

September 22nd, 2023 15:00 - 17:00

NURSING E-Poster (STATION 1)

ID 363. Is parental attitude related to the amount of time they devote to skin-to-skin contact with their preterm infant?

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Background:

Preterm birth increases the risk of long-term health problems and delayed neurological development. Although it is known that skin-to-skin contact (SSC) with parents improves the infants' health, some parents spend limited time in SSC.

Aim:

To investigate the relationship between parents' own attitudes to and experience with touch and the amount of time spent with SSC and holding.

Methods:

We recruited parents (81) of preterm infants born at 30 weeks gestational age or more. Parents registered the time spent in SSC and holding their infant daily during one week, and answered a questionnaire about the experience with and attitudes to touch (Touch Experiences and Attitudes Questionnaire; TEAQ).

Results/findings:

The time parents spent with SSC varied from 4 minutes to 8 hours 34 minutes per day. Parents with higher educational level spent more time in SSC. Parents with more positive experiences and attitudes to physical touch with friends and family spent more time in SSC, and parents with more positive attitudes to self-care (i.e. using body lotions or bath essence) spent more time holding their infant. None of the other scales was related to SSC or holding.

Conclusion:

Parents' attitudes to and experience with touch are to a limited extent associated with the amount of SSC and holding they provide to their preterm infant. This suggests that factors other than attitudes have a larger influence on the time parents spend skin-to-skin. Increasing knowledge about the benefits of SSC, particularly among parents with lower levels of education, seems to be essential.

ID 352. Liquid Gold: Helping Mothers Express Milk for their Babies and Improving the Quality of Our Neonatal Care

Doctor Mary-Rose Ballard¹, Ms Marta Pardo¹, Dr Harry James¹, Dr Noor Nusair¹, Ms Julia Masdin¹, Ms Veneita Parsons¹, Ms Sarah Stephens², Mr Omid Nivi², Ms Nilakshi Joshi¹, Dr Devangi Thakkar¹
¹The Hillingdon Hospitals NHS Foundation Trust, ²Imperial College Health Partners

Background

Maternal breastmilk has multiple benefits for preterm infants and their mothers. Colostrum possesses unique bioactive properties and positively impacts the neonatal microbiome, with early expression and enteral administration of colostrum being associated with reduced time to establish enteral feeding and improved rates of sustained breast milk expression.

Supporting early expression is key in family-integrated care, and the British Association of Perinatal Medicine recommends administration of colostrum within 6 hours of life for preterm infants. Challenges to this involve separation of mother and baby due to neonatal unit admission. We, as a Local Neonatal Unit, used quality improvement methodology through multi-disciplinary collaboration to improve rates of early colostrum administration to neonates under 32 weeks gestation.

Methods

Supported by innovation leads from Imperial College Health partners, multi-disciplinary stakeholders developed local process maps for colostrum harvesting and administration. Regular workshops facilitated development of interventions which were implemented in October 2022: colostrum harvesting packs and 'Liquid Gold' stickers and sheets for neonatal and maternal notes. Interventions were regularly evaluated using cycles of data collection regarding timing and type of first feed for admissions under 32 weeks and were improved through iterative processes. Regular communication, disseminated departmentally and within teams, promoted discussion and feedback regarding colostrum administration rates.

Results

Prior to project implementation in 2021, the mean time to feed babies under 32 weeks gestation was 12 hours 40 min, with no babies receiving colostrum in 6 hours (n=9). During early project planning phases in 2022, prior to intervention, the mean time to feed improved to 9 hours 45 min (n=6); all feeds were maternal or donor milk. Following intervention, mean time to feed improved to 4 hours 20 min, with all apart from one baby receiving breast milk within 12 hours (n=21), and 15 of these (71%) receiving liquid gold by 6 hours (see figure 1).



Conclusion

Following project implementation, time to first feed and rates of colostrum administration improved for babies under 32 weeks. Multi-disciplinary collaboration is key to successful quality improvement innovations in maternity care, here facilitating successful strategies to overcome barriers in harvesting and delivering colostrum to preterm babies.

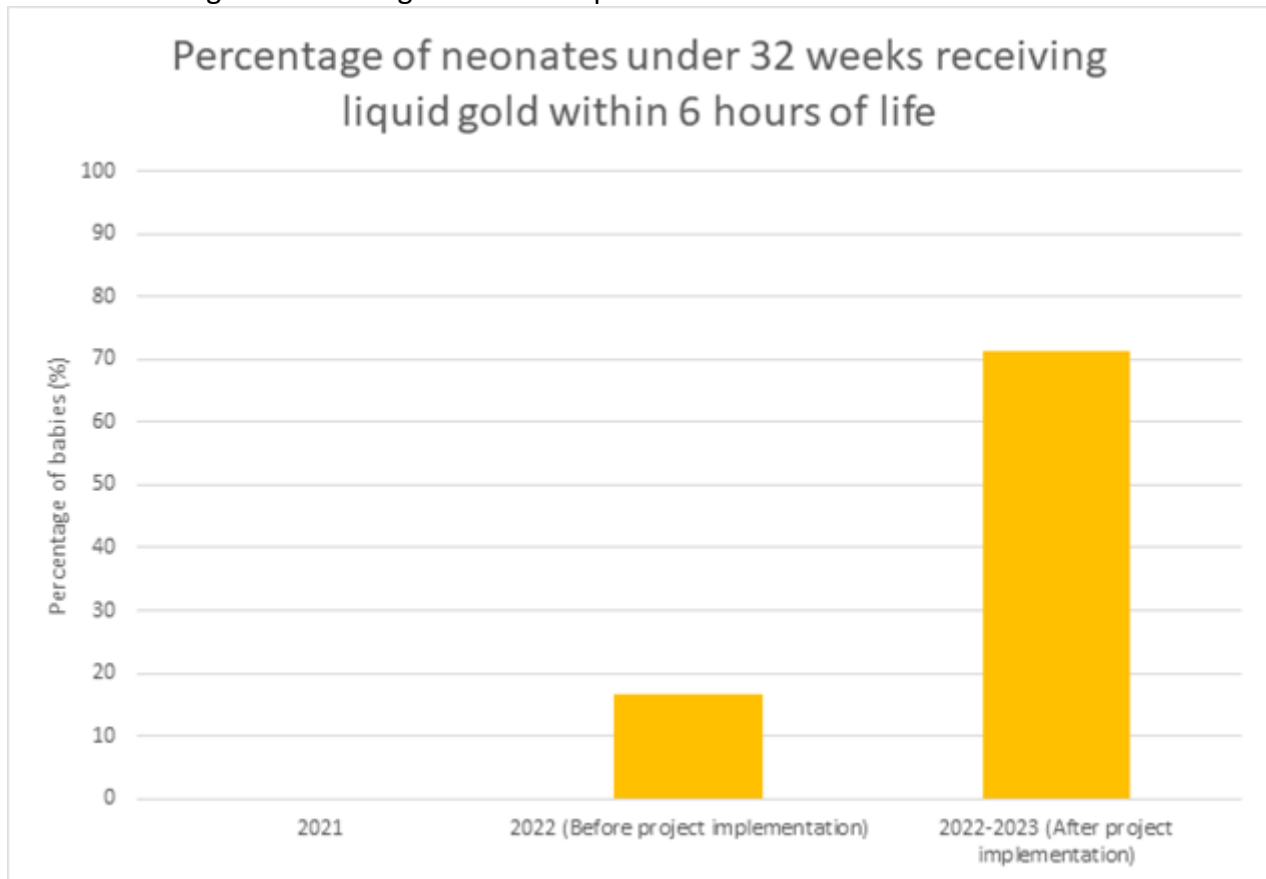


Figure 1. Percentage of neonates receiving colostrum (liquid gold) within the first 6 hours of life

ID 473. Expressing colostrum for preterm infants: using appreciative inquiry to learn from mothers' experiences

Doctor Mary-Rose Ballard¹, Dr Shirley Huang², Dr Duaa Dafa Alla³, Dr Deanna Gibbs^{4,5}, Dr Aniko Deierl³

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Background

Early colostrum administration has multiple benefits for preterm infants and their mothers. Current UK guidance advocates for giving colostrum as soon as possible and ideally within the first 6 hours of life for preterm infants. However, colostrum expression can be challenging for mothers, with multiple barriers including a lack of experience or being unwell themselves. The aim was to understand factors enabling mothers who were successful in expressing colostrum for their preterm infant(s) within the first 12 hours of life in a tertiary perinatal centre in London, UK.

Methods

Semi-structured interviews were conducted virtually using a model of appreciative inquiry, with 8 mothers of preterm babies (gestational age at delivery 25+6 to 32+1 weeks), who successfully expressed colostrum within the first 12 hours of life. Interviews were conducted after 2 weeks of life, transcribed verbatim, and thematic analysis was used to extract key themes. The initial coding was conducted by two researchers. A third researcher reviewed the coding and clustered the data into initial themes. Final themes were developed by consensus discussion among the full research team.

Results

Analysis of the participant interviews identified five themes: developing an intention to breast-feed; colostrum expression and the maternal-infant bond; establishing and sustaining breast milk expression; maternal emotional costs; and anticipating future feeding experiences.

Conclusions

Successful expression of colostrum by mothers of preterm infants is dependent on a range of multiple, complex factors. Women's previous experiences or intentions to breastfeed during pregnancy can be influenced by the delivery of a preterm infant. Education, counselling and support from professionals and partners, particularly a lactation consultant, was highly regarded. These enabling factors can be integrated into services to effectively support early breast milk expression after preterm birth. However, it is important to consider women's individual experiences as they navigate an unanticipated start to motherhood and the contribution of their breast milk expression to their own physical and emotional health and well-being.

ID 773. Clotted blood samples in the NICU: a retrospective, observational study to evaluate interventions to reduce blood sample clotting.

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Background: Blood draws for laboratory investigations are essential for patient management in neonatal intensive care units (NICU). When blood samples clot before analysis are rejected, this delays treatment decisions and necessitates repeated sampling.

