BAPM

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British Association of Perinatal Medicine

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Oral Abstracts

Neonatal outcomes among spontaneous vaginal births occurring in or out of water following intrapartum water immersion in UK maternity services: The POOL cohort study

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Introduction: Women use a pool during labour for pain relief, with some remaining in the pool for birth. We aimed to establish among women using intrapartum water immersion analgesia, without antenatal or intrapartum risk factors, whether waterbirth is as safe for their babies as leaving the water before birth.

Methods: In this observational cohort study prospective and retrospective data were extracted from NHS electronic maternity records at 26 sites in England and Wales. For babies admitted to a neonatal unit, data were extracted from the National Neonatal Research Database (NNRD). The primary neonatal outcome was a composite of neonatal unit admission for respiratory support, antibiotic administration within 48 hours of birth and intrapartum stillbirth or death prior to neonatal discharge. Primary analysis was a non-inferiority analysis using logistic regression with adjustment for potential confounders. To ensure a complete cohort, the study used an opt-out consent model, for which ethical approval was granted (REC 18/WA/0291; CAG 18CAG0153). Funding: NIHR HTA 16/149/01.

Results: Records from 869,744 births between January 2015 to June 2022, were extracted; 10% of all women used a pool including 60,402 women without antenatal or intrapartum risk factors among which 39,627 (65.6%) were waterbirths. The composite neonatal outcome, and each individual component thereof, were uncommon in both groups and rates were no higher among waterbirths compared to births out of water, Figure 1. Secondary outcomes were similar across groups, apart from a higher rate of the umbilical cord snapping among births in water compared to births out of water, although this was uncommon in both groups.

Conclusion: Among women without pregnancy or intrapartum risk-factors who used water immersion during labour, giving birth in water was as safe as giving birth out of water, with no increase in the incidence of adverse neonatal outcomes.

Graphs

Figure 1: Non-inferiority analyses neonatal primary and key secondary outcomes

	Waterbirth		Birth out of water		AOR[a] (1-sided 95% CI)
	N	**n (%)**	**N**	**n (%)**	
Infant: Adverse outcomes or treatment[b]	9,868	263 (2.7%)	5,078	224 (4.4%)	0.65 (-∞ to 0.79)
Separate components of the infant primary outcome					
Neonatal unit admission with respiratory support	10,760	96 (0.9%)	5,463	109 (2.0%)	0.46 (-∞ to 0.62)
Neonatal unit admission with respiratory support	39,627	329 (0.8%)	20,775	320 (1.5%)	0.58 (-∞to 0.68)
Intrapartum or neonatal death	39,627	7 (0.18 per 1,000 births)	20,775	6 (0.29 per 1,000 births)	0.22 (-∞to 0.80)
Administration of intravenous antibiotics commenced within 48 hours of birth[b]	9,868	181 (1.8%)	5,078	149 (2.9%)	0.74 (-∞to 0.94)
Administration of intravenous antibiotics commenced within 48 hours of birth[b]	35,090	629 (1.8%)	18,693	535 (2.9%)	0.69 (-∞to 0.77)
Key secondary outcomes: Infant					
Snapped umbilical cord prior to clamping	10,760	106 (1.0%)	5,463	16 (0.3%)	3.89 (-∞ to 6.88)
Neonatal resuscitation at birth	39,627	1,619 (4.1%)	20,775	1,315 (6.3%)	0.61 (-∞ to 0.65)

AOR=Adjusted odds ratio; CI=Confidence Interval. a: Adjusted for year and quarter of birth, ethnic group, deprivation quintile, maternal age at birth, parity, gestational age, BMI, birthweight (grams), concern identified by midwife prior to birth. Clustering of women within sites accounted for by fitting a two-level logistic regression model; b: Excludes data from four sites that did not record any postnatal outcome

Home Phototherapy- A Glowing Success

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Background:- Neonatal hyperbilirubinaenia is a common neonatal presentation, and historically treated with inpatient phototherapy. However, home phototherapy is now an emerging alternative that has been reported to provide benefits such as decreasing hospital stay, support better patient flow, improve maternal-infant bonding and reduce cost.

Method: Following implementation of a nurse led home phototherapy (HPT) service in January 2023, we undertook a retrospective review to establish safety, cost-effectiveness and parental satisfaction for HPT in babies with physiological jaundice. Neonates ≥35 weeks gestation, with a birth weight of ≥2.0kg, ≥48 hours old, with serum bilirubin ≤50mmol/l above the NICE hyperbilirubinaemia treatment threshold, and without any major feeding problems, were eligible for HPT using NeoMedLight Bilicocoon Bag system, under supervision of our neonatal homecare team.

Results:- 195 babies were treated over a 1-year period, with the majority (78%) of referrals coming from the community. The median age at commencement of treatment was 4 days, with a 27hr median duration of phototherapy. Of note, exclusive formula feeding rates were similar before and after home phototherapy (14.1% vs 15.7%). No adverse safety events occurred. The service provided an estimated £113,451.67 (59%) cost reduction, whilst liberalising paediatric and postnatal beds. Moreover, parents held the service in high regard, with 100% recommending the service in the friends and family test.

Conclusion:- The implementation of this nurse-led home phototherapy service has provided a safe and cost-effective treatment option to neonates and their families. The service resulted in 59% reduction in treatment cost, whilst simultaneously reducing postnatal and paediatric in-patient stays. Furthermore, parents expressed a strong preference for HPT. We believe that this approach can become the standard practice for management of uncomplicated jaundice in newborns.

Parent and Professional Perspectives regarding periviable pre-birth conversations (22+0 - 23+6 weeks): a qualitative analysis

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Background
Delivery in the periviable period (22+0 - 23+6 weeks) is fraught with ethical, emotional and practical complexities. Pre-study meetings with the regional parental advisory group showed many parents had negative experiences with periviable pre-birth counselling and that these discussions did not prepare them for their periviable birth.

This qualitative study aimed to establish parent and professional perspectives and priorities for the content and conduct of pre-birth periviable conversations.

Method
This study used semi-structured interviews to gather data. Interviews were conducted with parents and perinatal professionals across a mixture of perinatal medical specialities and across parent experiences (Table 1). Parents of surviving infants were contacted by post by the research team. Bereaved parents were contacted via their bereavement team. Data was analysed using reflexive thematic analysis of the transcribed interviews.

This study was devised in collaboration with our regional parent support group. The interview questions were written following parent group discussion and adapted based on the group's feedback.

Results
A total of twenty-two interviews were conducted with perinatal professionals and parents from the North West of England.

The main themes identified were:
- Themes from parents
  - Battling against hospital/perinatal teams
  - Openness to uncertainty
  - Desire for information, honesty and transparency

- Themes from professionals
  - Managing uncertainty
  - Selective information sharing
  - Problematic perceptions and discomfort around comfort care

See Figure 1 for exemplifying quotes.

Conclusions
The results highlight the difficulties inherent in navigating through these complex discussions for both parents and perinatal professionals. Whilst parents acknowledged that periviable birth involves substantial risk of mortality and morbidity, the persistent repetition of negative risks and conflicting information provided by different professionals created an impression of chaos and callousness, rather than the support and care that is required.

Image

Interview Participant	Number of participants
Parents of surviving infant	4
Bereaved parents	3
Consultant Obstetricians	5
Consultant Neonatologists/Paediatricians	5
Midwives	5

Table 1. Number of interview participants by personal or clinical background (as relevant)

Themes from parents	Exemplar Quotes
Battling against hospital/perinatal teams	"You know, it's not a night we'll forget very easily. It was, it felt like we were battling the hospital." "To be honest my time in triage ... was my most traumatic time because of the gestation...I felt like the doctor that I spoke to completely wrote it off without even examining me."
Openness to uncertainty	"...they still don't picture a very good light on it because a lot of babies across the country still aren't saved at 22 weeks so to have a success rate on there, I think it says something like 10%. But if the majority of babies are refused at 22 weeks, then the success rate is never going to be accurate is it?" "The risks didn't necessarily matter to us if you know, if there was a disability and you know blindness was talked about, learning difficulties talked about, you know, that stuff, it wasn't important to us."
Desire for information, honesty and transparency	"....and the neonatal doctor came in himself, he was very very good [NICU Cons]. He was absolutely amazing he literally went through everything..." "...he was very good, he literally went through everything step by step. How things would go, after she was born, the care that she would receive then, the care that we would as carers receive, it's not rushed, it's at our pace, we can have as much as time as we needed with her if the outcome wasn't to be great and the fact that it would literally just be the calmest thing in the world rather than so hectic...." "I remember Googling everything..." "That [information about comfort care] would really help as well like, let's say some mums would be positive about their kids who have probably passed like they can talk about it and you could read information on that. Maybe that might help you as well just in case something did go wrong and then you can be like oh but so and so went through it and they're really positive about it and they've helped me - even though you don't know them and you just read about it but I think that would help. Instead of all of it being really positive, I think you do need that reality check sometimes."

Themes from professionals	Exemplar Quotes
Managing uncertainty	"...are we saving a life, or deferring a death" "I suppose that I'm kind of torn about it because you're inevitably skewed by your experiences to an extent." "Everybody's got a different story in terms of what they've been through and what their moral compass says, and what's right and what's wrong."
Selective information sharing	Midwife: "And I just think reminder within that of the importance of the women and their families having this information and not just skirting around it.... They [doctors] think they're protecting people, but unfortunately it's not." "I probably lean slightly on the ...I don't know...lean slightly on the paternalistic a little bit because I wouldn't go through every single option with them [parents] and I think there are certainly some things...look I just...I'm not convinced it makes a big difference..." Discussing disabilities: "If they [baby] survive I suppose I do...I do bring up other complications but I probably talk about it then... but if I do bring them up I don't go into detail" "No, we didn't discuss comfort care at all [footing breech at 23 weeks]".
Problematic perceptions and discomfort around comfort care	"It's difficult not to do anything" "I would wait for the parents to raise it [possibility of elective comfort care]" "...because 23 weeks is probably a week older, outcome slightly better... they do well, so I would, I don't know. Yer,... I'd give them the outcomes anyway....but if they [the parents] still say [they want comfort care], I don't know where we stand legally on that. If the baby is ... maybe crying or kicking around then would I still do it and let the baby go?"

Figure 1: Exemplifying quotes

The UNIVERS QI Project: Using Non-Invasive Ventilation for Early Respiratory Support

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BACKGROUND

A core aspect of reducing Bronchopulmonary Dysplasia is early optimisation of respiratory support to effectively manage Respiratory Distress Syndrome (1). International guidance recommends using CPAP as the primary mode of respiratory support in the delivery room where possible (2). Our unit NNAP 'Non-Invasive Breathing Support' metric in latest published data was below the national average.

AIM

To increase the proportion of inborn infants, at Singleton Hospital, born at <32/40 who are managed on non-invasive ventilation (NIV) alone up to day 7 of life by 10% over 6 months.

METHODS

Using big room methodology to process map the patient journey, a multidisciplinary team (MDT) built on baseline data collected to design our first UNIVERS PDSA cycle. This advocated Using Non-Invasive Ventilation for Early Respiratory Support (UNIVERS), targeting delivering effective nasal prong CPAP via shuttle-mounted ventilator in the delivery room as the primary mode of respiratory support in spontaneously breathing infants born >25/40.

Monitoring was in place through this cycle by fortnightly MDT case reviews, timely data collection (including balancing measures) and learning dissemination through staff education

PDSA Cycle 2 launched June 2024 advocates a CPAP pressure of 8cmH20.

