held to brainstorm ideas and to develop training materials. A WhatsApp group was initiated to maintain continuous links within this team. The four pillars of FiCare were addressed: Staff Education, Parent Education, NICU Environment and Psycho-Social Support.

After months of preparation and staff training, FiCare was launched at the end of October 2016. Step by step over the following months we implemented further aspects of our FiCare model. FiCare is established as standard care for all admissions to our NICU.

Results Badgernet was used to obtain outcome measures in two epochs: 1 st December 2015 – 1 st October 2016 (Pre-FiCare) and 1 st December 2016 – 1 st October 2017 (Post-FiCare).

Abstract G213(P) Table 1

Outcome	Pre-ficare epoch	Post-ficare epoch
NICU days receiving any of own mother's milk	76%	81%
NICU days receiving only own mother's milk	56%	63%
Babies born<33 weeks gestation discharged receiving any of own mother's milk	66%	80%
Length of stay>90 th centile for UK, based on gestation	6.3%	3.9%

The results in table 1 also compare very favourably with our network, where to date, ours is the only unit to implement FiCare.

Conclusion Since FiCare launched, there has been an improvement in breast feeding rates and a reduction in length of stay. We have also noted a gradual cultural change on NICU, including increased awareness of developmentally appropriate practices and increased parents' readiness for discharge.

G214(P) PRETERM INFANT TRANSFUSION SUPPORT: ADULT OR CORD BLOOD DONATION? A LONGITUDINAL STUDY OF CD71 EXPRESSION IN PRETERM, CORD AND ADULT BLOOD SAMPLES

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10.1136/archdischild-2018-rcpch.209

Background Several risk factors are implicated in the development of necrotizing enterocolitis (NEC), one of which is receiving a blood transfusion. Recent evidence suggests that newborn (cord) red blood cells expressing CD71 can suppress potentially damaging immune responses to bacteria colonising the gut. Therefore, a blood transfusion, currently from adult donors, might effectively dilute these preventative properties, resulting in damaging inflammatory responses against gut bacteria, and subsequent NEC.

Aim We wished to identify in neonatal cord blood samples the early red cell population (CD71+/CD235+) purportedly responsible for the immunosuppression, and to establish a time course of their development with respect to gestational age. We also compared to adult blood donors, and assessed their potential anti-inflammatory activity.

Method Residual routine blood samples were obtained from preterm babies in the Neonatal Unit, after informed parental consent. Sequential samples were obtained until the infants were discharged. Neonatal/cord/adult blood samples, were separated by density centrifugation into mononuclear (buffy) cell layer (MNC) and red cells (RBC). MNC and RBC populations were immunofluorescently labelled with anti-human CD71 and anti-human CD235a and analysed by flow cytometry. We have assessed normal umbilical cord (term, elective sections) and healthy adult blood to investigate the anti-inflammatory properties of newborn cord RBC compared to adult RBC in simulated *in vitro* transfusions. Pro- and anti-inflammatory cytokine production by innate immune cells in response to pathogenic gut bacteria were also evaluated.

Results The proportion of RBC and MNC CD71 +cells were significantly greater ($p<0.0001$) from neonates (term cord and preterm infants) compared to adults. While transfusion did elicit suppression of pro-inflammatory cytokine production in response to bacterial challenge, regardless of the donor RBC source, the net effect of adult RBC transfusion is dilution of the innate CD71 +population.

Conclusion Logistics aside, we suggest that transfusion using umbilical cord progenitor RBC, rather than adult RBC donations, might afford an alternative option for pre-term infants to lessen their risk of post-transfusion associated NEC.

G215(P) IMPROVING SAFETY AT THE VERY BEGINNING: A NOVEL NEONATAL DELIVERY SAFETY CHECKLIST

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10.1136/archdischild-2018-rcpch.210

Aim Resuscitation and stabilisation of newborn babies can be a complex process involving members of several multi-disciplinary teams. We aimed to improve early newborn care by reducing errors and improving safety at each stage of this process. The World Health Organisation (WHO) *Surgical Safety Checklist*^{1,2} has been shown to dramatically reduce morbidity and mortality in surgical patients. Using the same principles, we created a novel *Neonatal Delivery Safety Checklist* with an aim to improve multi-disciplinary communication and early care of the newborn.

Method We started by surveying all members of the multi-disciplinary team about their experiences of attending complex and preterm deliveries. We process mapped the stages involved in attending a delivery and combined this with the survey information. This formed the basis of the pilot project where, as in the WHO *Surgical Safety Checklist*, we identified three 'vital phases': a preparatory period; a pause before the delivery where the whole team is encouraged to answer the question 'are we ready?'; and before transfer to the neonatal unit.

Results We piloted the checklist over two weeks and immediate feedback was gathered. A 'plan, do, study, act' cycle was then initiated to respond to feedback from the multi-disciplinary team. As a result, the *Checklist* has gone through seven variations to date to make it as user friendly as possible whilst retaining the key principles.