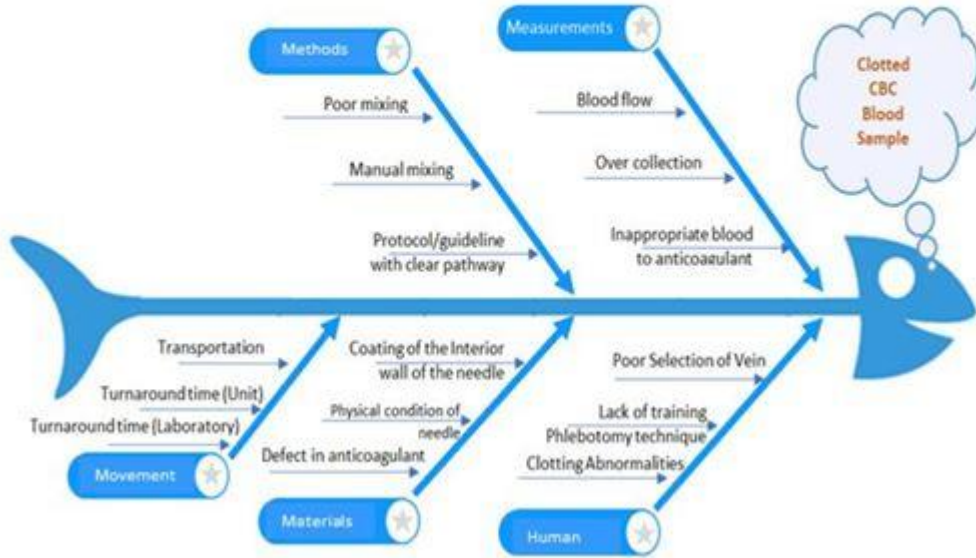
We aim to decrease the incidence of rejected blood samples taken for laboratory investigation due to a clotted sample.

Methods: This retrospective observational study used routine data on blood draws from preterm infants collected between January 2017 and June 2019 in a 112-cot NICU in Qatar. Quality improvement interventions to reduce the rate of clotted blood samples included: awareness raising and safe sampling workshops with NICU staff, involvement of the neonatal vascular access team, development of a Complete Blood Count (CBC) sample collection pathway, review of sample collection equipment, introducing the Tenderfoot® heel lance, the establishment of benchmarks, and provision of dedicated blood extraction equipment.

Results: First attempt blood draw occurred in 10,706 cases, representing a 96.2% success rate. In 427 (3.8%) cases, the samples were clotted requiring repeat collection. The overall rate of clotted specimens decreased from 4.8% in 2017 and 2018 to 2.4% in 2019, with odds ratios of 1.42 (95%-CI 1.13–1.78, P=.002), 1.46 (95%-CI 1.17–1.81, P<.001) and 0.49 (95%-CI 0.39–0.63, P<.001) respectively. The majority (87-95%) of blood samples were by venepuncture using an IV catheter or the NeoSafe™ blood sampling device. Heel prick sampling was the second (2-9%) most common method. Clotted samples were most frequently associated with needle use 228/427 (53%) and IV cannula 162/427 (38%) with odds ratios of 4.14 (95%-CI 3.34–5.13, P<.001) and 3.11 (95%-CI 2.51–3.86, P<.001) respectively.

Conclusion: Our interventions over 3 years were associated with reduced rates of sample rejection due to clotting, which led to improved patient experience through fewer repeated samplings. **Relevance to Clinical Practice:** The insights gained from this project can help to enhance patient care. Interventions that reduce the rate of blood sample rejection by clinical laboratories can lead to economic savings, timelier diagnostic, and treatment decisions, and contribute to an improved quality experience for all critical care patients, irrespective of age, by reducing the need for repeated phlebotomy and the risk of related complications.

Figure 1: Fishbone diagram showing the root cause analysis of clotted blood samples.



Fishbone diagram showing the root cause analysis of clotted blood samples.

ID 438. How early is it, too early to diagnose low growth?

Doctor Suzana Fučkor¹, Doctor Koraljka Manestar Rukavina, Doctor Ivona Butorac Ahel, Doctor Maja Ješić, Doctor Branimir Peter, Professor Iva Bilić Čače

¹NICU , Clinical Hospital Centre Rijeka

Human growth is a complex multigenic and multifactorial process. Dwarf growth is a condition characterized by low growth as a result of medical or genetic influence. This is one of the most common endocrinological disorders in children.

To define something by dwarf growth the height should be lower than the average height by 2 standard deviation or lower than 3 percentiles in children (of the same age, sex, and race)

Many factors like genetic, metabolic, endocrine, chromosomal and chronic disease, affect the occurrence of dwarf growth. Although the causes of the origin have not yet been clarified, we define the causes of dwarf growth by endocrine

causes include growth hormone deficits, primary hypopituitarism, KAH, Williams sy). Non-endocrine factors include familial low growth, late puberty, IUGR.

We know that the clinical picture of dwarf growth occurs in various forms of high genetic heterogeneity whose phenotypic features overlap, clearly that etiology cannot be defined from history, laboratory tests, and clinical examinations. A large number of disorders that cause dwarf growth can cause a whole range of developmental ailments as well as medical complications. Most low-growth treatments will not ultimately increase growth but can correct problems that arise as a result of disease complications.

We present to you a female newborn born in 39 GW, BW 2740g, BL 41cm (below 3 centile), HC 32.5cm API 10/10. Pregnancy was controlled regularly, and shortly before birth IUGR was suspected.

The examination showed dwarf growth so the laboratory tests were performed. results revealed elevated GH 100.8 mIU/L, decreased IGF1 < 1.95nmol/L, elevated IGFBP-3 28.8 nmol/L (results in 72 hours of life). Mother's height is 180cm, father 177cm. A sample was obtained for NGS.

As in all branches of science, in neonatology history and detailed clinical examination are key to discovering the ailments of newborns. This case points to the importance of correct assessment, as a good precondition for being in a specific condition as well as reducing the cost of diagnosis and therapy.

So how early is it, too early to diagnose low growth?

ID 454. Grasping the status quo of newborn health: a European professional and parent perspective

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¹EFCNI

Background: The European Standards of Care for Newborn Health (ESCNH) were developed through an interdisciplinary European collaboration with a focus on the treatment and care of pre-term and ill newborns. Since their launch in 2018, the implementation of the ESCNH is ongoing across Europe. The aim of this study is to provide an overview of the country-specific implementation status of the ESCNH from healthcare professional (HCP) and parent perspectives with a particular focus on areas where the implementation of the ESCNH is most urgently needed. Additionally, barriers and enabling factors to support future implementation strategies are detected.

Methods: Two questionnaires were developed to assess the implementation status of the ESCNH from both perspectives. To ensure validity/usability, the questionnaires were tested by three HCPs and four parent representatives. Supporting national and international healthcare associations (n = 117) and national parent organisations (n = 40) were invited to take part. The analysis followed a mixed-methods approach including descriptive analyses of closed questions and qualitative content analyses of open questions.

Results (Table 1): Overall, 128 HCPs and 44 parent representatives from 24 European countries took part in the survey. Topics perceived as well implemented included birth and transfer (1st/3rd rank), medical care and clinical practice (2nd/1st rank) as well as patient safety and hygiene practice (3rd/2nd rank) for HCPs and parents, respectively. Looking at currently neglected topics, parents mentioned NICU design and follow-up and continuing care most frequently compared to HCPs, who rank infant- and family-centred developmental care (IFCDC) as mostly neglected, with the latter also ranked as most urgently to target by both groups. Barriers for the implementation of the ESCNH derived from qualitative analyses include the COVID-19 pandemic, language barriers, lack of resources including staffing and the fragmentation of care. Facilitating factors comprised multidisciplinary work, reciprocal support, translation, education and leadership.

Conclusion: The implementation of the ESCNH varies significantly across European countries. Although perspectives of parents and HCPs were not always identical, many topics are relevant to both sides. In general, ways to improve IFCDC and to overcome the detected barriers of the implementation of the ESCNH are called for.

| Topics | Well-implemented (rank [%]) | | Neglected (rank [%]) | | Most urgently targeted (rank [%]) | |
|--|--------------------------------|-----------------------|-------------------------|-----------------------|--------------------------------------|-----------------------|
| | HCPs | Parents | HCPs | Parents | HCPs | Parents |
| Birth & transfer | 1 st (66%) | 3 rd (48%) | 10 th (6%) | 6 th (26%) | 7 th (16%) | 4 th (26%) |
| Medical care & clinical practice | 2 nd (61%) | 1 st (61%) | 11 th (3%) | 10 th (4%) | 9 th (10%) | 9 th (4%) |
| Care procedures | 5 th (48%) | 5 th (39%) | 7 th (18%) | 8 th (13%) | 8 th (13%) | 7 th (13%) |
| IFCDC | 8 th (29%) | 9 th (13%) | 1 st (45%) | 3 rd (57%) | 1 st (45%) | 1 st (70%) |
| NICU design | 10 th (26%) | 7 th (17%) | 2 nd (40%) | 1 st (61%) | 4 th (26%) | 3 rd (35%) |
| Nutrition | 4 th (49%) | 4 th (43%) | 8 th (8%) | 9 th (9%) | 11 th (8%) | 8 th (9%) |
| Follow-up & continuing care | 6 th (35%) | 9 th (13%) | 6 th (27%) | 1 st (61%) | 4 th (26%) | 2 nd (43%) |
| Ethical decision-making & palliative care | 7 th (32%) | 6 th (35%) | 5 th (31%) | 7 th (17%) | 6 th (21%) | 9 th (4%) |
| Patient safety and hygiene practice | 3 rd (52%) | 2 nd (52%) | 8 th (8%) | 11 th (0%) | 10 th (9%) | 9 th (4%) |
| Data collection & documentation | 11 th (25%) | 7 th (17%) | 3 rd (34%) | 5 th (39%) | 3 rd (29%) | 6 th (22%) |
| Education & training | 9 th (27%) | 9 th (13%) | 3 rd (34%) | 4 th (48%) | 2 nd (36%) | 4 th (26%) |

Overview of responses from healthcare professionals (HCP) and parent representative regarding well-implemented, neglected, and topics that need to be targeted most urgently in newborn health given in ranks and percentages.

ID 965. A single tertiary centre experience on late-preterm pregnancies and neonatal outcomes

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¹University College London Hospital

Introduction: Late-preterm infants (LPIs) are born between 34⁺⁰-36⁺⁶ weeks (GA). They are premature and thus vulnerable to prematurity-associated risk factors. Data on predictive factors related to LPIs admissions to Transitional-Care (NTC) is scarce.

The aims of this retrospective cohort study were to compare neonatal outcomes between LPIs admitted to the Neonatal Intensive Care (NICU), NTC or the postnatal maternity ward (PMW) and evaluate predictors of admission to NTC.

