G194(P) VARIATIONS IN IMPLEMENTATION OF NICE GUIDELINE: ANTIBIOTICS FOR EARLY-ONSET NEONATAL INFECTION

^{1,2}A Gregory, ^{1,3}R Dahoot, ^{1,4}A Taylor, ^{1,5}H McDermott, ⁶C Seagrave, ⁷S Turnock, ³M Farid, ^{1,8}D Vieten. ¹PRAM network, West Midlands, UK; ²Paediatrics and Neonatology, The Dudley Group NHS Foundation Trust, Dudley, UK; ³Neonatology, Heart of England NHS Foundation Trust, Birmingham, UK; ⁴Neonatology, Birmingham Women's and Children's NHS Foundation Trust, Birmingham, UK; ⁵Paediatrics and Neonatology, Worcestershire Acute Hospitals NHS Trust, Worcester, UK; ⁶Paediatrics and Neonatology, Wyke Valley NHS Trust, Hereford, UK; ⁷Neonatology, University Hospitals of North Midlands NHS Trust, Stoke on Trent, UK; ⁸Neonatology, Royal Wolverhampton NHS Trust, Wolverhampton, UK

10.1136/archdischild-2018-rcpch.189

Background Variations between neonatal units in implementation of the Early Onset Neonatal Sepsis (EONS) National Institute for Health and Care Excellence (NICE) guideline CG149 were observed by trainees moving between units.

Aim To explore variations in implementation of the NICE EONS guideline within the region, and identify quality improvement steps to improve implementation within shared network guidelines.

Method Multicentre audit of compliance with the EONS NICE guideline was undertaken involving eight neonatal units within the two neonatal networks in the region. All neonates (≥ 34 weeks gestation), suspected of having EONS were prospectively audited over a consecutive four-week period between October 2016 – January 2017. Anonymised patient data was recorded on a standardised proforma.

Results 320 neonates had suspected EONS. 53% were male with a mean $\pm$ SD gestation of 38.4 ± 2.1 weeks. 93 (29%) did not fulfil criteria for initiation of antibiotics. 313 (98%) received Benzylpenicillin and 310 (97%) Gentamicin. 305 (95%) had a second C-reactive protein (CRP) level, but only 203 (67%) taken at 18–24 hours. 203/303 (67%) received first antibiotic dose within 1 hour from decision to treat, this varied between units from 25.8% to 91.7%. Blood culture result was unavailable in 98 (30%) by the NICE 36 hour target, this varied from 0% to 96.8% being available at 36 hours. There was one significant positive blood culture for Group B Streptococcus.

Conclusions NICE EONS guideline is variably implemented. The units which performed better, have various toolkits, these include; use of an EONS proforma or electronic form within Badger.net, use of a drug chart with specific boxes for time of decision to treat, first dose of antibiotics administered and if greater than one hour then why, improved collaboration with microbiology laboratories to facilitate timely reporting of blood culture results and additional training on EONS. By implementing these changes then re-auditing we hope to see enhanced adherence to the EONS NICE guideline.

G195(P) TREATMENT OF EXTRAVASATION INJURIES IN INFANTS AND YOUNG CHILDREN: A SYSTEMATIC SCOPING REVIEW AND SURVEY OF NHS PRACTICE

¹M Corbett, ¹D Marshall, ¹M Harden, ²S Oddie, ¹R Phillips, ¹W McGuire. ¹Centre for Reviews and Dissemination, University of York, York, UK; ²Department of Neonatology, Bradford Teaching Hospitals NHS Foundation Trust, Bradford, UK

10.1136/archdischild-2018-rcpch.190

Objectives To identify which treatments may be best for treating extravasation injuries in infants and young children.

Methods In a systematic scoping review we searched twelve electronic bibliographic databases and clinical trial registries to identify published and unpublished studies in any language. Eligible studies were of children (aged <18 years) with an extravasation injury associated with central or peripheral intravenous access. Any interventions or comparators were eligible. The outcomes of interest included wound healing times, infection, pain, scarring, contractures, functional impairment, and requirement for surgery.

