In phase 2 (on ventilation), 10 of those 21 required additional oxygen (48%). Subsequently, 30/38 engaged in a follow-up survey: 21/30 took flights after their mHCT and all followed the guidance, with 86% using NIV and/or oxygen. One patient reported respiratory difficulty but had an intercurrent illness. Parents commented on feeling reassurance from testing.
Conclusion:
The mHCT can inform the role of ventilatory support and reduce oxygen need during air travel. This has positive implications for cost and ease of travel for families.
References:
1.Riley M, Brotherston S, Kelly P, Samuels M, Pike KC. Modified hypoxic challenge testing in children needing nocturnal ventilation: An observational study. Pediatr Pulmonol 2023;58:88-97. doi: 10.1002/ppul.26163.

Phase 3, Randomized, Controlled Trial Evaluating Safety, Efficacy, and Pharmacokinetics (PK) of Clesrovimab in Infants and Children at Increased Risk for Severe Respiratory Syncytial Virus (RSV) Disease

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SESSION 3C: Oral Abstract Presentations, April 2, 2025, 1:30 PM - 3:00 PM

Background: Clesrovimab is an investigational, long-acting monoclonal antibody for the prevention of RSV lower respiratory tract infection (LRI) in infants, including those at high risk of severe RSV disease due to serious comorbidity or premature birth.

Methods: This is a planned interim analysis (IA) of a randomized, controlled, phase 3 trial in infants entering their first RSV season recommended to receive palivizumab due to prematurity (≤35 weeks gestational age), chronic lung disease (CLD) of prematurity, or hemodynamically significant congenital heart disease (CHD). Participants (pts) were randomized 1:1 to receive clesrovimab (105 mg IM on day 1, placebo on day 28) or monthly palivizumab in season 1; eligible pts received clesrovimab (210 mg IM) in season 2 (Figure 1). The primary endpoint was safety and tolerability of clesrovimab vs. palivizumab in season 1. Secondary endpoints included the incidence of RSV-associated medically attended LRI (MALRI) requiring ≥1 indicator of LRI or severity and of RSV-associated hospitalization through day 150. Clesrovimab serum PK was analyzed through day 150.

Results: At this IA, 901 pts had been randomized into the trial. Baseline characteristics were well balanced; 28% had CLD, 11% had CHD, and 61% were born preterm without CLD/CHD. In season 1, the proportion of pts with AEs were comparable between arms; no pts in the clesrovimab arm had a drug-related serious AE. In the season 2 IA, proportions of pts with AEs were comparable between those who had received clesrovimab or palivizumab in season 1. There were 8 deaths (1.8%) in the clesrovimab and 4 (0.9%) in the palivizumab arm, all attributable to underlying comorbidities or causes unrelated to treatment. No anaphylaxis/hypersensitivity reactions were reported. Incidence rates of RSV-associated MALRI and of RSV-associated hospitalization were comparable between clesrovimab (3.6% and 1.3%, respectively) and palivizumab (3.0% and 1.5%, respectively) through day 150 (Table 2). In season 1, the geometric mean half-life of clesrovimab was 44.1 days.

Conclusions: Clesrovimab was well tolerated in infants at high risk for RSV disease. In season 1, a single dose of clesrovimab had a safety profile and RSV disease incidence rates that were generally comparable to monthly palivizumab

Asthma and Housing – Positive progress to improve the environmental health of CYP with asthma by the creation of a risk stratification tool and referral pathway

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SESSION 3C: Oral Abstract Presentations, April 2, 2025, 1:30 PM - 3:00 PM

Introduction:
Asthma environmental triggers include indoor air pollution and it is vital that these are identified in clinical consultations. We recognised the need to work together with our Housing association colleagues to be able to empower change in living conditions and develop robust and sustainable pathways to tackle issues of indoor air pollution. This work commenced before the inception of Awaab's law which has given further support to the facilitation and requirement for change.
Aim:
To develop a referral pathway between clinicians and housing for children with a diagnosis of asthma to effect change in the home environment stratified by need.
Method:
A working group was established in Leeds consisting of social housing, housing associations and those providing care for CYP with asthma. Regular excellent collaborative meetings were held to discuss the development of a collaborative approach to improving environmental impacts in CYP with asthma living in high-risk housing conditions. An agreed and implemented RAG(Red, amber, green) rated referral pathway is now in place.
Results:
A RAG risk stratification and clinical scoring guideline(shown below) was developed to guide referrals for use within primary, secondary and tertiary care. This enables referral directly to the correct housing team to implement assessment and changes within determined time scales. This is accompanied by an email referral template for the red/amber categories and direct contact details for those responsible for initiating contact and repairs in each housing sector.
Further development created the Breathe Easy Homes campaign aimed at primary care settings to improve indoor air pollution. Referral can be made from any setting including external agencies working with families who fit Eligibility Criteria.
Conclusion:
Collaborative working has successfully created the above referral pathway which we believe is the first of it's kind in the UK. It has been implemented in Leeds and has already effected positive change. Two patients stratified Red have moved residence resulting in reduced asthma admissions. This work had also led to Breathe Easy Homes. Work has been initiated within region to develop pathways for all CYP with asthma. Development of pathways nationally would significantly improve the lives of CYP with asthma.

37

Service evaluation of a ten-year cardiorespiratory polygraphy screening programme of children diagnosed with Prader-Willi syndrome on growth hormone at Southampton Children's Hospital.

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SESSION 7C: Sleep, April 3, 2025, 9:00 AM - 10:30 AM

Background:
Regular follow-up of children with Prader-Willi Syndrome (PWS) receiving growth hormone (GH) demonstrated GH therapy adjustments based on combined polysmnography, ENT evaluation and IGF-1 levels(1). Our centre therefore adopted frequent cardiorespiratory polygraphy (CRP) screening for 2 years post GH commencement. This is costly and labour intensive. Recent consensus guidance recommends less frequent CRP(2).This prompted a review of our practice with a view to determining whether the frequency of our CRP studies could be safely decreased.
Methods:
Children who had completed the pathway (CRP studies pre GH (T0) and 3, 6, 9, 12, and 24 months (T1-T5 respectively) post GH commencement) between 2015-2025 were reviewed.
Data extracted included age at GH commencement, apnoea-hypopnoea indices, standardized body mass index (BMISDS), interventions as a result of CRP findings, adherence to the pathway and reasons for non-adherence at all time-points. Clinically significant findings were obstructive apnoea-hypopnoea indices (OAHI) that required either discontinuation of GH/other intervention to manage obstructive sleep disordered breathing (OSDB).
Results:
Eighteen PWS on GH completed the programme. Median age of commencing GH was 1.29y (IQR 0.92, range 0.40-10.0y) and median BMISDS (range) was 0.23 (-3.13-2.55) across time-points. CRP and adherence data is provided in table I. Three children had clinically significantly elevated OAHI (>5) at T1, T2 (CRP not completed at T1) and T5. GH was discontinued. Management was ENT review and CPAP, CPAP and pause in GH with resolution on repeat study respectively. GH was withheld in 2 other children for borderline OAHI (≥4, <5) at T0 and T5. Interventions were ENT surgery and pause in GH with resolution on repeat study respectively. Adherence to the pathway was particularly poor at 6, 9 and 12 months (11, 7 and 11 children had CRP studies respectively).
Conclusions/recommendation:
Clinically significant OSDB was detected in 5/18 children at various time-points during the pathway. However adherence to the pathway was poor at T2, T3 and T4. Our results suggest that amending our pathway in line with the latest guidance of routine CRP studies at baseline, 2-3 months post GH start (in all PWS children) and 2-3 years post GH (in under-fives), is safe.

Health benefits of long-term respiratory support in children and young people with cerebral palsy: More than just making the sleep study better....

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SESSION 7C: Sleep, April 3, 2025, 9:00 AM - 10:30 AM

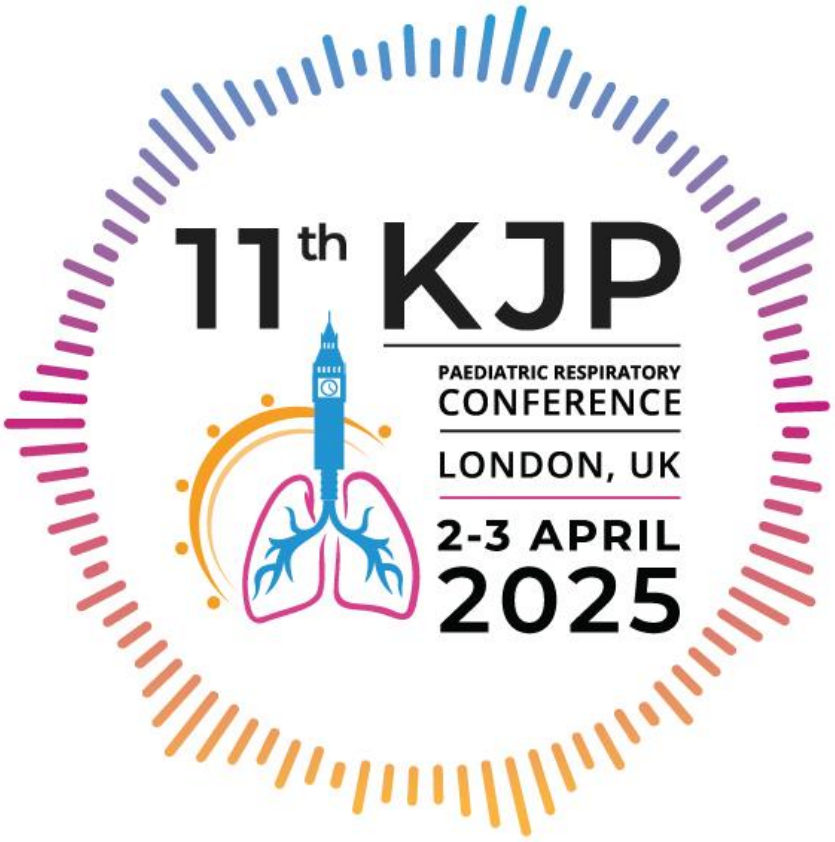
Introduction:
Children and young people(CYP) with cerebral palsy(CP) have increased susceptibility to respiratory infection, as well as increased rates of sleep disordered breathing(SDB). Respiratory support may be used either as an adjunct to airway clearance, or as management for SDB in CYP with CP. This single centre retrospective review aims to identify health outcomes (sleep study parameters, hospital admissions and antibiotic usage) in CYP with CP being managed with respiratory support.

Methods:
All CYP with CP in South-East Scotland (SES) were identified via an existing database (Cerebral Palsy Integrated Pathway) which was cross-checked against the SES sleep study database to ascertain those that had undergone a sleep study in the period 2014-2024. Electronic patient record was accessed to ascertain those on respiratory support, and collect relevant demographic and clinical information to compare health in the year preceding and the year following initiation of respiratory support.

Results:
480 CYP with CP were reviewed, of which 61 underwent sleep studies. Seven CYP with CP were initiated on respiratory support. A total of 8 CPAP initiation episodes (7 patients) were analysed.

Sleep study data were available for 6/8 episodes, where median (range) of Apnoea-Hypopnoea Index (AHI) improved from 14.7 (0.5-138) pre , to 0.4 (0-22.9) post initiation of CPAP. The total number (and duration) of hospital admissions for this cohort fell from 29 admissions (345 days) in the year before starting respiratory support, to 18 (121 days) the year after. The total number (and duration) of antibiotic usage (oral and intravenous) for the cohort reduced from 21 courses (174 days) in the year before starting respiratory support, to 15 courses (125 days) the year after. Hospital admissions and antibiotic usage for each child is detailed in Table 1.

Conclusions;
This single centre retrospective review suggests an overall improvement in sleep study parameters, and further benefits of reduction in number and duration of hospital admission and antibiotic usage, following initiation of respiratory support. Further research into the health benefits of respiratory support in CYP with CP appears warranted to see if these findings are replicated in other centres and in larger numbers of patients.