Methods: Data were collected through the Epic electronic database (2022© Epic Systems Corporation) for all inborn babies born at 34⁺⁰-36⁺⁶ weeks between 01/01/2020-06/06/2022. The cohort was stratified according to admission site: NICU (group-1), NTC (group-2) and the PMW (group-3). Local guidelines advise that all neonates delivered <35⁺⁰ weeks are admitted to NICU.

Differences between groups were tested with parametric or non-parametric tests as appropriate. Categorical variables (Table-1) were compared using the chi-square test. Univariate and multivariate logistic regressions were performed to determine association of pregnancy characteristics with NTC admission. P-values of <0.05 were considered statistically significant.

Results: 608 neonates were born to 522 mothers; 274 (45%) were admitted to NICU, 149 (24.5%) to NTC and 185 (30.4%) to PMW. 91 (33%) of the neonates admitted to NICU were then transferred to either NTC or PMW prior to discharge. Pregnancy characteristics and neonatal outcomes are reported in Table-1. After adjustment for GA and birthweight, groups-2 and 3 were associated with a 4- and 3- fold increase in rates of breastfeeding when compared to group-1, respectively. There was a significant decrease in length of admission across the 3 groups (8, 5 and 3 days, respectively; p = <0.001), with no difference in readmission rates. Mode of delivery, multiple pregnancy and pregnancy complications were not significant predictors.

Conclusion: Irrespective of GA or birthweight, breastfeeding rates were greater, and duration of hospital stay was shorter in LPIs admitted and cared on NTC. Earlier GA at delivery, lower birthweight and signs of respiratory distress were predictors for admission to NICU. This data confirms the benefits of caring for LPIs on NTC or PMW and can be of valuable use during parental prenatal counselling.

Table 1: Pregnancy and Neonatal outcomes

| | Group 1-NICU (Mothers: n=240) (Neonates: n=274) | Group 2-NTC (Mothers: n=124) (Neonates: n=149) | Group 3-PMW (Mothers: n=158) (Neonates: n=185) | P value |
|--|--|---|---|----------------|
| Multiple Pregnancy, n (%) | 66 (24.1) | 51 (34.2) | 54 (29.2) | NS |
| Gestational diabetes mellitus, n (%) * | 44 (18.3) | 28 (22.6) | 41 (25.9) | NS |
| Preeclampsia, n (%) * | 37 (15.4) | 20 (16.1) | 14 (8.9) | NS |
| GA delivery, median (IQR) | 35.6 (34.9-36.1) | 36.4 (36.0-36.7) | 36.6 (36.3-36.7) | <0.001 |
| Birth centile, median (IQR) | 19.1 (3.4-51.6) | 14.8 (3.2-48.7) | 26.8 (9.8-52.5) | 0.009 |
| Mode of delivery, n (%) * | | | | |
| - Vaginal | 72 (30.0) | 62 (50.0) | 62 (39.2) | 0.029 |
| - Caesarean | 169 (70.4) | 62 (50.0) | 96 (60.8) | 0.023 |
| Steroids administered, n (%) * | 176 (73.3) | 57 (46.0) | 88 (55.7) | <0.001 |
| Steroids administered within 7 days, n (%) * | 142 (80.7) | 42 (73.7) | 72 (81.8) | NS |
| Small for gestational age, n (%) | | | | |
| - <10 th centile | 68 (32.7) | 35 (35.7) | 21 (16.2) | 0.002 |
| - <5 th centile | 48 (23.1) | 28 (28.6) | 11 (8.5) | 0.003 |
| Respiratory support, n (%) | 132 (48.2) | | | |
| - Mechanical ventilation | 32 (24.2) | N/A | N/A | - |
| - Non-invasive ventilation | 100 (75.8) | | | |
| Surfactant administration, n (%) | 27 (9.9) | N/A | N/A | - |
| Feeding type | | | | |
| - EBM | 100 (36.5) | 71 (47.7) | 58 (31.4) | <0.001 |
| - Formula | 67 (24.5) | 12 (8.1) | 16 (8.6) | |
| - Mixed | 65 (23.7) | 66 (44.3) | 111 (60.0) | |
| Nasogastric tube (NGT) feeding, n (%) | 236 (86.1) | 26 (17.4) | N/A | - |
| Duration of NGT feeding, median (IQR) | 5.0 (3.0-15.0) | 2.0 (1.0-3.0) | N/A | - |
| Hypoglycaemia, n (%) | 69 (25.2) | 27 (18.1) | 30 (16.2) | 0.016 |
| IV antibiotics, n (%) | 172 (62.8) | 42 (28.2) | N/A | <0.001 |
| Duration of hospital-stay | 8.0 (6.0-17.0) | 5.0 (3.0-6.0) | 3.0 (3.0-4.0) | <0.001 |
| Readmission, n (%) | 19 (6.9) | 11 (7.4) | 15 (8.1) | NS |

Note: * "gestational diabetes mellitus", "preeclampsia", "mode of delivery" and "steroid administration" were calculated using the total number of mothers per group as the denominator. The other variables were calculated using the total number of neonates as the denominator.

Table 1: Pregnancy and neonatal outcomes

ID 471. QUALITY IMPROVEMENT OF FAMILY-CENTERED CARE IN THE NICU AT CHILDREN'S CLINICAL UNIVERSITY HOSPITAL IN RIGA WITH CLOSE COLLABORATION WITH PARENT PROGRAM

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Background: Parental involvement to promote the recovery of preterm and sick newborns is one of the most valued and discussed topics in neonatology. Educating staff members in the neonatal unit is crucial to promote family-centered care (FCC) culture. The Close Collaboration with Parents intervention is a systematic training program for multiprofessional healthcare teams in NICUs developed in the NICU of Turku University Hospital. A multicenter study has shown that this intervention improves FCC in the neonatal intensive care units (NICU) in Finland (Toivonen et al 2020). The aim of this quality improvement project was to improve FCC in Riga Children's Hospital.

Methods: The Close Collaboration with Parents program was implemented in the NICU at Children's Hospital in Riga, Latvia during years from 2020 to 2022. The quality improvement evaluation was done using the Bliss Baby Charter audit tool before (6 parents and 4 staff members) and after (5 parents and the intervention in 2019 and 2022). Both parents and staff members were interviewed by an external interviewer (Mirka Toivonen) in 2019 - 6 parents and 4 staff members and in 2022- 5 parents and 4 staff members. In The tool included 140 FCC items to be rated as whether they were met 'fully', 'partially', or 'not at all'.

Results: The training program increased the skills of the staff to identify and address the needs of infants and their families. In the parents' evaluations, fully met FCC items increased from 11% to 68% and FCC items which were not met decreased from 20% to 5%. The staff members gave more positive evaluations than parents before the intervention: fully-met items 11% by parents and 67% by the staff members (67% by mentors, 49% by leaders of the unit), but this difference disappeared after the implementation (68% by parents, 74% by mentors, 63% by leaders).

Conclusion: The Close Collaboration with Parents intervention enabled the staff of the neonatal unit to achieve better communication skills with parents, improved support for parent bonding with their infant, and increased parental role in the care team to promote the recovery of the infant.

ID 494. 'Midline Matters' – A quality improvement project improving positioning for preterm babies admitted to a neonatal intensive care unit (NICU) in the United Kingdom (UK)

Mrs Joanna Bradshaw¹, Mrs Rina Chauhan¹, Doctor Helen Mcdermott¹, Doctor Jevana Jeevahan¹, Doctor Emma Blamey¹, Doctor Sarah Louise Williamson¹

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Background: The importance of appropriate positioning in the neonatal period has been extensively documented. Premature birth impacts on brain development, sensory and physiological systems, and immature musculoskeletal systems. Babies are usually hypotonic, with limited anti-gravity abilities and the extra equipment around them can make it uncomfortable and difficult. This is further exacerbated by the environment, pain, and illness. Poorly positioned babies will show signs of stress and an inability to cope physiologically, in addition to longer term consequences.

Aim: To improve positioning of preterm babies over a 12-month period.

Methods: A multidisciplinary team of enthusiastic neonatal professionals was formed. Current evidence, clinical practice and knowledge was reviewed.

An audit of positioning practices was undertaken, using the West Midlands Neonatal Network positioning tool between January-April 2023. In addition, a voluntary staff questionnaire with 15 questions was also completed in April 2023.

The team then completed process mapping, cause and effect and driver diagrams. These identified four key areas for improvement: education, equipment, storage, and processes.

Results: The positioning audit included 50 babies (fig 1). This demonstrated poor levels of compliance with optimal positioning of babies at all corrected gestational ages.

There were 76 responses to the questionnaire (fig 1). The majority (73%) felt confident or very confident with positioning and using aids, however there were a wide range of text responses that were incorrect when asked about optimal positioning and the benefits or negative effects of poor positioning, suggesting that self-reported confidence and knowledge of best practice may not match up.

A developmental care ward round has now been set up and will include a positioning assessment.

Conclusion: These assessments show that positioning on the unit is suboptimal. The next PDSA cycles will focus on staff education on optimal positioning, procurement of new equipment and a guideline development. Continuous data collection will review the impact and sustainability of these measures.

| Positioning Audit | | |
|--|----------------------------|------------------|
| Demographics | Total = 50 patients | Standards |
| Gestation at Birth | | |
| <28 weeks | 18 (36%) | N/A |
| 28-31 weeks | 23 (46%) | |
| 32-36 weeks | 7 (14%) | |
| >36 weeks | 2 (4%) | |
| Corrected Gestational Age at Audit | | |
| <28 weeks | 6 (12%) | N/A |
| 28-31 weeks | 11 (22%) | |
| 32-36 weeks | 30 (60%) | |
| >36 weeks | 3 (6%) | |
| Position of Baby | | |
| Supine | 30 (60%) | N/A |
| Side | 13 (26%) | |
| Prone | 7 (14%) | |
| Gel pillow present | 0 (0%) | 100% |
| Positioning compared to network guidance | | |
| Trunk flexion | Median 1 Range 0-2 | Max score 2 |
| Shoulder position | Median 2 Range 0-2 | Max score 2 |
| Hip position | Median 1 Range 0-2 | Max score 2 |
| Boundary | Median 1 Range 0-2 | Max score 2 |
| Total | Median 3 Range 0-8 | Max score 8 |
| Staff Survey | | |
| Respondents | Total = 74 | |
| Nurse | 62 (84%) | |
| Doctor | 6 (8%) | |
| ANNP | 6 (8%) | |
| Length of Time Working on NICU | | |
| <1 year | 19 (26%) | |
| 1-4 years | 18 (24%) | |
| 4-8 years | 11 (15%) | |
| >8 years | 26 (35%) | |
| 'Confident or Very Confident using positioning & positioning aids' | 54 (73%) | |
| Correctly identified 'midline' as ideal position for a preterm head and body in first 72 hours of life | 43 (58%) | |
| Correct knowledge of midline positioning reducing IVH | 25 (34%) | |

Fig 1 – Positioning Audit and Survey Results from NICU



ID 528. First Attempt Lumbar Punctures – ‘Are You Sitting Comfortably?’

