standardised approach to blood transfusion documentation, highlighting indication for blood transfusion, consent and desired outcome achieved. Our aim with this audit was to assess completion of the blood booklet and identify areas for improvement.

Method A retrospective audit of the completion of the blood transfusion booklet within the neonatal unit in Craigavon Area Hospital was carried out. This was for all blood transfusions between October and December 2010.

Results 9 babies and 11 transfusion episodes were included. 3/9 babies were 25–30 weeks gestation, 4/9 babies were 1001–1500g. 4 of the transfusion episodes were classified as emergency transfusions. 1 adverse incident occurred during the audit period. Clinical observations were documented in 11 cases, consent in 9/11 cases. The main concerns were regarding blood prescription as special requirements, volume of blood and rate of transfusion were not documented adequately.

Conclusion This highlighted a need to improve the prescribing of blood products. The prescription chart was revised to include a column for volume and duration of transfusion in millilitres/hour. A specific blood transfusion booklet provides a readily available record of transfusions given and clear guidance for indication and prescribing of blood products. Our hope is that this will consequently result in safer blood transfusion practice.

255 SURVEY ON THRESHOLD FOR PACKED RED CELL TRANSFUSION IN NEONATAL UNITS ACROSS THE UK

doi:10.1136/archdischild-2012-302724.0255

¹V Satwik, ²J Cyriac. ¹Paediatric Cardiology, Southampton General Hospital, Southampton; ²Paediatrics, Broomfield Hospital, Mid Essex Hospitals NHS Trust, Chelmsford, UK

Aim Neonatal blood-product transfusion practices and policies vary widely among different institutions. The aim of this survey was to evaluate the threshold for packed red cell (PRC) transfusion for non-haemolytic neonatal anaemia in neonatal units across the UK.

Methods Data regarding the threshold for PRC transfusion in neonatal units was collected by means of telephone conversation. The number of units called was random and the first 100 units to provide full details were regarded as end point. Data was collected from April 2010 to August 2010.

Results Of the 100 units surveyed, 46% were level II units (46/100), 32% were level III (32/100) and 22% (22/100) were level I units. Eight units did not have a documented transfusion policy (4 level I and 4 level II). The range of transfusion thresholds between the units is shown in Figure 1 and the most commonly used transfusion thresholds (TT) is shown Figure 2.

Abstract 255 Figure 1

Figure 2: Most commonly used thresholds of Hb:

	Level 1 (n=18)	Level 2 (n=42)	Level 3 (n=32)
Invasive ventilation	<12 (8/18)	<12 (28/42)	<12 (14/32)
CPAP	<10 (7/18)	<10 (17/42)	<10 (11/32)
Chronic lung disease (CLD)	<10 (8/18)	<10 (17/42)	<10 (10/32)
Symptomatic anaemia	<10 (4/18)	<8 (11/42)	<8 (10/32)
Asymptomatic anaemia	<7 (7/18)	<7 (28/42)	<7 (21/32)

Abstract 255 Figure 2 Most commonly used thresholds of Hb

Discussion There was wide variation in threshold for PRC transfusion across the units we surveyed. Some units did not have a transfusion policy. A national guideline based on consensus and evidence is recommended to ensure homogeneity in clinical practice between units. This will also be useful in auditing, ensure accountability and cost effective practice.

256 MUTATIONS IN THE G6PD AND UGT1A1 GENES ASSOCIATED WITH SIGNIFICANT HYPERBILIRUBINAEMIA IN ASIAN NEWBORN INFANTS

doi:10.1136/archdischild-2012-302724.0256

¹FC Cheah, ^{1,2}FL Wong, ¹SK Chow, ²A Ithnin, ²A Othman. ¹Paediatrics; ²Pathology, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia

Background and Aims The G6PD gene mutation is associated with the development of neonatal hyperbilirubinaemia in Asian infants. The c.211G>A mutation of the UGT1A1 gene may contribute but the clinical significance and impact of a combination of these mutations have not been explored. The purpose of this study was to determine whether G6PD and UGT1A1 mutations together, were associated with significant neonatal hyperbilirubinaemia.

Methods Venous blood samples were collected from newborn infants monitored for jaundice and from non-jaundiced infants who served as controls. The G6PD and c. 211G>A of UGT1A1 gene mutations commonly reported among Asians were studied. G6PD enzyme measurements were performed using the fluorescent spot test and enzyme activity assay. Significant hyperbilirubinaemia was defined as a total serum bilirubin (TSB) of $\geq 250 \mu\text{mol/L}$.