POSTER PRESENTATIONS

21

Role of overnight oximetry in assessing the severity of obstructive sleep apnoea in children with Down syndrome: a dual-centre study

Dr Hannah Vennard[1], Dr Anna Selby[2], Dr Menaga Anathamoorthy[1], Mrs Elise Buchan[1], Mr Thomas L Wilkinson[3], Dr Jonathan James[2], Mrs Rebecca Lennon[1], Dr Neil Gibson[1], Dr Martin Samuels[4], Dr Hazel Evans[2], Dr Ross Langley[1]
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SESSION 7C: Sleep, April 3, 2025, 9:00 AM - 10:30 AM

Background and objective
Cardiorespiratory polygraphy (CRP) is the predominant technology used to diagnose obstructive sleep apnoea (OSA) in tertiary centres in the UK. Nocturnal pulse oximetry (NPO) is cheaper and more accessible. NPO has been shown to be effective in predicting OSA in typically developing children, however, current guidelines do not recommend diagnostic NPO in children with co-morbidities. This study evaluates the ability of NPO indices to predict OSA in children with Down syndrome (DS).

Methods
Indices from simultaneous NPO and CRP recordings were compared in children with DS (aged 2-16 years) referred to evaluate OSA in two tertiary centres across an 8-year period. OSA was defined as an obstructive apnoea–hypopnoea index (OAHI) ≥1 event/hour. Receiver operating characteristic (ROC) curves assessed the diagnostic accuracy of NPO indices, including ODI3 (3% Oxygen Desaturation Index) and ODI4 (4% Oxygen Desaturation Index). Two-by-two tables were generated to determine the sensitivities and specificities of cut-off values for predicting OAHIs ≥1, ≥1<5, ≥5, ≥5<10, and ≥10 events/hour (Table 1).

Results
387 children with DS were included with stand-alone NPO; 177 female (46.7%), median age 6.1 years (range 2.02-15.97). There were 265 children (68.5%) with OSA OAHI ≥1/hour, 164 with mild (42.4%), 51 moderate, OAHI ≥5<10/ hour (13.2%) and 50 with severe OSA, OAHI ≥10/hour (12.9%). ODI3 and ODI4 demonstrated the best predictive value with an area under the curve (AUC) for OAHI ≥1/ hour of 0.73 and 0.72 respectively. An ODI3 of ≥19/ hour and ODI4 of ≥8/ hour were associated with the highest combined sensitivity (59.2%/63.8%) and specificity (74.6%/71.3%) respectively for OAHI ≥1/hour

Conclusion
Raised ODI3 and ODI4 predict moderate and severe OSA in Children with DS with moderate sensitivity and specificity and have a low sensitivity for detecting mild OSA. The poor predictive performance of oximetry likely reflects the multifactorial nature of SDB in children with DS. We would therefore not recommend oximetry to be used as a diagnostic test for OSA in DS and CRP should be used to diagnose OSA in this patient group.

Clean Air, Healthy Futures: Utilising young people's voices to guide clinical conversations and advocacy.

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SESSION 9C: Clean air and warm homes workshop, April 3, 2025, 1:30 PM - 3:00 PM

Introduction

Air pollution is a critical issue affecting both health and the environment. Both the UN and the Royal College of Paediatricians and Child Health (RCPCH) assert that access to clean air is a basic human right, but it remains a central driver of health inequalities (1). Children and families often lack awareness of the health effects of air pollution, and strategies to address them. Paediatricians have a duty to close this knowledge gap. The RCPCH is well placed to harness young people's voices in addressing this global challenge. Our work equips clinicians to engage CYP, build knowledge and empower them through actionable advice.

Methods

Workshops, surveys and group discussions engaged 954 children and young people (CYP) across the UK in a variety of settings including mainstream and SEN schools, hospitals, and community spaces. Qualitative data was analysed thematically to explore CYP perceptions of air quality and awareness of health consequences. Quantitative insights from structured questionnaires complement these findings.

Results

82% of CYP identified a connection between air pollution and health problems, with respiratory issues as the primary impact. However, they demonstrated limited understanding of how to mitigate risks. 58% had learnt about air quality in schools, but only a minority had discussed air quality with healthcare professionals, despite viewing them as trusted sources of advice. 77% said that it was important for CYP views on improving air quality to be listened to by people in power.

Conclusions

The voices of young people offer a unique and vital contribution. Their desire for education and advocacy for clean air present a timely opportunity for clinicians and policymakers to rethink how air pollution is addressed in clinical practice. Incorporating young people's voices is crucial, and clinicians can translate these concerns into practical action. The RCPCH has co-created resources for workforce education, as well as policy documents promoting local and global advocacy. Clinicians should be equipped to engage patients and families in conversations around air pollution in routine consultations. As one young person poignantly expressed, "Clean air is not a privilege, it's a right we all deserve for our health and our future."

Eosinophilic granulomatosis with polyangitis (EGPA) in an adolescent – successful remission with Benralizumab

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Introduction:
EGPA is a rare, serious disease with small-to-medium vessel vasculitis, blood and tissue eosinophilia, asthma and/or sinonasal disease[1]. Blood and tissue eosinophilia, vasculitis and granuloma formation are all thought to contribute towards multiple organ injury[2].

Case Report:
A 15 year old girl presented with 12 months of worsening cough, fatigue, dyspnoea and wheeze, peripheral burning sensation, and erythematous macules on her hands and feet. She had been diagnosed with asthma 4 years prior. Eosinophilia (3200cells/microL) and right upper lobe consolidation on x-ray in primary care prompted referral to regional tertiary paediatric respiratory service.
On auscultation she had widespread crackles and wheeze. FEV1 was 50% predicted with obstructed flow loop. FeNO 51ppb. Significant eosinophilic rise was noted (9530 cells/microL) with IgE 1077. Investigations for systemic vasculitis showed evidence of pulmonary and sinus disease but no other affected systems. ANCA negative. CT thorax showed bronchiectasis affecting upper lobes with mucoid impaction. Bronchoscopy showed normal anatomy with allergic mucin airway casts. Aspergillus screening negative. The case was discussed in regional adult ILD and rheumatology groups, reaching a diagnostic consensus of EGPA.
Enteral prednisolone was started at diagnosis. Benralizumab was then commenced as a steroid-sparing agent, enabling prednisolone to be successfully stopped 4 months later, with no clinical or biochemical evidence of relapse to date.

Results:
EGPA is exceptionally rare in children. Recent expert panels have provided consensus on diagnostic criteria[3]. Mepolizumab has been demonstrated to be a successful steroid-sparing agent in adults in RCTs for remission induction of EGPA[4]. Benralizumab is an interleukin-5 alpha receptor monoclonal antibody licensed for adults with severe eosinophilic asthma, and shown to be non-inferior to Mepolizumab for remission induction in EGPA[5]. No monoclonal antibodies are currently licensed for paediatric EGPA treatment.

Conclusions:
We describe a case of successful remission using Benralizumab for an adolescent with EGPA. Due to its rarity in childhood, treatment choice for EGPA is often extrapolated from adult practice and studies. Shared experience of managing this rare condition in childhood is needed to guide management and develop future research studies. A phase 3 open label trial of Benralizumab in children with EGPA is planned[6].

Optimising Preschool Wheeze and Asthma Management: A Checklist based audit

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Aims:
Asthma and preschool wheeze checklists were developed as part of quality improvement program aimed at managing children aged 1-16 years who present with wheeze to CUH.

Methods:
Checklists were designed to enhance management through systematic symptom assessment, identification of risk factors, documentation of parental education, and communication with GPs including follow-up. The checklists are one page quadruple carbon copy format sent to audit team, GP, parent, and medical record. An educational module was provided to medical staff including instructions on completing checklists. Approval from the hospital's audit department was obtained.

Results:
Checklists from patients presenting to the ED and wards from September 2024 to December were analysed. A total of 143 checklists were completed by ED and paediatric staff. Among these, 105 (73.4%) patients were diagnosed with preschool wheeze and 38 (26.6%) with asthma. Severity assessments revealed 33 (23.1%) children presented with mild, 74 (51.7%) moderate and 22 (15.4%) severe disease. Severity was not documented in 10%.
Prior to presentation 84 (58.7%) of children had well controlled disease while 41.3% had partially or poorly controlled symptoms. 8 children presented twice over the 3 month review period. One third of pre-school wheezers had 3 prior wheezing episodes in the last year and 20% had a positive modified asthma predictive index. 27.6% received oral steroids for their current wheezing episode and 41.9% received a course in the last 6 months.

Conclusions:
The checklists facilitate standardised assessment, management, and documentation for children with wheeze. Key areas for improvement include reducing the number of mild preschool wheeze patients receiving oral steroids and improving documentation of ICS use in asthma cases. A monthly bulletin will inform medical staff about improvement areas with an aim to increase checklist attainment for acute wheeze cases.

A cost effective, self-sustaining, and effective way of improving asthma understanding in undergraduate students.

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Introduction
Asthma Innovation Research (AIR) is a program aimed at raising asthma awareness among primary school children and teachers. This initiative seeks to reduce asthma morbidity and mortality through community engagement. At the University of Cambridge's School of Clinical Medicine, we have adapted AIR into 'The Asthma Project,' recruiting preclinical students to deliver asthma education sessions in local primary schools. This study evaluates the impact of integrating preclinical and clinical asthma education on participants' confidence and knowledge of asthma, assessing whether this approach improves preclinical students' understanding of asthma and related clinical concepts.

Methods
25 preclinical students were recruited and attended all teaching sessions, including three educational modules and a final session where participants presented in primary schools. Pre- and post-session questionnaires, mainly composed of Likert scale items, assessed participants' confidence in three areas: asthma pathophysiology, clinical aspects, and child safeguarding concepts. Data were analyzed to determine the change in confidence before and after the programme.

Results
Out of the 25 participants who completed all sessions, 24 consented to provide feedback. 96% rated the sessions as 4 or 5 out of 5 for usefulness and engagement. Statistically significant increases in confidence were observed in all three areas: asthma pathophysiology ($p = 0.0000001$), clinical aspects ($p = 0.00000007$), and child safeguarding ($p = 0.0025$). Comparison between the 2023 and 2024 cohorts revealed positive trends, with effect sizes showing substantial improvements in the 2024 group: pathophysiology (2.41 to 4.25), clinical aspects (2.21 to 4.21), and safeguarding (3.13 to 4.00).

Conclusions
The Asthma Project significantly enhanced participants' understanding of asthma and clinical aspects, particularly pathophysiology and clinical care. These results support the effectiveness of integrating preclinical and clinical teaching to improve asthma knowledge. Despite limitations, such as small sample size and short program duration, these findings suggest the Asthma Project is a valuable educational tool. Future studies could explore expanding the number of sessions to further improve outcomes. The project also holds potential to enhance community engagement, improve asthma outcomes, and inspire students to pursue paediatrics.

Figure 1: Schematic of the stages to the 2024 Asthma project.

Tears, tantrums and terrors: Sleep disturbance and behavioural side effects in children aged 2-5 years with cystic fibrosis commencing triple CFTR modulator therapy, and a pathway for their management.

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Background:
Following the UK licensing extension for triple cystic fibrosis transmembrane regulator (CFTR) modulators Kaftrio (elexacaftor/tezacaftor/ivacaftor - ETI) & Kalydeco (ivacaftor), eligible children with CF aged 2-5 years have commenced treatment with these drugs. Studies have previously documented neuropsychiatric side effects in people with CF and pre-existing behavioural issues. However, there are emerging concerns about children without prior comorbidity developing adverse reactions for sleep and behaviour.
Guidance on how to manage these are unclear and may be confounded by behavioural challenges in normal childhood development.

Method:
Retrospective cohort study of 33 paediatric patients with CF aged <6 years prescribed ETI in the East of England CF Network. Reported side effects following initiation of ETI were categorised as sleep disturbance and behaviour change.

