

Majority (80%) of planned imaging was for Brain relating to epilepsy or other neurodevelopmental disorders; other scans were booked for spine, ears or hips.

**Results** 67.2% children were successfully sedated and completed MRI scans (43/64).

Failure of sedation was 44% in older children (11/25) compared to 25.6% of those under 4 years age (10/39).

2 children vomited and 1 refused the oral medication.

18 children were not adequately sedated, of which 12 were re-booked for imaging with oral sedation and others booked for MRI under general anaesthetic.

2 patients also received oral Midazolam, of which 1 achieved successful MRI.

18.6% of MRIs (8/43) were reported as poor quality or had movement artefacts, suggesting achievement of good quality imaging in 54.6% planned elective MRIs (35/64).

There were no major complications but 2 children had low oxygen saturations related to deep sedation during scan; of which 1 child was kept overnight due to desaturations.

**Conclusions** Oral sedation using combination of Alimemazine Tartrate and Chloral Hydrate is safe within district general hospitals where provision of general anaesthetic is limited.

The partially successful sedation is also reported by other centres, leading to poor utilisation of MRI slots.

Inadequate sedation further impacts the quality of neuro-imaging affecting diagnostic yield in potentially significant underlying neurodevelopmental disorders.

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#### COMPARING FAECAL TRANSMISSION PATHWAYS CONTRIBUTING TO ENTERIC INFECTIONS IN INFANTS IN RURAL INDIA

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**Background** In rural India, child stunting remains a pressing concern that is being targeted by national flagship programmes. Poor child hygiene and exposure to enteric pathogens are important drivers of child stunting. Enteric pathogens can be transmitted from contaminated faeces to infants via water, food, hands, objects, soil, and flies.

**Objectives** In this study, we compared the infants' risk of enteric infection from exposure to different faecal transmission pathways, so that hygiene interventions can prioritise efforts towards the most dominant risks for infants.

**Methods** We collected data from 42 households with at least one infant aged 0 to 2 years from the study villages in rural Rajasthan, India. Water samples from drinking and bathing water sources, soil samples from household floors where infants were seen playing, and swabs from infants' and caregivers' hands were analysed for faecal indicator bacteria (*E. coli*). Household observations and data from the literature on exposure assessments were used to determine the infant's frequency and level of exposure to these different faecal transmission pathways. Published ratios between *E. coli* and enteric pathogens were used to assess the risk of enteric infection from each different faecal transmission pathway analysed.

**Results** The transmission pathways analysed included: Mouthing of own infants' hands, mouthing caregivers' hands, direct ingestion of soil from the household floor, drinking household stored water, and involuntary ingestion of surface water during bathing events at local streams. Over 98% of all the

samples tested were positive for faecal contamination. All of the surface water samples and household floor soil samples were highly contaminated with faecal bacteria ( $>2 \text{ Log}_{10} \text{ CFU/100 mL}$  and/g, respectively), and 93% of the drinking water samples were positive for *E. coli* (Geomean, SD  $2.10 \pm 0.76 \text{ Log}_{10} \text{ CFU/100 mL}$ ). Over 90% of the infants' and caregivers' hand swabs were contaminated. The direct ingestion of soil was the transmission pathway that posed that highest daily risk of enteric infection to infants, followed by mouthing of own soiled hands. Ingestion of soil posed a 1.4-fold higher infection risk than drinking water. The involuntary ingestion of water while bathing at local streams and mouthing of caregivers' hands posed smaller infection risks, but still considerable after accumulating over time. After one year, the estimated risk of *Campylobacter* and enteropathogenic *E. coli* infection was 100% for all the analysed infection pathways.

**Conclusions** Water, sanitation and hygiene programmes have typically overlooked soil as a faecal exposure pathway, but results from this study highlight the need to prioritise reducing infants' exposure to faecally contaminated soil while crawling around the household floors and mouthing their own hands, as those pathways posed the highest infection risks. However, it is apparent that discrete hygiene interventions targeting individual pathways will not be enough to reduce the enteric infection burden, as all the transmission pathways analysed posed a high risk of infection over time. This study reinforces the need for transformative changes to address the overall widespread high levels of faecal contamination in the infants' living environment to reduce child stunting and achieve the Sustainable Development Goals.

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#### ROTA INNOVATION AND E-ROSTERING IN GENERAL PAEDIATRIC DEPARTMENT IN A LARGE DISTRICT GENERAL HOSPITAL

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**Background** Junior Doctor rotas have gone through a number of iterations over the years. Rigid, rolling rotas with fixed annual and study leave have been opposed by trainees and the BMA1. They leave junior doctors unhappy, burnt out and disengaged. This has a negative effect on patient care<sup>3</sup> and serious consequences for retention and recruitment in Paediatrics and Healthcare at large.

**Objectives** To introduce a new electronic rota management (HealthRota) system which will facilitate self-rostering, improve adherence to the BMA and RCPC Trainee Charter<sup>2</sup> recommendations and improve junior doctor wellbeing.

**Methods** Twelve Junior Doctors (and senior doctor equivalents) starting a General Paediatric Medicine post will complete a survey of fourteen questions about their experiences in their previous rota (Non-HealthRota). They will then be introduced to HealthRota and repeat the survey towards the end of their Paediatric post. The survey included questions on life: work balance, rota design, transparency, access, leave requesting, annual leave, study leave, clinics and flexibility.