RESULTS

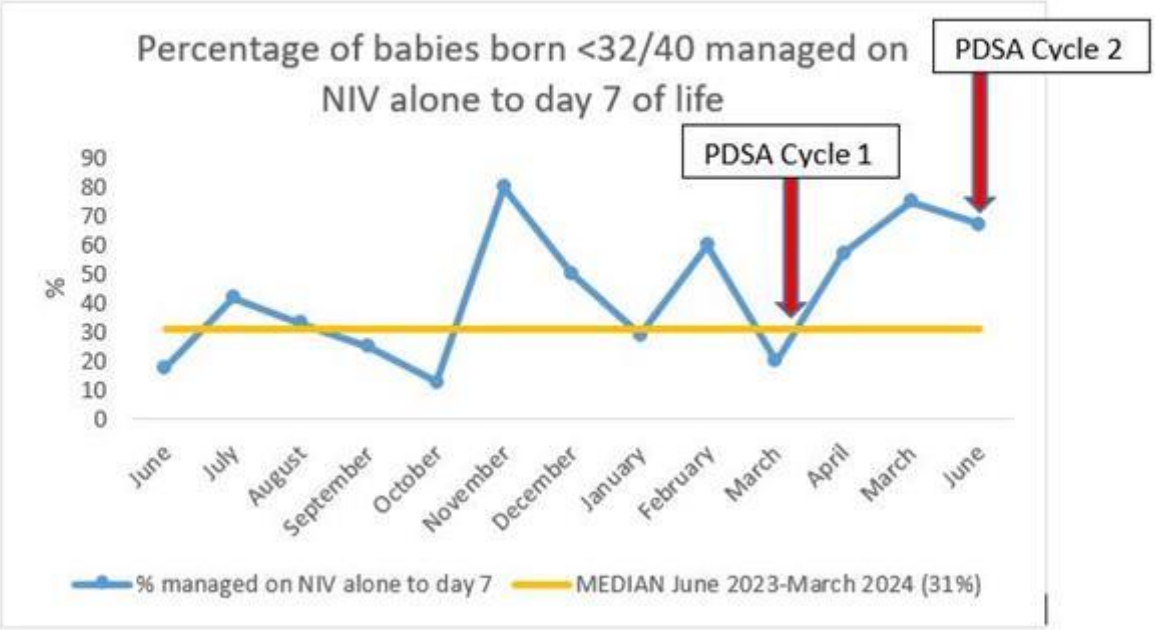
In the 10 months prior to UNIVERS QI launching, 33% of inborn infants <32/40 were managed on NIV alone to day 7 of life, increasing to 58% following the first PDSA cycle.

CONCLUSION

Targeted PDSA cycle intervention increased the proportion of preterm infants born <32/40 managed on NIV to day 7 of life.

Contemporaneous MDT scrutiny of cases identified no increase in adverse events and allowed timely wider team learning. Running UNIVERS QI in synergy with other departmental QI teams (respiratory support during optimal cord management and LMA surfactant delivery) has improved evidence based RDS management, improved our NNAP metric and we hope will contribute to reducing rates of BPD.

Graphs


Percentage of babies born <32/40 managed on NIV alone to day 7 of life
PDSA Cycle 2
PDSA Cycle 1
%
90
80
70
60
50
40
30
20
10
0
June
July
August
September
October
November
December
January
February
March
April
March
June
% managed on NIV alone to day 7
MEDIAN June 2023-March 2024 (31%)

Improving family experience of orientation to and transition between neonatal units in Scotland - a national approach

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Background
In January 2024, with the aim of developing a national strategy for standardising FICare (family integrated care) in Scotland, a FICare day was hosted. Priority setting by healthcare professionals and parents identified 5 key areas including neonatal unit orientation and transition between units. With implementation of best start in Scotland, the number of families experiencing transition between neonatal units is increasing. It is imperative the lack of practical support and preparedness for a move to an unfamiliar unit that parents report during this particularly challenging and stressful time, is addressed.

Aim
To produce an easily accessible, 'one stop shop' resource with consistent, practical information for families available for all neonatal units and PICUs in Scotland.

Method
A short life working group comprised of medical, nursing and AHP staff, charity and parent representatives, was created.

Pre-event parent questionnaire responses, along with group discussion provided valuable insight into parent neonatal unit experience. Utilising this, a template co-designed with parents was produced outlining key information such as unit directions, accommodation, finance and faith support, nearby food outlets and sibling facilities.

A link person in Scottish neonatal units and PICUs was identified and the template provided for completion. Completed templates are undergoing a process of standardisation and an easy to navigate webpage is being created.

Results
Completed templates were obtained for the 14 neonatal units and 2 PICUs in Scotland.

Creation of the resource is nearing completion. Launch is anticipated on the Scottish Perinatal Network website, in August 2024.

Conclusion
This resource will provide easy-to-access information for families and staff in Scotland. The webpage QR code can be easily displayed and be provided to families during antenatal counselling, by the transport team in the event of emergency transfer and in preparing families for the repatriation of their baby.

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Wales Improving Care of Acute Neonates

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In 2022, the Welsh Government commissioned the Maternity Neonatal Safety Support Programme which highlighted key themes for improvement. These included:

- maintaining emergency care skills and confidence for all neonatal clinical staff, particularly those working in SCUs.
- prioritise the wellbeing and safety of staff and patients through team culture and support mechanisms.

An enthusiastic team with a shared vision co-produced learning objectives for a new teaching programme to address these aims.

WICAN is a speciality-delivered, locally-situated simulation course which builds upon competencies obtained during Neonatal Life Support training. It supports medical, nursing and allied health professionals to develop skills and confidence in the identification, assessment and response to infants requiring escalating care and preparation for transfer. It comprises an introductory lecture, several simulation scenarios and a skills station, based on local learning needs.

Participants are drawn from across the workforce, with faculty from tertiary NICUs, working alongside local champions who gain skills and experience in facilitation and evaluation.

There is a strong emphasis on interprofessional and family communication, alongside human factors teaching on prioritisation and teamworking.

The geography and care arrangements in Wales mean that close working within and between teams is key in providing quality care to all infants and their families.

The course has been delivered twice to date with excellent feedback. Candidates improved their knowledge and confidence managing these babies sharing comments such as;

“The course is extremely useful . We could improve the gap in our practice. Empowering and great course to give us confidence.”

The content is dynamic, being consistently developed and refined from learning in governance processes, and lived experiences. We hope that this high quality, sustainable and highly valued model of simulation can continue to develop and grow, improving well being of staff and outcomes and experiences for families across Wales.

Innovative methods to support breastfeeding education in the NICU

Howard Z[1], Burke K[1], Jones G[1], O'Shea H[1], Terry L[1], Cannel S[1], Barry S[1]
[1]Singleton Hospital

Background

In 2021 the Welsh Neonatal Network recognised the need for improvements in perinatal optimisation across our service.

A task and finish group formed, with champions in each hospital. In 2022 we completed an audit to assess local compliance with BAPM standards. Between September 2021 and April 2022 only 7% of babies in our local NICU were receiving their mothers own expressed breast milk (EBM) by 6 hours of age. This clearly needed attention.

Methods

Effective quality improvement relies on collaborative working. A team of enthusiastic, committed perinatal staff used several quality improvement tools to delve into this problem.

Using the Model for Improvement we constructed a smart aim:

Improving the percentage of preterm babies (<34 weeks gestation) who receive maternal colostrum by 6 hours of age to 85%.

A 5 Whys and fishbone analysis identified key areas to focus our improvement on. Our first Plan-Do-Study-Act cycle launched an awareness week to teach all perinatal staff about the importance of early breast milk.

We designed an education trolley which we wheeled around the wards spreading our messages. These included the benefits of breast milk (key facts), an expressing video, our Periprem Cymru toolkits and our audit data. We used a breastfeeding Barbie to reinforce key points via social media and we hosted a boob bake off with cupcakes decorated as breasts in all shapes and sizes.

The education week created a buzz across the perinatal workforce, extending to patients who were keen to know more.

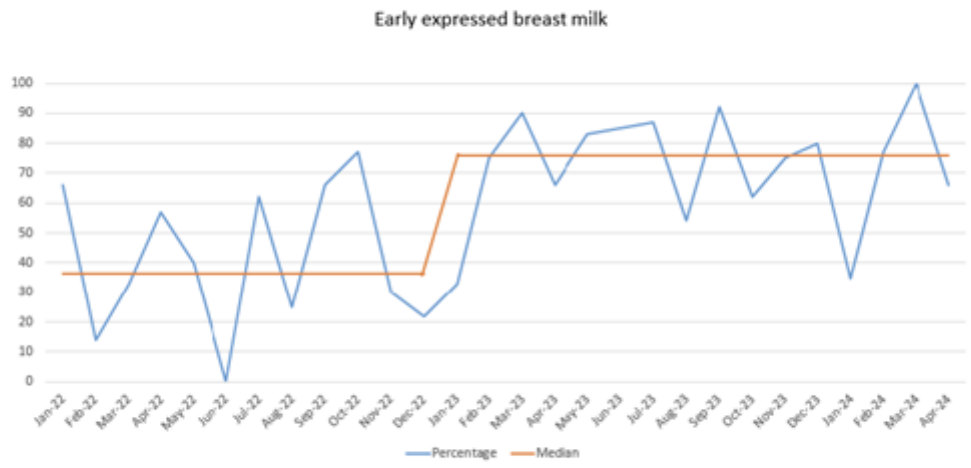
Results

There has been a sustained improvement in the number of preterm babies receiving early colostrum. Our median line has now increased to 77%, with occasional months where all babies receive this vital intervention.

Conclusion

Our collaborative quality improvement project has meant many more babies are getting early colostrum as part of their neonatal care.

Graphs


Early expressed breast milk
100
90
80
70
60
50
40
30
20
10
0
Jan-22
Feb-22
Mar-22
Apr-22
May-22
Jun-22
Jul-22
Aug-22
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24
Percentage
Median

35

Preterm immunisations – Are they as scary as we think?

Peever E[1], Wanigasekara R[1], Ponnusamy V[1], Wanigasekara R
[1]Ashford and St.peter's NHS Trust

Background:
Public Health England published guidance for parents of premature babies born on or after January 2020 on the updated immunisation schedule. However, there is a lack of published data on the feasibility of administering and tolerating timely first-childhood immunisations in extreme preterm (EP) neonates.

Objective:
To understand the characteristics and subsequent complications of EP neonates who received their first childhood immunisations in NICU since the updated schedule.

Methods:
Retrospective cohort study of all EP neonates ≤27 weeks gestation who received their first immunisations in our NICU over four years from January 2020 to December 2023.

Results:
Overall, 52 out of 176 (29%) eligible neonates successfully received their 1st immunisations as an in-patient, 51% were transferred to their local hospital, and 20% died before day 60. The characteristics of those who were immunised are shown in Figure 1.
Only 37% (19/52) of the eligible neonates were immunised by 60 days, while 67% (35/52) received immunisations by 65 days. 18% had no documentation or parental concerns for delayed immunisations. 15% had minor respiratory changes, and 13% (7/52) had a septic screen for clinical concerns. Return to baseline clinical status was in a mean of 2.2 days.

Conclusion:
While two-thirds of eligible EP neonates were immunised within a reasonable time frame, the rationale for the delay was not documented in almost a quarter of babies. Those who were immunised tolerated it well, with only a minor increase in non-invasive respiratory support. Despite the recommendations, there seems to be some hesitancy amongst parents and staff regarding timely immunisations. This could be due to the lack of data available on appropriate timing /complications. We hope our study adds evidence that it is safe and essential to adhere to the national guidelines, and where possible, a clear rationale for any delay in immunisation is required.

Image

Table: Baseline and Clinical characteristics of babies who received their 1st immunisations in NICU over a 4-year period (2020 – 2023)

Baseline and Clinical Characteristics	Proportions
Sex (Male, Female)	65%, 35%
Gestation age (Mean, IQ1- IQ3) Weeks	25 (23+5 - 26+5)
Birthweight (Mean, IQ1- IQ3) Grams	688 (546 - 763)
Day of life for 1st Immunisation (Mean, IQ1- IQ3) Days	65 (60 – 67)
Corrected gestation at 1st immunisation (Mean, IQ1- IQ3), Weeks	34 (33+1- 35+5)
Weight at first Immunisation (Mean, IQ1- IQ3) Grams	1499 (1121-1743)
Reason for delay of 1st immunisation:	
Unwell	25%
Other factors eg: ROP, transfusion, surgical reasons	21%
Parent uncertainty and not documented	18%
Not delayed	36%
Mode of ventilation at first immunisation:	
Vapotherm	61%
Nasal cannula	27%
SNIPV	4%
SVIA	8%
Change in Ventilation:	
No changes needed	81%
Increase flow on nasal cannula/Vapotherm	13%
Non-invasive ventilation mode escalation	2%
Not documented	4%
Active Problems at 1st immunisation: *	
Evolving Chronic Lung Disease	86%
PDA	31%
Reflux	35%
Pre-Vaccination CRP where checked:	
<4	35%
>4	2%
Paracetamol use:	
Regular	46%
PRN	38%
Not documented	16%
Complications: *	
No Complications	44%
Desaturation+/-Increase in O2 requirement/Apnoea	40%
GI symptoms (loose stools/lethargy)	10%
Temperature stability	4%
Not documented	8%
Fever/ Temperature post immunisation	4%
Septic screen post immunisation	13%
Antibiotics given 7 days post immunisation	11%
Return to baseline state in days post immunisation (Mean, IQ1-IQ3)	2.2 (0-3)
Alive at discharge	96%
Day of life at discharge home (Mean, IQ1-IQ3)	98 (78 - 109)

*Some babies had more than 1 category

Assessing Perinatal Palliative Care Needs in the West Midlands: A Service Evaluation Study

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Background:

Challenges persist in providing support to families of foetuses and infants with life-limiting diagnoses. Implementation of perinatal palliative care services remains complex and challenging, and variability in care standards has been noted, as in the MBRRACE-UK 2023 report.

