Results We found that there was a reduction in median invasive ventilation days (0 vs. 2 days), non-invasive respiratory support days (0 days vs. 39 days) and total oxygen days (5 vs. 34.5 days) in the LISA cohort compared to those receiving surfactant via endotracheal tube. One infant required home oxygen in the LISA cohort vs. eight in the non-LISA. There was a 9% reduction in BPD rates after introduction of LISA according to NNAP data. Eight babies required intubation following unsuccessful LISA. Compared to their successful counterparts median invasive ventilation days, non-invasive respiratory support days and total oxygen days were 1.5 days, 17.5 days and 10 days respectively. Of the babies who required intubation five had a complete course of antenatal steroids, and three an incomplete course.

Conclusions Following the introduction of LISA we successfully saw a reduction in total ventilation days, total non-invasive ventilation days, total oxygen days and bronchopulmonary dysplasia rates. With LISA becoming a standard of care for infants requiring surfactant and part of a package aimed at reducing BPD rates in our unit, we hope to see a sustained reduction in ventilation days and BPD rates. As no discriminating factor amongst those infants requiring intubation post LISA could be identified no changes have been made to the eligibility criteria for LISA.

Conclusions This project showed that a simple intervention can make an improvement in the quality of information provided between teams. By ensuring that the correct team members were contacted this allowed for the necessary staff to attend a delivery with minimal delay. By providing important information to the neonatal team it allowed the registrar to decide if a neonatal nurse was also required to attend a delivery, thereby ensuring that their resources and staff were being utilised effectively.

Quality Improvement and Patient Safety

IMPROVING INFORMATION PROVIDED BY LABOUR WARD STAFF WHEN REQUESTING NEONATAL ATTENDANCE AT DELIVERIES – A QI PROJECT

1Jennifer Mitchell, 2Rachael Ferguson, 1Ivory Huang, 1Hilary Conetta. 1NHS Greater Glasgow and Clyde; 2NHS Ayrshire and Arran

Background Handover is an essential component to ensuring patient safety. It was noted by neonatal staff that there was variation in which team members were being contacted and the information provided by Labour Ward and Theatre staff when requesting neonatal attendance at a delivery.

Objectives Our aim was to assess the handover provided to identify areas where this could be improved.

Methods We devised a data collection form, and collected information for each phone call we received over a two week period. We collected data on which staff were called/paged to attend, and the information provided.

Results We found that there was a wide variation in relation to which team members were being called/paged. The registrar was only paged 64% of the time, and 23% of the time neither doctor was paged and only the neonatal unit ward phone called. We were informed of gestation 38% of the time, and reason for attendance 87% of the time.

It was decided that the registrar and FY2 were required to be contacted for a delivery, and the neonatal unit did not need to be called separately. Signs were put above phones in labour ward and theatre informing staff of the page numbers to be contacted, and the information required. Senior staff on Labour Ward disseminated this information to their staff and included it in daily safety briefs.

We performed a second round of data collection six weeks following this intervention. There remained some variation in who was contacted, however there was improvement with the registrar now being paged 79% of the time, and only the neonatal unit ward phone being called reduced to 10%. We were now informed of the gestation 59% of the time, and reason for attendance had increased to 100%.

Conclusions Following the introduction of LISA we successfully saw a reduction in total ventilation days, total non-invasive ventilation days, total oxygen days and bronchopulmonary dysplasia rates. With LISA becoming a standard of care for infants requiring surfactant and part of a package aimed at reducing BPD rates in our unit, we hope to see a sustained reduction in ventilation days and BPD rates. As no discriminating factor amongst those infants requiring intubation post LISA could be identified no changes have been made to the eligibility criteria for LISA.
standard paediatric head injury proforma, with an under 1 year old section, was introduced. This printed instead of patient notes. Local education and electronic prompts on the ED clinical system also occurred.

**Results** There were 1240 infants <1 year with head/facial injury over the study period, 245 were selected with 238 analysed (7 discounted as not head/facial injury). From 2017–2021 SFT documentation increased from baseline median 0% to >80%, with a statistical change in practice after introduction of the proforma. SIF submission increased from baseline median 60% to >80%, with a statistical shift in practice from October 2017. It is unclear what caused this shift in practice but national case awareness including Child X & U may have impacted. Clerical issues identified in the original QIP led to SIFs not reaching the Safeguarding team (SIF scanned into notes only and not discussed) thus impacting on achieving a higher percentage of SIF submissions. Despite raising awareness in 2018–19 with our clerical staff, this issue remains and may not be correctable until a planned fully electronic system is introduced. Some infants had no SIF reflecting staff non-compliance with local policy suggesting on-going education and feedback is required.

**Conclusions** Introduction of a standardised head injury proforma and electronic prompt has created a sustained and embedded practice within our PED of adequate SFT documentation. SIF submission is high and improved further, but a combination of clerical issues and policy non-compliance has currently limited further improvement. Continuous staff education, training and feedback is required to sustain high compliance levels.

