Aim A tracheostomy is life-changing and brings many associated new challenges. This study offers an insight into the life of children with tracheostomies and the impact this has on them, their caregiver(s) and the family unit on a daily basis. We explore how they have coped with the transformation in their life and the issues important to them. Little is known to date about such families' experiences and quality of life once they have been discharged from hospital. Patient experience is being increasingly recognised as an important part of quality of care and as such we have a duty to allow our patients and their families express their views.

Methods In July 2015 all children with tracheostomies or who had recently been decannulated, in our Trust were identified. A letter was sent out to the identified eligible nine families in January 2016 inviting them to participate in this project by completing age appropriate questionnaires- Paediatric Quality of Life questionnaire, Strength and Difficulties questionnaire and Hospital Anxiety and Depression score and advising them that a follow up phone call would take place to offer them an opportunity to participate in a semi-structured face to face interview should they opt in to the project and want to participate.

Results Of the nine families contacted five agreed to the face to face interviews and six families returned the questionnaires. Interview data were transcribed and evaluated for emerging themes. Interpretative analysis was performed by the lead researcher, and independently analysed by a Clinical Psychologist for quality assurance. Themes were developed from the analysis and agreed upon by both researchers.

The main themes identified included adjusting to new roles, inconsistent care, effect on family relationships, present and future worries and coping with difficult decision-making.

Conclusion The study helped us gain a deeper understanding of what matters to these families and identify the following opportunities for improving care.

1. Multidisciplinary tracheostomy teams with allocated slot at one stop clinic for psychologist and social work to destigmatised these roles and meet families to ensure they know how to access these professions when required.
2. Opportunity to meet other families as standard.

British Association of Perinatal Medicine

G190

PATIENT SAFETY INCIDENTS IN NEONATOLOGY: A 10-YEAR DESCRIPTIVE ANALYSIS OF REPORTS FROM NHS ENGLAND AND WALES

¹L Stuttford, ²M Chakraborty, ¹A Carson-Stevens, ¹C Powell. ¹Division of Population Medicine, School of Medicine, Cardiff University, Cardiff, UK; ²Department of Neonatology, University Hospital of Wales, Cardiff, UK

10.1136/archdischild-2018-rcpch.185

Introduction One in eight babies receive neonatal care in the United Kingdom. Neonates are vulnerable to patient safety incidents due to their immature physiology and requirement for highly intensive care. Patient safety is predicated on the ability to learn from unsafe care. This study is the largest analysis of neonatal patient safety incidents reports from England and Wales to identify the most frequent and most harmful incidents on neonatal units.

Methods The National Reporting and Learning System (NRLS) database receives incident reports from all NHS organisations in England and Wales. All reports submitted from neonatal units between 1 April 2005 and 29 December 2015 were analysed. Exploratory descriptive analysis identified relationships between structured data variables in NRLS, including: type of incident, reported reason for medication error, drug name, and severity of harm outcome. The most frequent or harmful relationships were discussed by a multidisciplinary team with patient safety expertise and knowledge of national guidance.

Results A 2.2-fold increase in reporting exists from 2006 (n=5,172) to 2015 (n=16,466). Of 1 25 832 reports, over one fifth (n=28,796, 22.9%) described harmful outcomes. Errors during delivery of a treatment or procedure were most frequent (23.3%, n=6,703) with 24.4% (n=1,636/6,703) describing extravasation injury. Medication errors accounted for one fifth of reports (21.9%, n=27,522/125,832) of which 13% (n=3,570/27,520) resulted in harm. Most frequently an omission of a medication or ingredient (21.3%, n=784/3,678), wrong or unclear dose or strength (18.5%, n=679/3,678) and wrong frequency (14.5%, n=534/3,678) were reported. Gentamicin (17.4%, n=3,196/18,395), parenteral nutrition (7.07%, n=1,301/18,395) and morphine (6%, n=1,112/18,395) featured most often. Severe harm outcomes resulted from incidents involving morphine (n=5), parenteral nutrition (n=2) and calcium-related medication (n=2).

