anaesthetic which is twice as costly, involves additional risks and is often not feasible in a district general setting.

The NICE guidance for sedation for paediatric imaging recommends oral chloral hydrate for children <15kg and oral midazolam if >15kg, however reported success rates of midazolam are low.

Dexmedetomidine is a colourless and odourless selective α_2 -agonist that has been used to sedate children for a wide range of procedures. Published success rates for intranasal administration for paediatric MRI are 56–98%. Common side effects include transient bradycardia and hypotension, but these rarely require intervention (<0.1% all cases).

Objectives To assess the efficacy and safety of intranasal dexmedetomidine for the sedation of children for MRI scans in a district general hospital.

Methods We sequentially audited different approaches to sedation of children attending our paediatric day unit for elective MRI scans over a 2 year period. In the first 11 months the NICE guidance was followed (epoch 1), the following 9 months chloral hydrate used for all patients (epoch 2) and in the final 4 months intranasal dexmedetomidine used for children >15kg or where a child had failed chloral sedation previously (epoch 3).

Dosing was 50mg/kg (maximum 1g/dose) for chloral hydrate, 500microgram/kg (maximum 20mg/dose) for midazolam and 4 micrograms/kg (maximum 200micrograms/dose) for dexmedetomidine, or 2 microgram/kg if in combination with chloral hydrate. Scans were considered successful if the images were sufficient for a paediatric radiologist to provide a diagnostic opinion.

Results There were 77 scan attempts for 65 children. 75/77 (97%) scans were an MRI Head. Median age was 3.2 years overall, 2.6 years for chloral hydrate (range 3 months - 7.2 years), 5.1 years for midazolam (2.8–15.5 years) and 3.7 years for dexmedetomidine (1.5–13.7 years). Fifty-five children received 1 attempt, nine 2 and one 4.

Overall success rates per scan attempt were 29/47 (62%) for chloral hydrate, 4/12 (33%) for midazolam, and 12/17 (71%) for dexmedetomidine. Success rates were 52% (17/33) using NICE guidance, 71% (15/21) when only chloral hydrate was used and 82% (18/22) after introduction of dexmedetomidine (Fisher's exact test $p = 0.026$ epoch 1 vs epoch 3).

Of 6 children who failed sedation with chloral hydrate and had further attempts on another date, only the 3 who had dexmedetomidine were successful. 1 child was successfully sedated with a combination of chloral hydrate and dexmedetomidine after a previous failure with dexmedetomidine alone.

Dexmedetomidine was associated with reductions in HR and BP below age-specific normal range in 72% (8/11) and 20% (2/10) evaluable cases respectively. Median reduction in HR from baseline was 20% (range 0–39%). 18% (2/11) had HR >20% below normal range. Children with abnormal observations were clinically reviewed, but none required any interventions.

Conclusions Using dexmedetomidine instead of midazolam and where chloral hydrate has failed significantly improves sedation success compared to following the NICE guidance. The incidence of cardiovascular side effects from dexmedetomidine was similar to larger series and not clinically significant.

British Paediatric Allergy Immunity and Infection Group

1156

FEVER IN THE RETURNING PAEDIATRIC TRAVELLER: A RETROSPECTIVE REVIEW OF HOSPITAL ADMISSIONS OVER TWO YEARS WITHIN A CENTRAL BIRMINGHAM TRUST, UK

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Background With increasing international travel, there is greater recognition for good clinical assessment of the febrile returning paediatric traveller, with appropriate use of tests based on travel history and presenting symptoms. Fewer guidelines are available on appropriate investigations for travellers from South Asia.

Objectives Primary outcome was to analyse the clinical assessment and management of febrile paediatric admissions returning from abroad in the preceding 12 months. This included analysis of diagnostic investigations and their utility. We also aimed to consider the proportion of treatable diagnoses in relation to travel location.

Methods A retrospective observational study of paediatric admissions lasting over twelve hours duration in a central Birmingham NHS Trust was carried out, for 24 months from January 2018 to December 2019. Patients aged 16 and under, with a fever over 38 degrees on admission or history of fever at home, with travel history outside of the UK in the preceding 12 months were included.

Patients were identified from review of handover documentation. Clinical progression and outcome were outlined using medical records. Data were analysed on Microsoft Excel.

Results 97 paediatric patients fit the inclusion criteria; 95 had further details of admission available. Median age on admission was 4.8 (range 3 months to 16 years). 47/97(49%) were male.

51/97(53%) travelled to Asia (of which 82% travelled to South Asia), 22/97(22%) to Africa, 20/97(21%) to Europe and 4/97(4%) to North America. 69/97(71%) of all travel was to malaria endemic countries.

Median time to hospital presentation since travel was 15 days (mean, 45 days). Common presenting symptoms included vomiting (39/95,41%), diarrhoea (33/95,35%), cough (30/95,32%) and reduced oral intake (8/95,8%).

The highest rates of positive findings were via chest radiograph (43%) and parasite blood film (23%). 45/95(47%) of patients had at least one positive investigation which could be directly treated.