Findings:
Side effects were reported in 16/33 patients (48%). Of those 16, 8 (25%) patients reported isolated sleep disturbance, 2 (6.25%) reported isolated behavioural change and 6 (18.75%) reported changes in both sleep and behaviour. Of the total 48% who experienced side effects, half had been on CFTR modulator therapy Orkambi (lumacaftor/ivacaftor) previously. To manage these side effects, 5/16 patients persisted with ETI, leading to resolution of side effects in 4/5. 11/16 patients swapped timings for Kaftrio and Kalydeco; reported side effects resolved in 6/11. 4/16 patients stopped taking Kalydeco, leading to resolution of side effects in 2/4; the remaining 2 patients chose to also stop taking Kaftrio, leading to complete cessation of adverse effects.

Discussion:
Just over half the cohort commenced ETI without negative consequence, however a significant proportion reported intolerable effects on behaviour and sleep, leading to cessation of treatment in 2/33 patients. We propose the following pathway for management of reported side effects:

1. Persevere with current management plan for a minimum of 14 days, and address other potential causative factors i.e., sleep hygiene, adjustments to nursery or school.
2. Switch timings of medication: give Kalydeco in the morning and Kaftrio in the evening for 14 days.
3. Stop Kalydeco.
4. Stop Kaftrio then trial reintroduction after a period of behavioural stability. Measure sweat chloride before and after the change to determine efficacy of dose.

Feasibility and acceptability testing of a toolkit of interventions to help children and young people use non-invasive ventilation for sleep-disordered breathing

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Introduction and Objectives:
Non-invasive ventilation (NIV) for children with sleep disordered breathing is administered by parents and/or carers, with differing levels of overnight vigilance. This population of children is clinically heterogenous, with co-morbidities that may make using NIV difficult. Families' ability to support a nocturnal intervention will vary, with factors such as family networks, the home environment, financial resources, level of psychosocial stress potentially affecting usage. Our goal was to identify a toolkit of interventions for families to use at home to address some of the barriers to usage and test the prototype resources for feasibility and acceptability with parents and children who use NIV.

Methods:
The SPIRITUS study is a three phase study; the first two phases involved workshops with parents, children and hospital staff to identify and vote on potential interventions. After assessing for feasibility (of development), safety and sustainability (after study closure), prototypes of the interventions were developed with concurrent PPI and Study Steering Committee feedback. Phase 3 involved parents and children testing a chosen intervention for two weeks, with pre and post questionnaires, a semi-structured interview and comparison of the child's NIV usage from ventilator data to clinical records.

Results:
A total of 17 staff, 19 parents and 8 children took part in Phase 1 and in Phase 2 15 staff and 9 parents participated. The following interventions were identified: an animation of a child using NIV, a video of a child using NIV, a zoom session for children, a range of children’s books, a phone app desensitisation game, a video with Makaton signing, Social stories, decorate ventilator with photos, cuddly toy with NIV mask, reward chart, website for parents, NIV information sheets, schools information pack as well as hospital based interventions: additional training for other family members, NIV training session for children 16 years+, a desensitisation programme, psychological support for parents.

Conclusions:
This presentation reports the key findings of this study, specifically the Phase 3 feasibility and acceptability testing, highlighting interventions that were not developed, interventions which were selected by families and their response to using them in their homes during the testing period.

The utility of chest ultrasound in the detection of lung necrosis in children with complicated community-acquired pneumonia

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Introduction and Objectives:
Community-acquired pneumonia (CAP) in children is common with most cases presenting to primary care and being managed with oral antibiotics. A small but significant number of children have complications from their pneumonia including parapneumonic effusion/empyema, lung abscess and necrotising pneumonia. Rates of necrotising pneumonia are increasing[1], and in our clinical practice we have seen an increase in cases with co-existing empyema and necrosis identified on chest ultrasound (US). This trend has impacted empyema management due to clinician reservations about the use of fibrinolytics in cases where necrosis may be present. Whilst the gold-standard diagnostic modality for lung necrosis is a computed tomography (CT scan), necrosis is increasingly being diagnosed on US. We aimed to understand the utility of US in the diagnosis of lung necrosis in a cohort of children with underlying empyema.

Methods:
Data from consecutive cases of complicated community-acquired pneumonia (CCAP) at the Royal Hospital for Children and Young People, Edinburgh, for 2008-2024 were reviewed, with all cases in which necrosis was identified being further evaluated to identify the modes of imaging that they had undergone. For those with both CT and US imaging, the utility of US compared with CT was evaluated. Local Caldicott approval was obtained (CG/DF/24161).

Results:
One hundred and ten cases of CCAP were identified over the study period. 33 patients underwent contemporaneous CT and US evaluation of their lung disease. A 2x2 table was constructed to evaluate utility (Table 1).
In this retrospective study, US was 68% sensitive and 88% specific for the diagnosis of necrosis. It had an excellent positive predictive value (94%) although negative predictive value was less good (47%).

Table 1: Utility of US in the diagnosis of lung necrosis

Conclusion:
The finding of necrosis on US is highly likely to confirm that lung necrosis is present. The absence of necrosis on US is less predictive however, and in cases of clinical suspicion, a confirmatory CT scan should be considered.

Acknowledgements: Silvia Garcia, Dr Andrew Kirby

Quality Improvement project looking at completion of Emergency and Advanced Care plan discussion in patients on Long Term Ventilation

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Introduction: As part of the process for initiating long term ventilation (LTV), the London ethical framework recommends discussing an advanced care plan (ACP), and consideration of "what success looks like." Thus, many centres in the UK are now using a consent document when starting long term ventilation. Further the NCEPOD (2020) recommended that all patients should have an emergency care plan. After a previous audit reviewing the discussion about limitation of treatment, a formal consent document was created, which included asking if the child had an ACP.

This project aimed to review:

- The availability of emergency and advanced care plans.
- The success of the integrating the consent document into practice.

Methods:

All patients on long term ventilation under the care Leeds Children Hospital were reviewed, via the electronic healthcare record (EHR), to assess the availability of emergency and advanced care plans, and if there was a discussion about ACP at LTV initiation. Patients subsequently initiated on LTV between August 2023 to November 2024 after the NIV consent document was introduced, were then reviewed to assess change in practice.

Results:

40% of patients who were initiated on LTV between August 2023 to October 2024 had a signed consent form uploaded on to system. There was no significant difference in the rate of availability of emergency care plans in the two subsequent cycles, which was >90% on both occasions. Availability of respect document on electronic system improved slightly from 16% to 22%. However, there was a significant increase in advanced care plan discussion which rose from 1.5% in the first cycle to 40%.

Conclusion:

Our project shows that there was deficit in practice in terms of ACP discussion with family and having a formal consent process has helped to address this. The consent is a new process, and through education and improving awareness, it is hoped its uptake will improve, as will discussions about ACPs.

Longitudinal trends in spirometry for children and young people with non-cystic fibrosis bronchiectasis managed at a regional Paediatric bronchiectasis service

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Introduction:
Non-cystic fibrosis (CF) bronchiectasis is an underserved and under-researched disease which results in affected children(1). Spirometry post-diagnosis has been reported to be stable (2), but the impact of ethnicity and deprivation on longitudinal lung function is unclear. This study reports clinical characteristics and four-year spirometry review in children and young people (CYP) with non-CF bronchiectasis.

Methods:
CYP with computerized tomography (CT)-confirmed non-CF bronchiectasis attending a regional pediatric bronchiectasis service in UK were included. Those with confirmed diagnosis of Primary Ciliary Dyskinesia (PCD) were excluded. Data including demographics, ethnicity, index of multiple deprivation (IMD) scores (1-5 for 'more deprived' and 6-10 for 'less deprived'), spirometry z-scores and airway microbiology were analyzed. Statistical analyses included T-tests, chi-square tests, and ANOVA.

Results:
Out of 102 confirmed non-CF bronchiectasis patients, 46 patients had 4-year consecutive spirometry data available. In this group of 46 CYP, the mean age was 13.68 years (SD ± 2.26). The mean age at diagnosis was 7.13 years (SD ± 2.68) and z- scores for weight, height, and BMI were 0.08, -0.21, and 1.74, respectively. Non-CF bronchiectasis was idiopathic in 30 (65.2%), post-infective in 9 (19.6%), immunodeficiency-related in 3, and other causes in 4 patients. Idiopathic cases were older at diagnosis compared to post-infective cases (7.42 vs 5.57 years, p=0.02). Thirty-eight CYP (82.6%) had multi-lobar involvement.

Thirty (65.2%) patients self-identified as White, with 16 (34.8%) from Black, Asian and minority ethnic (BAME) groups. 28 (60.9%) were from 'more deprived' backgrounds, with 15 (53.6%) of these being from BAME. Over the 4-year period, FEV1 mean z-scores changed from -1.55 (SD 1.88) to -1.40 (SD 1.87), p=0.23. The FVC z-scores also showed no significant change from - 1.22 (SD 1.76) to -0.97 (SD 1.7), p=0.09. There were no differences noted in FEV1 or FVC z-scores between different ethnic groups or deprivation scores. No differences were found in the anthropometry measurements.

Conclusion:
Lung function remains stable in children and young people with non-CF bronchiectasis 4 years after diagnosis irrespective of ethnicity or social deprivation. Further long-term lung function trajectory data may inform management strategies to preserve lung growth.

The intersectionality of sex and deprivation on children and young people's experience of emergency acute asthma care in high-income countries: rapid review

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Introduction and Objectives : Children and Young People (CYP) from most deprived areas experience higher rates of emergency hospital admissions. While a higher rate of ED visits is observed in boys in childhood, a reversal occurs in adulthood. Sex-based differences in anatomical lung development in children, the role of various sex hormones in asthma pathogenesis and the menstrual cycle are a few of the many reasons responsible for this reversal. This review aims to investigate how the intersection of sex and deprivation shapes CYPs experiences of emergency asthma care in high-income countries (HIC).

Methods: Peer-reviewed papers published from January 2014 to March 2024 were identified through four electronic database searches: Web of Science, EBSCO (MEDLINE and CINAHL), and Scopus. Studies primarily reporting sex and deprivation-specific emergency asthma care experiences of CYP in a hospital setting in HICs were included. Deprivation was defined as low Socioeconomic status (SES) in this review to address the heterogeneity observed in the included articles regarding (SES) and deprivation.

Results: A total of 19 unique articles were included in the review. Most (n=14) were from the United States of America (USA), two from Canada and one from France and Korea. 17 articles reported deprivation-specific differences, while only ten mentioned sex-specific differences in emergency asthma care experiences of CYP in HIC. And none examined the intersectional effect of sex and deprivation.

Conclusion: CYP from the most deprived areas had more negative experiences of emergency asthma care such as a higher rate of hospital admissions and ED revisits; and a lower rate of follow-up post-discharge. Limited data from statistically under-powered studies, identified no sex-specific differences in emergency asthma care experiences of CYP.
The predominance of US-based studies in this review may limit the generalizability of findings to other high-income countries with different healthcare systems, such as the United Kingdom and Australia. Further statistically powered studies in various HICs are needed to explore the intersectionality of sex and deprivation to better understand the health inequalities faced by children and young people when seeking emergency asthma care in HICs.

Experiences of Monitoring Chest Health in Children with Complex Cerebral Palsy: Challenges and Insights

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Introduction
Spirometry is commonly used to proactively monitor and inform early chest health management in paediatric chronic respiratory care. However, spirometry is difficult to replicate in children with complex cerebral palsy, a population known to be at high risk of recurrent chest infections. Failure to adequately monitor chest health in this population has left them underserved, with limited evidence-based treatments, reactive clinical care and ongoing substantial health resource use that impacts on their quality-of-life.

Aim
To explore chest health, associated illness and outcomes of importance in children with complex cerebral palsy, through the views and experiences of children, parent/carers and professionals.

Methods
Interviews were conducted to explore the experiences of chest health in children with cerebral palsy, either on-line or in-person, according to personal preferences. Topic guide included:

- Conceptualising chest health in the context of cerebral palsy
- Exploring how chest health is perceived, both when well and unwell
- Identifying outcome domains considered important to monitoring chest health

Data were analysed using framework analysis.