Conclusion One in five reported safety incidents resulted in iatrogenic harm to a neonate. A quarter of incidents occurred during the delivery of a treatment or procedure. We have identified the most frequent and most harmful reported patient safety incidents involving neonates over a 10 year period. Further in-depth characterisation of reports is required to inform the design of preventive interventions, particularly incidents that persist despite existing patient safety interventions used in the past decade.

G191

CATCAM: A NEW SOLUTION FOR CONGENITAL CATARACT SCREENING?

¹A Duret, ¹RS Humphries, ¹S Ramanujam, ¹C Reid, ²L Allen. ¹School of Clinical Medicine, University of Cambridge, Cambridge, UK; ²Department of Paediatric Ophthalmology, Addenbrooke's Hospital, Cambridge, UK

10.1136/archdischild-2018-rcpch.186

Aims Congenital cataract is the leading cause of childhood blindness worldwide; surgery before 9–10 weeks of age is necessary to optimise visual outcome. We investigated the accuracy of the Newborn Infant Physical Examination (NIPE) red reflex test in the detection of cataracts and compared it to CatCam, a novel hand-held infrared digital imaging device.

Methods We first reviewed the notes of all children having cataract surgery under 3 years of age over a 2 year period to determine how and when referral had occurred. Subsequently, we undertook proof-of-concept testing for CatCam in two populations: one of normal neonates undergoing NIPE screening, and secondly in an enriched population of children attending a tertiary paediatric ophthalmology clinic. Evaluation of ease of use and statistical comparison of diagnostic accuracy was made between CatCam and red reflex testing by direct ophthalmoscope (DO).

Results 33 children (45 eyes) underwent cataract surgery during the 2 year study period. Only 10 were referred following abnormal NIPE and fewer than 50% were referred before 9 weeks of age. Of the 90 normal newborns examined at the first NIPE check, visually insignificant congenital media opacities were detected in 9 (10%) infants on CatCam imaging alone. CatCam examination was subjectively easier than red reflex testing, particularly in non-Caucasian infants. Finally, 111 subjects attending a specialist clinic were examined with DO and CatCam prior to pupil dilatation and specialist review. The sensitivity and specificity for media opacity was 100% for CatCam and 71% and 62% respectively for the DO ($p=0.01$).

Conclusion Although some cataracts may have developed post-natally, our audit suggests that the sensitivity of the NIPE examination is poor and that many infants with cataracts are diagnosed late. The clinical studies demonstrate the advantages of CatCam over DO examination, particularly its high sensitivity and specificity due to the absence of pupil constriction, better reflectivity of infrared light from non-Caucasian fundi and ability to document the images facilitating a second opinion.

G192

C-REACTIVE PROTEIN FOR DIAGNOSING LATE-ONSET INFECTION IN NEWBORN INFANTS: COCHRANE REVIEW OF TEST ACCURACY

¹JVE Brown, ¹N Meader, ^{1,2}J Cleminson, ¹W McGuire. ¹Centre for Reviews and Dissemination, University of York, York, UK; ²Newcastle Neonatal Service, Newcastle Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

10.1136/archdischild-2018-rcpch.187

Aims To determine the accuracy of elevated serum C-reactive protein (CRP) for diagnosing late-onset neonatal infection.

Methods Cochrane systematic review of diagnostic test accuracy. We searched MEDLINE, Embase, and Science Citation Index to September 2017 for cohort and cross sectional studies evaluating the diagnostic accuracy of serum CRP for detecting late-onset infection in newborns:

Index test: Serum CRP level (threshold defined by individual studies).

Reference standards Invasive infection diagnosed >72 hour after birth, confirmed by culture from a normally sterile site or findings on autopsy examination consistent with invasive microbial infection.

