the babies were >37 weeks, 20% were 28–31+6 weeks, 32% were 32–36+6, and 4% of the babies were <28 weeks.

Of the inborn babies, 13 had an antenatal suspicion of OA and were admitted immediately after birth and were confirmed on X-ray. 12 babies were diagnosed postnatally; of these 5 had polyhydramanios noted antenatally, and 7 did not. There were no babies who were diagnosed following the routine passage of NGT for isolated polyhydramnios.

A list of clinical presentations for postnatally diagnosed OA is shown in below (table 1):

**Abstract G199(P) Table 1**

| Presentation | Number of Babies (%) |
|---|---|
| Prematurity with incidental abnormal CXR | 5 (42%) |
| Other abnormalities i.e. Imperforate anus/cleft palate/HLHS | 3 (25%) |
| 'Dusky' episode | 1 (8%) |
| Mucousy vomits, respiratory distress | 1 (8%) |
| Respiratory distress present at delivery | 1 (8%) |
| Apnoea/bradycardia shortly after birth | 1 (8%) |

**Conclusion** In conclusion, unless there is a high suspicion of OA antenatally, there was no evidence from our NICU's experience to support the routine passing of NGT's in babies born to mothers with polyhydramnios. Locally, we will be using the findings to re-evaluate the need for this routine practice.

## G200(P) EARLY BREAST MILK TO OPTIMISE OUTCOMES FOR PRETERM INFANTS, A QUALITY IMPROVEMENT PROJECT

S Cuevas-Asturias, R Marion, S Bates, T Isaacs, C Gale, J Peart, T Miles. *Neonatal and Paediatrics Department, Great Western Hostpital, Swindon, UK*

10.1136/archdischild-2019-rcpch.195

**Aims** Maternal breastmilk (MBM) is the one of the most important interventions a preterm infant can receive. It reduces morbidity, improves neurodevelopmental outcome and reduces the incidence of necrotising enterocolitis. Early expressing is associated with improved milk supply and longevity of breast feeding. The aim of this QI project was to improve early MBM expressing and time to early colostrum in infants born <32 weeks.

**Methods** This project was part of a package of ten evidence-based interventions to optimise outcomes for preterm infants (the NeoPremQI Project), launched 2017. QI strategies for early MBM included:

1. Midwife champions promoting benefits of MBM for preterm infants to MDT.
2. Charity funded electric breast pump for intrapartum/immediate postpartum expressing on delivery suite.
3. Improved parental awareness of the benefits of MBM for preterm infants, and the importance of early expressing (parental information leaflets, structured antenatal consultations about MBM).
4. Data was collected about these interventions, and Time interval between birth and infant receiving colostrum
5. MBM at discharge.
6. Core neonatal outcomes (outcome data available for 54 infants at time of submission).

**Results** Pre QI data was collected on all in-born <32 week infants at GWH in 2015 (n=32). Post QI Data was collected on all in-born <32 week infants at GWH from January 2017 to September 2018 (n=66). Demographic characteristics of the groups (gestation, birth weight, gender distribution and% antenatal steroids) were similar. Tables 1 and 2

**Abstract G200(P) Table 1**

| Intervention | PreQI | PostQI | p-value |
|---|---|---|---|
| Documented antenatal discussion of MBM benefits for preterm infants | 0% | 69.8% | p<0.0001 (Fisher's exact) |
| Expressing intrapartum/within 1 hour delivery | 0% | 50.9% | p<0.0001 (Fisher's exact) |
| Time interval between birth and infant receiving colostrum (median/range) | 26 hours (8–52 hour) | 5 hours (0.6–47 hour) | p<0.00001 (student t-test comparing mean values) |
| Any MBM at discharge | 65.5% | 86% | p=0.0468 (fishers exact) |

**Outcome Data**

**Abstract G200(P) Table 2**

| Outcome (none statistically significant) | PreQI | PostQI |
|---|---|---|
| Survival to discharge | 90.6% | 98.1% |
| NEC (Bell Stage 2/3) | 9.4% | 3.7% |
| Severe Perinatal Brain injury (Grade 3–4 IVH or cPVL on term MRI) | 15.6% | 8.3% |
| Severe ROP | 6.3% | 0% |

**Conclusion** Simple multi-disciplinary QI measures have led to a significant reduction in time to infants receiving colostrum, an increased proportion of babies receiving breast milk at discharge, and may be associated with improvements seen in other important outcomes.