Results
Twenty-six interviews were conducted, with health and educational professionals (n=16), parent/carers (n=8) and children with lived experience (n=2). Interviews lasted between 30-70 minutes. Preliminary findings emphasised 'chest health' in cerebral palsy as a concept beyond the lungs, encompassing interacting co-morbidities such as swallow, and its impact on both the child's wider health and participation. Six initial themes included: (1)Establishing my unique baseline, (2)Thinking outside my lungs, (3)Knowing my good and bad days, (4)Current measures fall short, (5)A life less valued, (6)Towards better monitoring: Blue sky thinking. Narratives highlight the importance of supporting effective coping strategies in the community and teamwork, valuing the knowledge of parent/carers and their child.

Impact and Conclusion
Findings will contribute to a definition of chest health in cerebral palsy and highlight potential chest health outcome domains that are meaningful to stakeholders. These will inform an e-Delphi process where important candidate outcomes will be rated and agreed upon by children and young people with cerebral palsy, parent/carers and professionals. An agreed core outcome set will contribute to inclusive research practice and proactive delivery of clinical care for this underserved population.

Risk Factors Associated with Adverse Outcomes in Empyema in Children: A 5.5-Year Experience in a Tertiary Centre

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Objective:
To investigate risk factors for complications in paediatric empyema and evaluate outcomes in children requiring intercostal drainage (ICD) over a 5.5-year period.

Methods:
A retrospective cohort study was conducted between January 2019 and June 2024 at a tertiary respiratory centre in London. Children aged 1 month to 16 years with clinical and radiological evidence of empyema were included. Children with complications (CC, n=24) were compared to those without complications (CWC, n=16). Data collected included demographics, inflammatory markers, pleural fluid analysis, imaging findings, and treatment details.

Results:
Empyema presentations peaked in winter, with 83% of cases occurring in fully immunised children. Of 40 children requiring ICD, 24 experienced complications, including hydropneumothorax (11/24), pneumothorax (7/24), bleeding (6/24), dislodgement (5/24), bronchopleural fistula (3/24), tube blockage (3/24), and kinking (3/24). Secondary interventions included surgical drainage (5/24) and video-assisted thoracoscopic surgery (VATS) (6/24), consistent with previous literature [1].
Children in the CC group were older (mean age 4.8 vs. 3.7 years) and had longer hospital stays (16.7 vs. 15.7 days). Comorbidities were slightly more prevalent in CC (29% vs. 25%). Bacterial infections were more common in CC (75% vs. 43%), whereas viral infections were more frequent in CWC (56% vs. 38%). Streptococcus was the predominant bacterium (60%), while influenza A and rhinovirus were the leading viruses (13%). Peak C-reactive protein (CRP) and white cell counts (WCC) were similar across groups, but platelet counts were higher in CC (855×10^9/L vs. 726×10^9/L).
Most children received co-amoxiclav, with regimens tailored to clinical progress and causative organisms. Fibrinolytics were administered in 36/40 cases, with duration adjusted for complications.

Conclusion:
Paediatric empyema management is associated with significant complications, often due to underlying lung pathology and infective agents, despite high immunisation rates. The timing of ICD, use of fibrinolytics, and antibiotic adjustments are critical to outcomes. Initial medical management did not reduce complication rates, highlighting the need for targeted, individualised approaches [2,3].

Gap Analysis of Paediatric TB Service Provision in the East of England

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Introduction

Though paediatric TB remains a rare infection, children less than 5 years of age are at the greatest risk of developing severe TB disease. Standardised care and streamlined processes are important for optimal TB screening and management. In this abstract, we aim to summarise findings of our gap analysis of Paediatric TB care provision in the East of England(EoE) region.

Methods

We, at Addenbrooke's Hospital in Cambridge, performed assessment of TB service provision in the geographically vast EOE region with the lead TB paediatrician in each of our referring NHS Trusts (n=17) by questionnaire. Telephone and email prompts were undertaken to improve engagement. We followed this up with a TB Clinical Nurse Specialists'(CNS) survey across the region.

Results

9/17 Trusts responded to our medical survey, and 13/17 Trusts responded to our CNS survey. From the medical survey, we found that 9/9 Trusts had an identified lead paediatrician for TB, but here was no consistent universal pathway described for onward medical management of identified cases. The investigative modalities of IGRA(Quantiferon) and TST(tuberculin skin test) were widely available at the Trusts but inconsistent for TST: 100% for IGRA and 88% for TST. The CNS support was available for administration of TST(77.8%), reading of TST(66.7%) and, less frequently, for surveillance of liver function tests(22.2%). Of the medical survey, 3/9 did not have any CNS support at all for paediatric TB.

The CNS survey(n=13) revealed that 12/13 CNSs had trained as adult Nurses and were now supporting Paediatrics TB management, with just one being Paediatrics trained. 11/13 respondents said they provided family support to Paediatrics TB patients. In line with medical survey, IGRA was more widely available(100%) than TST(92%) at Trusts providing Paediatrics TB care.

Conclusions

Further work is being undertaken to improve and consolidate the provision of Paediatrics TB screening and care in the region. There is a need to develop consensus opinion regarding the use of IGRA vs TST. We have concerns that lack of consistent service provision is leaving children vulnerable as insufficient contact tracing is being undertaken particularly in those Trusts with no CNS support at all.

Changing Landscape of Research About The Use of E-Cigarettes in Children In the UK

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Introduction

Vaping (use of e-cigarettes) is a rapidly spreading practice among the public in the UK. The alarming increase in vaping among children and young people makes it important for clinicians to keep up to date with the latest evidence and trends in research surrounding the subject. This abstract aims to provide a narrative summary of the evolution of major research surrounding vaping in children.

Results

In 2014, an international expert panel convened by the Independent Scientific Committee on Drugs developed s multi-criteria decision analysis(MCDA) model that estimated that e-cigarettes were as much as 95% less harmful than smoking traditional cigarettes. This claim was propagated widely, including by Public Health England(PHE) in 2015 and Royal College of Physicians in 2016, and vaping was especially seen as a safe alternative to cigarette smoking.

But since then, rapidly accumulating evidence has pointed towards a myriad of potential harmful effects related to vaping, especially in children. These include reports of hypersensitivity pneumonitis(2020), a summary of hospitalisations and deaths related to EVALI(2020), a systematic review showing increased coughing(2021) and overall harms to the health of non-smokers, children and adolescents(2023).

In addition, higher concentrations of nicotine in e-cigarettes increases subsequent intensity of smoking and vaping(2017); and adolescents are particularly attracted to the artificial flavouring of vape liquid(2019).

In response to evolving research and new evidence, both Royal College of Paediatrics and Child Health(RCPCH) and British Paediatrics Respiratory Society(BPRS) published policy statements in 2023 discouraging the use of vapes in young users and preventing its uptake. Following a public consultation, UK Parliament slated to ban the sale of disposable vapes, and restrict its flavouring and colourful packaging

Conclusions

The rapidly rising trend of vaping among youth has translated into vapes becoming the gateway to nicotine addiction. While many long-term side effects of vaping are not known yet, there is sufficient collection of data and an unambiguous trend of research to conclude that young people should be discouraged from the uptake of vaping.

A Paediatric Case of Mycoplasma pneumoniae complicated by cold agglutinins-induced haemolysis and extensive thrombosis

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Introduction:
Mycoplasma pneumoniae, an atypical pathogen, accounts for 40% of community-acquired pneumonia, particularly in school-aged children. Approximately 25% of cases present with extrapulmonary complications, including neurological, dermatological, and haematological issues. Immune haemolytic anaemia mediated by cold agglutinins is one such rare complication.
This case report highlights a paediatric Mycoplasma pneumoniae infection complicated by cold agglutinins-induced haemolysis and extensive thrombosis.

Aim:
To emphasize the recognition and management of a severe complication arising from Mycoplasma pneumoniae infection.

Case Description:
A child presented to a District General Hospital with a one-week history of respiratory distress, cough, and fever. Initial antibiotic treatment with IV cefuroxime was escalated to IV co-amoxiclav, then to IV piperacillin-tazobactam and clarithromycin due to worsening chest X-ray findings of consolidation and pleural effusion. Mycoplasma pneumoniae infection was confirmed via polymerase chain reaction (PCR), prompting a switch to cefuroxime and clarithromycin.
The patient was transferred to our tertiary unit for further management. The surgical team addressed the pleural effusion. Three days post-transfer, the child developed significant left leg swelling with pitting oedema. Venography revealed a complex thrombus extending from the mid-superficial femoral vein to the common iliac vein. Laboratory tests indicated microcytic anaemia, a positive direct Coombs test, and elevated lactate dehydrogenase (LDH), consistent with haemolysis. A blood film confirmed Cold Agglutinin Disease.
The deep vein thrombosis (DVT) was treated with subcutaneous low-molecular-weight heparin (LMWH). Despite therapy, thrombosis persisted by day 18. The child was discharged after three weeks on clarithromycin (to complete a six-week course) and continued LMWH for three months, transitioning to oral Rivaroxaban. The patient was scheduled for regular outpatient follow-ups to monitor recovery and treatment progress.

Conclusion:
This case highlights the critical need for early recognition and prompt management of complications like Cold Agglutinin Disease and thrombosis in Mycoplasma pneumoniae infections. Immune-mediated haemolysis can activate the complement pathway, increasing the risk of thrombotic events. Timely intervention is critical to preventing severe outcomes and reducing hospital stays.

Chronic cough in a teenage: a presentation of Eosinophilic granulomatosis with polyangiitis

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Eosinophilic granulomatosis with polyangiitis is a rare, multi-system inflammatory disease characterised by late onset asthma, eosinophilia and small-medium vessel vasculitis. Due to its rarity it remains poorly understood.

EGPA typically presents in three phases: a prodomal period of asthma, sinusitis, nasal polyps and allergic rhinitis; an eosinophilic driven phase with pulmonary infilitrates and finally a vasculitis phase including purpura, glomerulonephritis and mononeuritis multiplex. Up to a third of cases are positive for anti-neutrophil cytoplasmic antibodies (ANCA), however non-specific symptoms can delay diagnosis.

Treatment is with corticosteroids, other immunosuppressants and increasingly monoclonal antibodies.

Prognosis and mortality is variable depending on features present but has a high relapse rate requiring repeated treatment.

Case:

A 14 year old male with a background of eczema, asthma and otitis media presented to their GP with worsening of their asthma. Initially managed with leukotriene receptor antagonists and increasing regular combined corticosteroid and LABA inhalers. He presented to acute services with cough treated as acute pneumonias with oral antibiotics and steroids.

At 15 years, he continued to have symptoms of cough, wheeze, poor peak flows, weight loss and persistent changes on chest radiographs. High resolution chest CT showed bilateral upper lobe pulmonary changes with associated lymphadenopathy.

He was admitted for further investigation and commenced on a 2 week course of IV teicoplanin and aztreonam due to a penicillin allergy.

Full blood count differential showed raised eosinophils (3.53x10^9/L). Serum IgE was raised at 5355 ku/L. Microbiology investigations were all negative.

Discussed with tertiary respiratory and rheumatology teams and following concern of presentation of EGPA. ANCA was sent and pANCA result was positive in keeping with EGPA diagnosis. He was discharged with early paediatric rheumatology review and following this commenced on oral corticosteroids and azathioprine.

Conclusion:
EGPA has a non-specific prodromal phase with features that are common complaints to general practice and secondary paediatrics. The general paediatrician must be mindful of reviewing the differential diagnosis in patients not following expected progress or with persistent abnormal radiology. Although rare, EGPA diagnosis is through history and readily available investigations and requires rheumatology referral for ongoing management

Delivering and Evolving an Innovative Training Programme in PRM - The Sheffield Children's Advanced Respiratory Training (SCART) Experience

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Introduction and Objectives: Responding to a team desire to deliver practical training linked to the Paediatric Respiratory GRID syllabus, the SCART training course was aimed at paediatric respiratory GRID trainees as well as general paediatric trainees and AHPs interested in respiratory care.