Mrs Suzanne Wyton¹, Dr Kathryn Parr¹, Dr Ria Evans-Fry¹, Dr Hannah Wood¹, Dr Manobi Borooah¹
¹Birmingham Women's Hospital NHS Trust, Neonatal Unit

Background: The UK NeoCLEAR study recommends a change in practice towards sitting technique as standard for neonatal lumbar puncture (LP). Successful first LP was more frequently observed in sitting than lying position and was better tolerated in terms of comfort and physiological stability. Current unit practice is to perform LPs in the lying position.

Our aim was to assess first attempt LP success rates in term infants over 6 months to identify if a change in position should be considered to improve first attempt LP success rates, with secondary benefits on neonatal procedural pain and neurodevelopment.

Methods: A retrospective review was conducted from October 2022 to March 2023. LPs were identified from microbiological records of CSF samples, biochemistry records of C-reactive protein (CRP) samples >60 mg/L and electronic patient notes. Inclusion criteria was infants > 37 weeks' gestation that had an LP indicated.

We defined the number of LP needle passes as ‘attempts’ required to obtain CSF and a ‘procedure’ as one aseptic LP event. All LPs were presumed lying, unless documented otherwise.

Results: Of 445 admissions, 25 LPs were indicated. 19 LP procedures were performed in 17 infants. 15 (78.94%) were successful in obtaining CSF, however only 5 (33.3%) were successful on first attempt. Two attempts were required in 5 (33.3%) and in a further 5 (33.3%) the number of attempts were unknown. Multiple attempts at LP were unsuccessful in 4 infants (16.6%), with one failed attempt being in sitting position. See Table 1.

Conclusion: Whilst most LP procedures were successful, they frequently required more than one attempt. This impacts neonatal neurodevelopment in terms of pain and distress, parental experience and has resource implications. Fewer LPs are performed in our unit since introducing the Kaiser Permanente-Sepsis Risk Calculator and increasing the CRP threshold above 60 mg/L. The reduced opportunity to practice LPs could also potentially affect first time success rates.

A trial of sitting LPs for comparison would be beneficial, but further education of sitting LPs using simulation and manikins would be needed. Additionally, more emphasis is needed on accurate procedural documentation including implementation of a checklist.



First Attempt Lumbar Punctures – 'Are You Sitting Comfortably?'

Birmingham Women's Hospital Neonatal Unit, Birmingham, UK.

Table 1: LP Results

| | | | | | | |
|--|-----|--------|---|----------------|---|--------------------------------------|
| Total number admissions | 445 | | 1st Oct 22 - 31st Mar 23 | | | |
| Infants LPs would be indicated | 25 | 5.61% | LP not performed: Clinically well, Thrombocytopenia, Blood culture positive. | | | |
| Number of LP procedures performed | 19 | 76.00% | *Two Infants had 2 LP Procedures | | | |
| Successful LP | 15 | 78.94% | Attempts | 1st | 5 | 33.33% |
| | | | | 2nd | 5 | 33.33% |
| | | | | Not documented | 5 | 33.33% |
| Unsuccessful LP | 4 | 21.05% | Attempts | 1st | 0 | 0.00% |
| | | | | 2nd | 2 | 50.00% |
| | | | | 3rd | 1 | 25.00% |
| | | | | 4th | 1 | 25.00% |
| | | | | Not documented | 0 | 0.00% |
| | | | | | | * 2 x Attempts were Sitting Position |

ID 1023. Reducing the burden of late onset and central line associated infections – time to re-define CLABSI in neonates?

Doctor Phani Kiran Yajamanyam¹, Ms Elaine Vanderpool¹

¹Sidra Medicine

BACKGROUND: Central line (CVL) associated infections (CLABSI) are a major cause of morbidity and mortality in neonates. Implementing evidence-based recommendations in the form of ‘bundles of care’ reduces the incidence of CLABSI. However, there is no unified consensus to accurately differentiate CLABSI from other causes of late-onset infections in neonates which in turn is important to device and implement appropriate prevention strategies.

METHODS: Sidra Medicine is a quaternary NICU caring for babies with complex gastrointestinal, urological and multi-system disorders. Prospective data collection was done from January 2019 to April 2023. Various evidence-based interventions were implemented in a staged manner to reduce the incidence of CLABSI, such as a dedicated multi-disciplinary CVL team, CLABSI insertion and maintenance bundles, addition of heparin to parenteral nutrition, use of alteplase for unblocking lines, extensive medical and nursing education, daily review of the need for CVL and prompt removal. Close collaborative working relationship was established with the hospital infection prevention team and pre-defined categories of late-onset bacteraemia were excluded from the CLABSI surveillance data. These included gut translocations in infants with short bowel syndrome on bowel expansion program, infections occurring immediately after gut stoma manipulations and urological investigations/procedures. To reduce the incidence of such infections, brief course of prophylactic antibiotics was administered to infants undergoing such procedures. Data was normalised per 1000 central line days. Other relevant clinical data was also collected.

RESULTS: Just over 1000 CVLs were inserted during the data collection. The average CVL dwell time was 21.4 days. Overall CLABSI rates reduced from 6.3/1000 line-days to 0.86/1000-line days. A significant reduction was also noted in the incidence of late onset sepsis because of any reason from >20/1000-line days to 4.2/1000-line days.

CONCLUSIONS: There is an urgent need to find consensus-based definitions for differentiating CLABSIs from other causes of bacteraemia such as gut translocation in neonates. This would enable organisations to direct resources and strategies towards the most appropriate preventive measures. In our NICU implementing pre-procedural prophylactic antibiotics along with other proven evidence-based interventions resulted in reduction of late onset infections.

ID 814. HOME PHOTOTHERAPY SERVICE DEVELOPMENT: SINGLE CENTRE EXPERIENCE

Doctor Sumit Mittal¹, Mrs Claire Inglis¹, Dr Kamini Yadav¹
¹University Hospital Of Leicester NHS Trust

Background: Physiological hyperbilirubinaemia is a common neonatal problem with inpatient phototherapy the mainstay of treatment. Service demands and constant pressure on maternity, neonatal and paediatric beds have prompted delivery of home phototherapy (HPT). We share our experience of setting up HPT service for a large perinatal centre.

Method: Neonatal home care team at University Hospitals of Leicester led the implementation of HPT service for neonates with physiological jaundice. A scoping exercise was undertaken using annual delivery rate, number of babies receiving phototherapy on postnatal wards, jaundice clinic attendance and readmission to paediatric department to determine the size of the service needed to deliver safe care. Review of national and international guidance for HPT was undertaken along with literature review to draw upon experience and lessons learnt from other services. Following feasibility assessment, business case was submitted and was successful in securing funding for providing seamless service. A guideline and standard operating procedure was drafted and approved. Engagement with various stakeholders such as midwife's, health visiting, neonatal and A&E teams to establish referral pathways. An education package and patient information leaflet for parents for safe delivery of HPT developed. An initial review of the patients in ANNP led jaundice clinic helped to identify eligible babies, initial blood test ruled out pathological jaundice, parental teaching was delivered by ANNP or home care team, daily review and bilirubin checks were carried out by home care team for the duration of HPT. Information governance was addressed ensuring that up-to-date information of daily HPT review was accessible to all stakeholders in case of unexpected admission.

Results: Successful implementation of HPT service has prevented prolonged hospital stay, improved patient flow, prevented readmission, promoted mother-infant bonding, improved patient experience with higher parent satisfaction. This service has also helped staff professional and personal development, fostering team working between primary and secondary care.

Conclusion: We present a successful implementation of a service development project to allow safe delivery of HPT by neonatal homecare team for babies with mild physiological hyperbilirubinaemia. This service is clinically safe, cost-effective. It helps in patient flow, decreasing hospital stay and provides holistic family centered care.

ID 693. Enhancing Family-Centred, Values-Based Communication with Families of Preterm Infants in NICU - A Quality Improvement Project

Doctor Leah Halpenny^{1,2}, Mimi Kuan^{1,2}, Elisa Karanjia^{1,2}, Dr Emily Kieran^{1,2}

¹Division of Neonatology, BC Women's Hospital, ²Department of Pediatrics

Background: Communication in the NICU impacts parental experiences and outcomes, promoting relationship building, facilitating shared decision making, and empowering families. Preterm babies are likely to be admitted for prolonged durations, and may have an uncertain prognosis. High-quality communication with these families can impact their overall experience. The Communication Tracking Tool (CTT) was developed to support communication, however had not been introduced to the preterm population of families.

Objective: The aim was to increase the occurrence of documented early communication episodes with families of premature infants to 80% by September 2022. Our goal was that with earlier initiation and planning of values-based, family-centred communication, consistent high-quality communication would be established and maintained.

Design/Methods: Quality improvement (QI) methodology was used to conduct this project. Cause and effect analysis determined contributing factors to current practice, and a driver diagram identified potential change ideas. Baseline data collection included family and staff surveys and retrospective chart review. Survey responses were compared to chart review data.

Following QI methods, Plan-Do-Study-Act cycles were conducted. A core intervention was the introduction of the CTT. Run charts were used to track use of the CTT and documented communication practice during PDSA cycles.

Results: A key survey finding was lack of consistency in communication. Additionally, while family and staff survey results suggested that some family-centred communication was taking place, chart review data revealed documentation did not reflect this.

Three PDSA cycles were completed. Interventions included introduction of the CTT, measures to promote its use, and education and knowledge translation sessions regarding family-centred communication and the CTT. To date, by using the CTT during early communication with families, documentation of topics such as communication preferences, values and fears, and sources of strength has improved, however practice remained varied.

Conclusions: We identified a need for increased family-integrated communication with families of preterm infants. A need for improved documentation regarding communication was also evident. By introducing the CTT to use in the preterm population we did see an increase in documented family-centred communication, however have not yet reached the target of >80%. Continued work includes developing practical education sessions in using the CTT.



