Background The nature of epilepsy means it can be difficult to diagnose accurately. Currently there are almost 300 paediatric patients with a diagnosis of epilepsy managed by the RUH. Of these, almost 25% are not managed via epilepsy clinic. The route into the epilepsy service is complex leading to disparity in the quality of care provided. Through evaluation of service demand together with implementation of a pathway for first afebrile seizures, we aimed to change the service to introduce consistent, high quality care.

Objectives To develop and implement the first afebrile seizure pathway to ensure all cases with suspected epilepsy were seen by a paediatrician with a special interest in epilepsy, with early input from an Epilepsy Specialist Nurse for all cases, within an appropriate timeframe.

Methods As part of the national EQIP project we applied newfound QI skills as well as taking inspiration from other EQIP teams. We initially conducted a review of our service including process mapping of current referral pathways and reviewing the journey through that process of 24 patients (utilising epilepsy 12 cohort 1). We redesigned our referral pathway including specialist triage of referrals and used rapid PDSA cycles to set up and troubleshoot a 'first fit clinic'. We utilised patient stories from cohort 1 to generate buy-in for the project from other stakeholders. We reviewed local data regarding referral numbers to estimate likely demand in order to plan service expansion. We then compared the patient journey of the first 53 new patients seen via our new referral pathway (cohort 2).

Results We created a first fit clinic which achieved our goals as below. We also achieved significant service redesigns and improvements including a first fit referral proforma, specialist triage including early ENS contact to bridge the gap from referral to clinic and a new epilepsy team website including signposting to local services to facilitate holistic care.

Abstract 778 Table 1

	Cohort 1	Cohort 2
Initial review by epilepsy specialist	4/24 (16%)	53/53 (100%)
Review by ENS	12/24 (50%)	53/53 (100%)
Longest wait following first GTCS	4 months	3 weeks*

*with ENS telephone contact and safety advice given within 2 weeks.

Conclusions Engagement with the EQiP project facilitated our complete service redesign. There are challenges but the regular national meetings act as a driver to get work done alongside an opportunity to learn from other EQiP Teams. The Initial success of service redesign sparked enthusiasm for other ideas and has cascaded into significant positive changes to our service. Rapid workplace changes relating to the initial Covid wave allowed relative freedom to rapidly iterate and evolve this new service.

British Association of Perinatal Medicine and Neonatal Society

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IMPACT OF PERINATAL FACTORS ON BIOMARKERS OF CARDIOVASCULAR DISEASE RISK IN PREADOLESCENT CHILDREN

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Background Arterial stiffness is an independent predictor of cardiovascular morbidity and mortality in adults. Arterial structure and function changes that increase arterial stiffness occur gradually over years but may be influenced by the perinatal environment.

Objectives To systematically review the literature to determine how the perinatal environment impacts arterial structure and function in preadolescent children, following PRISMA guidelines.

Methods PubMed was searched using the terms: 'pulse wave velocity' (PWV), 'carotid intima-media thickness' (cIMT), 'arterial stiffness index' (SIx), 'flow-mediated dilation' (FMD), 'flow imaging', 'laser flow Doppler', 'venous plethysmography', 'cardi* magnetic resonance imaging', 'aortic intima-media thickness' (aIMT), 'vascular ultrasound' and 'neonat*', 'paediatric', 'infant*', 'child*'. Case reports, case series, reviews, commentaries, conference proceedings, animal studies, articles not in English and articles with children >12 years old were excluded. Articles exploring the impact of perinatal factors on arterial structure and function were included.

Results 28/1084 studies identified were included. PWV, a measure of arterial stiffness, was performed in 20 studies, including brachio-femoral (bfPWV), carotid-femoral (cfPWV), brachio-radial (brPWV) and aortic PWV (aPWV). Two studies measured the augmentation index (AIx), and two measured stiffness index (SIx), both indicators of vessel stiffness. Five studies measured cIMT and aIMT, since wall thickness can influence arterial stiffness.

17/28 studies explored perinatal maternal factors. Maternal age, serum ferritin, ethnicity, and psychosocial stress did not significantly impact neonatal PWV. Oily fish consumption in late pregnancy was associated with lower childhood aortic PWV (0.084m/s/portion/week; 95% CI: -0.137 to -0.031; $p=0.002$); maternal alcohol consumption in the second trimester was associated with increased cfPWV at 9 years (0.2m/s higher; 95% CI: 0.06 - 0.4, $p=0.02$). Maternal diabetes was associated with higher neonatal and infant PWV (two studies). The reported impact of maternal blood pressure (BP) varied: no association was found with infant bfPWV, but an inverse relationship was found between neonatal aPWV and maternal

BP ($r=-0.57$ m/s; 95% CI -0.67 to -0.45). cIMT in five-year-olds was $0.61\mu\text{m}$ greater per 1 mmHg increased maternal BP.