The most common diagnoses were non-specific viral illness (23/97,24%), gastroenteritis (21/97,22%) and lower respiratory tract infection (15/97,15%). Tuberculosis was suspected in 4 cases. Malaria was confirmed in 10/97(10%), 2 with *Plasmodium vivax* (travel to West Asia) and 7 with *Plasmodium falciparum* (travel to Africa).

Of travellers to South Asia (42/97,43%), 40% had at least one positive investigation. 50% of positive stool cultures and 25% of positive blood cultures in the full study population were from those returning from South Asia.

Most common diagnoses in travellers to South Asia were gastroenteritis (12/43,27%) and non-specific viral illnesses (11/43,26%).

Conclusions Almost half of patients presented with a diagnosable infection, using investigations relevant to their clinical presentation.

Malaria cases were identified only in travellers to Africa and West Asia. A greater proportion of gastroenteritis was identified in patients traveling to South Asia, in which stool and blood cultures identified the most positive investigations.

In febrile travellers returning from Asia and Africa, we would advocate a low threshold for a chest radiograph, parasite blood film, stool and blood culture being performed, due to high potential risk of infection and varied symptoms on presentation.

British paediatric respiratory society

1157

LET'S TALK AIR POLLUTION – IT'S EVERYONES RESPONSIBILITY

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Background London is one of the most heavily polluted cities in Europe. Tower Hamlets is an area of North East London and is an 'air quality management area'. Over 40% of its residents reside in area of unacceptable air quality. The impact on children's health is significant and long-lasting and exacerbated by the fact that they also attend schools in some of the most polluted parts of the city. In fact, Tower Hamlets has the 6th worst rates of admission for childhood asthma exacerbations in Greater London. Despite this most health professionals have limited time or resources to have meaningful conversations with patient groups regarding air pollution exposure.

Objectives We set out to empower local health professionals with the skills and knowledge to talk about and educate patients on the health effects of air pollution exposure and how they can mitigate these risks.

Methods A set of training materials were created in conjunction with the environmental charity Global Action Plan (GAP) and Tower Hamlets Council. They were co-designed with children and young people (CYP) with asthma, parents of children with asthma, community members, and healthcare professionals from different backgrounds (primary care nursing/doctors, secondary care, public health).

The resulting materials centre around 5 key simple themes for reducing exposure to air pollution and lessening its impact on children's respiratory health. These were disseminated through various avenues;

1. Interactive launch webinar
2. Virtual training video on Youtube (hosted on multiple online platforms at CCG, NHS hospital trust and the GAP Clean Air Hub <https://www.cleanairhub.org.uk/tower-hamlets>)
3. Direct patient contact with a cohort of paediatric asthma patients and their carers via their community Asthma nurse
4. GP surgery virtual engagement sessions

Results The programme was launched in conjunction with Clean Air Day 2020. So far we have provided training to GP surgeries, paediatric and A+E departments, pharmacies, health visitors, schools, and direct patient dissemination by the community specialist asthma nurse service.

To date over 110 children with asthma have had an air pollution discussion, and over 250 HCPs have been trained up to have these vital discussions. The GP engagement sessions and patient contact is ongoing. The material have been shared online and in paper form across the borough.

Conclusions Air pollution continues to have significant impacts on the health of our patients, and children are the ones at most risk. Going forwards we need to be able to include air pollution discussions in our consultations and support patients and families to make informed decisions about mitigating their risks.

The simple messaging associated with our project allows that conversation to be started. The engagement so far in the project suggests a welcome shift towards including these vital discussions in everyday practice and the next year will bring an evaluation of the impact of the project on both the HCPs involved and resulting impact on children and families understanding of air pollution.

Quality Improvement and Patient Safety

1158

USING QUALITY IMPROVEMENT TOOLS TO SUCCESSFULLY IMPROVE OUTCOMES IN PAEDIATRIC EPILEPSY

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Background The epilepsy team at a district general hospital embarked on a quality improvement (QI) drive as part of the RCPCH Epilepsy Quality Improvement Programme (EQIP). The team comprising of consultant, epilepsy nurse and physician associate, used quality improvement tools and learning from EQIP to improve the care of children and young people with epilepsy.

Objectives The purpose of this presentation is to share the outcomes and learning from the quality improvement project.

Methods The initial purpose of the project was to devise and implement a feedback tool to use with children and families to create a patient centred service with an ongoing feedback loop. The various tools we used included:

1. Driver diagram to breakdown the task into primary, secondary and ideas for change
2. Process mapping
3. Multiple Tests for change – for example the first test was a simple question to family to ask if they wanted to take part
4. Plan Do Study Act cycle for evaluation and reform of process
5. Periodic discussions with EQIP team & RCPCH&Us to guide the progress.

The feedback with the new feedback form was then achieved from 42 respondents.

Results Reflection/Learning from the QI process:

1. Being part of a national drive and in company of other teams with similar goals was inspiring and created enthusiasm which is paramount in this initiative.