Figure 1. Communication Tracking Tool

| COMMUNICATION TRACKING TOOL | | | | |
|--|--|---|--|--|
| Significant Communications | Name of baby: _____ | | Primary Tracker(s): _____ | |
| | Name of parents: _____ | | | |
| | Preferred language: _____ | | | |
| | Indicators for increased need for communication (check all that apply): | | | |
| | <input type="checkbox"/> Predicted/expected duration in NICU >6 weeks | <input type="checkbox"/> Parents* and clinical team's goals are different | | |
| | <input type="checkbox"/> Uncertain diagnosis/prognosis | <input type="checkbox"/> Parents differ about care plan/goals of care | | |
| | <input type="checkbox"/> Not following predicted trajectory | <input type="checkbox"/> Parents cannot talk about the "what ifs" | | |
| | <input type="checkbox"/> Multiple teams | <input type="checkbox"/> Financial/social stressors | | |
| | <input type="checkbox"/> Parents unfamiliar with health care system | <input type="checkbox"/> English not a primary language | | |
| | <input type="checkbox"/> Cultural aspects: | <input type="checkbox"/> Other reason | | |
| Significant Communication (ie. Family team meeting, review of tests...): | | | | |
| Name | Discipline | Date | Disclosure | |
| | | | | |
| What is the parents' understanding of their baby's illness/condition? | | | | |
| <input type="checkbox"/> Emerging understanding | Notes: _____ | Date Updated: _____ | | |
| <input type="checkbox"/> Underestimating prognosis/wellness | _____ | _____ | | |
| <input type="checkbox"/> Overestimating prognosis/wellness | _____ | _____ | | |
| <input type="checkbox"/> Appropriate understanding | _____ | _____ | | |
| How much information would parents like to receive about what is likely to be ahead with baby's illness/condition? | | | | |
| <input type="checkbox"/> Want to be fully informed | | | | |
| <input type="checkbox"/> Want some information but no "bad news" – explore approaches to sharing information | | | | |
| <input type="checkbox"/> Want to be informed of a big picture, but not details | | | | |
| <input type="checkbox"/> Parent does not want information | | | | |
| Designated surrogate decisions maker/support: _____ | | | | |
| Notes: _____ | | | | |
| Prognosis | What has the team communicated thus far regarding prognosis? | | | |
| | Life Expectancy (if predicted/disclosed) | | | |
| | <input type="checkbox"/> Days to weeks | Notes: _____ | | |
| | <input type="checkbox"/> Several weeks to months | _____ | | |
| | <input type="checkbox"/> More than a year | _____ | | |
| <input type="checkbox"/> Childhood/adolescence | _____ | | | |
| <input type="checkbox"/> Will likely live into adulthood | _____ | | | |
| <input type="checkbox"/> Very uncertain (fragility may affect longevity) | _____ | | | |
| Discharge Plan | | | | |
| <input type="checkbox"/> Discharge NICU stable by (date) _____ | | | | |
| <input type="checkbox"/> Discharge NICU fragile - needs ACCP by (date) _____ | | | | |
| <input type="checkbox"/> Transfer to another facility _____ | | | | |
| <input type="checkbox"/> Uncertainty when baby will be discharged | | | | |
| <input type="checkbox"/> Not expecting discharge/ baby deteriorating | | | | |
| Family Values | Family Values | | | |
| | If your baby becomes sicker, what are your most important goals? | | | |
| | <input type="checkbox"/> Spend time with people that love him/her | | | |
| | <input type="checkbox"/> Be in less medicalized environment (less interventions/tests, hospice, or home) | | | |
| | <input type="checkbox"/> Be physically comfortable | | | |
| | <input type="checkbox"/> Live as long as possible | | | |
| | Notes: _____ | | | |
| | What are your biggest fears or worries about the future with your baby's condition/illness? | | | |
| | <input type="checkbox"/> Suffering | <input type="checkbox"/> Financial difficulties | <input type="checkbox"/> Extent/burden of care | <input type="checkbox"/> Preparing for death |
| | <input type="checkbox"/> Neuro-disability | <input type="checkbox"/> Family stress | <input type="checkbox"/> Going home | <input type="checkbox"/> The unknown |
| <input type="checkbox"/> Physical disability | | | | |
| Notes: _____ | | | | |
| What gives you strength as you think about your baby's illness/condition and the future? | | | | |
| <input type="checkbox"/> Family | <input type="checkbox"/> Social Work | <input type="checkbox"/> Spirituality: _____ | <input type="checkbox"/> Limited support | |
| <input type="checkbox"/> Friends | <input type="checkbox"/> In-ward psychologist | <input type="checkbox"/> Culture: _____ | <input type="checkbox"/> Described no support | |
| <input type="checkbox"/> Other: _____ | | | | |
| Notes: _____ | | | | |
| How much have you shared with your other children and your extended family/supports about your baby's condition/illness and what might be ahead? | | | | |
| <input type="checkbox"/> Does not want family informed | | | | |
| <input type="checkbox"/> Some discussion, wants help talking to other children/family | | | | |
| <input type="checkbox"/> Some discussion but incomplete | | | | |
| <input type="checkbox"/> Extensive discussion – ongoing | | | | |
| <input type="checkbox"/> Wants clinician to talk to children/family | | | | |
| Notes: _____ | | | | |
| If your baby becomes sicker, what are you willing to explore for the possibility of gaining more time? | | | | |
| <input type="checkbox"/> Be on maximum medical support | Notes: _____ | Date Updated: _____ | | |
| <input type="checkbox"/> Undergo tests and procedures | _____ | _____ | | |
| <input type="checkbox"/> Be uncomfortable | _____ | _____ | | |
| <input type="checkbox"/> Remain in hospital | _____ | _____ | | |

Abbreviated version of the Communication Tracking Tool

ID 804. Enhanced Communication and Care Planning in the Neonatal Intensive Care Unit: Responding, Supporting, and Planning with Families Using a Novel Communication Tracking Tool

Mimi Kuan^{1,2,4}, Doctor Leah Halpenny^{1,4}, Camara Van Breemen³, Dr Esther Lee^{2,3,4}, Dr Emily Kieran^{1,4}

¹BC Women's Hospital, ²BC Children's Hospital, ³Canuck Place Children's Hospice, ⁴University of British Columbia

Background: Families (refers to primary caregivers/decision maker) with infants in the neonatal intensive care unit (NICU) face uncertainty and stress due to uncertain diagnosis or variable disease trajectory. Enhanced communication between clinicians and families in the NICU has been shown to improve parental coping and facilitate better understanding between medical teams and families. However, there is no standardised approach for clinicians to elicit the family's values and incorporate them into care planning.

Objective: To develop a consistent, family-oriented, and value-based care planning pathway by adapting and implementing a standardised communication tracking tool.

Design/Methods: We employed a Plan-Do-Study-Act approach for this quality improvement project, at a tertiary NICU. We invited neonatal interdisciplinary health professionals to participate in an electronic survey to determine perceived challenges in the current care planning and communication pathway. We hosted focus groups to identify common themes and by combining with the survey responses, we adapted the pediatric version of the Serious Illness Conversation Guide (originally developed by Ariadne Labs) in the context of NICU into a document we entitled the Communication Tracking Tool (CTT). We trialed the CTT in the NICU and amended the original version after receiving feedback from health professionals and NICU alumni families.

Results: The health professional survey identified the characteristics of families that would benefit from an enhanced communication approach, factors that contributed to difficult communication patterns, and strategies to improve communication difficulties.

The virtual focus groups and workshops allowed feedback from stakeholders to be incorporated into the CTT.

The purposes of the CTT include:

- (1) Identify families who could benefit from enhanced communication
- (2) Summarise the family's values, wishes, and worries regarding the care of their baby
- (3) Track documentation of specific information/disclosures the medical team has shared
- (4) Limit repeated discussions with families by providing a dedicated place where members of the medical team can share information about families knowledge, values and goals

Conclusions: By documenting significant disclosures, the CTT helps provide consistent information, avoids repetitions, and facilitates conversations leading to improved understanding and increased transparency of family's values and goals. In addition, it ensures clearer handover between rotating care providers.