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### Abstracts

#### A SYSTEMATIC REVIEW AND META-ANALYSIS OF THE EVIDENCE FOR ASSOCIATION OF POTENTIAL RISK FACTORS WITH DEFORMATIONAL PLAGIOCEPHALY

Christopher Hillyar, Anjan Nibber, Juling Ong. Great Ormond Street Hospital

Background A number of potential risk factors may change the odds for developing deformational plagiocephaly. Understanding the evidence for the association of potential risk factors will improve the diagnosis and management of deformational plagiocephaly.

Objectives The aim of this study was to conduct a systematic review and meta-analysis to assess the evidence for association between potential risk factors and deformational plagiocephaly.

Methods The study was conducted in accordance with PRISMA guidelines (PROSPERO identifier: CRD42020204979). PubMed and Web of Science were searched (21 August 2010 through to 21 August 2020) for observational studies which assessed risk factors for deformational plagiocephaly. Main outcomes were any risk factors which alter odds for the development of deformational plagiocephaly. When feasible, pooled meta-analytic estimates were provided using fixed- or random-effects models.

Results A total of 17 studies met the inclusion criteria. Meta-analysis demonstrated evidence of association between specific risk factors and deformational plagiocephaly, including male gender (OR, 1.66; 95% confidence interval (CI) 1.13 to 2.43; I², 63.25%; N=4), supine sleeping position (OR, 3.23; 95% CI 2.05 to 5.10; I², 17.26%; N=2), head position preference (OR, 4.76; 95% CI 3.44 to 6.57; I², 0.00%; N=3), vaginal mode of delivery (OR, 1.55; 95% CI 1.07 to 2.23; I², 0.00%; N=3), and low maternal education level (OR, 1.66; 95% CI 1.17 to 2.37; I², 0.00%; N=2). Evidence of no association was found for small for gestational age (SGA) (OR, 1.74; 95% CI 0.91 to 3.31; I², 37.08%; N=2), multiple pregnancy (OR, 1.97; 95% CI 0.30 to 13.15; I², 87.04%; N=2), and cephalic presentation at delivery (OR, 0.53; 95% CI 0.10 to 2.86; I², 88.61%; N=2).

Conclusions Risk factors associated with the development of deformational plagiocephaly include male gender, sleeping supine, head position preference, vaginal delivery, and lower maternal education. Risk factors with evidence of no association include SGA, multiple pregnancy, and cephalic presentation. These findings may assist in the development of guidelines for improving the diagnosis and management of deformational plagiocephaly.

#### ASSOCIATIONS BETWEEN MATERNAL THYROID FUNCTION IN PREGNANCY & CHILD NEURODEVELOPMENTAL OUTCOMES AT 20 MONTHS IN THE SEYCHELLES CHILD DEVELOPMENT STUDY NC2

1Anna Monaghan, 1Maria Mulhern, 1Emer Mc Sorley, 1Seán Strain, 2Theresa Winter, 3Edwin van Wijngaarden, 4Gary Myer, 5Philip Davidson, 6Conrad Shamlaye, 7Jude Gedeon, 1Alison Yeates, 1Ulster University, 2Institute of Clinical Chemistry and Laboratory Medicine, University medicine Greifswald; 3The Department of Community and Preventive Medicine, University of Rochester School of Medicine and Dentistry; 4The Department of Pediatrics, University of Rochester School of Medicine and Dentistry; 5The Department of Neurology, University of Rochester School of Medicine and Dentistry; 6Ministry of Health, Republic of Seychelles; 7Child Development Centre, Ministry of Health, Mahe, Republic of Seychelles

10.1136/archdischild-2021-rpch.79

**Background** Maternal thyroid hormones facilitate optimal foetal neurodevelopment, however the exact role of the thyroid hormones on specific cognitive outcomes is unknown.

**Objectives** This study aimed to investigate associations between maternal thyroid function and neurodevelopmental outcomes at 20 months in the Seychelles Child Development Study (SCDS, n=1535).

**Methods** Maternal free thyroid hormones (fT3, fT4 and fTSH) were assessed at 28 weeks gestation with a range of child cognitive outcomes analysed at 20 months. Dietary iodine intake was analysed for a subset of women through a Food Frequency Questionnaire (FFQ) (n=422), with a median iodine intake of 233µg/d, slightly below the recommended iodine intake for pregnancy as advised by the WHO (>250µg/d). Linear regression analysis was used to test associations between serum concentrations of fT3, fT4 and fTSH and child cognitive outcomes. Thyroid hormones were analysed both as continuous data and also categorised as quintiles. 95% of mothers had optimal thyroid function based on their TSH concentrations.

**Results** Results show that maternal fT3, fT4 and TSH were not significantly associated with any cognitive outcomes at 20 months in this high fish-eating population. However, a