Results The majority of infants were of Malay (n=256) and Chinese (n=89) descent. The G6PD mutations obtained were c.871G>A (17.4%), c.487G>A (6.3%), c.1376G>T (4%) and c.1388G>A (3%). One in five infants with G6PD deficiency developed significant hyperbilirubinaemia at three days of life. Infants with c.211G>A of UGT1A1 (18.8%) were two times more likely to be associated with significant hyperbilirubinaemia ($p=0.026$). Even if normal G6PD, the mean TSB among heterozygous/homozygous c.211G>A mutation ($291 \pm 78 \mu\text{mol/L}$) was significantly higher than normal UGT1A1 ($241 \pm 73 \mu\text{mol/L}$) ($p=0.014$). The limited number of infants showing combined G6PD and UGT1A1 mutations did not impact significantly on hyperbilirubinaemia in this study.

Conclusion c.211G>A UGT1A1 mutation was an independent risk factor, with c.871G>A being the most common G6PD mutation associated with significant hyperbilirubinaemia amongst Malaysian neonates.

257 THE SAFETY AND EFFICACY OF RED CELL TRANSFUSIONS IN NEONATES: A SYSTEMATIC REVIEW OF RANDOMISED CONTROLLED TRIALS

doi:10.1136/archdischild-2012-302724.0257

¹V Venkatesh, ¹R Khan, ¹A Curley, ²C Doree, ³S Hopewell, ³S Stanworth. ¹NICU, Cambridge University Hospitals NHS Foundation Trust, Cambridge; ²Haematology; ³SRI, NHSBT, Oxford, UK

Background and Aims Premature neonates commonly receive red blood cell (RBC) transfusions. Our aim was to systematically review the randomised controlled trial (RCT) evidence for use of RBC transfusions.

Methods We identified RCTs where the intervention was 'transfusion of red blood cells' from searches of multiple databases. Two reviewers independently extracted data and assigned overall quality. The primary review outcomes were mortality, and neurodevelopmental and respiratory endpoints.

Results We identified 27 RCTs; three studies compared RBC transfusion versus no transfusion/placebo, four compared transfusions of differing doses or administration schedule, 14 compared different types or products of RBC and six compared different thresholds for transfusion. Within the group of product trials, the largest subgroup of seven RCTs evaluated different media for storage or dilution of red cells, enrolling a total of 221 neonates. In the threshold group of six trials, enrolling 679 neonates, no significant differences in mortality (RR 1.22, 95% C.I 0.84–1.75) or chronic lung disease (RR 0.99, 95% C.I 0.84–1.15) were found; Only one RCT assessed neurodevelopment at 2 years and reported no difference. Many trials failed to report on clinical outcomes including mortality, chronic lung disease or other major neonatal co-morbidities, which would be considered of importance to clinicians.

Conclusions There are a large number of RCTs of RBC transfusions in this high risk population. Despite this, areas of concern included the nature of the intervention, outcome measures, sample size and quality of the trials, which precluded clear recommendations on the safety and role of RBC transfusion.

258 FETAL HAEMOGLOBIN LEVELS IN PRETERM INFANTS AT 36 WEEKS POSTMENSTRUAL AGE: EFFECT OF BRONCHOPULMONARY DYSPLASIA, SEPSIS AND TRANSFUSIONS

doi:10.1136/archdischild-2012-302724.0258

¹B Perrone, ²P Marchionni, ¹A Bartoli, ¹C Gidiucci, ¹M Pasqualini, ¹R D'Ascenzo, ¹F Marinelli, ¹C Cameli, ³PE Cogo, ¹VP Carnielli. ¹Division of Neonatology; ²DIISM, Polytechnic University of Marche, Ancona; ³Pediatric Cardiac Anesthesia/Intensive Care Unit, Department of Pediatric Cardiology and Cardiac Surgery, Bambino Gesù Children's Hospital, Rome, Italy

Background and Aims Previous studies showed that switchover from fetal (HbF) to adult (HbA) haemoglobin occurs in relation to postmenstrual age (PMA).

Aims To assess HbF levels at 36 weeks PMA in preterm infants born between 24 and 31 completed weeks, to determine their association with bronchopulmonary dysplasia (BPD), sepsis and packed-red-blood-cells (PRBC) transfusions.

Methods A retrospective cohort study of 130 preterm infants was performed. HbF determinations were obtained from the routine capillary blood gasses using ABL-800-flex (Radiometer Copenhagen) and results were reported as percentage of total Hb. Associations of HbF levels and clinical variables were tested by t-test and multiple regression analysis.