Figure 1. Communication Tracking Tool

| COMMUNICATION TRACKING TOOL | | | | | | | | | | | | | | | | | |
|---|--|---|--|--|------------|--|--|--|--|--|--|--|--|--|--|--|--|
| Significant Communications | Name of baby: _____ Primary Tracker(s): _____ | | | | | | | | | | | | | | | | |
| | Name of parents: _____ | | | | | | | | | | | | | | | | |
| | Preferred language: _____ | | | | | | | | | | | | | | | | |
| | Indicators for increased need for communication (check all that apply): | | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Predicted/expected duration in NICU >6 weeks | <input type="checkbox"/> Parents* and clinical team's goals are different | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Uncertain diagnosis/ prognosis | <input type="checkbox"/> Parents differ about care plan/goals of care | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Not following predicted trajectory | <input type="checkbox"/> Parents cannot talk about the "what ifs" | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Multiple teams | <input type="checkbox"/> Financial/social stressors | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Parents unfamiliar with health care system | <input type="checkbox"/> English not a primary language | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Cultural aspects: _____ | <input type="checkbox"/> Other reason _____ | | | | | | | | | | | | | | | |
| Prognosis | Significant Communication (ie, Family team meeting, review of tests...): | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>Name</th> <th>Discipline</th> <th>Date</th> <th>Disclosure</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> | Name | Discipline | Date | Disclosure | | | | | | | | | | | | |
| | Name | Discipline | Date | Disclosure | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | What is the parents' understanding of their baby's illness/condition? | | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Emerging understanding | Notes: _____ | Date Updated: _____ | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Underestimating prognosis/wellness | _____ | _____ | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Overestimating prognosis/wellness | _____ | _____ | | | | | | | | | | | | | | |
| <input type="checkbox"/> Appropriate understanding | _____ | _____ | | | | | | | | | | | | | | | |
| How much information would parents like to receive about what is likely to be ahead with baby's illness/condition? | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Want to be fully informed | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Want some information but no "bad news" – explore approaches to sharing information | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Want to be informed of a big picture, but not details | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Parent does not want information | | | | | | | | | | | | | | | | | |
| Designated surrogate decisions maker/support: _____ | Notes: _____ | | | | | | | | | | | | | | | | |
| Family Values | What has the team communicated thus far regarding prognosis? | | | | | | | | | | | | | | | | |
| | Life Expectancy (if predicted/disclosed) | | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Days to weeks | Notes: _____ | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Several weeks to months | _____ | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> More than a year | _____ | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Childhood/adolescence | _____ | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Will likely live into adulthood | _____ | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Very uncertain (fragility may affect longevity) | _____ | | | | | | | | | | | | | | | |
| | Discharge Plan | | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Discharge NICU stable by (date) _____ | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Discharge NICU fragile - needs ACCP by (date) _____ | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Transfer to another facility _____ | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Uncertainty when baby will be discharged | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Not expecting discharge/ baby deteriorating | | | | | | | | | | | | | | | | | |
| Family Values | Family Values | | | | | | | | | | | | | | | | |
| | If your baby becomes sicker, what are your most important goals? | | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Spend time with people that love him/her | | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Be in less medicalized environment (less interventions/tests, hospice, or home) | | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Be physically comfortable | | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Live as long as possible | | | | | | | | | | | | | | | | |
| | Notes: _____ | | | | | | | | | | | | | | | | |
| | What are your biggest fears or worries about the future with your baby's condition/illness? | | | | | | | | | | | | | | | | |
| | <input type="checkbox"/> Suffering | <input type="checkbox"/> Financial difficulties | <input type="checkbox"/> Extent/burden of care | <input type="checkbox"/> Preparing for death | | | | | | | | | | | | | |
| | <input type="checkbox"/> Neuro-disability | <input type="checkbox"/> Family stress | <input type="checkbox"/> Going home | <input type="checkbox"/> The unknown | | | | | | | | | | | | | |
| <input type="checkbox"/> Physical disability | | | | | | | | | | | | | | | | | |
| Notes: _____ | | | | | | | | | | | | | | | | | |
| What gives you strength as you think about your baby's illness/condition and the future? | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Family | <input type="checkbox"/> Social Work | <input type="checkbox"/> Spirituality: _____ | <input type="checkbox"/> Limited support | | | | | | | | | | | | | | |
| <input type="checkbox"/> Friends | <input type="checkbox"/> In-ward psychologist | <input type="checkbox"/> Culture: _____ | <input type="checkbox"/> Described no support | | | | | | | | | | | | | | |
| <input type="checkbox"/> Other: _____ | | | | | | | | | | | | | | | | | |
| Notes: _____ | | | | | | | | | | | | | | | | | |
| How much have you shared with your other children and your extended family/supports about your baby's condition/illness and what might be ahead? | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Does not want family informed | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Some discussion, wants help talking to other children/family | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Some discussion but incomplete | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Extensive discussion – ongoing | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Wants clinician to talk to children/family | | | | | | | | | | | | | | | | | |
| Notes: _____ | | | | | | | | | | | | | | | | | |
| If your baby becomes sicker, what are you willing to explore for the possibility of gaining more time? | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Be on maximum medical support | Notes: _____ | Date Updated: _____ | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Undergo tests and procedures | _____ | _____ | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Be uncomfortable | _____ | _____ | | | | | | | | | | | | | | | |
| <input type="checkbox"/> Remain in hospital | _____ | _____ | | | | | | | | | | | | | | | |

ID 793. Outcome of babies referred for Hip ultrasound (US) scan for clicky hip - A cost saving benefit Quality Improvement (QI) Project

Mrs Romila Azares¹, Mrs Jinimole Arun¹, Mrs Mary Nwamadi¹, Dr Brenda Addo-Quarshie¹, Dr Anusha Arasu¹, Dr Ravindra Bhat¹, Mr Gregory Stansil¹, Dr Pamela Allen¹, Dr Zainab Kassim¹
¹Kings College Hospital NHS Foundation Trust

Background: Public Health England recommended a change in NIPE hip screening pathway in April 2021. Babies with isolated 'clicky hips' without any other relevant clinical findings do not require referral for hip US scan. However, due to reported positive cases related to babies with 'clicky hips', there was reluctance to change our local guidelines which prompted re-evaluation of our local pathway with a project.

Study design: 10 year (January 2010- December 2020) retrospective data review of babies referred for hip US scan for 'clicky hips'.

RESULT: There were 12,000 hip US done in a 10-year period from January 2010 to December 2020. Of the 12,000 scans performed, 834 (6.95%) were referred as 'clicky hips' with or without other risk factors. From the 834, 264 (31.65%) were referred as 'clicky hips and other risk factors' and 570 (68.35%) were 'clicky hips' alone. In the category under 'clicky hips' and other risk factors, 12 (1.4%) were found with positive DDH and under 'clicky hips' alone, 3 (0.36%) were found positive for DDH. However, after further investigation, there were other risk factors found in the babies' background but was not indicated during referral. Resulting in zero babies with DDH on referrals with 'clicky hips' alone.

Conclusions: No positive Developmental Dysplasia of the Hips (DDH) for babies referred for 'clicky hips' as the sole indicator for hip US scan. The QI demonstrated a potential cost saving benefit of £35,408.4p. The project resulted in a change in local policy in line with Public Health England recommendations.



ID 969. Father's perceptions and care involvement for their very preterm infants at French NICUs

Dr Amélie STERN-DELFI^{1,2}, Dr Isabelle LE RAY¹, Pr Laurence CAEYMAEX³, Dr Odile DICKY⁴, Mrs Madeleine AKRICH⁵, Mrs Audrey REYNAUD⁶, Mrs Charlotte BOUVARD⁶, Mrs Anne EVRARD⁵, Pr Jacques SIZUN⁴, Pr Charlotte TSCHERNING^{4,7}, Dr. PIERRE KUHN^{1,8,9}

¹University Hospital of Strasbourg/ Department of Neonatology, ²Department of Neonatology, Hospital of Mulhouse, ³NICU, Centre Hospitalier Intercommunal de Créteil, ⁴NICU, University Hospital of Toulouse, ⁵Collectif inter-associatif autour de la naissance (CIANE), ⁶Association SOS Préma, ⁷NICU, Sidra Medecine Hospital, Well Cornell University Hospital, ⁸Institut des Neurosciences Cellulaires et Intégratives, CNRS UPR 3212, ⁹Neonatal Research Unit, Department of Women's and Children's Health, Karolinska Institute

Background: We aimed to evaluate i) fathers' perceptions and care involvement for their premature infants and their views of the hospitalization period based on parental reports ii) their evolution over time.

Methods: Online parental survey to assess the answers from parents of very preterm infants who were successfully discharged from French neonatal units. We analysed answers from February 2014 to January 2019 to an anonymous internet-based survey from the Groupe de Réflexion et d'Evaluation de l'Environnement du Nouveau-né (GREEN) committee from the French Neonatal Society. Responses were compared for period-1 (P1, 1998 to 2013) and period-2 (P2, 2014 to 2019).

Results: We analyzed 2483 surveys, 124 (5%) from fathers and 2359 (95%) from mothers. At birth, 1845 fathers (80%) were present in the hospital, but only 879 (38%) were near the mother. The presence of fathers in the NICU increased from P1 to P2 (34% vs. 43%, $P = 0.03$). Nearly two-thirds of fathers accompanied their infants during transfer to the NICU (1204 fathers, 61%). Fathers and mothers had similar perceptions regarding their relationships with caregivers and skin-to-skin contact with their infants. However, more mothers than fathers felt welcome in the NICU and in care involvement regarding requests for their wishes when they met their infant (79% vs. 60%, $p = 0.02$) and in the presentation of the NICU (91% vs. 76%; $p = 0.03$). There were also significant differences between mothers and fathers in the caring procedures they performed ($p = 0.01$), procedures they did not perform but wanted to perform ($p < 0.001$), and in procedures they did not perform and did not want to perform ($p < 0.01$).

Conclusion: Most fathers were present at the births of their very preterm infants, but fewer fathers were near the mother at this time. Less than two-thirds of fathers accompanied their infants to the NICU. These results indicate that there should be further changes to better meet the specific needs of the fathers of infants requiring care in the NICU. Continuing assessment using online questionnaire maybe a useful tool to monitor changes over time in father's involvement in NICUs.



ID 931. Supporting parents with a baby on neonatology through the Ne-oParent-application. A pilot study in four Flemish hospitals.

Mrs Inge Tency¹, Dr Marie-Rose Van Hoestenberghe², Dr Kris De Coen³, Mrs Manuela Bastanie⁴, Mrs Brenda Van Delft⁵, Mr Davy De Winne¹, Mrs Liesbet Coopman¹, Miss Anaïs Lippens

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Background: The admission of a baby on a neonatal intensive care unit (NICU) often announces the start of an emotional, difficult, stressful period for parents. They are overwhelmed by information, medical jargon and a high-tech environment. Additionally, there is a growth in Internet and app use among (future) parents. Research showed that the majority of parents use their smartphone to look for NICU-related information. Concerns rise about the quality of these online resources. Therefore, the NeoParent-app was developed to support parents on NICU, starting from a user-centered approach and co-creation process. The NeoParent-app was tested and evaluated among parents in four Flemish NICU's.

Methods: A descriptive qualitative study was conducted after ethical approval in the four hospitals. Parents (n=151) tested the NeoParent-app between November 2019-June 2020. Semi-structured interviews (n=18) were performed face-to-face (n=1), by telephone or online (n=17). Recorded interviews were transcribed on macro-level using content analysis. App-usage was monitored quantitatively with Google Analytics.

Results: A total of 633 visitors used the app, mainly during the day, with peak moments between 8-11am and 9-10pm. The diary was mostly used, functioning as a kind of memory, looking back to the baby's admission on neonatology. Parents experienced the app as an interesting, supportive, interactive and user-friendly tool, stimulating parent participation. They appreciated the nurses' messages, baby's milestones and photos in the diary, but stressed the importance of a more continuous app-usage. Parents missed clear expectations about the use of the app by the NICU-staff. They were not familiar with all app-functions (.e.g. dictionary, booking visit), but suggested to maintain those features. They would recommend the NeoParent-app to other parents with a baby on neonatology.

Conclusion: This research showed that digital tools using a co-creative and user-centered approach, can support and expand family-centered care environments. The pilot study demonstrated the added value of the NeoParent-app, thereby optimizing, strengthening and maintaining parent experiences on a NICU. Further research is needed on (cost)effectiveness and valorisation of the NeoParent-app and integration into neonatology department, including finetuning expectations with parents.

ID 1009. Family integrated care: a stepwise approach to implementation with resource constraints.

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Background: Neonatal intensive care can be a highly distressing time for parents and it has been recognised that family integrated care (FiCare) can help ameliorate the emotional and psychological impact it has on families. It has been shown that parental participation in care and decision making have shown positive outcomes for parents and infants. Nonetheless full implementation requires significant resources and a commitment to change which may be difficult in the era of staffing shortages and resource constraints.