## G201(P) RESPIRATORYWORKLOAD AND MEDICAL STAFFING IN UK LOCAL NEONATAL UNITS (LNUS) ANDSPECIAL CARE UNITS (SCUS) – TIME FOR A RETHINK

[1]W Tyler, [2]GF Fox, [3]AC Fenton. *[1]Neonatal Unit, Shrewsbury and Telford Hospital NHS Trust, Telford, UK; [2]Neonatal Unit, St Thomas' Hospital, London, UK; [3]Newcastle Neonatal Service, Royal Victoria Infirmary, Newcastle, UK*

10.1136/archdischild-2019-rcpch.196

**Introduction** The majority of UK neonatal care occurs in SCUs and LNUs with a smaller volume of highly complex care delivered by NICUs. Whilst the significant shortfall in nursing numbers nationally has been highlighted, medical staffing has received little attention.

**Aim** To determine levels of medical staffing in UK LNUs/SCUs, days of respiratory support provided and admissions weighing <1.5 kg.

**Methods** Questionnaire sent to every LNU and SCU requesting details of medical tier staffing. ODNs provided the number of respiratory care days (RCD – invasive and non-invasive

mechanical respiratory support) delivered 2013–15 and numbers of admissions weighing <1.5 kg.

**Results** 78 (86.7%) LNUs and 38 (95%) SCUs responded. 11/90 LNUs delivered <365 RCDs annually. Of these 9 admitted <25 infants weighing <1.5 kg. 6/40 SCUs delivered >365 RCDs annually.

Significant numbers of LNUs and SCUs employed non-training grade medical staff and ANNPs to cover rotas; neonatal CST holders or equivalent support many units (Tables 1 & 2).

The 8/11 low-activity LNUs who responded provided partially separate Tier 1 staffing from paediatrics, consistent with SCU staffing recommendations only. Half of the high activity LNUs and all high activity SCUs did not achieve staffing standards for NICUs or LNUs respectively.

**Conclusions** A wide range of activity is undertaken by UK LNUs and SCUs, with moderate overlap of workload between unit types. These data should inform potential unit re-designation as part of the current national reviews. Current medical and ANNP staffing is a major barrier to implementing change.

**Abstract G201 Table 1** % units employing non-trainee cover

| | Tier 1 ANNP | Tier 2 ANNP | Tier 1 non-training | Tier 2 non-training |
|---|---|---|---|---|
| LNU | 46% | 23% | 33% | 70.5% |
| SCU | 21% | 8% | 26% | 84% |

**Abstract G201 Table** 2% units employing specialist Consultants

| | Neonatal CST/equivalent | Neonatal Paediatrician | General Paediatrician |
|---|---|---|---|
| LNU | 27% | 91% | 55% |
| SCU | 8% | 82% | 92% |

## G202(P) FROM AMAZON PRIME TO THEATRE PRIME: THE LAST MILE DELIVERY

A Verma, D Thakkar, G Fox, A Milan. *Neonatology, St Thomas' Hospital, London, UK*

10.1136/archdischild-2019-rcpch.197

**Background** The last mile delivery model is a well-known corporate concept that has been adopted by successful businesses such as Amazon. It comprises of systematic optimisation of multiple steps of a complex delivery process, aiming for timely deliveries and improved customer care experience. Similarly, Neonatal Units (NNUs) with surgical provisions face logistical challenges when moving patients from NNU to a surgical theatre. Surgical time is expensive; costing around £1200 per hour[1]. Unlike the well-established Amazon model, the process of moving these babies has never been mapped systematically.