The primary objectives were to equip delegates with speciality specific practical skills and the evidence base for these. We also encouraged collaboration among trainees to share insights and best practices.

A secondary aim was to support further training, PDP delivery and appraisal for faculty members.

Methods: The training was mapped to the syllabus and conducted by a tertiary respiratory multidisciplinary team. Topics were covered through lectures, workshops, and simulations over two days with an interwoven reference to basic principles to emphasise these – e.g. principles of oximetry through sleep medicine, chronic lung disease, NIV and practicalities of study set up and home oxygen monitoring.

Courses have been delivered in 2023 and 2024. Feedback forms were distributed, and facilitators convened shortly afterward to review these for reflection and future planning.

Results: Delegates have travelled from around the UK to attend the course. 100% delegates provided feedback on the course. The structured feedback is shown in the chart for both days.

Overall comments highlighted the enthusiasm of facilitators, a positive reception to small groups practical sessions and simulations, the organisation of the course, and alignment with the GRID syllabus. Specific comments include: 'Excellent presentation, well-structured and supported by evidence' about dysfunctional breathing, and 'Very, very useful, especially PSG setup. The practical sessions are excellent!'.

Many suggested allocating more time to some sessions and incorporating more clinical scenarios.

Conclusions: The positive feedback emphasizes the feasibility of delivering innovative, high quality training for colleagues in paediatric respiratory care. Case based training days are planned to further develop delegates' skills in PRM.

100% faculty members have returned for the second course and have been able to use positive feedback and financial support for appraisal and PDP.

CFTR Genetics – when are CF mutations just not enough?

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We report a case of a 12 year old male with chronic cough, recurrent lower respiratory tract infections (LRTIs) and two CFTR mutations but normal sweat chloride. The patient presented to the paediatric respiratory service in early 2023 with a year's history of wet cough and recurrent LRTI. He had received multiple short courses of antibiotics and steroids with little clinical effect. He also reported shortness of breath and wheeze on exertion with some bronchodilator responsiveness. He had a normal respiratory examination and no evidence of clubbing. He had no gastrointestinal symptoms. There was a family history of bronchiectasis in second degree relatives and an older brother who suffers with recurrent LRTI. Initial CXR and subsequent CT Chest showed no evidence of bronchiectasis, but inflammatory changes in the right upper lobe with mild bronchial wall thickening; he had normal lung function. Immunology bloods performed showed an isolated low IgA level. Two sweat tests, 9 months apart, had sweat chloride levels of 14 and 6 mmol/L respectively. Genetic testing was performed, which demonstrated heterozygosity for Phe508del and intron 8 5T allele (in cis with 11TG). Faecal elastase was normal. Lung function normal with a FEV1 2.76L (98% predicted Z score -0.14). He continues to have regular LRTIs, and has required two prolonged admissions in the last six months for intravenous antibiotics and has regular ongoing symptoms of productive cough. He has regular physiotherapy and DNAse due to viscous secretions. Microbiologically, he has isolated Staphylococcus aureus twice and Serratia marcascens. He has been discussed extensively with immunology and the wider respiratory team. It is unclear if his CFTR mutations and subsequent dysfunction is sufficient to explain the presentation solely or whether the combination of IgA deficiency, an often incidental finding in children, and CFTR dysfunction explains his symptoms.

Genotypically, he is eligible for CFTR modulators, and the decision has been made to commence a trial of Kaftrio and manage him within the CF service with a diagnosis of CF.

1-2 Discussion/Learning Points from Case

- With the increasing availability and breadth of CF genetic testing, cases like this where CF mutations of uncertain significance are identified are increasingly common, how should they be managed – within the CF service? Should they be diagnosed as CF? How should we communicate uncertainty with the young person and their family?

- With DF508 plus a second mutation this patient is eligible for highly effective modulator treatment (tezecaftor/elezecaftor/ivacaftor), should they have been offered this?

- With normal sweat chlorides and lung function how should this patient's response to Kaftrio be monitored? Is clinical improvement sufficient?

Gasping for attention: raising the standards for children with neurodisability

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Gasping for attention: raising the standards for children with neurodisability

Introduction and objectives: Children with severe neurodisability (ND) are gasping for attention; respiratory illness is the leading cause of death and hospital admission for children with ND (1,2) and is associated with significant suffering and economic burden. However, many children with ND are not under the care of a respiratory physician, nor do they have regular respiratory assessment. Care tends to be reactive, instigated only after serious illness has occurred, by which time a vicious cycle of inflammation and infection has often begun. In 2021 'Prevention and management of respiratory disease in young people with cerebral palsy: consensus statement' (1) was published, bringing together risk factors for respiratory illness and a consensus guideline.

The Association of Paediatric Chartered Physiotherapists (APCP) respiratory committee saw the publication as an ideal springboard to drive change for this vulnerable patient group in the United Kingdon (UK).

Methods: We formed a multidisciplinary working group "Consensus To Action", joining with paediatricians and speech and language therapists from across the UK. Our collaboration identified three main themes as barriers to improving care: 1) Identification of children at risk 2) Services to treat these children 3) Evidence to support treatment approaches.

Results: We created a matrix which supports a systematic approach to identifying risks for respiratory illness in children with ND alongside proposed actions to optimise chest health. Furthermore, we produced a guide to support the development of new and existing paediatric respiratory physiotherapy services. Finally, we created an online space where clinicians from different disciplines can share cases and problem solve. We are working to disseminate these tools, both in the UK and abroad, as a step toward improving respiratory care for this vulnerable group.

Conclusions: Our work to date represents a first step in elevating care for children with ND. Our long-term aim is to campaign at a national level for health care policy that supports proactive and equitable respiratory care for children with neurodisability. We invite our colleagues to join with us to drive forward meaningful change.

Evaluating the psychological wellbeing of children and young people seen in a tertiary asthma service.

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Introduction & Objectives

Asthma is acknowledged to place an increased psychological burden on children and young people (CYP). Moreover, symptoms of psychological distress are recognised to exacerbate asthma symptoms. Promisingly, evidence suggests that psychological interventions for CYP with asthma can improve psychological distress and asthma symptoms while increasing treatment adherence.

Given limited access to psychological support in our tertiary asthma service, we collected data on the emotional wellbeing of CYP seen in clinic to guide service improvement.

Methods

We reviewed the electronic notes of all CYP seen in clinic over 12-months and collected data on:
- Instances where clinicians documented concerns with adherence or psychological distress
- Demographics
- Co-morbidities
- Treatment

Over 3 months, adolescents (12-18 years-old) were asked to complete the Strength-and-Difficulties Questionnaire (SDQ), a validated emotional wellbeing screening tool.

Results
102 CYP (44 female, 58 male) were reviewed (between 1 and 3 times each):
- 4 under 5 year-olds
- 41 5-11 years-olds
- 57 over 12 years-old.

The majority reported co-morbidities:
- 47% eczema
- 65% allergic rhinitis
- 46% food allergies
- 62% other co-morbidities

Treatments varied: 31 CYP were on maintenance -as-reliever treatment (54% of adolescents), 4 patients were receiving biologics.

Adherence was documented as challenging in 31 CYP (31%) of which 26 were adolescents (45% of all adolescents seen). Concerns regarding symptoms of psychological distress were documented in 22 CYP (22%), 20 of these were adolescents (35% of all adolescents seen). Concerns that psychological distress was exacerbating respiratory symptoms were documented in 13 CYP (13%), all adolescents (22% of all adolescents seen).

Of 20 adolescents asked to complete the SDQ, 18 completed it and 2 declined. Results are summarised in table 1.

Conclusion

This data demonstrates that CYP with asthma commonly have symptoms of psychological distress. As such, it is likely that access to psychological support as part of the asthma service will likely improve care.

Bursting for a Diagnosis

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Chronic Granulomatous Disorder (CGD) is typically an X-linked condition that presents at a young age with recurrent, serious bacterial and fungal infections affecting the skin, lungs and gut[1]. We present a case of a new diagnosis which was unusual due to the absence of previous significant infection in a school aged girl, the severity of her acute presentation and the extent of diffuse consolidation on her chest imaging.

The patient was a 5-year-old female, with a background of mild asthma. She presented with worsening cough, increased work of breathing and wheeze over a period of 4 weeks. Her chest x-ray on presentation demonstrated bilateral patchy consolidation affecting all lung zones with mid/upper predominance. Despite treatment with first and second line antibiotics, her clinical picture worsened and she required support with non-invasive ventilation (NIV). Her imaging findings progressed with extensive bilateral consolidation on her chest x-ray suggesting atypical infection and widespread diffuse nodular airspace opacities, as opposed to any focal changes, on her chest CT.

Her initial investigations to look for an underlying disease process, including immunology and connective tissue tests, were normal. Due to the level of respiratory support she required, she was not initially deemed safe for a bronchoscopy. Instead induced sputum samples were obtained and, whilst of good quality, these were negative for all respiratory pathogens. Once she came off NIV, she had a bronchoscopy that identified Aspergillus fumigatus on broncho-alveolar lavage. This led the immunology team to widen her investigations to include neutrophil oxidative burst testing which was abnormal. She was subsequently confirmed to have P47 recessive CGD.

The patient improved following treatment for her fungal infection and was discharged to complete a 6-week course of voriconazole with co-trimoxazole prophylaxis. She is being worked up for a stem cell transplant.

With a grand round presentation, we would take delegates through this patient’s diagnostic journey, review her unusual imaging findings for this condition and consider the possible differential diagnoses in her case. Dr J Duncan will supervise our presentation.

Congenital Tuberculosis: Case series and Literature Review.

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Introduction & Objectives-
Congenital tuberculosis (TB) is very rare and difficult to diagnose. It presents with few or no symptoms in the fetus, and nonspecific symptoms in neonates.
TB can be transmitted trans placentally, or by contact with genital lesions or infected amniotic fluid at birth. Untreated, mortality approaches 50%.

Methods-
We report 3 cases of confirmed congenital tuberculosis in the year 2024 across the West Midlands.

All 3 babies were born vaginally preterm (32-34 weeks) in good condition with median Birth weight 1.73 kgs. Median age at diagnosis was 20 days. Gastric aspirates were positive for AFB, PCR and culture were positive on 2 of them and in the third BAL was microscopy and culture positive. Treatment was started within 24 hours of positive PCR, and all isolates were fully sensitive.
All 3 mothers had moved to the UK within 5 years from high incidence countries but had no recent TB contact. Two had prolonged febrile illness; one was unimmunized.
The 1st patient was investigated after maternal miliary TB, with a postnatal fever and abnormal CT chest and subsequent Acid-fast Bacilli) on BAL. The baby remained well, had extensive normal investigations including MRI brain, CSF culture, liver ultrasound and fundoscopy. . The infant completed a standard regimen of 4HRZE 2HR.
The 2nd patient deteriorated on day 8 needing ventilation; TB was suspected due to CXR changes and not responding to antibiotics. Gastric aspirate was positive for M tb, and there was significant improvement on TB medication. The mother was subsequently diagnosed with pelvic TB.
The 3rd patient presented at 4 weeks with septic shock and features of miliary TB on CXR. They subsequently developed disseminated TB and did not survive.

Conclusion-
Rare conditions occur in clusters. Congenital TB is rare but serious and requires a high degree of clinical suspicion, The first case illustrates that early investigation and treatment of the infant after maternal diagnosis can have a good outcome, but the third case tragically illustrates the poor outcome when TB is not suspected until the infant is seriously ill.

Incidence of Neonatal Pneumothoraxes in a Level Two Neonatal Unit Over The Past Decade: A Rising Concern?

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Background
Pneumothoraxes are a common cause of respiratory distress in newborns, leading to significant morbidity and mortality. Their management depends on the size and clinical condition of the neonate, with many patients requiring chest drains. This study's primary aim was to assess the incidence of pneumothoraxes in a level two neonatal unit at University Maternity Hospital Limerick (UMHL) over a decade. Secondary aims included examining the clinical characteristics and subsequent management of these patients.