This service evaluation aims to describe the current palliative care services, and unmet demand, within the West Midlands region.

Methods:

Between May and October 2023, 508 antenatal care records at Birmingham Women's Hospital (BWH) were reviewed, to identify foetuses diagnosed with probable life-limiting conditions. BWH is the regional centre and takes referrals from the whole region for fetal medicine and surgical neonatal care.

With input from clinical advisors in palliative care and congenital heart disease, we categorised them into groups:

1) Those who were referred to palliative care
2) Those who were not referred but might have benefited from a referral
3) Those who, with more comprehensive information or later in their pregnancy, might also have been suitable candidates for referral.

Results:

Out of 508 cases, 23 were referred to palliative care, but two patients declined, and one had an intrauterine death before being seen. The 20 cases seen had diagnoses which included: cardiac (8), genetic conditions (5), and congenital malformations (7).

We identified 24 cases which may have benefited from referral but weren't referred. Diagnosis included cardiac (17), hydrops (2) and congenital malformations.

There were 17 cases in which further scans and investigations would have provided more information on whether a palliative care referral was indicated.

Conclusions:
Our study demonstrates a need for improved access to perinatal palliative care: of 508 cases examined, 47 warranted palliative referrals with 17 other cases awaiting investigations, yet only 23 were referred.

This discrepancy suggests improved referral processes and broader accessibility of perinatal palliative care services are needed, to ensure families receive appropriate support.

Optimising time to first milk in preterm babies in tertiary NICU

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Introduction:
Early colostrum within first 6 hours reduces the risk of necrotising enterocolitis and sepsis for preterm neonates.
A preliminary retrospective audit showed that only 15.3% of babies received their first milk within 6 hours, highlighting the need for a Quality improvement project.
Aim:
To increase the proportion of infants born <34 weeks gestation receiving breast milk within 6 hours of birth to a minimum of 85% by September 2024.
Methodology:
Measure: Time from birth to first milk (colostrum or donor milk) as per documentation in medical notes.
Inclusion: All babies born in Evelina NICU at <34 weeks gestation after 1st September 2023.
Exclusion: Out born or >34 weeks
Measure improvement: 'Plan-do-study-act' model with monthly retrospective audits, to continuously monitor the effect of our multiple MDT lead interventions on NICU, antenatal and postnatal wards.
Results:
The proportion of babies who received their first milk within 6 hours and 24 hours respectfully increased over the study period. >90% of babies have received their first milk within 24 hours for the last 3 months. See table 1
Discussion:
Despite the small sample size, there was a steady improvement in the proportion of babies receiving their first milk within 6 hours and 24 hours respectfully. Our target of 85% of babies receiving breast milk within 6 hours was reached early in March.
Conclusion:
This QIP has promoted a positive culture change with proactive MDT communication and influenced the development of new pathways to expedite transfer of colostrum to the neonatal unit. Staff education on the importance of early colostrum has also improved antenatal counselling and postnatal support of expression. As a result, time to first feed has improved for preterm babies, but has also opened up the wider conversation about early colostrum for all babies admitted to NICU.

Graphs

Impact of Cuddling on Skin Temperature and Servo-control Cooling Mechanism in Babies with HIE During Therapeutic Hypothermia

Uney A[1], Odd D[2], Okano S[3], Chakkarapani E[4]
[1]University Of Sheffield, [2]School of Medicine, University Hospital of Wales, [3]St Michael's Hospital, [4]Bristol Medical School, St Michaels Hospital

Introduction:
The CoolCuddle study reported a minor increase in rectal temperature (0.07°C) when parents cuddled their babies undergoing therapeutic hypothermia (TH) for Hypoxic Ischaemic Encephalopathy (HIE). This study hypothesised that the increase resulted from heat transfer during cuddling, with the servo-control cooling system mechanism maintaining the target rectal temperature.

Aim:
To evaluate the effect of CoolCuddle on babies' skin temperature and examine the servo-control cooling system's response in maintaining rectal temperature.

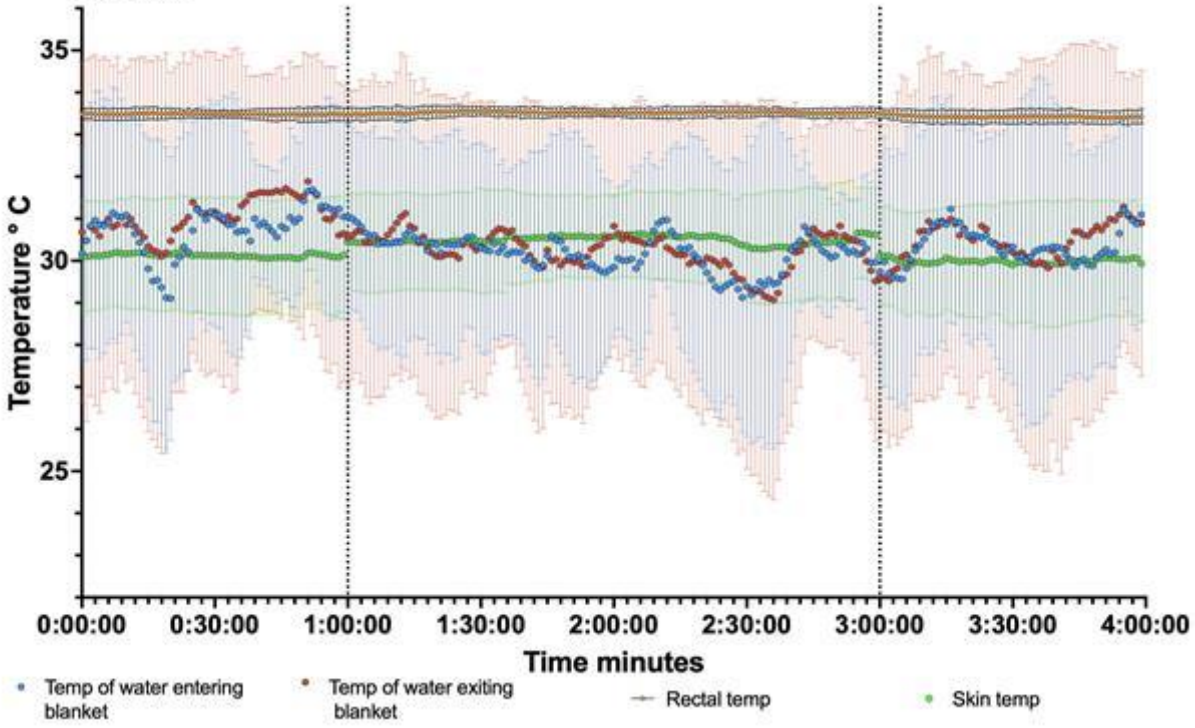
Methods:
Fifty-five CoolCuddles from 27 infants were analysed. Rectal, skin, and the temperature of water entering and exiting the cooling blanket were recorded every minute during Pre-cuddle (one hour), Cuddle (two hours), and Post-cuddle (one hour). Time series graphs and descriptive statistics were used to compare temperatures during cuddle compared with pre-cuddle.

Results:
Skin temperature of infants increased during cuddling (mean (95% CI): 0.23 (-0.01,0.47)) and decreased post-cuddle (-0.17(-0.41,0.07)) compared with pre-cuddle. The cooling system's servo-control mechanism cycled water entering the cooling blanket adjusting temperature every 20 minutes to maintain core temperature. The mean water temperature entering the blanket differed significantly between pre-cuddle, cuddle, and post-cuddle periods ($P<0.0001$), with lower water temperatures during cuddle than pre-cuddle(mean difference (95% CI), -0.85 (-0.97, -0.72)), reaching a minimum of 18°C. The temperature differential between water exiting and entering the blanket increased during the second hour of the cuddle, indicating a delay in extracting heat during cuddling.

Conclusion:
CoolCuddle did not cause clinically significant changes in babies' skin temperature. The observed increase in skin temperature likely resulted from heat transfer between parents and infants. The servo-control mechanism showed a delay in adjusting to the heat transfer during cuddling.

Graphs

Fig. 1 Temperature of the water entering and exiting the cooling blanket and the babies' skin and rectal temperature



Talking about lactation –empowering healthcare professionals through education

Atherton L[1], Buckley K[1], Bowers K[1], Rahmani-Torkaman P[1], Embleton N[2]
[1]Countess Of Chester, [2]Newcastle Hospitals NHS Foundation Trust

Talking about lactation –empowering healthcare professionals through education

Laura Atherton, Kayleigh Bowers, Kate Buckley, Parisa Rahmani-Torkaman (1) , Nick Embleton (2)
1 Milk Bank at Chester - Countess of Chester Hospital, 2 Newcastle Hospitals NHS Foundation Trust

Background: Following the launch of the Memory Milk Gift Initiative in 2021 and the launch of the BAPM Framework For Practice – Lactation and Loss in 2022, there has been an increase in the number of families choosing to donate milk in memory of their baby. Working alongside families & health care professionals (HCPs), we have identified a UK wide need for healthcare professionals to have access to information and education, empowering them to have confidence in discussing lactation management options following the death of a baby.

Aim: When discussing lactation as part of the bereavement care pathway, choices should be impartially discussed with families to aid them to come to informed decisions. This poster outlines how Newcastle Hospitals NHS Foundation Trust has been working with the Milk Bank at Chester, HCPs and families to co-develop an online course to educate and support HCP's to share information around lactation choices, empowering families to make informed decisions.

Results: Since launching the Memory Milk Gift initiative, MBAC has seen a four-fold increase in mothers wishing to donate their milk following loss; we are confident that this number could be higher with HCPs providing choices available to families. Our aim is to work with families and HCPs to raise awareness of lactation choices to ensure equity of access across the UK

Discussion: HCPs should impartially discuss choices surrounding lactation management to support families to make informed decisions. HCPs must feel supported and educated to offer choices to families and families must be supported to ensure they have appropriate, evidence-based literature and be signposted to relevant services.

Exploring the impact of UK probiotic use on risk of NEC, a National Neonatal Research Database study.

Aveline A[1], Szatkowski L[2], Berrington J[3,4], Costeloe K[5,6], Ryan M[2], Ojha S[2,7], Fleming P[5,6], Battersby C[1,8]
[1]Imperial College, [2]Centre for Perinatal Research, Lifespand and Population Health, School of Medicine, University of Nottingham, [3]Translational and Clinical Research Institute, Newcastle University, [4]Newcastle upon Tyne Hospitals NHS Foundation Trust, [5]Queen Mary, University of London, [6]Homerton Healthcare NHS Foundation Trust, [7]University Hospitals of Derby and Burton NHS Trust, [8]Chelsea and Westminster NHS Foundation Trust

Necrotising enterocolitis (NEC) is one of the leading causes of mortality and morbidity in very preterm infants. A recent Cochrane review of 57 randomised controlled trials concluded that probiotics may reduce the risk of necrotising enterocolitis in very preterm or very low birthweight infants (RR 0.54, 95% CI 0.46 to 0.65; 10,918 infants). However, the Cochrane authors had limited confidence in the effect estimate because of high risk of bias and imprecision of the effect estimate. In this large population observational study we aim to explore whether there is an association between NEC rates and the use of probiotics.

We conducted a retrospective cohort study using data from the UK National Neonatal Research Database. We examined records of all infants born before 32 weeks gestation and cared for in neonatal units in England and Wales between 2016 and 2022. We applied a propensity score matched approach to conduct two comparisons: i) the risk of necrotising enterocolitis (NEC) in babies who do and do not receive probiotics in the first 14 days of life ii) the risk of NEC between babies who receive the two most common probiotic products used in UK units, (Labinic and Proprems).