In a survey of practice, a questionnaire was piloted among colleagues and distributed to NHS staff at neonatal units, paediatric intensive care units and principal oncology/haematology units nationwide.

Results The evidence was mostly comprised of small, retrospective, uncontrolled group studies or case reports, covering a wide range of interventions including conservative management approaches, saline flush-out techniques with or without prior hyaluronidase, hyaluronidase (without flush-out), artificial skin treatments, debridement and plastic surgery. Few studies graded injury severity and the results sections and outcomes reported in most studies were limited. There was heterogeneity across study populations though most studies were in neonates. Some of the better evidence (in terms of study size and a prospective design) related to studies of saline flush-out techniques.

The NHS survey yielded 63 responses from hospital units across the UK. Results indicated that although most units had written treatment guidelines, few included an injury severity grading system. The most frequently used interventions were elevation of the affected area and analgesics. Warm or cold compresses were rarely used. Saline wash-out treatments were regularly used in about half of neonatal units. Most responders thought a randomised controlled trial might be viable, though results varied greatly by setting.

Conclusions There is uncertainty about which treatments are most promising, particularly with respect to treating earlier-stage injuries. Saline flush-out techniques and conservative management approaches are commonly used and may be suitable for evaluation in trials. Conventional randomised trials may be difficult to perform, although a randomised registry trial may be a suitable alternative.

G196(P) NEONATAL OUTCOME FOLLOWING MATERNAL ANTIDEPRESSANTS USE

¹E Davies, ²I Al-Muzaffar. ¹Cardiff University, Cardiff, UK; ²Neonatology, Cwm Taf University Health Board, Llantrisant, UK

10.1136/archdischild-2018-rcpch.191

Aims The objectives of this study were to calculate mental health conditions prevalence in pregnancy, compare adverse neonatal outcomes in relation to mental health status and antidepressants use in pregnancy and evaluate maternal smoking association with mental health conditions.

Methods A retrospective cohort study of babies born between January 1 st and December 31 st, 2016 at Cwm Taf University Health Board. Data was extracted from Maternal Information Technology System (MITS) and Badgernet neonatal database. Statistical analyses were performed using $p < 0.05$ to indicate statistical significance. Odds ratios and 95% confidence intervals (CI) were calculated to compare outcome rates between study groups.

Results 3894 pregnant women were included in the study. 3842 singleton pregnancies were analysed for adverse neonatal outcomes. 23.5% of pregnant women were identified as having a mental health condition at the time of antenatal booking. 16.4% of pregnant women had a known history of depression. 33% of these women took antidepressants during pregnancy. 37.9% of pregnant women with history of depression are known to be cigarette smokers compared to 18.5% of those with no known mental health condition. 65% of babies with low birth weight, born to mothers taking antidepressants, were associated with positive maternal smoking (OR 3.03, CI: 1.16 to 7.97, $p=0.02$).

Conclusion Mental health conditions are common in pregnancy. Babies born to mothers with known history of depression are more likely to be premature, have low birth weight and be admitted to the neonatal unit.

G197(P) A SYSTEMATIC REVIEW OF QUALITY IMPROVEMENT INITIATIVES IN LOW AND MIDDLE INCOME COUNTRIES FOR HOSPITALISED SICK AND SMALL NEONATES

¹N Zaka, ²EC Alexander, ^{1,3}L Manikam, ²I Norman, ²M Akhbari, ⁴S Moxon, ^{5,6}PK Ram, ⁷G Murphy, ⁷M English, ^{6,8}S Niermeyer, ¹L Pearson. ¹UNICEF, New York, USA; ²GKT School of Medical Education, King's College London, London, UK; ³Population, Policy and Practice, UCL Great Ormond Street Hospital Institute of Child Health, University College London, London, UK; ⁴Department of Infectious Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, UK; ⁵Department of Epidemiology and Environmental Health, University at Buffalo, New York, USA; ⁶Office for Maternal and Child Health and Nutrition, USAID, Washington, USA; ⁷Centre for Tropical Medicine and Global Health, University of Oxford, Oxford, UK; ⁸School of Medicine, University of Colorado, Aurora, USA