Eight studies explored the impact of fetal growth restriction (FGR) or small for gestational age (SGA), and three explored prematurity. FGR infants had a greater rise in brPWV between 1 week and 6 months old compared to appropriately grown infants (1.5 vs 0.9cm/s increase, $p=0.03$); however, aPWV and SIx did not differ between groups. One-week-old SGA infants had higher weight-adjusted aIMT (383 ± 163 vs $256\pm 43\mu\text{m/kg}$, $p\leq 0.001$) and SIx (2.0 ± 1.7 vs $1.1\pm 0.4\beta/\text{kg}$, $p=0.005$) than appropriately grown infants. Prematurity was associated with increased aortic stiffness in 2/3 studies: for example, AIx values were 5% higher (95% CI: 2%-8%) in 11-year-olds born ≤ 25 weeks. However, in six-year-olds, SIx and cIMT were similar in term and preterm (<27 weeks) cohorts.

Conclusions Studies included used diverse methods and different ages of participants, and inconsistent definitions for SGA/FGR were applied. Nevertheless, the perinatal environment appears to influence offspring arterial structure and function in preadolescent children. Future research should aim to establish reference values for arterial stiffness-related measures in preadolescent children using consistent methodologies, in order to allow earlier, targeted clinical and public health interventions focused on those at the highest long-term cardiovascular risk.

Association of Paediatric Palliative Medicine

784 HEALTHCARE PROFESSIONALS' EXPERIENCES OF THE BARRIERS AND FACILITATORS TO COMMUNITY PAEDIATRIC PAIN MANAGEMENT AT END-OF-LIFE

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Background Inadequate pain management in community paediatric palliative care is common. Evidence to inform improved pain management in this population is limited.

Objectives To explore the barriers and facilitators to paediatric community-based pain management for infants, children and young people at end-of-life as perceived by healthcare professionals.

Methods Semi-structured qualitative interviews were conducted with 29 healthcare professionals; 12 nurses, five GPs, five consultants and registrar doctors, two pharmacists and five support therapists working in primary, secondary or tertiary care in the UK and involved in community end-of-life care of 0–18-year-olds. The data corpus was analysed using an inductive thematic analysis.

Results Seven themes emerged from the data: parents' abilities, beliefs and wellbeing; working relationships between families and healthcare professionals, and between healthcare teams; healthcare professionals' knowledge, education and experience; health services delivery; nature of pain treatment; and paediatric-specific factors. Across themes, the concepts of partnership working between families and healthcare professionals, and within healthcare teams, and sharing expertise were prevalent.

Conclusions It is important that healthcare professionals and parents work together, and that mutual trust is built up through two-way conversations. Community healthcare professionals would benefit from education from experienced multi-disciplinary teams to effectively manage paediatric pain at end-of-life and prevent emergency hospice or hospital admissions, particularly during the COVID-19 pandemic.

British Paediatric Neurology Association

785 MANNITOL VS 3% HYPERTONIC SALINE IN CHILDREN WITH INTRACRANIAL HYPERTENSION: REVIEW OF THE CURRENT EVIDENCE

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Background Hyperosmolar agents have been used for a long time in managing patients with increased intracranial pressure due to different aetiologies. Mannitol and 3% hypertonic saline (HTS) are the most used agents in paediatric patients;

Abstract 785 Table 1

Author/date	Country	Study design	Underlying condition	Outcome
Rameshkumar 2020	India	Open label RCT (n=57)	CNS infection	HTS group was more responsive with less mean ICP and higher mean CCP CPP than baselines. HTS group had less mortality, duration of ventilation, PICU stays and better outcomes at discharge.
Kumar 2019	India	Open label RCT (n=30)	Severe TBI	No difference was demonstrated between both groups as regards ICP, CPP, ventilation, duration of PICU, mortality, and outcome.
Roumeliotis 2016	Canada	Retrospective observational (n=16)	Severe TBI	Equal results shown in both groups with Less ICP in HTS group after second bolus.
Decourcey 2013	USA	Retrospective multicentre cohort study (n=1,632)	Cerebral oedema due to DKA	Equal ICU admission and duration of ventilation in both groups. However, higher mortality rate demonstrated in HTS treated group ($p<0.37$)
YILDIZDAS 2005	Turkey	Retrospective observational (n=67)	Infection, HIE, ICH, Metabolic	Less mortality and duration of coma in HTS group.
Vats 1999	USA	Retrospective pilot study (n=43)	Closed Head Injuries, Intracranial neoplasm, fulminant hepatic failure, viral encephalopathy	Higher CPP than baseline in HTS group

TBI: Traumatic brain injury; CNS: Central nervous system.