In a matched cohort of 12,140 infants, probiotics did not reduce the odds of severe NEC (OR = 0.85, 95% CI = 0.71-1.02). However, preplanned subgroup analyses showed that probiotics reduced the odds of severe NEC in infants born at later gestations (28-32 weeks), at higher birthweights (over 1kg) and in infants who had no exposure to bovine milk. We found no evidence that either probiotic product was more effective at reducing the odds of severe NEC (OR = 0.87, 95% CI = 0.65-1.17).

Impact of early postnatal transfer on mortality and respiratory outcomes in infants born below 28 weeks of gestation: Retrospective population-based cohort study of infants born 2010–2020 in England and Wales.

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[1]Centre of Perinatal Research, School of Medicine, Queen's Medical Centre, University of Nottingham, [2]Centre of Perinatal Research, School of Medicine, Queen's Medical Centre, University of Nottingham, [3]Centre of Perinatal Research, School of Medicine, Queen's Medical Centre, University of Nottingham

Background:
Early postnatal transfer (PNT) of extremely preterm infants is associated with increased neonatal mortality and severe brain injury. The impact of PNT on respiratory outcomes is unclear. We aim to assess the association of PNT within 48 hours of life on neonatal outcomes of mortality or severe bronchopulmonary dysplasia (BPD) in extremely preterm infants.

Methods:
This is a retrospective cohort study using data from the National Neonatal Research Database. Infants born less than 28 weeks gestation and admitted to neonatal units in England and Wales between January 2010 and December 2020 were included. Severe BPD was defined as non-invasive or invasive respiratory pressure support requirement at 36 weeks of corrected gestational age. Multivariable logistic regression adjusting for key confounders with robust variance estimator accounting for clustering within units was used to explore the association of PNT within 48 hours of life versus being born and cared for in a level 3 Neonatal Intensive Care Unit (NICU) for at least 48 hours of life on mortality and severe BPD outcomes.

Results:
22,718 infants were included in the analysis. 5,035 (22.2%) infants were transferred postnatally within 48 hours of life. The rate of PNT within 48 hours of life remained between 22.0% to 24.9% from 2010 to 2017 before decreasing to 17.3% in 2020. PNT within 48 hours of life was not associated with increased death before neonatal discharge or severe BPD with an adjusted odds ratio (95% confidence interval) of 1.10 (0.86 – 1.42).

Conclusions:
There was no statistical difference in respiratory outcomes amongst infants who were transferred postnatally within 48 hours of life. Due to the retrospective nature of the study, the reason for postnatal transfer was not available. Further studies are needed to explore the impact of PNT on the respiratory outcomes of extremely premature infants.

Feasibility and Validity Assessment of the Sight OLO Full Blood Count Point of Care Testing (POCT) Analyser in the Neonatal Unit.

McGeorge N[1], Jackson C[1], Oddie S[1]
[1]Bradford Teaching Hospitals NHS Foundation Trust

Background:
Neonatal haematology measurements can be challenging. Since 2017, we have experienced rates of sample 'rejection' of 25-30%, attributed to clots within samples, despite QI activities. Point of care testing (POCT) has become available, but has not been widely used in patients less than 3 months of age. We sought to evaluate its feasibility and the correlation between results and those of laboratory based testing.

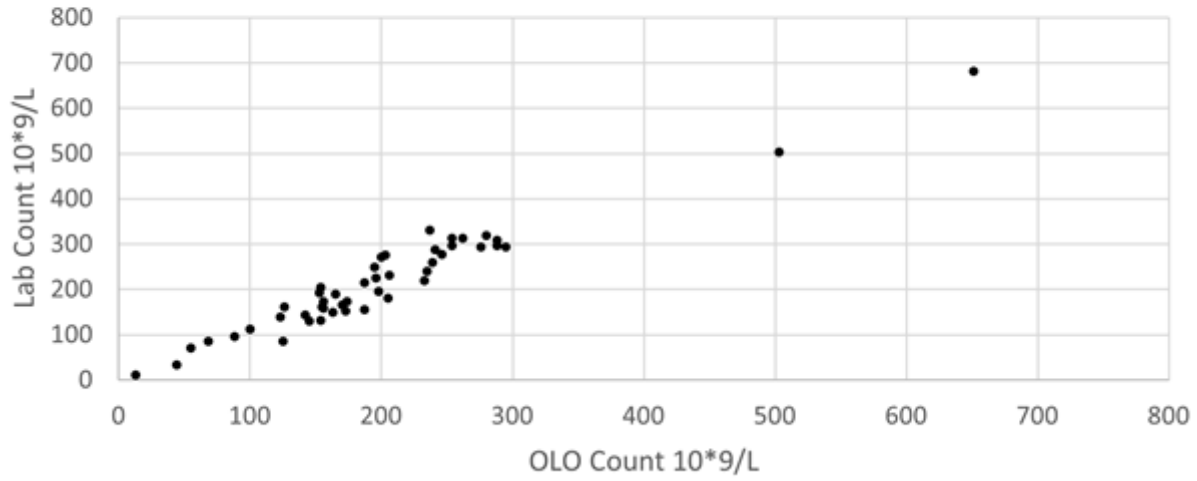
Methods:
After training clinical staff, we used the Sight OLO to measure routine parameters from emergency and routine neonatal EDTA samples. Sample volume was 40 microlitres.
Laboratory values were used for clinical care. Sight OLO results were compared to laboratory values for haemoglobin, haematocrit, white cell, neutrophil and platelet counts using scatter and Bland Altman (BA) plots.

Results:
We found this testing technology could deliver results in the clinical environment following training. We analysed 51 pairs of tests on 47 patients with gestation at birth 22-40 weeks. Test results were available within 10 minutes. Values were obtained for all parameters except for 4 samples where the platelet count was not reported. Correlation coefficients of 0.99, 0.99, 0.99 and 0.97 were seen for haemoglobin, white cell count, neutrophil count and platelet count respectively. Figure 1 shows the scatter plot for platelet count in our sample. BA plot analysis on this small sample of cases shows at least moderate agreement between Sight OLO POCT and laboratory measurements,

Conclusion:
Rapid and accurate measurement of routine haematological parameters can be delivered with a 40 microlitre sample volume and with less delay than using a laboratory using POCT. The precision of testing in clinical practice suggests that utilising the results alongside laboratory testing will improve clinical care.

Graphs

Figure 1: Scatter plot for Platelet Count in 47 neonatal haematology samples tested using Sight OLO POCT.



PERINATAL SARS-COV-2 EXPOSURE AND DEVELOPMENT, RESPIRATORY OUTCOMES AND HEALTH CARE USAGE AT TWO YEARS OF AGE: A NATIONAL PROSPECTIVE COHORT STUDY

Jackson R[1], Cornish R[2], Daskalopoulou Z[3], Gale C[4], Hurd M[3], Johnson S[5], Knight M[3], Kurinczuk J[3], Woodward K[6], Chakkarapani E[7]
[1]Translational Health Sciences, Bristol Medical School, University of Bristol., [2]MRC Integrative Epidemiology Unit, Population Health Sciences, Bristol Medical School, University of Bristol., [3]Policy Research Unit in Maternal and Neonatal Health and Care, National Perinatal Epidemiology Unit, Nuffield Department of Population Health, University of Oxford., [4]Neonatal Medicine, School of Public Health, Imperial College London. Centre for Paediatrics and Child Health, Imperial College., [5]Department of Population Health Sciences, University of Leicester., [6]University of the West of England, [7]Centre for Academic Child Health, Population Health Sciences, Bristol Medical School, University of Bristol. University Hospitals Bristol & Weston NHS Foundation Trust.

Background and aims

Perinatal SARS-CoV-2 exposure may affect brain and lung development. Therefore, we examined whether antenatal or neonatal exposure to SARS-CoV-2 infection compared with non-exposure is associated with neurodevelopmental outcomes, respiratory symptoms, and health care usage in early childhood.

Methods

In this prospective population-based cohort study from England and Wales, term-born children with (exposed cohort) and without (non-exposed cohort) antenatal or neonatal SARS-CoV-2 exposure were enrolled. We assessed children's development (Ages and Stages Questionnaire 3rd Edition (ASQ-3); ASQ Social-Emotional 2nd Edition (ASQ:SE-2)), respiratory symptoms (Liverpool Respiratory Symptom Questionnaire (LRSQ)) and health care usage at 21-32 months of age using validated questionnaires completed by parents. Primary outcome: total ASQ-3 z-scores. Secondary outcomes: ASQ:SE-2 z-scores; delay in ASQ-3 domains; total LRSQ z-scores. Analyses were adjusted for children's age, sex, maternal ethnicity, parental education, and index of multiple deprivation.

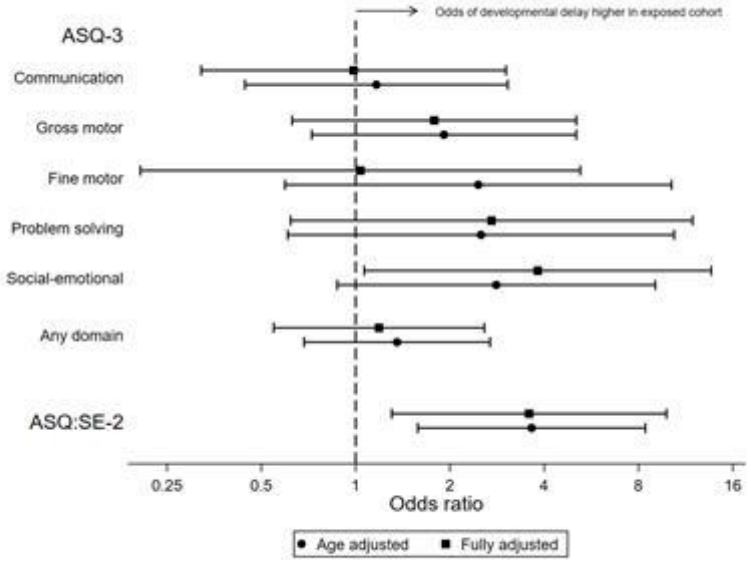
Results

Between October 2021 and January 2023, 125 and 306 participants were enrolled to the exposed and non-exposed cohorts from 87 NHS Hospitals. Of those enrolled, 121 exposed and 301 non-exposed cohort participants completed the questionnaires. In the fully adjusted analysis, total ASQ-3 z-score did not differ between children in the exposed and non-exposed cohort (-0.2 95% CI: -0.5 to 0.03). SARS-CoV-2 exposure was associated with increased risk of delayed personal-social skills (OR 3·81; 95% CI, 1·07 to 13·66), delayed social-emotional development (OR=3·58, 95% CI: 1·30 to 9·83) (Fig 1), poorer ASQ:SE-2 total z-scores (0·4; 95% CI: 0·2 to 0·6), worse mean total LRSQ z-score (0.3 95% CI: 0 to 0.6) and higher percentage of inpatient stays (38% vs. 21%, p=0.0001), outpatient (38% vs. 30%, p=0.0090), and General Practitioner appointments (60% vs. 50%, p=0.021).

Conclusion

Perinatal SARS-CoV-2 exposure increased the risk of delayed social-emotional development, respiratory symptoms and health care usage.

Graphs


Odds of developmental delay higher in exposed cohort
ASQ-3
Communication
Gross motor
Fine motor
Problem solving
Social-emotional
Any domain
ASQ:SE-2
0.25
0.5
1
2
4
8
16
Odds ratio
Age adjusted
Fully adjusted

Evaluation of embedding CoolCuddle for HIE in usual practice and its impact on cooling therapy, intensive care and parents' mental health and bonding.

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[1]Centre for Academic Child Health, Population Health Sciences, University of Bristol. ., [2]School Of Medicine, Cardiff Univeristy, [3]Centre for Academic Child Health, Population Health Sciences, University of Bristol. University Hospitals Bristol & Weston Foundation NHS Trust.

Background and aims
CoolCuddle, initially developed under controlled settings in 2 NICUs, facilitated safe parental cuddling of babies with hypoxic-ischaemic encephalopathy (HIE) during cooling therapy (CoolCuddle1). An evaluation across 6 NICUs in England (CoolCuddle-2) assessed its impact on the cooling process, intensive care, and compared parents' postnatal depression and bonding with cohorts without CoolCuddle (CoolBonding).