As a consequence we have implemented a stepwise approach consisting of 2 quality improvement projects (QIP) to further the full implementation of FiCare detailed below.

Methods: Both QIPs were implemented consecutively in a tertiary neonatal unit. The 1st QIP was the introduction of the discharge train. This was a parent orientated discharge planning package which increases parental involvement, understanding of baby's needs and clinical progress and physical maturation. This is nicely encapsulated in an infographic attached to the bedside and give an estimated date of discharge.

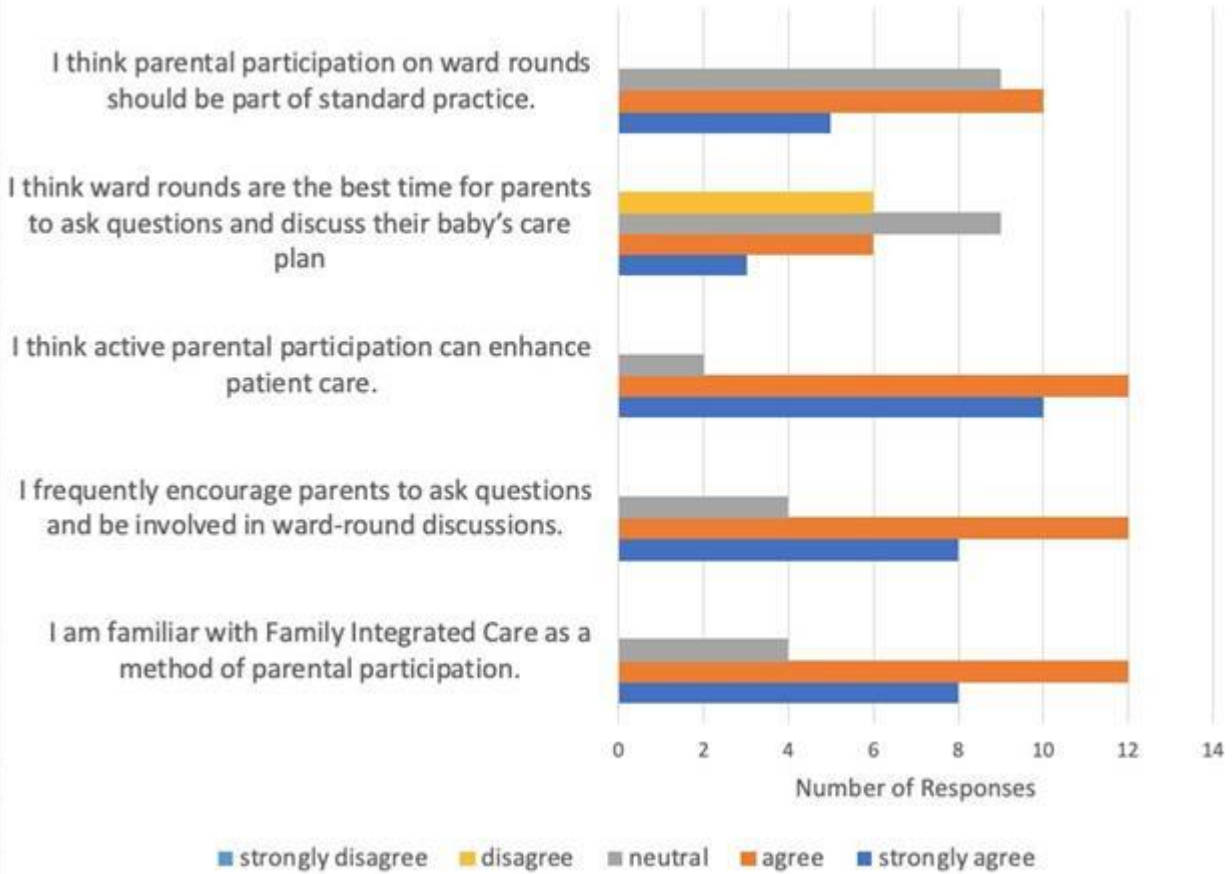
The 2nd QIP was the introduction of parent led ward round. This was done once a week with the parents contributing to the ward round together with the wider MDT team. This improves parental participation and satisfaction thereby reducing parental anxiety.

Results: Both QIPs were well received by staff. Parental feedback indicated that it was easy to understand and that they felt involved with their baby's care. It was felt that the estimated date of discharge and progress as documented on the infographic was reassuring and promoted greater understanding.

Conclusion: Both QIPs were straightforward interventions which can be applied in all resource settings. In addition this marks the 1st steps in terms of implementing FiCare in a any neonatal setting regardless of complexity or resources.



Staff Pre-implementation Survey Results





ID 862. KEEP IT SWEET: Quality Improvement Initiative of MDT Approach to Management of Hypoglycaemia in a District General Hospital

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BACKGROUND

Neonatal hypoglycaemia is one of the leading causes of avoidable term admissions. Early recognition of babies' 'at risk' of hypoglycaemia is vital to prevent brain injury and long-term neurodevelopmental impairment. A multidisciplinary team (MDT) approach has been adopted locally following the British Association of Perinatal Medicine (BAPM) framework of practice to implement and reinforce local guidelines for managing neonatal hypoglycaemia in term infants, aiming to reduce admissions with prompt treatment and thus avoid mother-baby separation.

Multiple cycles were conducted in this Quality Improvement(QI) initiative to assess the efficacy of the multidisciplinary team (MDT) approach and adherence to the established guidelines. Aim was to continually evaluate the management of hypoglycaemia in term babies in the post-natal ward, aligned with the guidelines. In addition, MDT' Education Bundle' was implemented and assessed for its effectiveness.

METHODS

All infants born ≥ 37 weeks and 'at risk' of hypoglycaemia were identified and included in the study done retrospectively in a single-centre over two months (1st December 2022 – 31st January 2023). Data were collected from Electronic health records (Medway) and clinical notes.

An anonymized survey was conducted to assess the staff's confidence in managing hypoglycaemia after implementing the MDT' Education bundle' and compared.

RESULTS

Seventy-seven eligible babies were identified, and a comparison was made with previously conducted audits, showing improvement in most areas (Figure 1a). Multiple mini-cycles followed the initial audit recommendation of "Education Bundle", and Figure 1b presents a summarised diagrammatic representation of all QI cycles conducted.

The anonymized survey conducted amongst all staff members, from the initial pre-audit to the present, showed increasing confidence in managing hypoglycaemia in newborns from 61% to 81%. Additionally, staff understanding of "at risk" babies increased from 11% to 81%.

CONCLUSION

This ongoing QI initiative has demonstrated collaborative working with good communication between the neonatal, midwifery, and obstetric teams, results in positive outcomes. Short, focused

mini-audit cycles with achievable targets are the key for an effective QI. Areas of improvement following this audit include reinforcing more effective ways to deliver education, particularly to parents, to empower them in caring for the baby.

FIGURE 1A: COMPARISON OF MANAGEMENT OF HYPOGLYCAEMIA IN TERM INFANTS

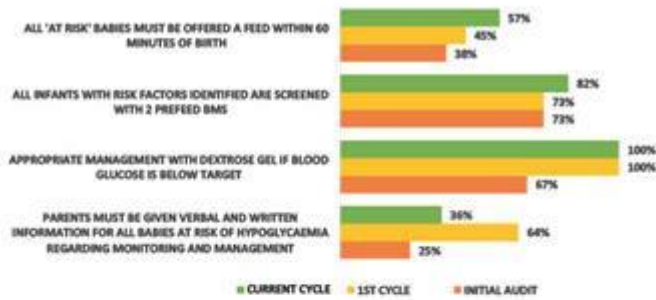
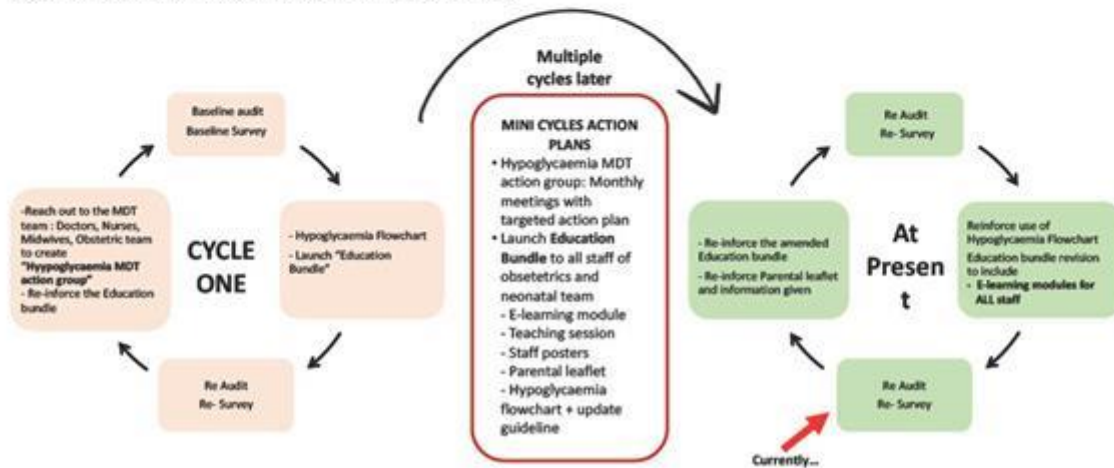


FIGURE 1B: DIAGRAMMATIC REPRESENTATION OF QI CYCLES



ID 830. ADHD and Perinatal Factors

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Attention deficit hyperactivity disorder (ADHD) is a common pediatric neurobehavioral disorder often treated in the primary care setting. It shows a high and chronic level of inattention, impulsivity/hyperactivity and/or both, and can affect more than 2 million school-age children. The researchers are not sure about the exact causes of the disorder, but it seems that apart from genetic factors, perinatal factors seem to dynamically contribute to the development of the disorder. Purpose: The aim of this review was to investigate the perinatal and obstetric factors related to the development of attention deficit hyperactivity disorder in childhood. Method: An online review of English language studies published from 2002 to 2020, using the Embase, PsychINFO, PubMed, and Google Scholar databases. From 1100 studies only 17 were included in the review since they met the inclusion criteria. Conclusions: The results of the review showed that apart from heredity and genetic factors, various conditions in pregnancy or the mother's way of life in pregnancy, adverse conditions in labor and infancy can contribute on their own or in combination to the development of the attention deficit hyperactivity disorder in childhood. Obstetric vigilance to detect risk factors in pregnancy in combination with the prevention of obstetric complications is the key in preventing attention deficit hyperactivity disorder.