**Results** Overall there was on average a 1.3 point improvement (on a 5 point Leichardt scale) across all questions, with the various Non-HealthRota experiences having a satisfaction score of 3.0, whilst e-HealthRota had a score of 4.3. There were

no questions where HealthRota was inferior to other rotas. The biggest improvements were seen with 'Requesting Leave', 'Access the rota 24 hours a day' and 'Feeling of Ownership'. There were many positive comments in the open section including HealthRota was 'Much less Stressful', 'Absolutely fantastic' and 'A breath of fresh air'.

**Conclusions** Despite COVID-19 impacting on the junior doctor experience, HealthRota still proved to be a much more popular and efficient system across all important aspects of medical rotas

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# INFLIXIMAB INDUCED INTERSTITIAL LUNG DISEASE AND RESPIRATORY FAILURE: CASE REPORT OF A CHILD WITH INFLAMMATORY BOWEL DISEASE

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**Background** Infliximab is a chimeric anti-tumour necrosis factor-alpha (anti-TNFα) monoclonal antibody that has been used safely in the management of Inflammatory Bowel Disease (IBD) for over 20 years, recommended for use in paediatrics by the National Institute for Clinical Excellence (NICE) since 2010. Drug-induced interstitial lung disease (DIILD) secondary to Infliximab has been described as a rare complication in adult literature with variable outcomes.

**Objectives** We present the first reported case of life-threatening respiratory disease in a 13 year old patient receiving Infliximab for IBD.

**Methods** The patient was diagnosed with unclassified IBD (IBDU) aged 11 years, when he presented with colitis. Following steroid induction, maintenance treatment with Azathioprine was not tolerated and response to Mercaptopurine was inadequate. There was complete resolution of symptoms after the third dose of Infliximab.

Following the fourth dose of Infliximab the patient presented with respiratory symptoms which progressed rapidly, requiring Paediatric Intensive Care Unit (PICU) admission. Treatment was directed at a presumed infectious cause. CRP was raised and the patient became febrile, however extensive microbiological investigations were negative.

On day 8 of admission Methylprednisolone was started. Clinical improvement was rapid and allowed weaning of organ support. At day 14 Methylprednisolone dose was reduced by half and antibiotics were discontinued. Rapid deterioration ensued, therefore Methylprednisolone was increased.

After 5 weeks of intensive organ support and 2 mg/kg/day of methylprednisolone, the patient improved and steroids were cautiously weaned. Respiratory symptoms had completely resolved 8 weeks after last receiving Infliximab.

Subsequently he had a recurrence of symptoms with colitis confirmed on colonoscopy, and histology more in keeping with Crohn's disease. He did not respond to 5ASA therapy. After MDT discussion he was treated with Vedolizumab (a gut-specific anti-integrin). His colitis settled, with no adverse reaction to the alternative biologic.

**Results** Studies into DIILD from biologic therapies are largely from Rheumatoid Arthritis (RA) cohorts, and many subjects had pre-existing ILD. Known risk factors for the development of, and mortality from DIILD are not relevant to this case. A diagnosis of DIILD secondary to Infliximab was concluded

based on clinical course, lack of alternative diagnoses after thorough investigation, and multi-disciplinary discussions.

Withdrawal of the causative drug is the universally accepted treatment. Steroids are the most frequent drug treatment used but optimal dosing, duration and patient group who may benefit is unclear. Our case supports the use of high dose steroids in severely unwell patients but limited evidence precludes recommendation of other drug treatments.

**Conclusions** We believe this is the first case report of a child with DIILD secondary to Infliximab. Withdrawal of Infliximab and treatment with high dose steroids during the period of drug clearance was life-saving. Identification of those at risk of DIILD and early detection of the disease is challenging; there are many confounding factors and DIILD appears to be very rare in paediatrics. We would advocate further research to develop validated biomarkers for early detection of DIILD. Reporting of adverse events in post-marketing era remains integral. Vedolizumab may be an appropriate alternative for patients who have adverse reactions to Infliximab.

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# THE OUTCOME OF PDA LIGATION BY MINI-THORACOTOMY IN PREMATURE NEONATES: A SINGLE HOSPITAL EXPERIENCE

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**Background** Patent ductus arteriosus (PDA) is a common complication observed in the premature infant; its management being a controversial issue. The lack of robust evidence of benefit or harms of available treatment options, necessitate the need to balance them out against the likelihood of spontaneous duct constriction, which occurs in approximately a third of extremely premature neonates. Despite the controversy regarding the optimal management of PDA, nearly 70% of preterm infants (less than 28 weeks of gestation) will receive either medical or surgical treatment. The rationale behind this is to decrease the likelihood of developing morbidities associated with prematurity and persistent PDA. These include intraventricular hemorrhage (IVH), bronchopulmonary dysplasia, necrotizing enterocolitis (NEC) and increased mortality.

Various thoracotomy practices have been employed for occlusion of PDA which are not amenable to medical management. Success rates of surgical ligation are reported to be high but it has been associated with significant operative complications. In this study, we assess survival outcomes and operative complications associated with ligation.

**Objectives** This prospective study focuses on the closure of PDA by mini-thoracotomy in our institution. We report our preliminary experience of using this approach in small premature infants and determining survival outcomes in relation to factors such as gender, birth weight, age, and type of ventilation used intra-operatively.

**Methods** Between January 2004 and December 2012, 52 consecutive premature infants with an echocardiographic diagnosis of isolated PDA, which are not amenable to medical treatment, were included. Those with chromosomal abnormalities, major cardiac congenital anomalies aside from septal defects, and infants who did not receive mechanical ventilation in the first week of life were excluded. The median gestational age was 28 weeks and the median gestational weight at surgery was 705 g. The median PDA size was 3.8 mm, ranging from