Methods
Three cohorts were studied: CoolCuddle1 (n=27, October 2019-December 2020); CoolBonding (n=47, May-December 2021); CoolCuddle2 (n=37, September 2022-August 2023). CoolCuddle2 used a rigorous standard operating procedure (SOP) and an instruction video developed from CoolCuddle1 (Fig1). We used Normalisation MeAsure Development (NoMAD) questionnaires, qualitative interviews and focus groups with neonatal staff to explore the factors impacting the implementation of CoolCuddle. Mothers' postnatal depression and mother-infant bonding were measured using Edinburgh Postnatal Depression Scale (EPDS) and Mother-Infant Bonding scale (MIBS) at 1 and 8 weeks, while fathers completed Paternal Postnatal Attachment Scale PPAS, at 8 weeks postpartum. Fathers of CoolBonding cohort completed EPDS at 1 and 8 weeks postpartum. Analysis adjusted for antenatal, neonatal and clinical factors.

Results
Acceptance of CoolCuddle improved among neonatal staff over 6 months. Implementation challenges were addressed with rigorous, flexible SOP and nurse champions. Physiological data including rectal temperature, respiratory parameter and heart rate showed minimal variation during CoolCuddle epochs, except for blood pressure (p=0.045), sleep-wake cycling on aEEG (p=0.008), and pain scores (p=0.086). There were no adverse effects during cuddling. Mothers in CoolCuddle cohorts reported improved bonding (OR 0.38 (0.16-0.90)) and lower depression (OR0.43(0.17-1.09) at 1 week postpartum compared to non-cuddling mothers. All fathers in the CoolBonding cohort experienced depression at 1 week postpartum.

Conclusion
CoolCuddle can be safely implemented in diverse NICU settings, promoting infant comfort and brain activity during cuddle, and enhancing maternal bonding. Its adoption into routine practice is feasible with our instructional resources for parents and staff.

Image

CoolCuddle intervention

The baby is wrapped in a sheet with the leads and tubes; then moved carefully from the cot by 3 staff members; placed on a pillow on parent's lap unwrapped for up to 2 hours.

Bluetooth access to the neonatal unit for parents

Rackham O[1], Hannah A[1]
[1]Glan Clwyd Hospital

Why did we do this?

Valuing parents as partners in care is central to Family Integrated Care, including unrestricted access to their babies. Before, parents had to buzz at two doors to be allowed into the unit. Parent feedback included:

- barrier to being with their baby
- waiting for the intercom to be answered
- waiting longer periods of time if unit busy or no ward clerk cover
- feeling scared and anxious that delays were due to something being wrong with their baby

What did we do?

We were motivated by Glasgow's neonatal unit and how their system of fingerprint access worked for them.

We sought input from our NeoMates parents support group and what unrestricted access would mean for them.

We liaised with parents, estates, security, information governance, information technology and maternity colleagues.

This was complicated by the Covid-19 pandemic; starting in 2019, this took four years to implement. This included a risk and equality impact assessment, re-writing the baby abduction policy, writing a standard operating procedure, parental contract, parental safety checklists, and sign-off by security and maternity and neonatal senior management teams.

What were potential benefits and risks?

We originally looked at fingerprint access. After consultation we found that a Bluetooth system, using parents' smartphones, was the most suitable solution for our families.

Advantages of this over the biometric systems (fingerprint or facial recognition), included simplicity of installation, and therefore also price.

The potential disadvantage of parents not having smartphones has not materialised. (96% of people in the UK aged 16 to 34 own a smartphone.) If a parent does not have a smartphone, a swipe card can be issued.

Has it worked?

Over 80 parents have been given access, with no breaches in security.

Parent and staff feedback is shown in the Figure.

Image

"Reduces the stress of getting on the unit quickly, it's the best access of any of the hospitals we've been to."

"Makes us feel at ease that we can always come straight onto the unit"

"Very useful App, especially for the families with more kids; makes it way easier to be in and out with them"

"Brilliant App very easy to use!"

The level of doorbell distraction was especially noticeable during weekends and bank holidays, I have also noticed a reduction in noise level on the unit"

"The constant bells ringing from the access buzzer can be very distracting during clinical work, it is much more quieter on the unit and is easier focus without the constant noise and interruptions"

"Great! Feel as though I can leave when needed without having someone come to answer the buzzer"

"I feel trusted to move about the unit and makes me feel more independent I visiting my baby"

Relapse of E-coli meningitis in a neonate – should we routinely repeat lumbar puncture before concluding treatment?

Jha S[1]
[1]The Princess Alexandra Hospital Nhs Trust

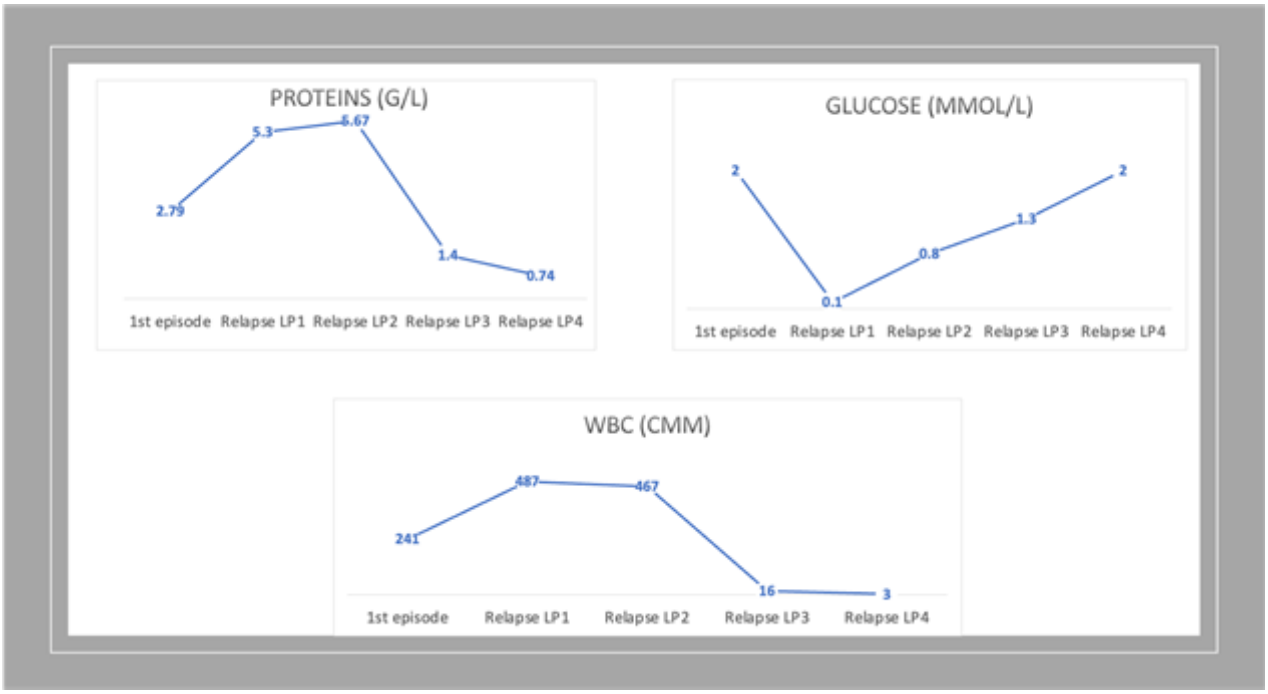
INTRODUCTION:
Escherichia coli is a leading cause of meningitis in preterm neonates. Persistent intestinal colonization by Neonatal Meningitis-causing E. coli (NMEC) can act as a stubborn reservoir, potentially leading to recurrent infections. Standard medical texts recommend a follow-up lumbar puncture (LP) 48-72 hours after starting treatment to confirm its effectiveness. In contrast, UK guidelines do not mandate a repeat LP if clinical recovery is satisfactory, given the possibility of lingering abnormal cerebrospinal fluid (CSF) findings even after successful treatment.

CASE DESCRIPTION:
A premature male neonate presented with clinical sepsis, elevated infection markers, and E. coli in blood cultures. CSF analysis indicated meningitis, but no pathogens were cultured. The baby received a 3-week course of cefotaxime and a week of gentamicin, showing clinical improvement and was discharged with low C-reactive protein (CRP) levels.

Ten days post-discharge, the neonate returned to the Emergency Department with sepsis and a blood culture revealed E. coli with the same susceptibility pattern. CSF culture was positive for E. coli as well. Despite clinical improvement and negative repeat cultures with ceftriaxone treatment, CSF parameters and infection markers remained abnormal. Neuroimaging indicated empyema and cerebritis. The baby was transitioned to a 9-week course of meropenem, resulting in gradual CSF normalization. No immune deficiencies or anatomical defects were found. Two weeks after treatment, infection markers were normal, and there was no relapse. The baby's head circumference was stable, extended hearing screen passed and appropriate developmental milestones were met.

CONCLUSION:
This case demonstrates that clinical recovery may not equate to infection clearance from the CSF, underscoring the importance of repeat LP to confirm CSF sterilization. Despite initial clinical improvement, a thorough follow-up is crucial for ensuring complete eradication of infection.

Graphs



Image

	CRP (mg/l)	Blood culture	Lumbar puncture	MRI Head	Other
First Episode at birth (2dxBenpen → 3weeks x cefotaxime + 7d x Gentamycin)	• Day 1: 24 • Day 2: 128 • Day 21: <1	• Day 1: E-Coli sensitive to amoxycillin, gent and cephalosporins • No repeat blood c/s	• Day 3: Lymphocytic pleocytosis with no organism on gram stain and no growth on culture. Negative 16S and viral PCR • No repeat LP performed	Not done. Planned for Outpatient MRI at discharge	• CRUSS - NAD
Relapse (2 weeks x IV Ceftriaxone @100mg/kd/day → 9weeks x IV Meropenem @ 40mg/kg TDS)	• Day 1: 203 • Day 14: 152 (Switched to Meropenem) • Day 42: 10 • Day 56: 103 (post immunization) • Day 58: 21 • Day 73: 2 • Day 77: IV Mero stopped • Day 91: <1	• Day 1: E-Coli sensitive to amoxycillin • Day 10: Negative	• Day 1: Lymphocytic pleocytosis. Culture- E-coli 3+, sensitive to ceftriaxone and amoxycillin. WGS on this organism showed this isolate is currently unique amongst recent isolates from our hospital (Ecoli 06 H1 ST73) • Repeat LPs – Culture negative	• Day 7: Signal abnormalities in both frontal lobes • Day 12 MRI with contrast: Extensive progressive infective changes, with widespread supra and infra-tentorial empyemas and encephalitis/cerebritis with cystic encephalomalacia in some damaged parenchyma • MRI at 4weeks: Improving appearances with maturation of intraparenchymal changes and no acute changes.	• Urine microscopy – Negative • USS KUB – NAD • MRI Spine – NAD • ECHO - NAD • Immunology bloods(PHA response, Lymphocyte distribution, T cell V beta repertoire) - NAD

How good is trans-cutaneous CO2 monitor ? Service evaluation of transcutaneous CO2 (TCO2) monitoring in a tertiary NICU?

Summers L[1], Smith H[1], Kannan Loganathan P[1]
[1]James cook University Hospital

Background: Continuous transcutaneous CO2 (TCO2) monitoring may allow us to monitor trends non-invasively and could help us in preventing huge fluctuations in CO2 levels.

Aim: To undertake a service evaluation regarding the use of continuous TCO2 monitoring. To assess feasibility-safety, correlation and user perspective.

Methods: We conducted a service evaluation for use of transcutaneous Co2 monitors (SENTEC) in our tertiary NICU for a period of 1month.

Appropriate staff training was provided and an application guide provided to staff. Staff completed a daily record sheet to capture details regarding ventilatory support, blood gas records and corresponding TCO2 measures. Patient demographic and characteristics were collected from Badger Net. Registered with relevant hospital authority.

Measures: TCO2, pCO2 and ventilatory support data was measured and collated for each patient on daily recording sheets. Data was analysed by means of box-plots, Pearson's correlation and Bland-Altman plots. We also obtained staff feedback with regards to their experience with the device.

Results: 35 daily records were completed equating to 681 hours of TCO2 data for 7 individual patients. TCO2 measures ranged from 5.01-12.2 kPa with individual patient variations of 0.82-4.01 kPa throughout daily records (Figure 1a: Box plot). 60 blood gas pCO2 values were recorded during this period with 46 correlating TCO2 time-point values. Our data displayed a very strong correlation of pCO2 and TCO2 values (Pearson's correlation 0.88). The Bland-Altman plot showed the mean bias ±SD between TCO2 and Pco2 levels was -0.7 (0.88), and the limits of agreement were −2.4 and 1.02.