Methods
A single-centre, retrospective chart review of infants who developed a pneumothorax during admission in the neonatal unit between 1st September 2023 and 31st August 2024 was conducted. Data was compared to a pre-existing local database of neonatal pneumothoraxes between 1st January 2016 to 31st December 2019. Variables collected included duration of respiratory support, if a chest drain was required and types of respiratory support before and after developing a pneumothorax. SPSS was used for statistical analysis.

Results
There has been a rise in the incidence of pneumothoraxes between 1st September 2023 and 31st August 2024 compared to previous years. During this timeframe, all patients required respiratory support after the diagnosis, with 50% of patients requiring one or more chest drain insertions. Similarly, eight patients required total parenteral nutrition.

Conclusion
The incidence of neonatal pneumothoraxes has increased over the past decade locally in UMHL with all patients requiring respiratory support and many experiencing prolonged hospitalisations. Early diagnosis and intervention may improve outcomes. Clinicians should be mindful of the risks of pneumothoraxes and associated complications for neonates requiring respiratory support.

Macrolide prophylaxis in recurrent paediatric chest infections: A low risk for resistance?

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Background:
Management of recurrent chest infections in paediatric patients often involves use of prophylactic macrolide antibiotics. Whilst this approach has been shown to reduce the incidence of infections in certain populations,[1] there are concerns that maintenance therapy may increase drug resistance.[2] This study aims to evaluate the prevalence of multi-drug resistant bacteria in bronchoalveolar lavage (BAL) samples taken from paediatric patients receiving macrolide prophylaxis.

Method:
A retrospective analysis of BAL samples taken from 52 paediatric patients undergoing elective bronchoscopy in a tertiary paediatric respiratory unit over a 12-month period. 22 (42.3%) patients were female and 30 (57.7%) were male. Ages ranged from 0.9-17 years, with a mean age of 6.5 years. The main indication for bronchoscopy was recurrent infections in 24 patients (48.1%), followed by persistent cough in 9 patients (17.3%) and recurrent wheeze/suspected asthma in 8 patients (15.4%).

Results:
A total of 52 BAL samples were collected, with 22 (42.3%) patients receiving prophylactic antibiotics prior to the procedure - azithromycin (20), clarithromycin (1) and flucloxacillin (1). Among the cultured samples, 21 (40.4%) were positive for bacterial growth, of which 9 (17.3%) were from those on prophylactic azithromycin. All samples demonstrated susceptibility to first-line antibiotics. No isolates from the 9 children on prophylactic azithromycin were found to have significant drug resistance; therefore, no significant correlation was observed between macrolide prophylaxis and the development of resistant pathogens in this cohort and the treatment was well tolerated.

Discussion:
A significant proportion of patients are started on macrolide antibiotic prophylaxis for immunomodulatory effects whilst awaiting diagnostic investigations or due to recurrent infective symptoms. Despite concerns regarding macrolide use, significant antimicrobial resistance in BAL samples in this study was absent. These findings suggest that whilst good antimicrobial stewardship is necessary, prophylactic macrolides remain a viable strategy for managing recurrent chest infections in paediatric patients without significant risk of fostering drug resistance.

This study did not review the total duration of prophylaxis, which may be significant, considering that many children receive treatment seasonally. Larger randomised control studies are important to explore the long-term impact of macrolide prophylaxis on resistance patterns.

Quality Improvement Project: Does Play Therapy Have a role in LRTI management in Children?

Dr Geraldine Boyle, Chloe Corbett, Emma Meek, Dr Veena Vasi

Introduction and Objectives: Respiratory illness including LRTI represents the majority of paediatric inpatient admissions, averaging 3-5 days. As per British Thoracic Society Guidelines (1) for management of CAP in Children, children whose oxygen saturations ≤92% when breathing air should be referred for hospital management and treated with oxygen to maintain saturations >92%. Children can take a long time to recover from symptoms and wean off oxygen in sleep. Hospitalised patients are more bedbound and sedentary, which further hinders airway clearance.

A pilot study by Kharvi et al (2) found post-nebulisation play style breathing exercises improve respiratory parameters in children with LRTI. Breathing games may help move and clear secretions, and increase ventilation. There is no current guidance for play therapy in LRTI. Based on this study, play therapy breathing exercises have been introduced in the Paediatric Department at CAH as a low cost, low risk intervention, alongside medical management. Aim: Does play therapy reduce admission duration in children admitted with LRTI in CAH?

Methods: November-January 2024: Play therapy breathing exercises in the form of blowing bubbles, windmill etc. were offered to eligible patients. Parental consent obtained. Inclusion Criteria: >2 years, LRTI diagnosis, requiring oxygen. The admission duration was recorded. Exclusion criteria: <2 years, asthma exacerbation, neurodisability and complex needs, critically ill children.

Results: 28% of eligible patients (13 of 47) underwent intervention by January 2024. Data collected showed an increased mean length of stay in the intervention group when compared to non-intervention from November – January 2024. However, results will be skewed because of small sample size, seasonal variation and other confounding factors.

Conclusions: Children in hospital tend to be more sedentary which can hinder airway clearance and may impact time to recovery and discharge. In this ongoing QI project, we aim to introduce play therapy exercises which can be administered by any member of the MDT, to at least 70% of eligible patients, to promote recovery. However further high-quality evidence and trials is required to demonstrate the effectiveness of play therapy in management of LRTI.

Audit of Respiratory Virus Testing in Children at York Hospital

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Introduction:
During periods of high circulation of respiratory viral infections, effective testing and management are essential. The Royal College of Paediatrics and Child Health (RCPCH) guidelines (2023) offer recommendations for respiratory virus testing in hospitalised children. This audit evaluates whether York Hospital's testing practices for children under 16 align with these recommendations.

Methodology:
A single-centre, retrospective audit was conducted, reviewing respiratory virus testing in children under 16 at York Hospital between January and February 2024 (n=278). Data collection included the type of NPA (nasal-pharyngeal aspirate) panel used, test results, indications for testing, patient admission status, and subsequent changes in clinical management.

Results:
Out of 278 NPAs performed (6 invalid), 276 extended panels were conducted, with 208 positive results. Of these, 104 (37%) were admitted, while 174 (63%) were not. A change in clinical management was noted in 25 cases (9%). The audit revealed that adherence to RCPCH guidelines could have reduced costs significantly. The total cost during the audit period was £23,458. If testing had followed the guidelines, the cost would have been £6,745, saving the trust £16,713 over two months.

Discussion:
This audit demonstrates a substantial deviation from RCPCH recommendations in respiratory virus testing practices at York Hospital. The findings show 63% of children who were tested were not admitted, and 9% of test results influenced clinical management. These practices have significant cost implications, with potential savings of £16,713 over the audit period if the guidelines were followed. The absence of a local protocol may contribute to these discrepancies. Implementing a protocol based on RCPCH guidelines could standardise testing, reduce unnecessary investigations, and achieve cost savings. A re-audit in 2025 will evaluate adherence to the protocol.

Experience with one child with a rare de-novo mutation of FOXF1 leading to a rare diffuse lung disease with misalignment of pulmonary veins.

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Introduction:
Diffuse lung diseases of childhood represent a wide spectrum of conditions [1]. Alveolo-Capillary Dysplasia with misalignment of pulmonary veins (ACD MPV) is one of the less common developmental lung disorders of childhood with almost universally fatal outcome. In this case report, we present a case with confirmed extremely rare de-novo mutation of FOXF1 gene which was likely pathogenic for a diagnosis of ACD MPV.
The case:
X was born at term, by emergency cesarean section for pathological CTG and quickly recovered after initial inflation breath. She had a relatively stable first 3 months of life with no respiratory issue. At 3 months, she presented with marked respiratory distress following a short coryzal illness. She was soon on the highest support on non-invasive ventilation and was found to have significant pulmonary hypertension. She was intubated and ventilated. She was sedated and started on inotrope support, inhaled Nitric Oxide (iNO) and remained on these for the rest of her hospital stay. She had a CT chest which showed bilateral diffuse consolidation with interstitial thickening. She was on multiple vasopressors, inhaled nitric oxide, diuretics with not much clinical effect on her oxygenation. She had several multi-professional discussions and there was agreement that the clinical picture was consistent with childhood diffuse lung disease and the possibility of veno-occlusive disorder (VOD) was raised. Genetic testing samples including R14 and surfactant deficiency panel were sent early on the course. Extensive investigations including screening for immunodeficiency, metabolic and rheumatological conditions came back negative. She sadly passed away after further desaturation on an evening after almost 3 weeks of in-patient stay. Her R14 result came back posthumously as FOXF1 variant of uncertain significance, NM_001451.3:c.260G>T p.(Gly87Val).

Discussion:
ACD MPV is known to be related to FOXF1 mutation. However, The p.(Gly87Val) variant has only been reported in one other patient with ACD MPV by Goel et al in 2017 [2]. A period of stability after birth followed by profound hypoxaemia and pulmonary hypertension not responding to iNO or sildenafil should raise suspicion and trigger early and specific testing.

Impact of food allergy on asthma outcomes of children from ethnic groups with difficult to treat asthma (DA)

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Introduction

Children from ethnic groups have higher prevalence of food allergies [1]. However, the impact of coexistent difficult asthma on outcomes is not well described. We hypothesized that in children from ethnic groups with DA coexistent food allergy is a significant comorbidity and total IgE and eosinophil count driven by food allergy.

Methods

Retrospective analysis of data from children with severe asthma aged 6- 16 yr referred to a regional difficult asthma centre in the UK. Food allergy was confirmed by history and specific allergy tests. Patients were stratified by atopic status and ethnicity. The demography, FEV1, FeNO, blood eosinophil count were analysed. Statistical analyses were performed with the Mann-Whitney U test and Chi-square test.

Results

Out of 126 patients, 109 (86.5%) were atopic. Thirty-eight (34.9%) had at least one food allergen sensitization. Of these 38 patients, 31(81.6%) were non-Caucasian. Sensitization to one food allergen was seen in 5/38 (13.2%) and to two or more food allergens in 33/38 (86.8%).

The most prevalent food allergens were egg white 27/38 (71%), peanut 25/38 (65.8%), wheat 21/38 (55.3%), soya 21/38 (55.3%), milk 19/38 (50%), and cod fish 11/38 (28.9%). Non-Caucasian patients had a higher median specific IgE to cod fish (16.25 kU/L) compared to Caucasian patients (0.8 kU/L, $p=0.051$). The median total IgE level was higher in non-Caucasians (2493.5 kU/L) than in Caucasians (1270 kU/L).
Patients with both sensitizations had a higher median total IgE (2038 kU/L vs. 522 kU/L in the aeroallergen-only group, $p<0.001$). Adrenalin auto injector was prescribed in 16/38 (42%) of children.

Discussion

Food allergies increase the disease burden in children with DA. The high total IgE but not blood eosinophil count in this cohort is driven by food allergy limiting the eligibility for biologics like Omalizumab . Personalized education and tailored support for managing food allergies, alongside strategies aimed at improving asthma control via a multidisciplinary team approach, is likely to improve patient outcomes. Future studies are essential to explore biologic therapies that concurrently target both asthma and food allergies, aiming to reduce risk of anaphylaxis and asthma attacks and health inequalities in this cohort.

Towards consensus guidelines: an international survey of follow-up practices for babies exposed to CFTR modulators in utero and/or via lactation

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Introduction and objectives:
Pregnancies in females with CF (fwCF) have more than doubled in the UK since the introduction of Kaftrio (1), one of the CFTR modulators (CFTRm). There is now a growing cohort of offspring, mainly CF-carriers, exposed to Kaftrio in utero and/or via lactation. With pregnant fwCF not eligible for CFTRm-trials, risk estimates based on animal studies and case reports suggest two areas of concern: 1) drug safety (e.g. liver dysfunction, cataracts) 2) false negative newborn screening for CF. There are currently no national guidelines on how to follow-up this group of babies.

Our objective was to survey international CF centre practices to inform consensus guidelines.