Admission temperature in babies born at <32 weeks has shown a dramatic improvement since *The Checklist* has been introduced for routine preterm deliveries. Nearly 50% of infants had admission temperature <36.5°C in the month

prior to *The Checklist* being introduced (June 2017) compared with 12.5% 2 months afterwards (September 2017).

Staff satisfaction regarding intra- and inter-disciplinary communication has anecdotally improved and is currently being formally assessed.

Conclusion Our novel *Neonatal Delivery Safety Checklist* has improved early care of the newborn, including admission temperature of preterm babies.

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G216(P) AUDIT OF COMPLIANCE WITH A GUIDELINE FOR A NOVEL METHOD OF PREPARING BREAST MILK FORTIFIER

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10.1136/archdischild-2018-rcpch.211

Background Some clinicians suspect that breast milk fortifier may increase risk of necrotising enterocolitis in preterm babies¹ although there is no evidence for this.² However there is risk of contamination of breastmilk during fortification, in addition vigorous shaking risks damage to delicate immunological components, and storage for longer than 12 hours leads to coalescing of milk fat globules³ with reduced surface area for digestion. In 2012 a guideline using a novel method to prepare fortified breastmilk was written to address these concerns; it combed several practices to ensure milk safety. Fortifier is dissolved in 3 ml of breastmilk at the time of preparation to avoid the need for shaking. The concentrate is then used to accurately prepare low volume fortified milk precluding the need for storage over 12 hours. Each step is carried out using aseptic handling.

Aims To audit compliance with this novel method of fortification within a tertiary neonatal unit.

Methods Approval was granted by the local audit committee. The guideline was evaluated by observation of 40 separate preparations of fortified breastmilk during 2 weeks in 2016. All fortification was carried out in the nursery as the unit has no milk kitchen. Seventeen steps were identified and compliance noted for each. Four steps around labelling, 7 around aseptic technique, and 6 around handling.

Results Compliance achieved, for labelling 84% of time, aseptic technique 60% and handling 83%. Non-compliance around handling was most common when fortifier was added to large volumes of breastmilk, leading to vigorous shaking of milk to dissolve powder.

Conclusion Non-compliance with aseptic techniques when preparing fortified breast milk is high. This needs to be addressed with ongoing nurse education around the potential risks to milk quality.

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G217(P) THE BURDEN OF STOMA-RELATED COMPLICATIONS IN PRETERM INFANTS

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10.1136/archdischild-2018-rcpch.212

Aims Preterm infants requiring small bowel resection may receive a temporising enterostomy to divert the faecal stream and allow optimisation of their clinical condition and nutritional status prior to restoration of intestinal continuity.

Facilitating growth in the presence of an enterostomy can be challenging, and may require adjuvant parenteral nutrition in addition to enteral feeds. There remains no consensus regarding the optimal timing of stoma closure.

We aimed to determine the stoma-related complication rate in preterm neonates undergoing small bowel resection and enterostomy formation to help inform discussions about the timing of stoma closure.

Methods We retrospectively identified all infants <32 weeks gestation who underwent small bowel resection and enterostomy formation between January 2012 and June 2017, from our surgical procedures database. Information including basic demographics, indication for enterostomy, timing of formation and closure and associated complications were extracted from case records. Local Caldicott Guardian approval was obtained.

Results 34 neonates were identified with a median gestational age and birth weight of 27+3 weeks (range 23+2–31+6) and 933 grams (range 480–2050) respectively. Indications for enterostomy formation were necrotising enterocolitis (NEC) in 16 (47%) infants, spontaneous intestinal perforation in 9 (26%) and 'other' in 9 (26%).

The overall median age at stoma formation was 26 days (range 3–97); with a median age of 44 days (range 6–71) in infants with NEC, compared to 15 days (range 3–97) for all other infants. Median age at stoma closure was 105 days (range 27–394).

27 neonates (79%) required adjuvant parenteral nutrition via central venous access and 14 (51%) of these developed a central line associated complication. There were 7 stoma-related complications comprising 3 stoma prolapse, 1 wound dehiscence and 3 superficial wound breakdown.

Conclusions Complications directly related to an enterostomy, or due to a requirement for central venous access and parenteral nutrition are common in preterm infants. These data should inform multidisciplinary discussion regarding the risks and benefits of persevering with an enterostomy versus early closure.

G218(P) NORMAL OXYGEN SATURATION VALUES; DATA FROM TERM INFANTS USING MASIMO RADICAL 7

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10.1136/archdischild-2018-rcpch.213

Aims Chronic lung disease affects up to a third of babies born prematurely in the UK.¹ For some, this necessitates discharge home on supplemental oxygen. Criteria for identifying these ex-preterms vary between units. Increasing use of formal