Conclusions: Our findings support the use of TCO2 as a proxy measure for pCO2 with strong correlation and acceptable limits of agreement which may be beneficial in reducing blood gas frequency in preterm population. There were no safety concerns.

Image

Figure 1a: Box plot showing distribution of TCO2 each patient during 24hr period

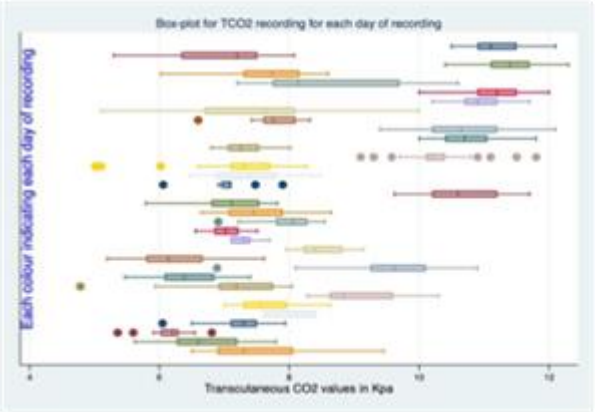
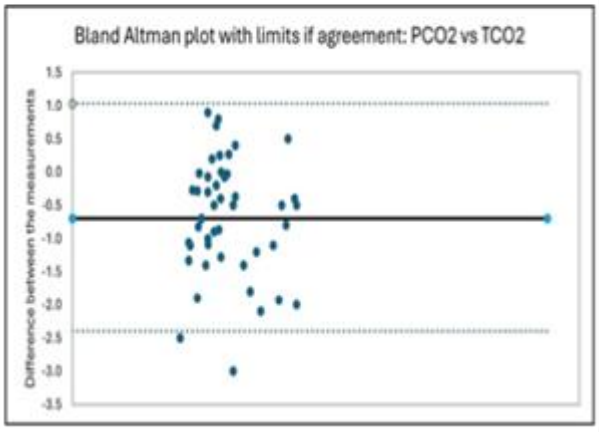


Figure 2a:Bland Altman graph between TCO2 and blood gas PCO2



How the Genedrive MT-RNR1 point-of-care technology was successfully implemented within a Neonatal Intensive Care Unit

Nguyen J[1], Kishore P[1]
[1]Royal Sussex County Hospital

Background:
Genedrive MT-RNR1 is a point-of-care technology testing for a specific genetic variant (m.1555A>G). This variant puts individuals at risk of aminoglycoside-induced ototoxicity. Gentamicin, an aminoglycoside, is recommended by the National Institute for Health and Care Excellence as the first-line antibiotic in neonatal early-onset sepsis. However, its use puts babies at risk of deafness if they carry this variant.

Objectives:
Service improvement project to successfully implement the Genedrive MT-RNR1 technology into a Neonatal Intensive Care Unit (NICU).
Measures of success:
• Test 100% of neonates admitted
• ≤10% test-failure rate
• ≤60 minutes from time of decision-to-treat to delivery of antibiotic

Method:
Staff training began 4-months prior to implementation, and documents/protocols were designed. The technology launched on 4th December 2023. Monthly audits were performed, and following Plan-Do-Study-Act (PDSA) cycles, changes were made to improve success rates. These included creating more training resources, videos, cognitive aids, and communications to raise awareness of common issues.

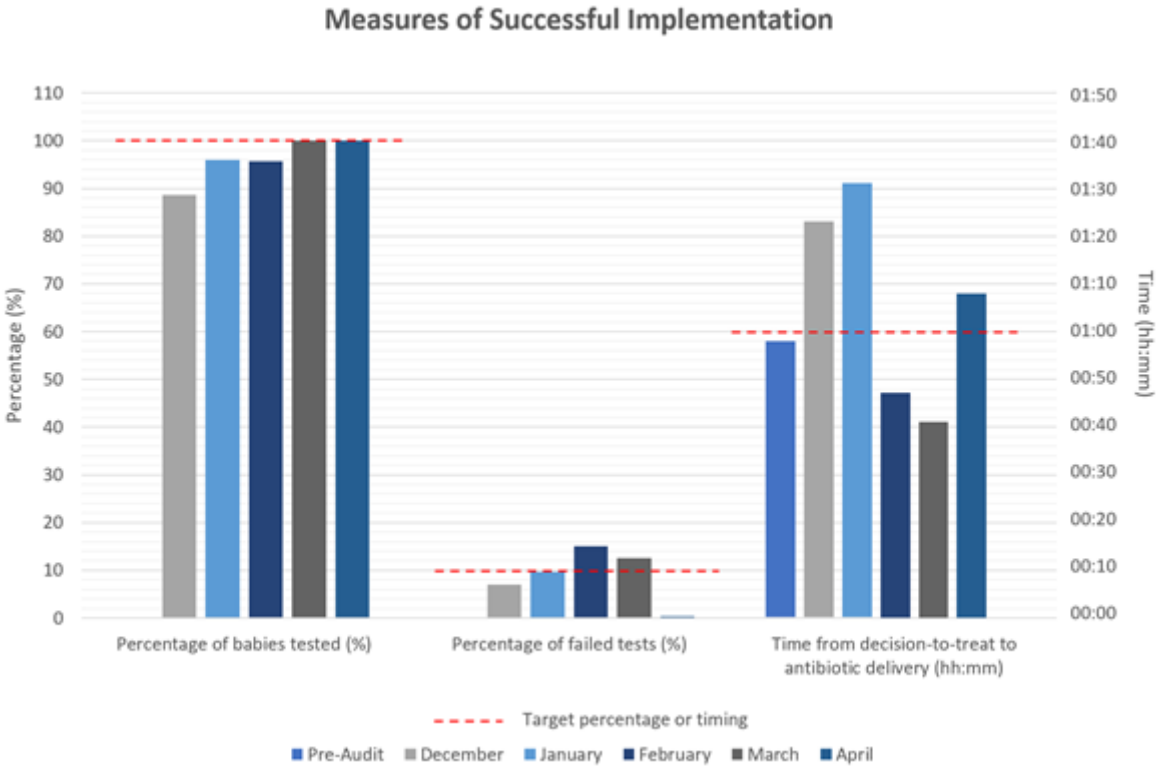
Results:
Between December-April 2024, 205 babies were admitted to the NICU. During December 2023, only 88% of admissions were tested using Genedrive MT-RNR1. In March and April 2024, 100% of admissions were tested.

Test-failure rates peaked at 15% (February 2024), but numbers dropped following PDSA cycles. The overall test-failure rate for December to April is now 8.1%.

Prior to implementation, the median time from prescription to the time of antibiotic delivery was 58 minutes. Timing peaked at 1 hour 31 minutes (January 2024). Overall, the median time is now 1 hour 10 minutes for December to April, and there is evidence of continuing improvement.

Conclusion:
There are always unforeseen issues when implementing new technology. However, with continued PDSA cycles, improvements can be made. While we must continue to work on maintaining standards, we have been able to successfully implement Genedrive MT-RNR1 into our unit within 5 months.

Graphs


Measures of Successful Implementation
Percentage (%)
Time (hh:mm)
110
100
90
80
70
60
50
40
30
20
10
0
01:50
01:40
01:30
01:20
01:10
01:00
00:50
00:40
00:30
00:20
00:10
00:00
Percentage of babies tested (%)
Percentage of failed tests (%)
Time from decision-to-treat to antibiotic delivery (hh:mm)
Target percentage or timing
Pre-Audit
December
January
February
March
April

Uncommon Presentations of Neonatal Stridor

Dematawa P[1], Wimalasiri A, Dissanayaka E[1]
[1]Teaching Hospital Peradeniya/ Faculty Of Medicine Peradeniya
Uncommon Presentations of Neonatal Stridor

Introduction:
Neonatal stridor (NS), a common indicator of upper airway obstruction, is typically rare in the early neonatal period, necessitating thorough evaluation. This report details three rare and unusual cases of NS encountered at a tertiary care neonatal unit in Sri Lanka.

Retropharyngeal Abscess (RPA):
A term neonate developed respiratory distress with intermittent stridor after 3 minutes. At 4 hours of age, a gradually enlarging left-sided neck lump was noted, worsening by day 5. Despite symptoms, the baby remained afebrile, active, and stable. A contrast-enhanced CT scan revealed a retropharyngeal cystic mass compressing the trachea with an air bubble sign. Diagnosis RPA was made and managed successfully with drainage and antibiotics.

Supraglottic cyst (SGC)
A term baby experienced respiratory distress and inspiratory stridor at birth. Diagnostic laryngoscopy on day 1 identified a right-sided SGC, histologically confirmed as a vallecular cyst. Surgical excision was performed, and had an uncomplicated recovery

congenital laryngomalacia (CLM)
A term baby delivered via emergency caesarean section due to moderate meconium aspiration presented with progressive respiratory distress and low-pitched inspiratory stridor from birth. Endotracheal intubation and ventilation were initiated, and bronchoscopy on day 3 revealed CLM. The baby is currently thriving on expectant management at 5 months of age.

Discussion:
Fever is less common feature compared to children and stridor more prominent in neonatal RPA. Prompt diagnosis, drainage and intravenous antibiotics resulted in smooth recovery, stressing the need to consider uncommon cause. Supraglottic cysts, though rare, may require surgical intervention due to high recurrence rates. CLM, usually appearing later, manifested early here, emphasizing importance of early consideration.

In conclusion, NS can arise from a spectrum of conditions. The diverse presentations observed highlight the necessity of maintaining a broad differential diagnosis and a high index of suspicion when evaluating.

IMPROVING CONFIDENCE OF PAEDIATRICIANS IN COMMUNICATION WITH PARENTS WHERE A POSTNATAL DIAGNOSIS OF DOWN SYNDROME IS SUSPECTED.

Ramlogan K[1], Ambulkar S[1], Ambulkar H[1]
[1]Darent Valley Hospital

Background
In the UK, up to 57% of Down Syndrome (DS) diagnoses are made postnatally. Parents receiving a postnatal DS diagnosis consistently identify negative experiences with healthcare professionals (HCPs). However, sensitive communication and positive attitude from HCPs can potentially improve their overall experience. Our project aimed to improve paediatric doctors' confidence when communicating with parents of infants where a DS diagnosis is suspected.

Methods
In April 2024, a survey was sent to doctors in the paediatric department to ascertain their experience and confidence when approaching parents of babies with suspected DS. In June 2024, a 1.5-hour training session (in person and virtual) was facilitated by a trainer from a National DS charity and by a senior paediatric registrar, who both had children with DS. A post-session survey was sent to attendees. Pre and post session survey responses were analysed.

Results
•86% of doctors had never received training in communicating with parents about DS.
•Overall confidence in approaching parents where DS was suspected in their baby was measured on a scale of 1-10 (1= not at all confident, 10 = very confident). Pre-session, confidence ranged from 2/10 to 10/10 (66% ≥ 6/10) whereas post session, 100% of respondents' confidence ranged 6/10-10/10.
•Confidence in answering questions from parents regarding what to expect with a child who has DS ranged from 1-10/10 (10 = very confident) pre-session and improved to 8-10/10 post-session.
•There was a 44% increase in the number of respondents' who felt they knew what language was considered appropriate when approaching parents, post session.
•The awareness of positive achievement statistics for children with DS increased by 86% after the training session.

Conclusion
An educational training session for paediatric doctors can positively improve communication and confidence in interacting with parents with improved awareness of positive capabilities in infants with DS.

Challenges and outcomes in preterm infants with bronchopulmonary dysplasia (BPD) offered tracheostomy long-term ventilation (LTV)

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[1]Sheffield Children's NHS foundation trust

Background:
Severe BPD causes significant mortality and morbidity in preterm infants. 13.9/1000 infants born at <32weeks gestation (June 2017 to July 2018, UK and Ireland) had life-threatening BPD(1). 6% received tracheostomy for LTV. Early tracheostomy may enhance developmental progress and reduce mortality and sedation requirements.
Studies indicate multidisciplinary care to optimise secretion clearance, provide physiotherapy, manage tracheobronchomalacia, pulmonary hypertension, and gastroesophageal reflux disease is important.
There is a lack of high-quality evidence and local or national guidelines for the management of BPD in the post-neonatal period. We aimed to identify comorbidities and understand challenges to aid complex discussions, decision-making, and inform development of a holistic clinical guideline.