**Aim** Step-wise mapping of baby journeys to theatre, highlighting possible inefficiencies and providing benchmarking of current standards.

**Methods** Prospective anonymized data collection of all consecutive NNU to theatre transfers within a 4 month period, documentation of time spent in each step and data analysis using Microsoft Excel.

**Results** 25 baby journeys were mapped. Each journey included 6 steps: baby moved to transport incubator, journey to theatre, transfer to surgical table, surgical time, back to transport incubator, return to NNU. Porters facilitated both transfers. Initial estimated surgery start time was often postponed (64%>90 min). Babies were ready in incubator within 15 min of updated requested time (52%). However, 50% of the patients waited >20 min in transport incubators for porters to arrive. Once called to retrieve the patient post-op, the NNU team took an average of 14 min to reach theatre. They remained in theatre for >20 min in 56% of cases, as the patient was not ready to be moved (32%) or the porters were not available (23%).

**Conclusions** The last mile delivery of a baby to theatre is a complex multistep process that requires a multidisciplinary effort. Our findings have been presented to key stakeholders (neonatologists, surgeons, anaesthetists, theatre staff) proving the need for a strategic platform to develop a more systematic approach to this complex process. The strategy required would need to mimic similar user experience offered by successful delivery providers like Amazon.

### REFERENCE

1. Fletcher D, et al. Improving theatre turnaround time. *BMJ Open Quality* 2017.

## G203(P) THE VALUE OF TRANSCUTANEOUS BILIRUBINOMETERY IN PREDICTION OF THE NEED FOR PHOTOTHERAPY IN PRETERM INFANTS

[1,2,3]A Raba, [2]A O'Sullivan, [1,2,4]J Miletin. *[1]School of Medicine, University College Dubin, Dublin, Ireland; [2]Neonatal Department, Coombe Women and Infants University Hospital, Dublin, Ireland; [3]School of Medicine, Misurata University, Misurata, Libya; [4]School of Medicine, Charles University, Prague, Czech Republic*

10.1136/archdischild-2019-rcpch.198

**Background and aims** Transcutaneous bilirubin (TcB) measurement is an effective method for an early diagnosis of neonatal jaundice and prevention of its rapid progression. The aim of our study was to evaluate transcutaneous bilirubinometer as a screening tool (at 24 and 48 hours of age) for the need of phototherapy in preterm infants.

**Methods** A single centre prospective cohort study conducted in the Coombe Women and Infants University Hospital, Dublin, Ireland (level III perinatal centre). The study included preterm infants ($23^{+0}$ to $36^{+6}$ weeks of gestation) born between June 2017 and May 2018. TcB was measured in all enrolled infants at 24 hours and 48 hours of postnatal age (using Dräger Jaundice Meter JM-105 or JM-103). Our primary outcome was the prediction value of TcB in relation to the need of phototherapy during hospital admission.

**Results** A total of 338 preterm infants (mean birth weight (±SD) 2013 g(±693), mean gestational age(±SD) 32.6 (±3.4) weeks of gestation) were enrolled during the study period. One hundred and eighty-one (53.6%) infants developed significant hyperbilirubinemia requiring phototherapy during the study period. Majority of infants (98.1%) below 32 weeks of gestation required phototherapy. We constructed ROC curves for the group of preterm infants born above $31^{+6}$ weeks of gestation. The optimal cut off point for TcB at 24 hours of age was 81 µmol/L (sensitivity 83%; specificity 56%; positive predictive value (PPV) 54.7%; negative predictive value (NPV) 84%). The optimal cut off point for TcB at 48 hours of age was 145 µmol/L (sensitivity 65%; specificity 62%; PPV 24%; NPV 90%).