Methods:
Clinicians in two UK centres devised 27 SurveyMonkey questions (max 14 per respondent, with adult and paediatric centre specific stems) exploring referral pathways and
follow-up. A pilot UK survey and three expert independent clinicians supported optimisation of survey design. The link was emailed to European Cystic Fibrosis Society members.

Results
168 responses, with 28 incomplete removed, resulted in 140 analysed (75 adult, 65 paediatric) from 33 countries, majority from Europe (127).

Across 71 adult centre responses, 367 pregnancies were estimated for 2023, with median ~90% expectant mothers continuing CFTRm. Most adult sites (62%) referred CFTRm-exposed babies, either to general paediatrics (57%) or paediatric CF (43%). 38% do not refer or had no pregnancies.

Among paediatric responses 38% always, 34% sometimes, and 22% never follow up these babies (6% unsure). Of those followed-up, 46% reported on-going review, 29% single review, 25% dependent on case. Table 1 specifies investigations carried out by paediatric respondents.

60% of adult respondents perform targeted CFTR panel in the partner, 30% full CFTR sequencing. Partner genetics dictated baby genetic screening in 29% of paediatric responses who carry out CF genetics.

Conclusion:
The data shows significant variability in practice. Some agreement exists, with most adult sites referring, and paediatric sites reviewing CFTRm exposed babies, with liver tests and cataract reviews most frequently offered. A desire for guidance was frequently expressed. These responses will inform the development of interim guidelines in parallel with a Delphi process to capture consensus.

Recognising an older chILD: A case presentation of idiopathic lymphocytic interstitial pneumonitis

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Introduction: A previously healthy 9-year-old boy referred from GP presented to the emergency department with a six-month history of weight loss, shortness of breath on exertion, reduced appetite and dry cough. He had a past medical history of epilepsy, off antiepileptic treatment. He had previously attended primary care and received oral antibiotics and vitamin D supplements without improvement. Immunisations were up to date and there was no recent foreign travel or relevant family history.

Methods: On examination, he was cachectic with marked respiratory distress and an oxygen requirement. He had abnormal chest x-ray appearances. Multi-professional input was sought from respiratory, oncology and infectious diseases and he was transferred to a tertiary centre.

Results: A CT identified multifocal pleural thickening, septal thickening, areas of cyst formation and mediastinal and hilar adenopathy. Differentials included pleuro-pulmonary fibroelastosis, sarcoidosis and malignancy. Tuberculosis, HIV and other infections were excluded. Rheumatological and immune investigations were unremarkable. There were no positive genetic tests. A lung biopsy identified lymphocytic infiltrates, in keeping with a diagnosis of lymphocytic interstitial pneumonitis.

He was treated with pulsed intravenous methylprednisolone with a good but transient response. In view of ongoing respiratory distress, he was started on oral steroids, azithromycin and hydroxychloroquine after the second methylprednisolone pulse (total five pulses received). There was significant clinical improvement with oral steroids and they were gradually weaned off in the next year. Morning cortisol was normal. FEV1 improved from 31% to 48% predicted. Six-minute walk test distance improved from 220 metres to 340 metres. Follow-up CT showed substantial improvement in pleural thickening, with some ongoing cystic and emphysematous changes. He remains on hydroxychloroquine and azithromycin.

Conclusions: Childhood interstitial lung disease (chILD) encompasses a range of conditions, with an estimated prevalence of approximately <1 per 100,000.(1) Idiopathic lymphocytic interstitial pneumonitis is rare in immunocompetent children, commonly associated with HIV infection or connective tissue disorders.(2) The European chILD working group proposes a multi-disciplinary diagnostic pathway including imaging, bloods, genetics, and indications for lung biopsy.(3) Management consists of steroids and steroid-sparing agents. Suggested assessment parameters of treatment response include physiological observations, oxygen requirement, radiological monitoring and lung function testing.(1)

Oscillometry for the Diagnosis of Asthma in Children: a Systematic Review

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Introduction and Objectives

Diagnosing asthma in young children is challenging as they are unable to perform objective lung function tests such as spirometry.[1] Portable oscillometry is a simple alternative test, conducted during tidal breathing, which gives information on respiratory resistance and reactance. However, the sensitivity and specificity of oscillometry in this context has not been established. Our systematic review aims to evaluate the diagnostic accuracy of oscillometry for the diagnosis of asthma in children.

Methods

MEDLINE, EMBASE, Emcare, CINAHL and Cochrane CENTRAL databases were searched. Studies evaluating the diagnostic accuracy of oscillometry in children aged 2-18 years with suspected asthma were included. Reference standards were positive spirometric bronchodilator response (BDR) or positive methacholine challenge test (MCT). Primary outcomes were sensitivity and specificity. Studies were evaluated for risk of bias using the Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) tool.[2]

Results

Ten studies were included. Five studies (n=920 children) utilised spirometric BDR as the reference standard. 28% decrease in resistance at 6Hz was associated with 83.3% sensitivity (95% CI 43.7-99.2%) and 83.3% specificity (95% CI 60.8-94.2%) whilst 32% decrease in resistance at 8Hz was associated with 45.0% sensitivity (95% CI 25.8-65.8%) and 94.1% specificity (95% CI 80.9-99.0%). Due to variation in oscillometry parameters reported, meta-analysis of these five studies was not possible.

Five studies (n=531 children) utilised MCT as the reference standard. Weighted regression analysis of the three studies which reported resistance at 5Hz, showed that a 28.9% increase in resistance at 5Hz was associated with an optimal sensitivity and specificity of 70.7% (95% CI 68.6-72.9%).

Conclusion

Oscillometry is feasible in young children and has potential to be a valuable diagnostic tool. Determining an optimal diagnostic threshold for BDR is challenging due to the lack of consistency in parameters measured and reported by studies. European Respiratory Society technical standards for oscillometry[3] define BDR thresholds in healthy children however, results of our review suggest these cut-off values lack sensitivity for diagnosing asthma.
There are currently no established cut-off values for MCT. Based on our regression analysis, 28.9% increase in resistance at 5Hz is an optimal threshold for defining positive MCT by oscillometry.

Childhood asthma online workshops: Empowering parents and care givers – an evaluation.

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'MyHealth' is an education and empowerment programme offering workshops to empower people to really take control of their health by giving them the latest knowledge. Hillingdon Children's Asthma Team (HCAT) deliver the 'Childhood Asthma' sessions, aimed at parents/carers in the borough of Hillingdon, with the focus to improve confidence in managing their child's health needs by providing fundamental but essential information..

Method

Free and accessible workshops.

Process for booking:

1. Poster (Figure 1) is displayed across the borough in various organisations.
2. The QR code on the poster is linked to 'Eventbrite' where participants can book tickets.
3.. HCAT deliver a presentation via Zoom and parents are given the opportunity to ask any questions.
5. Pre & Post workshop questionnaires collected from participants.

Workshop Aims:

Understanding:

•what asthma is
•inhalers and techniques
•what an asthma attack is
•the importance of an Asthma Action Plan

Results & Conclusions

• The main two themes identified in feedback:

1) Information was comprehensive
2) Information was easy to understand

• The table (figure 4) demonstrates the participants perception of their knowledge about asthma before and after the workshop. On average there was a 45% perceived increase in participant knowledge

• The positive feedback demonstrates workshops are effective in empowering participants to feel confident to care for their child's asthma. It is therefore important to continue to provide these sessions

• In 2018/2019, the sessions were held face to face, 2021-2024, the sessions were offered virtually via 'Zoom'. Virtual sessions increased attendance rates by 13% and decreased DNA rates by 14%. Across 24 virtual workshops offered, 141
participants attended, compared to 13 face-face workshops, of which only 55 participants attended.

Limitations:

• Technical issues with 'Zoom' can cause delay starting the
workshop.
• Parents/carers with limited/no internet access
• Workshops were held during the week, after school which some found difficult to attend

Next Steps

• A booklet has been created which has supported the interactive empowerment of knowledge delivered (figures 2 and 3). It is now available for use across North-West London
• Monthly workshops continue and consideration to expand across NWL

A pilot study to determine the use of a structured 48-hour asthma review tool which can be used efficiently and effectively in clinical practice.

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All children and young people presenting to an acute care setting with an asthma exacerbation should be reviewed within 48 hours by an appropriately trained clinician
in primary care. Hillingdon Children's Asthma Team endeavoured to complete 48-hour reviews for patients via video-call using an agreed proforma (Figure 1).

Aims:

1) To ascertain if completing a paediatric asthma 48-hour review is feasible in a standard 15-minute time slot.
2) To ascertain whether this tool can safely identify children that need further acute medical review.
3) Highlight the importance of a structured 48-hour review following an asthma exacerbation requiring care in an acute setting.

Method:

• Pilot took place between 01/09/2023 and 11/03/2024
• Identified every child 5-16 years, who presented to Hillingdon Hospital acutely with wheeze/asthma.
• Families were offered a 48-hour review via video-call.
• The team used a scoring system, triaging children into three categories (figure 1).
• Using clinical judgement, in combination with the child's triage score, the appropriate standardised safety advice was given.
• Data was collected and analysed (figures 2, 3, 4 & 5).

Limitations:

1) Patient limitations: no access to internet, unable to answer calls and child not present for review.
2) The team only offer a Monday to Friday service

Conclusions:

This study has demonstrated that using a structured template to complete a 48-hour review for children in a standard 15-minute time slot in primary care, is achievable and safe. On average, a structured 48-hour review was completed in 13.4 minutes (Figure 2). 14% of children who took part required same day medical attention (Figures 3 and 4). This supports the necessity of ensuring all children are routinely offered such a review. The triage tool used was deemed safe and effective to use in clinical practice; No children triaged 'Green' represented acutely to A&E within a week of their review. The criteria within the tool has since been implemented within North-West London ICB.

Next steps:

This study has enabled us to demonstrate that using this structured template is safe and effective in practice and can be implemented within primary care to support 48-hour reviews..

Transport and imaging of the Neonatal Lung using a whole-body MRI scanner and comparison with CT imaging

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INTRODUCTION AND OBJECTIVES

There is a clinical need for detailed, non-ionising methods of lung imaging in the neonatal population, feasible within the NHS. This has previously been demonstrated with MRI on bespoke, neonatal systems in BPD, with the Ochiai scoring system providing prognostic information of clinical benefit in one specialist centre(1).

Our objectives were:

1. To develop a transport and scanning pathway for MR imaging of the neonatal lung using an MR compatible incubator and 1.5T whole-body scanner, for NHS use
2. Compare the image quality and diagnostic utility of lung MRI with clinically requested CT scans in term neonates

METHODS

Term born neonates, aged 24 hours-1 month were from two groups: healthy volunteers, and those requiring oxygen for >2 weeks, undergoing clinically requested lung CT from the neonatal unit.

A neonatal MRI-compatible scanning pod (AHT Scanpod), foam ear plugs, and ear defenders (NeoMuff) were used for transportation and imaging. The “feed and swaddle” technique(2) was used to initiate sleep.

Participants were observed directly or via MR-compatible camera (MRC Systems 12M-i). Heart rate and O2 saturations were monitored for those on oxygen. Scans were performed during free-breathing with no sedation or anaesthesia.

The main MR sequences used were spoiled gradient echo (SPGR) and ultra-short echo time (UTE) with further sequences undertaken where tolerated. Images were independently reviewed for quality and modified Ochiai score by two consultant radiologists.

RESULTS

8 babies participated, 4 in each group. 1 additional healthy neonate withdrew prior to any imaging taking place. All participants completed the main imaging sequences, with 7/8 (87.5%) completing additional sequences.

Mean image quality score was 10/15 (Range 7-13.5), with a chronological improvement in UTE score (1st case 8.5, last case 12). SPGR scores were consistent throughout. Ochiai scores were similar between both modalities ranging between 0-4 with only one subject (on oxygen) scoring above 1. Multiple different pathologies detected on CT, were all demonstrated on MR images (figure).

CONCLUSIONS

We have demonstrated that 1H Lung MRI is feasible in term neonates, using conventional MR systems available within the NHS. Image quality is high with pathology seen on CT, detected on MRI.