Methods:
We completed a service evaluation of preterm infants with BPD and tracheostomy placement for LTV from January 2019 to June 2024 in our regional paediatric critical care unit. Data were collected from neonatal BadgerNet and paediatric clinical records.

Results:
The table summarises our findings.
Six infants underwent tracheostomy for LTV, tracheostomy placement was between 3 and 10months post-term, using a shared decision-making model with the family.
All infants required supplemental oxygen and had repeated respiratory deteriorations resulting in periods of invasive ventilation. Five infants had severe pulmonary hypertension difficult to control with sildenafil.
The survivors, though weaning from ventilatory support, have neurodevelopmental sequelae.

Conclusions:
Infants with severe BPD requiring substantial ventilatory support pose complex clinical challenges. With limited alternatives and high mortality risk, the decision for tracheostomy needs careful individual consideration. We recommend concurrent comprehensive multidisciplinary management of associated conditions.
Despite sparse data, evidence suggests the decision for tracheostomy, though difficult, may result in positive respiratory outcomes in carefully selected individuals. Further collaboration between centres caring for this complex cohort will help yield evidence to further inform discussion and complex decision-making.

Reference:
1. Naples. ADC Fetal & Neonatal 2022.

Graphs

Infant	Sex	Ethnicity	Indices multiple deprivation decile	Gestation	Birth weight (grams)	Tracheobronchomalacia	Ventilation at tracheostomy	CGA months at tracheostomy	Steroid courses	Pulmonary hypertension	Gastroesophageal reflux	Nutrition delivery	Neurology	Age/Outcome
1	F	Black	1	22+5	522	No	18/8 >20hrs/day	3	5	Severe	Presumed	Gastrostomy jejunal tube	Grade I IVH (intraventricular haemorrahge)	21 months Weaning ventilation Moderate developmental delay, hypermetropia Adrenal insufficient
2	M	White & South-Asian	1	24	651	No	14/10 night	9	3	No	Severe	Gastrostomy jejunal tube	?ischaemic injury	4.5 years Weaning ventilation awaiting trache-decannulation Severe developmental delay, vision and hearing impaired
3	M	White	6	26+2	676	Mild	22/8	6	3	Severe	Severe	Parenteral Nasojejunal	Grade II IVH	Deceased
4	M	White	6	29+4	875	No	22/10	5	2 till death	Severe	Severe	Nasojejunal	Cystic periventricular leukomalacia	Deceased
5	M	South-Asian	1	28	1168	Moderate	16/8	10	1	Severe	Severe	Gastrostomy fundoplication	Grade I IVH	Deceased
6	M	White	1	25+4	795	No	12/6	4	5	Moderate	Presumed Ileostomy	Parenteral Nasojejunal	Hypoxic brain injury Required sedation to tolerate mask-ventilation pre-tracheostomy	Deceased

Diagnostic Dilemma: A case report of Molybdenum cofactor deficiency type B

Arachchilage C[1], Delpagoda Gamage R[1], Wickramaratne S[1], Ranasundara T[1], Oommen V[1]
[1]John Radcliffe Hospital, Oxford University Trust

Introduction

Molybdenum cofactor deficiency (MoCD) represents a rare and frequently fatal autosomal recessive metabolic disorder, manifesting predominantly within the initial days of life with severe neurological symptoms including intractable seizures, hypertonia, and feeding difficulties. The condition is often misdiagnosed as hypoxic-ischemic encephalopathy (HIE) due to similar brain MRI findings of severe cystic leukoencephalopathy. Early identification of MoCD is paramount for effective management, genetic counselling, and mitigating medico-legal complications. This report presents a neonate with biochemically and genetically confirmed MoCD type B, elucidating the comprehensive clinical, biochemical, radiological, and genetic characteristics.

Case History

A female infant, delivered at 37 weeks gestation, exhibited frequent myoclonic jerks and high-pitched crying shortly after birth. Despite multiple anticonvulsant treatments, her seizures persisted, necessitating high-dose midazolam infusion. An MRI performed on the eighth day revealed bilateral cystic changes in the white matter, hypoplasia of the corpus callosum, cerebellum, and pons, and signs suggestive of HIE. Metabolic investigations showed low serum uric acid levels and elevated urinary sulfocysteine, indicative of a sulfite oxidase deficiency. The R 14 test confirmed a homozygous mutation in the MOCS2 gene, establishing a diagnosis of MoCD type B.
In the absence of viable therapeutic interventions, palliative care was opted. The infant was transferred to a hospice, where she succumbed on day 22 of life.

Discussion

MoCD results in a combined deficiency of molybdenum cofactor-dependent enzymes, particularly sulfite oxidase, leading to the accumulation of neurotoxic metabolites. The disorder is characterized by MRI findings that mimic HIE and a unique biochemical profile, marked by low serum uric acid and elevated urinary sulfocysteine. Although the prognosis remains dire, prompt diagnosis is critical for genetic counselling and future pregnancy management. This case highlights the necessity of considering MoCD in neonates presenting with encephalopathy and abnormal MRI findings in the absence of a clear perinatal insult.

Improving newborn admission temperatures of all gestation: a quality improvement project

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[1]Queen's Hospital. Barking, Havering & Redbridge University Hospital Nhs Trust

Background: WHO defines normal infant body temperature as 36.5°C – 37.5°C. Normothermia during 'golden hour' of care is imperative and reduces mortality and morbidities. Maintaining optimal thermal control is an NNAP measure of quality care and also links to BAPM NSQI related to Perinatal Optimisation.

Aim: To improve the number of babies of any gestation with temperature of 36.5C-37.5C within an hour of admission.

Methods: A QIP was undertaken during April 21-April 24 using PDSA cycle to increase normothermia and reduce incidences of hypothermia and hyperthermia of the admitted newborns during stabilisation and within the first hour of life. Interventions included appointing medical and nursing normothermia champions, regular review of cases to identify specific areas of improvement, implementing changes, continued education and training and monthly data analysis and presentation to demonstrate progress. Challenges were addressed through multidisciplinary meetings within the perinatal team.

Results: Average performance over 3 years shows an increase in normothermia in <32 weeks gestation newborns from 66.3% to 72.3% and for ≥ 32 weeks gestation from 81.8% to 84.1%. The run chart shows gradual improvement with upward trend over 36 months with 90-100% normothermia in combined <32 weeks and ≥ 32 weeks in 13 months out of 36 months.

Conclusions: The QIP achieved incremental and sustained improvement in normothermia in admitted newborns. Challenges include periodic change of medical and nursing staff, and equipment issues. Senior staff acting as champions help continue the momentum of improvement through ongoing education and training.

Image

121

Serial Lung Ultrasound in predicting the need for surfactant and Respiratory course in Preterm infants -Observational study (SLURP)

Kannan Loganathan P[1], Montasser M[2], Bhojnagarwala B[4], Meau-Petit V[3], Kulkarani T[4], Forster A[1], Nair V[1]

[1]James cook University Hospital, [2]University Hospital Wishaw , [3]Neonatal and Paediatric intensive care unit Bicetre Hospital APHP , [4]Oliver Fisher Neonatal unit, Medway NHS Foundation Trust,

Background: Lung ultrasound scores (LUS) could predict the need for surfactant and predict the respiratory course in preterm infants.

Objectives: To confirm diagnosis accuracy of LUS before 3hrs of age to predict the need for surfactant in preterm infants ≤ 34 weeks on non-invasive respiratory support, from operators with various levels of LU experience.

Methods: We conducted multi-centre prospective observational study in 3 UK centres. Preterm infants ≤34 weeks on non-invasive respiratory support were included. 6 and 10 lung regions using the Brat score were performed within 3 hours of birth and serially every 12-24h (total 4 scans). All scans were performed by the local team members who had formal training on LU. All the LU videos were transferred without patient details to an investigator for scoring. We obtained retrospective consent from the parents. Study received ethics approval and registered (IRAS: 322468 and NCT05782569). (Data collection is ongoing).

Results: We recruited 82 preterm infants (May 2023 to June 2024). 797 first LUS, 774 second LUS, 785 third scans, and 773 fourth scans were obtained with a total of 151 (5%) uninterpretable scans. Total 27 clinical staff members performed the scans: 16 Trainees, 2 ANNPs, and 9 Consultants. Median age of first scan was 114 (76-145) minutes. Median birth gestational age and birth weight was 30 (29-32) weeks and 1440 (1085-1950) grams respectively. 27 (34%) babies received surfactant. Table 1 provides the predictive value of 6 and 10 regions LUS for cut off 8 and 9 (data for 51 infants). All the area under the curve (figure 1) were >0.8 for 6 and 10 regions.

Conclusions: LUS predicted the need for surfactant in preterm infants ≤34 weeks even from operators with various levels of experience with LU. Adding posterior region LUS only increased the sensitivity but not the specificity.

Graphs

Table 1: Diagnostic value of Anterior, lateral & posterior region, and Anterior, lateral region only,		
LUS score cut off ≥8		
	Anterior, lateral & posterior region (10regions) (n=51)	Anterior and lateral region only (6regions) (n=51)
Sensitivity (95% CI)	94.44 (72.71-99.86)	88.8 (65.3 to 98.6)
Specificity (95% CI)	18.18 (6.98% to 35.46%)	55.88 (37.89% to 72.81%)
PLR (95% CI)	1.15 (0.95 to 1.40)	2.01 (1.33-3.04)
NLR (95% CI)	0.31 (0.04 to 2.34)	0.2 (0.05 to 0.76)
LUS score cut off ≥9		
	Anterior, lateral & posterior region (10regions) (n=51)	Anterior and lateral region only (6regions) (n=51)
Sensitivity (95% CI)	94.4 (72.71 to 99.86%)	83.33 (58.58% to 96.42%)
Specificity (95% CI)	24.24 (11.09% to 42.26%)	73.5 (55.64% to 87.12%)
PLR (95% CI)	1.25 (1 to 1.56)	3.15 (1.73 to 5.72)
NLR (95% CI)	0.23 (0.03 to 1.69	0.23 (0.08 to 0.65)
LUS: Lung ultrasound scores; PLR: Positive Likelihood Ratio; NLR: Negative Likelihood Ratio		

Image

Figure: ROC curves for LUS scores for both anterior & posterior, anterior only and posterior region only for infants in any position (Fig 1a) and Infants placed supine (Fig 1b)

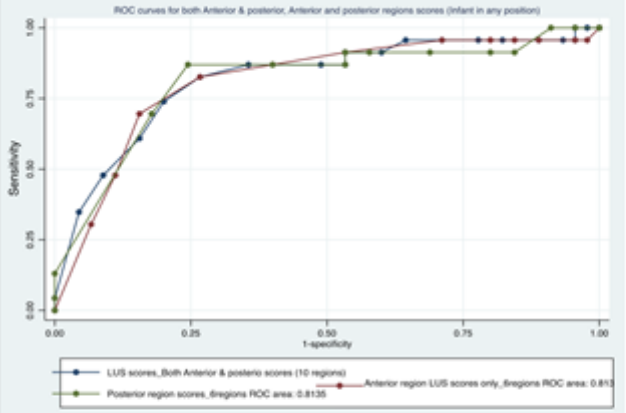

Figure 1a

N=68	ROC [95% conf. interval]
Anterior and posterior regions (10 regions)	0.82 (0.71 to 0.93)
Anterior regions only (6 regions)	0.81 (0.70 to 0.93)
Posterior regions only (6 regions)	0.81 (0.70to 0.93)

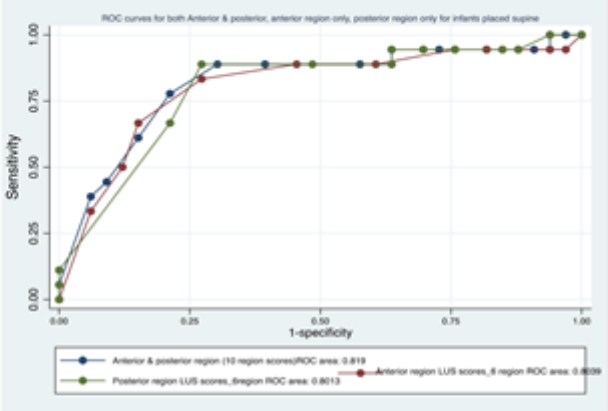

Figure 1b

N=51	ROC [95% conf. interval]
Anterior and posterior regions (10 regions)	0.82 (0.69 to 0.95)
Anterior regions only (6 regions)	0.80 (0.67 to 0.94)
Posterior regions only (6 regions)	0.80 (0.67 to 0.93)

Colostrum Counts: Early Initiation of Expression of Maternal Colostrum and Feeding

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[1]St George's University Hospitals NHS Foundation Trust, [2]Chelsea and Westminster Hospital NHS Foundation Trust

Background
Breastmilk is the optimal source of nutrition for all babies, especially those born prematurely. Expressing within two hours of birth significantly increases breastmilk volumes. We aim that 85% women delivering before 34 weeks will express within two hours of birth, and that 85% babies born before 34 weeks will receive maternal colostrum within six hours of birth.