Results Infants were born at a mean gestational age of 28.1 weeks (range 24–31.5 weeks), with a mean birth weight of 995 g (range 380–1965 g); 45 of them (34.6%) had BPD, 36 (27.7%) were affected by sepsis and 76 (58.5%) received PRBC-transfusions (mean transfusion rate 2.5). At the univariate analysis HbF was significantly lower in infants with BPD (54.3%±21.2% vs 62.9%±18%; $p=0.03$), in those with sepsis (49%±18.7% vs 63%±18.6%; $p=0.002$) and in infants who received PRBC-transfusions (48.8%±14.6% vs 74.6%±17.2%; $p<0.001$). By multiple regression analysis, lower HbF levels were significantly associated to greater number of transfusions ($p<0.001$), previous occurrence of sepsis ($p=0.01$) and BPD ($p=0.05$).

Conclusions PRBC-transfusions, sepsis and BPD are associated with lower HbF levels at 36 weeks PMA. Information on postnatal changes of HbF level and its related factors will help better understanding of oxygen transport in selected complications of prematurity.

259 FROZEN PLASMA AND CRYOPRECIPITATE TRANSFUSION PRACTICES AMONG NEONATOLOGISTS - A NATIONAL SURVEY

doi:10.1136/archdischild-2012-302724.0259

¹RA Khan, ¹V Venkatesh, ¹A Curley, ²S Stanworth, ³C Josephson, ⁴B Potterjoy, PlaNeT 2 Study Group. ¹Neonatology, Cambridge University Hospitals NHS Foundation Trust; ²Haematology, John Radcliffe Hospital, Cambridge, UK; ³Paediatrics & Pathology, Emory University School of Medicine Atlanta, Atlanta, GA; ⁴Neonatology, Drexel University College of Medicine, Philadelphia, PA, USA

Background Frozen Plasma (FP) and cryoprecipitate (Cryo) are frequently transfused to neonates although indications remain unclear. This survey aimed to characterize current UK neonatal FFP/Cryo transfusion practices.

Methods Pre-piloted 15 question survey developed by neonatologists and transfusion medicine specialists in UK, to include clinical scenarios and direct questions about FP/Cryo transfusion decisions. Survey was posted to all neonatal units ($n=200$ UK).

Results Response rate for UK was 53%, 42% Level 2, 25% level 3 and 12% level 1 units. 48% of clinicians, would consider using FP for volume expansion in a non-bleeding, non-coagulopathic infant with hypotension refractory to inotropes and crystalloids. In a clinical vignette describing the same case scenario, 11% of clinicians would use FP to raise oncotic pressure. 19% of neonatologists would use FP as an adjunct to diuresis in an infant with oedema, when other interventions failed, 5% of clinicians would order FP. For isolated abnormal haemostatic test results in the absence of bleeding, 21% of clinicians would give FP (irrespective of laboratory results), while 66% would order FP for clinical bleeding in the absence of coagulation results. When asked about volume of FP administered, 51% responded 10mls/kg, and 43% 15–20mls/kg. With respect to cryoprecipitate, 26% of respondents did not use this product.

Conclusions FP practice including dose is highly variable. Neonatologists are considering use of FP to expand volume and raise oncotic pressure. There is limited consideration of Cryo for transfusion. This survey highlights areas where evidence and education are essential to improve practice.

260 A SINGLE CENTRE RETROSPECTIVE STUDY OF CYTOGENETIC PROFILE, MANAGEMENT AND OUTCOME OF ACUTE MYELOID LEUKAEMIA IN CHILDREN

doi:10.1136/archdischild-2012-302724.0260

P O'Hare, M Taj, D Lancaster. Paediatric Oncology, Royal Marsden Hospital, London, UK

Background and Aims AML15 was the first major trial to compare anthracycline based consolidation to a Cytosine-Arabinoside based one. Following closure of the trial, standard therapy of cytosine - arabinoside consolidation therapy is currently recommended at this centre. A review of the cytogenetic, treatment and outcome profiles for patients diagnosed with Acute Myeloid Leukaemia was undertaken following concerns regarding relapse rates.

Methods A retrospective study was conducted at the Royal Marsden Hospital on children (aged less than 18), diagnosed to have acute Myeloid Leukaemia between January 2004 and June 2011.

Results A total of 72 patients were identified, of which 7 patients did not achieve remission following induction chemotherapy with ADE. 48 patients were appropriate for comparison, 22 patients