We screened titles and abstracts and evaluated the full text of possibly eligible articles. We extracted study characteristics and used the Quality Assessment of Diagnostic Accuracy Studies-2 (QUADAS-2) tool to assess quality. One reviewer extracted data for calculation of diagnostic accuracy parameters. These were checked independently by a second reviewer with referral to a third reviewer to resolve discrepancies. We constructed 'two-by-two' tables based on data from the reference standard and index test and created forest plots for sensitivity and specificity. We conducted a bivariate random effects meta-analysis of sensitivity and specificity data and used these estimates to construct a summary receiver operating characteristic curve. We estimated post-test probabilities of late-onset neonatal sepsis based on a range of pre-test probabilities.

Results We included 20 studies (total number of infants 1,615) with sample sizes ranging between 11 and 184. Most studies were conducted in high income countries, investigating both

term and preterm babies. Overall, the methodological quality of the studies was good and the risk of bias low.

Data synthesis Pooled sensitivity: 0.58 (95% CI 0.45 to 0.69); Pooled specificity: 0.79 (95% CI 0.69 to 0.86). There was relatively high heterogeneity as reflected in the forest plots and 95% prediction region.

Positive likelihood ratio: 2.73 (95% CI 1.95 to 3.84); Negative likelihood ratio 0.54 (95% CI 0.42 to 0.69).

Conclusion Meta-analysis shows that diagnostic accuracy of serum CRP level is modest. Serum CRP level in this context is not sufficiently accurate to reliably confirm or exclude a diagnosis of infection.

G193

THE TRAIN STUDY: TRANSFUSION IN NEONATES AND IDEAL RED CELL VOLUME STUDY, A RANDOMISED CONTROL TRIAL: ISRCTN68861901

¹S Elmusharaf Abdelrahman, ¹M Bahari, ¹A Mareri, ^{1,2}R Segurado, ³J Quigley, ³M Culliton, ³J Fitzpatrick, ¹B Paturi, ¹C Vavasseur, ^{1,2,4,5,6}E Molloy. ¹Paediatrics, National Maternity Hospital, Dublin, Ireland; ²School of Medicine and Medical Sciences, CSTAR, University College Dublin, Dublin, Ireland; ³Haematology, National Maternity Hospital, Dublin, Ireland; ⁴Neonatology, Our Lady's Children's Hospital, Crumlin, Dublin, Ireland; ⁵Academic Paediatrics, Trinity College Dublin, National Children's Hospital, Tallaght, Dublin, Ireland; ⁶Paediatrics, Coombe Women's and Infant's University Hospital, Dublin, Ireland

10.1136/archdischild-2018-rcpch.188

Aim There are different guidelines to calculate red blood cell (RBC) replacement volume in neonates, ranging from 5 ml/kg up to 20 ml/kg RBC volume to be transfused. We aimed to investigate which method is more reliable in achieving the desired Haemoglobin (Hb) from a single blood transfusion in infants <32 weeks gestation admitted to the Neonatal Intensive Care Unit (NICU).

Methods Preterm infants <32 weeks gestations were enrolled if they were admitted to the Neonatal Intensive Care Unit, required a RBC transfusion and parental consent was obtained. Infants were excluded if there was evidence of active bleeding, intraventricular haemorrhage (IVH) grade $\geq$ III or more at the time of transfusion, <24 hours post surgical intervention, ABO/Rh incompatibility or Disseminated Intravascular Coagulopathy. Each infant was then randomised to either the standard practice of calculating RBC volume (RBC volume = 20 ml/kg) or to the intervention volume calculation (RBC volume = 5 $\times$ working weight $\times$ [Hb desired - Hb current]).

Results Sixty three infants were randomised, 55 infants had values for both the post-transfusion Hb and the target Hb. A chi-square test was used to determine if there was an association between the group to which the infant was randomised and whether they achieved the target Hb level. 21 (84.0%) of the 25 infants in the control group achieved the target Hb level, and 20 (66.7%) of the 30 infants in the intervention group achieved the target Hb level. Testing at a 5% significance level, there is no significant difference between the control and intervention groups in the proportion of infants who achieved the target Hb level ($p=0.142$, $df=1$).

Conclusion There was no significant difference between the 2 methods of RBC volume calculation in achieving the target Hb. The simpler calculation method of 20 ml/kg may be the optimum method as less chance of calculation error.