10.1136/archdischild-2018-rcpch.192

Aims 98% of the estimated 2.7 million neonatal deaths in 2015 occurred in low- and middle-income countries (LMICs). Within this group, neonates who are preterm or small for gestational age are at higher risk given the notable incidence of cardiopulmonary and neurodevelopmental disorders, and infectious complications, in this group. Quality Improvement (QI) initiatives can reduce the burden of morbidity and mortality for hospitalised neonates in LMICs. We undertook a systematic review to synthesise evidence from LMICs on QI approaches used, outcome measures employed, and the nature of any barriers or promoters for efficacy.

Methods Database searching included Medline, EMBASE, WHO Global Health Library, Cochrane Library, WHO ICTRP and ClinicalTrials.gov, and we conducted citation searching of identified studies and reviews. Search terms were 'neonates', 'quality improvement', 'hospitalised' and derivatives. Studies were excluded if they took place in high income countries, did not include QI interventions, did not include small/sick hospitalised neonates. Included studies were published between January 2000–April 2017. Quality appraisal was conducted with use of Cochrane Risk of Bias tools for interventions.

Results A total of 28 studies were included, covering 23 LMICs and 57 902 participants. The interventions mostly took place at the district and clinic level, and secondly at the level of patient-provider interaction. Educational interventions were most common, and other popular interventions included service organisation and referencing material dissemination. Mortality was the most commonly assessed outcome, and length of admission, sepsis rates and infection rates were also

commonly investigated. Barriers included overburdened staff and insufficient equipment; promoters included motivation of key figures and monitoring.

Conclusion To our knowledge this is the first systematic review to examine QI initiatives in this specific population. The majority of QI initiatives for hospitalised small and sick neonates are aimed at the district and clinic level. Outcomes tended to focus on the delivery of safe and effective care, but rarely focused on people-centred, timely or equitable care. Programme planners should aim for coordinated, larger-scale interventions, sustainable information systems, and to be mindful of barriers.

G198(P) EXPRESS YOURSELF: A QUALITY IMPROVEMENT PROJECT AIMED AT EARLY BREAST MILK EXPRESSION

CL Granger, G Bowker, A Powls. Neonatal Intensive Care Unit, Princess Royal Maternity Hospital, Glasgow, UK

10.1136/archdischild-2018-rcpch.193

Aim Breast milk reduces rates of necrotising enterocolitis (NEC) which causes significant mortality and morbidity in low birth weight babies. In addition it is closely associated with improved cognitive scores in childhood. Early breast milk allows quicker achievement of full enteral feeds. An internal audit 2015–2016 identified that 61% of babies <31 weeks gestation were commenced on mother's own milk (MOM). Median day of starting MOM was Day 3 and median day of achievement of full enteral feeds was Day 9. We therefore aimed to reduce time taken to establish breast milk expression to postpartum mums of infants <31 weeks gestation to under six hours postnatally.

Methods A core team was established to identify barriers to early breast milk expression within the first hour of life. Short surveys were carried out on labour ward and education sessions were arranged on both labour ward and on the neonatal unit to promote the benefits of breast milk to preterm babies. Early expressing packs were put together and given to mums either antenatally or postnatally together with counselling from a senior member of the neonatal team including the benefits of early expressing. (P)s were designed and put up throughout the antenatal ward, neonatal unit and labour ward. Regular feedback to staff involved was facilitated through infant feeding meetings.

Data/Results Following initiation of our QI intervention in November 2016, initial data set audit shows that 73% of women are being shown how to express within the first 6 hours postnatally, and 94% of women when questioned are being shown how to express overall. Since introduction, 36 babies have been born <31 weeks gestation. 78% of these were commenced on MOM, median day of starting MOM was Day 1.8 and median day of achievement of full enteral feeds was Day 7.1.

Conclusion With commitment to ongoing education and intervention early breast milk expression is achievable. We have managed to achieve expressing within six hours and with ongoing cycles we are aiming to achieve this within one hour. Next steps include antenatal leaflets for parents and increased scope of education sessions.