CHESTI-Study: Core outcome set and measures of chest health in children and young people with cerebral palsy in the community setting

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Introduction
Poor chest health is the primary cause of mortality in children with cerebral palsy. Moreover, it is the most common reason to seek medical advice and require hospitalisation. Such high healthcare burden reduces quality-of-life for children and their families. Yet, indicators of chest health are inconsistently measured across research, making it difficult to determine the most effective treatments. Moreover, typical measures, such as spirometry fail to meet the needs of this population, limiting early assessment and evaluation of care in clinical practice.

Methods
CHESTI-Study employs an iterative mixed-method approach to develop a core outcome set (COS) and recommend instruments, used to assess, monitor and evaluate chest health in children with cerebral palsy. Methods feature perspectives of children and young people with lived experience, parent/carers and professionals. The three main workstreams are:
1) Qualitative systematic review and interview study to identify meaningful stakeholder-informed candidate chest health outcome domains.
2) International e-Delphi study, inviting stakeholders to rate the importance of outcomes. A COS will be ratified in a subsequent consensus meeting.
3) Structured review of instruments for each core outcome domain. Recommendations will be discussed in a final consensus meeting.

Impact and Conclusion
Implementation of this COS in routine clinical practice will inform early chest health assessment and monitoring, enabling proactive delivery of care in children with cerebral palsy. This aligns with wider research and healthcare agendas striving to reduce illnesses and hospital stays in underserved populations. Longer-term, application of this COS in research will promote relevance and consistency across intervention studies and help determine the most effective treatments for children with cerebral palsy.

A Phase 2b/3 Study to Evaluate the Efficacy and Safety of an Investigational Respiratory Syncytial Virus (RSV) Antibody, Clesrovimab, in Healthy Preterm and Full-Term Infants

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Background: Clesrovimab is an investigational, long-acting monoclonal antibody (mAb) targeting site IV of the fusion protein for the prevention of RSV lower respiratory tract infection in infants.

Methods: This phase 2b/3 double-blind, randomized, placebo-controlled pivotal study enrolled healthy preterm and full-term infants birth to 1 year of age entering their first RSV season. Participants (pts) were randomized 2:1 to receive clesrovimab (105 mg IM) or placebo on day 1. Safety and tolerability were a primary endpoint. There were two hypothesis-tested endpoints: the efficacy of clesrovimab against RSV-associated medically attended lower respiratory tract infection (MALRI) through day 150 (primary) and against RSV-associated hospitalization through day 150 (secondary). The MALRI definition required ≥1 indicators of lower respiratory tract infection (LRI) or severity. To facilitate comparison across RSV mAb trials, a definition of RSV-associated MALRI that required ≥2 indicators of LRI/severity (≥1 indicator of LRI and ≥1 indicator of severity) was assessed post hoc.

Results: There were 3,632 pts randomized across 22 countries; >99% received study intervention. RSV-associated efficacy endpoints through day 150 and day 180 are shown in Table 1. Clesrovimab reduced the incidence of RSV-associated MALRI requiring ≥1 indicator of LRI/severity (60.4% [95% CI: 44.1, 71.9], p<0.001) and ≥2 indicators of LRI/severity (88.0% [95% CI:76.1, 94.0]), RSV hospitalization (84.2% [95% CI: 66.6, 92.6], p<0.001), and severe MALRI (91.7% [95% CI:62.9, 98.1]) through day 150 postdose compared to placebo. Efficacy increased with increasing RSV-associated disease severity and was similar from days 1-180 compared to days 1-150 across endpoints. The proportions of pts with adverse events (AEs), including injection-site and systemic AEs, drug-related AEs, and serious AEs were comparable between the clesrovimab and placebo groups. There were no treatment-related deaths or deaths attributed to RSV disease.

Conclusion: A single dose of clesrovimab given before or during the first RSV season was efficacious in reducing RSV-associated MALRI and RSV-associated hospitalization in healthy preterm and full-term infants and was generally well tolerated with a safety profile comparable to placebo.

Improving Clinician Knowledge and Practice on Vaping

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Introduction

The alarming increase in vaping among children and young people underscores the importance of effectively identifying vape users among patients and providing appropriate advice and referrals. This abstract summarises a study examining the behaviour and clinical practices of frontline doctors before and after receiving vaping-related educational interventions.

Methods

Over 1 month, we audited the patient records of all paediatric admissions from ED at Addenbrooke's Hospital in Cambridge for evidence of vaping history and appropriate referrals documentation. We then conducted a survey of all the frontline doctors working in the Paediatrics ED to assess their behaviour and knowledge regarding vaping. Following this, we implemented a series of educational interventions on vaping, which included 1-hr lectures, 30-min handover teaching sessions and 10-min ward-based discussions.
2 months later, we repeated the patient record audit and surveyed the frontline doctors again to compare our results.

Results

Of 54 patient records, 7(12.9%) had their vaping history documented. Among these, 2(28.5%) were active e-cigarette users. Half of the current vape users received cessation advice and appropriate referrals.
3/16 frontline doctors expressed confidence in discussing vaping with patients, and only 1 felt up to date on the latest research. 2/16 were aware of resources for signposting and referral pathways for vaping patients.

After educational interventions, of the 39 patient records assessed, 6(15.3%) had their vaping history documented. Appropriate referrals were made for none of the 2 patients with a positive vaping history. After the educational interventions, 15/2121 frontline doctors surveyed felt up to date on vaping research, 18 felt more confident in discussing vaping with patients, and 15 were aware of relevant resources and referrals.

Conclusion

Our assessment has demonstrated that the rapidly evolving landscape of vaping-related research and epidemiology can make it challenging for frontline doctors to stay up-to-date. This may lead to a lack of confidence and awareness of appropriate resources to share with patients. Continuous, systematic educational interventions is crucial for improving clinician confidence and awareness regarding vaping, but more efforts are needed to ensure that this translates into appropriate history taking and signposting.

Heated, humidified high flow therapy at home setting in children with respiratory failure- Single centre experience

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Introduction:
Low Flow Oxygen Therapy (LFOT) and Non-Invasive Ventilation (NIV) are primary treatments for chronic respiratory failure in children. However, LFOT often fails in severe hypoxemia or hypoventilation, while NIV is poorly tolerated and requires expertise. High Flow Oxygen Therapy (HFOT) has emerged as a supplementary option, though paediatric guidelines remain lacking.

Aims and Objectives:
To enhance care quality, patient safety, and outcomes by analysing:
- HFOT usage patterns in home settings.
- Clinical outcomes in children receiving HFOT.
- HFOT's impact on hospital admissions due to lower respiratory tract infections (LRTIs).
- Opportunities for service improvement and care standardization.

Methods:
This Quality Improvement study reviewed all patients initiated on home HFOT (H-HFOT) at our centre from 2017 to 2024. It revisited cases from a prior HFOT review (2017–2022), presented at the ERS congress 2022, and included newly initiated cases. Data were collected from electronic records on demographics, medical conditions, HFOT indications, therapy parameters, respiratory care plans, RESPECT forms, LRTI-related hospital admissions, and post-discharge monitoring.

Results:
Fifteen patients were identified, including 10 from the prior review and 5 new cases. Ages ranged from 5 months to 14 years, with most (5–12 years) in middle childhood. Neurological (6/15) and genetic disorders with airway compromise (4/15) were the most common conditions. HFOT was primarily initiated for NIV-intolerant OSA (5/15) and OSA (4/15). At review, 7 patients remained on HFOT, 2 transitioned to NIV, 2 stopped HFOT and 3 had passed away.
Post-discharge monitoring was assessed only for local patients due to limited access to external records. Of the five local patients, three underwent oximetry within three months, while two did not—one being palliative. Inconsistent respiratory care plans (8/15) highlighted an opportunity to address the need for a Standard Operating Procedure (SOP). The QI project led to the development of an SOP, a discharge checklist, and a standardized respiratory care plan template.

Conclusion:
H-HFOT is a comfortable, effective alternative to NIV for paediatric patients with complex respiratory conditions. Standardized care plans and consistent post-discharge monitoring are essential for improving outcomes. Further research is needed to evaluate H-HFOT's long-term impact.

Socioeconomic and ethnic predictors of fungal sensitisation in a paediatric difficult-to-treat asthma cohort

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Background: Fungal sensitisation is associated with poor asthma control in children, particularly amongst low-income and ethnic minority groups (PMID: 20560826, 3714399). However, it is unclear whether this association persists after adjusting for socioeconomic deprivation or ethnicity.

Objective: To determine whether fungal sensitisation is associated with deprivation and ethnicity in children with difficult-to-treat asthma.

Methods: Retrospective analysis of difficult-to-treat asthmatic children (6-16 years) referred to a regional severe asthma centre between 2018 and 2024. All eligible patients were prescribed high dose inhaled corticosteroids. Fungal sensitisation was defined as mould IgE ≥0.35kU/L. Index of multiple deprivation (IMD)-deciles were based on patient postcodes. Logistic regression was used to identify predictors of fungal sensitisation.

Results: Data from 126 patients was analysed of which 109 (86.5%) were atopic. Of 89 severe asthmatics included: median age was 10.5 years (IQR 5.5-16.0), 61 (68.5%) were male and 45 (50.6%) were non-Caucasian. Asian ethnicity was the predominant non-Caucasian group (n=13, 48.1%). 43 (48.3%) of the whole cohort were fungal sensitised (Table 1). The sensitised group had a greater prevalence of non-Caucasian patients (67.7%) compared to the non-sensitised group (39.5%), $p<0.05$. Median IMD-decile was 2.0 in both groups. Logistic regression identified IMD-decile and total IgE as significant predictors of mould sensitisation (OR for IMD-decile: 1.29, 95% CI 1.04-1.62, $p<0.05$; OR for non-Caucasian ethnicity: 2.87, 95% CI 0.88-10.2, $p=0.088$).

Conclusions: Socioeconomic deprivation was the strongest predictor of fungal sensitisation in this cohort while ethnicity displayed a non-significant trend as a possible risk factor. However, children from ethnic groups were disproportionately represented among the fungal sensitised group. Targeted interventions to improve the indoor environment in vulnerable populations may improve asthma control. Further research into the mechanisms underlying fungal sensitisation in these groups has the potential to inform preventative and therapeutic interventions.

Early improvement in Gastro-Intestinal symptoms in 2-5 year old children following the introduction of Elexacaftor/ Tezacaftor/ Ivacaftor (ETI)

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Introduction and Objectives: Elexacaftor/Tezacaftor/Ivacaftor (ETI) treatment in older children and adults has been associated with significant improvements in gastrointestinal (GI) symptoms. This study aims to assess this in a younger cohort following 3-months of ETI.

Methods: The parents of children (aged 2-5yrs) with CF at Kings College Hospital completed the CFAbd-Score questionnaire, a CF-specific validated patient-reported outcome measure specific to GI symptoms, prior to and 3-months post ETI initiation. Demographic data were collected and questionnaire scores analysed to assess total CFAbd-Scores in addition to symptoms in its five specific domains (Gastro-oesophageal reflux (GERD), disorders of bowel movement (DBM), disorders of appetite (DA), pain and quality of life (QoL)). Pre- and post-ETI scores were compared using Wilcoxon signed rank test.

Results: Complete data for 20 children were analysed: mean age 3.5yrs, 12 (60%) Phe508del homozygotes, 19 (95%) pancreatic insufficient. After 3-months of ETI, both the total CFAbd-Score and GERD domain scores had significantly improved (Table 1). Although scores for DBM and QoL also improved with ETI, these changes were not significant. DA and Pain domains remained unchanged.

Conclusion: This single centre study demonstrates a significant improvement in GI symptoms, as assessed by the CFAbd-Score, after only 3-months of ETI therapy in children aged 2-5yrs. The largest improvement was seen in symptoms relating to GERD, which may in part relate to the well-described improvement in respiratory symptoms. Further improvements in GI symptoms may be anticipated with a longer treatment duration.