ID 966. Mixed feelings: time of discharge from NICU with an extremely preterm infant.

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Background. After a long time spent in NICU with an extremely preterm (EP) infant, transition home may be challenging.

Methods. Within the European SHIPS project, we carried out 62 interviews in 5 countries (Italy, Belgium, France, Germany, Portugal) with parents of EP children, recruited by random sampling stratified for child disability (yes/no). Thematic analysis of the transcriptions lead to identification of three main themes: 1. Leaving NICU; 2. Unusual child looks; 3. First period at home.

Results. Discharge home often raised anxiety, particularly when the child health problems were still present:

«The day I went out I had a tears fit...Because I was leaving with my pram and the oxygen cylinders alongside.»(IT)

During hospitalization, parents had become somewhat dependent on the staff and equipment. Thus, even detachment of the child from “the machines” was experienced as worrisome:

«There was a bit of a stress, because there were no more nurses as backup. There was no equipment, while in the hospital you always tended to look at the machines, so that was a little frightening»(FR)

Outside, the diversity of the preterm infant looks became evident, raising people attention and enquiries:

«He was discharged at about 3000 grams, like a newborn. So, when asked: ‘How many days is he?’ ‘Almost four months old.’ It was strange, for siblings, for all of us »(GE)

More importantly, worries about his/her wellbeing and home care were a main cause for parental anxiety, loss of sleep and tiredness: «It was really difficult to put my infant to bed at the beginning. I could not sleep at all because I had to look at him constantly.»(GE)

«Well especially at discharge from the NICU when you have such a small child... I was expecting a visit, someone to come to the house, because when you have such a little baby who a week before going home stopped breathing...if it ever happens to us, what should we do? »(FR)

Conclusions. Caring for an EP infant in the first time home may be very challenging. Continuity of support by the NICU staff, by telephone or home visits, would be important.

ID 957. The significance of Vestibular Stimulation for Preterm Infants: A Narrative Review

Miss Adèle Saives^{1,2}, Pre Marilyn Aita^{1,2}, Pre Marjolaine Héon¹

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Introduction:

During pregnancy, the fetus is constantly exposed to vestibular stimulation through the movements and walking of the mother. This type of stimulation is crucial for the development of the vestibular system, controlling the position in space and maintaining balance. Therefore, it is important to understand the significance of vestibular stimulation for preterm infants and explore interventions that can help stimulate this system in the clinical practice of neonatal nurses. This narrative review is guided by the following question: What is the impact of vestibular stimulation on the development of preterm infants and how can nurses effectively incorporate vestibular stimulation interventions into their daily clinical practice?

Methods:

A narrative review was conducted to identify articles that explore the link between vestibular stimulation and the development of preterm infants, as well as relevant interventions that can be used to stimulate the vestibular system in the daily clinical practice of nurses.

Results:

Vestibular stimulation during pregnancy is rhythmic, periodic, organized, and predictable. However, once the preterm infant is hospitalized in the neonatal intensive care unit (NICU), the vestibular stimulation becomes irregular, disorganized, and unpredictable. Several studies have shown that rocking and other types of vestibular stimulation can synchronize the infant's respiratory rhythm with the vestibular stimulation, decrease apnea and bradycardia, increase sleep time, promote better motor development, and even increase interaction with parents (Graven et al. 2008; Lecanuet et al. 2002; Markova et al. 2009; Provasi et al. 2021). Therefore, vestibular stimulation offers an opportunity to enhance the implication of parents and improve each of the subsystems outlined by the Synactive Theory of Development (AI, 1982).

Conclusion:

The vestibular system is complex and interacts with all senses. The development of the vestibular system in the embryo is intricate, involving many neural pathways, functions, and embryogenesis. Interventions such as rocking by caregivers and skin-to-skin contact by parents, accompanied by educating parents on the importance of mobilizing their infants should be encouraged in the NICU. By implementing these interventions, their overall development of the vestibular system of preterm infants will be supported during NICU hospitalization.

ID 958. Effects of Hammock positioning for preterm infants: A systematic review

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Introduction:

Preterm infants hospitalized at the NICU are often deprived of vestibular stimulation, which is present throughout pregnancy during mothers' movement. This stimulation is crucial for infants' brain development and sleep quality. We hypothesized that hammock positioning in the incubator is an intervention that provides vestibular stimulation similar that experienced in the intrauterine environment, potentially promoting more neurotypical development in preterm infants. It is therefore essential to examine what is already known about hammock positioning, with a systematic review. For preterm infants with a gestational age of less than 37 weeks (P), what are the effects (O) of hammock positioning (I) compared to standard supine, prone or lateral positioning (C)?

Method:

This systematic review is conducted according to the PRISMA recommendations (Moher et al., 2015) and is registered in Prospero (ID : CRD42022382393). PubMed, MEDLINE, Joanna Briggs Institute, Cochrane, Embase and CINAHL databases have been explored, without year of publication restrictions nor language. Inclusion criteria are articles which reported results of a hammock positioning on preterm infants compared to a standard positioning (dorsal, ventral or lateral).

The literature search resulted in the selection of 218 articles. Three independent reviewers examined the titles and abstracts and selected the articles according to the full texts.

Data extraction is now ongoing. Risk of bias will be assessed using ROB2 tools and overall quality of the articles, using the GRADE approach (Higgins et al. 2022).

Results:

Through this rigorous process, 12 articles were included: 6 from Brazil, 2 from Italy, and 1 from USA, Egypt, Israel, and China. Although the number of articles identified was small, it underscores an evolving global interest in the use of hammock for preterm infants' care as articles were mainly published between 2017 and 2019. Data extraction process is currently underway and includes participant characteristics, study design, a description of the groups, intervention modalities, duration and frequency, time of measurement and outcomes. Conclusion: This systematic review will contribute to establishing a state of knowledge on the effects of hammock on preterm infants' outcomes. It has the potential informing future nursing positioning practice of preterm infants in NICUs.

ID 984. PARENTING IN THE BORDERLANDS OF LATE AND MODERATE PREMATURITY

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Background:

Parenting is associated with increased demands integrating knowledge and evidence in everyday life in the family, aiming at realizing the child's full potential. Parenting after late and moderate preterm birth is furthermore associated with increased risk of parental stress and various developmental problems in childhood and school.

The study explored how parenthood was lived and experienced in the Danish welfare state after late and moderate preterm birth in every day life and when interacting with health care professionals.

Methods:

An extensive ethnographic fieldwork consisting of participant observations and interviews was conducted in two regions in Denmark.

Results:

A total of 130 families involved 7 key informant families were observed a total of 118 times and 20 semistructured interviews were made.

Analysis was made thematically and generated themes illuminating how parenthood was affected by the ambiguities of parenthood and the risks and experiences from the start in a hospital context. Parenting was to some extent medicalized and the process of regaining normality was uncertain and different for the parents, that used different strategies.

Conclusion:

Parenthood is influenced by late and moderate preterm birth, and the demands on parenthood on using of expert advice combined with subjective assessments produced uncertainty in every day life. How and when to implement different sorts of advices remained unclear for months after birth and parents monitored the child's development carefully as they had an awareness of potential problems that might occur during childhood due to prematurity.

ID 1007. Limitations to the Introduction of Family Centered Care Initiatives in Tertiary Neonatal Units: A Review of the Literature

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¹University Of Plymouth

1. Background

Family centered care has been shown to improve neonatal outcomes in bronchopulmonary dysplasia and overall mortality. In addition to this it is beneficial in promoting breast feeding rates and maternal-infant bonding. Despite this, it can be difficult to introduce family centered care initiatives in a tertiary neonatal unit. To more clearly understand the limitations in introducing family centered care, a literature search was undertaken.

2. Methods

A literature review of PubMed was performed using the terms (((("family centered care") OR ("parental involvement")) AND (limitations)) AND ((NICU) OR ("neonatal unit"))). The resulting abstracts were screened for relevance before the papers were reviewed in full for the key themes.

3. Results

When an institution is beginning to implement family centered care there are many potential limitations, which can be divided into architectural, cultural (staff), and cultural (families). The architectural limitations relate primarily to lack of space and a lack of single patient rooms, which gives rise to concerns about confidentiality. A culture of staff seeing family as separate from the care of the baby, and discouraging family from being involved in some aspects of care were found to adversely impact the introduction of family centered care. Units that were short staffed and units where staff were afraid of being blamed for negative outcomes also found the introduction of family centered care difficult. Finally, parents often needed support from staff in order to be able to care for their infant while under neonatal care. This was particularly focused around fear of hurting their baby or causing a deterioration.

4. Conclusion

While family centered care has been shown to have many positive impacts on both neonates and their wider families, implementation of robust family centered care initiatives may be adversely impacted by wider issues around architecture, staffing levels and unit culture. These must be recognised and addressed in order to provide optimal care for our patients.

ID 1040. LOW-COST BREAST PUMP HIRE IN THE NEONATAL INTENSIVE CARE UNIT: AN EVALUATION OF WOMEN'S EXPERIENCES AND INFANT FEEDING OUTCOMES AT HOSPITAL DISCHARGE.

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¹Western Health, ²School of Nursing and Midwifery, Deakin University, ³Centre for Quality and Patient Safety Research, Western Health Partnership

Background: Premature infants are at increased risk for mortality and long-term comorbidities. Mother's own breastmilk is considered the nutritional 'gold standard'. Premature infants do not exhibit physiological maturity to breastfeed after birth. Mothers are encouraged to express their milk 8 -12 times per day to establish and maintain their milk supply, this facilitates the provision of expressed breastmilk feeding via the infant's enteral feeding tube. To respond to women's need for low-cost breast pump hire, double electric hospital-grade breast pumps were made available to hire at a nominal cost of AUD 1 per day. To be eligible, women needed to have given birth to an infant <32 weeks and/ or <1500gm. The aim of this study was to determine women's satisfaction of using the low- cost hire program and infant feeding outcomes at hospital discharge.

Methods: A prospective telephone survey was undertaken to evaluate women's experiences and satisfaction of using the hire program. A retrospective audit was undertaken to evaluate infant feeding outcomes at hospital discharge.

Results: The majority of women surveyed were extremely satisfied with the low-cost hire program. All infants of mothers who had hired a breast pump received breastmilk during their admission and most were receiving some breastmilk at hospital discharge. There were no breast pump losses or damages and all but one woman paid their hire fees.

Conclusion: The implementation of a low-cost breast pump hire service supported the provision of equitable care, increasing women's ability to access a double electric hospital-grade breast pump and provide expressed breastmilk for their infant.