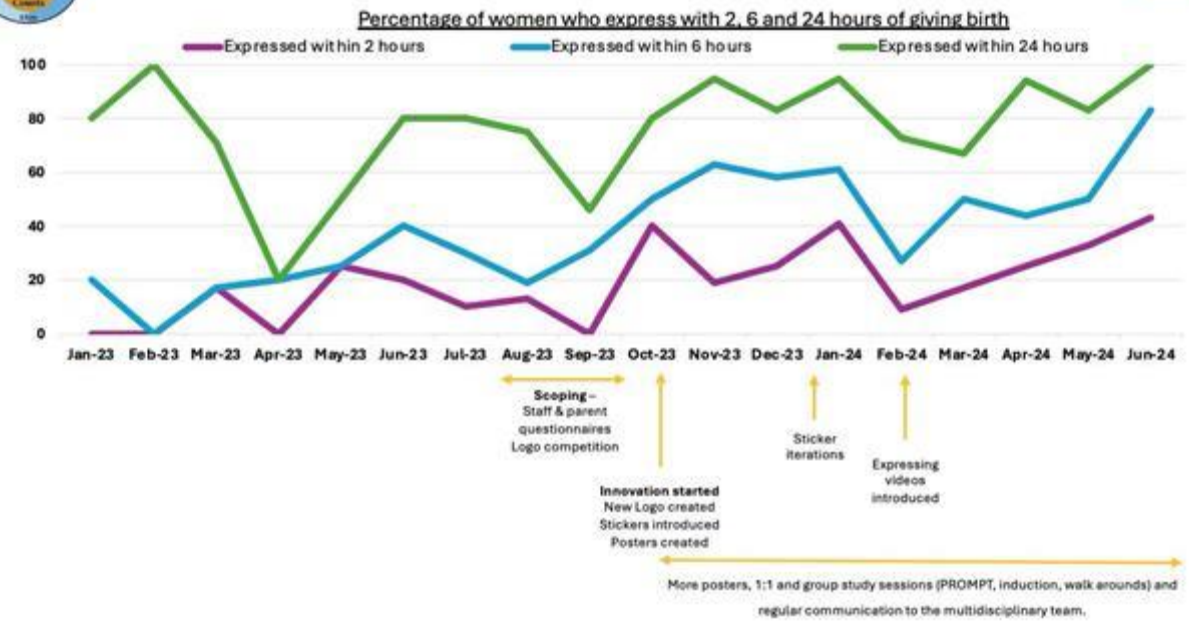
Methods
We collected retrospective data on the first time of expression and administration of maternal colostrum from January to October 2023, revealing poor documentation. Using questionnaires, we asked parents and staff to identify barriers to accurately recording this information, and for suggestions for improvement interventions.
We introduced stickers on the front of expressing packs for parents and staff to record the date and time of first expression and administration of colostrum. Accompanying this was a new logo, posters and individual and group teaching. We utilised emerging data and family and staff feedback to drive further change, including sticker iterations, new videos on hand expressing and pump use, and improved accessibility to blank stickers.

Results
Before implementation, 14% mothers expressed within 2 hours of birth, 28% within 6 hours, and 68% within 24 hours. Median time to express was 13 hours. 57.6% preterm infants received colostrum within 24 hours.
After our interventions, from November 2023 – June 2024, 25% mothers expressed within 2 hours of birth, 57% within 6 hours, and 89% within 24 hours. Median time to express was 6 hours. Chi-Squared testing showed statistically significantly improvements in expression rates within 2, 6 and 24 hours after delivery, and in administration of maternal colostrum within 6 hours, $p<0.05$.

Conclusions

We have demonstrated significant improvements in the time to expression and administration of colostrum to preterm infants, as well as improved accuracy of documentation. Further work is ongoing to achieve our ambitious aims.

Image


Percentage of women who express with 2, 6 and 24 hours of giving birth
Expressed within 2 hours
Expressed within 6 hours
Expressed within 24 hours
100
80
60
40
20
0
Jan-23 Feb-23 Mar-23 Apr-23 May-23 Jun-23 Jul-23 Aug-23 Sep-23 Oct-23 Nov-23 Dec-23 Jan-24 Feb-24 Mar-24 Apr-24 May-24 Jun-24
Scoping –
Staff & parent questionnaires
Logo competition
Sticker iterations
Expressing videos introduced
Innovation started
New Logo created
Stickers introduced
Posters created
More posters, 1:1 and group study sessions (PROMPT, induction, walk arounds) and regular communication to the multidisciplinary team.

Infographic to Improve Research Engagement and Recruitment in NICU

Martin G[1], Ahmed H[1], Soe A[1], Harizaj H[1], Kenala C[1], Woods A[1]
[1]Oliver Fisher Neonatal Unit, Medway Maritime Hospital

Background:
Our research team highlighted missed research recruitment opportunities due to three key factors, the number of ongoing studies, the lack of quick reference criteria and the time-critical nature of studies. Therefore, a quick reference research infographic was proposed to support the neonatal team in evaluating eligibility and recruitment timeline. Our concept was “To assist the team at 3am to safely and appropriately recruit to research”.

Method:
An infographic summarising 10 active research projects was created, utilising colour coded gestational bars across the centre and each study module having key inclusion and exclusion criteria, recruitment timeframe and QR codes linking to study websites.

Results:
The neonatal team were surveyed three months post infographic launch. All respondents participating in research activities in at least some shifts with 15% reporting they are involved in research in every shift.

Before the infographic's, 75% of the respondents couldn’t easily recall the appropriate timeline to provide patient information leaflet for parents and only 10% could recall inclusion criteria of active trials in our unit compared to 85% after the infographic.

After the infographic 85% felt, they can easily refer to it to determine if a baby can be recruited into research.

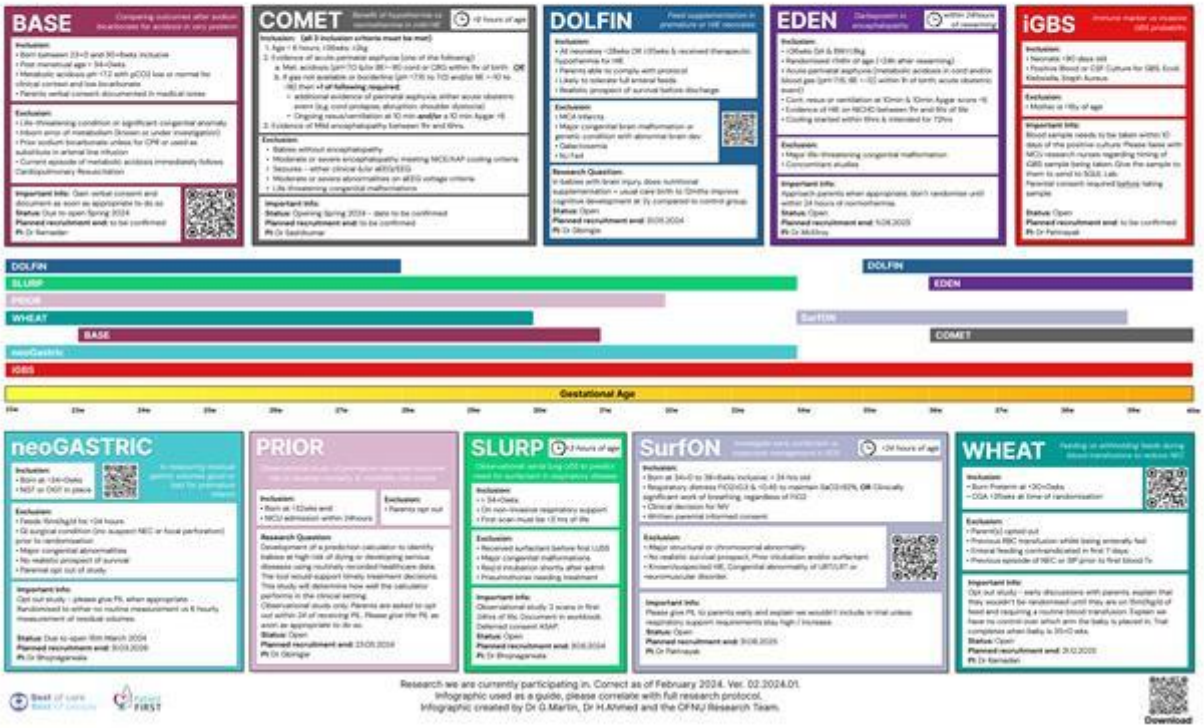
Conclusions:
Within three months of the infographic implementation, it became the “go-to-guide" when recruiting to research, and we’re seeing an increased engagement for research activity. Working in a busy tertiary neonatal unit might make it difficult to keep up with inclusion and exclusion criteria for research, so having a quick reference makes recruitment more efficient. Going forward, along with the clinical infographic, which we have shared across the ODN and we’re collaborating with other units looking to adopt this model, we have begun developing a parent-focused infographic, assisting in introducing research early to parents and promoting inclusion and involvement in research.

Image

Research and Innovation
Creating the care of tomorrow

NEONATAL RESEARCH PROJECTS

NHS Medway NHS Foundation Trust



Research we are currently participating in. Correct as of February 2024. Ver. 02.2024.01.
Infographic used as a guide, please correlate with full research protocol.
Infographic created by Dr G.Martin, Dr H.Ahmed and the OFNU Research Team.

Download

DeRoC Project: Implementing Delivery Room Cuddles in a Tertiary Neonatal Unit

Ahmed H[1], Atuanya N[1], Thake S[1], Kirby C[1], Gbinigie H[1]
[1]Oliver Fisher Neonatal unit , Medway NHS Foundation Trust

Background: Delivery room cuddle (DRC) is vital for improving health outcomes, enhancing maternal and infant well-being, and promoting a holistic, family-centred approach to care.

Methods:
Our neonatal team underwent training to facilitate DRC including role allocation, thermoregulation, and measures for intubated babies.
We replaced our NeoFlow standard circuit with a longer 3-meter circuit across all resuscitaire in the delivery suite.
From February 2024 the neonatal team implemented DRC as standard practice in our unit.
Results:

- DRC audited for neonatal unit admission ≤ 32 weeks newborns between February 2024 and the end of April 2024.
- Total 25 admissions within this timeframe.
- 72% had DRC (n=18) and their gestational age ranges between 23+0 weeks to 32 weeks and birth weight between 555 grams to 1515 grams.
- Among the babies who had DRC 45% of them were intubated and 55% were on non-invasive respiratory support.
- There was zero accidental extubation rate among the intubated newborns who had DRC with their parents.
- All the babies who had DRC had a normal temperature on admission.
- There was one infant who had DRC with both parents and had the second cuddle with parents on day 5 of life when care was being redirected before she sadly passed away.
- Feedback from parents who had DRC was positive and they felt reassured that despite their babies being early and needing support, having the cuddle was very reassuring and calming and they felt supported by the team during it.

Conclusions:
By making delivery room cuddles a standard approach, we can significantly enhance the well-being of preterm babies and support their families from the start. With appropriate protocols and training, delivery room cuddles can be safely integrated into preterm babies' care while minimizing the risks of extubation and low temperature.

Image


Old Neoflow circuit
New Neoflow circuit

“Simmersion” – in-situ simulation activities to improve staff access to simulation-based education on the Neonatal Unit

Martin N[1], Tomlinson C[1]
[1]Nottingham University Hospitals

Background:
Simulation is a well established teaching method for developing crucial skills in neonatology. Enabling staff working on busy units to attend regular simulation-based activities is challenging. In our service this has been due to difficulties with staffing and increasing acuity of babies we care for.
Aim:
Deliver simulation in a way accessible to most clinical staff, with minimal likelihood of cancellation.

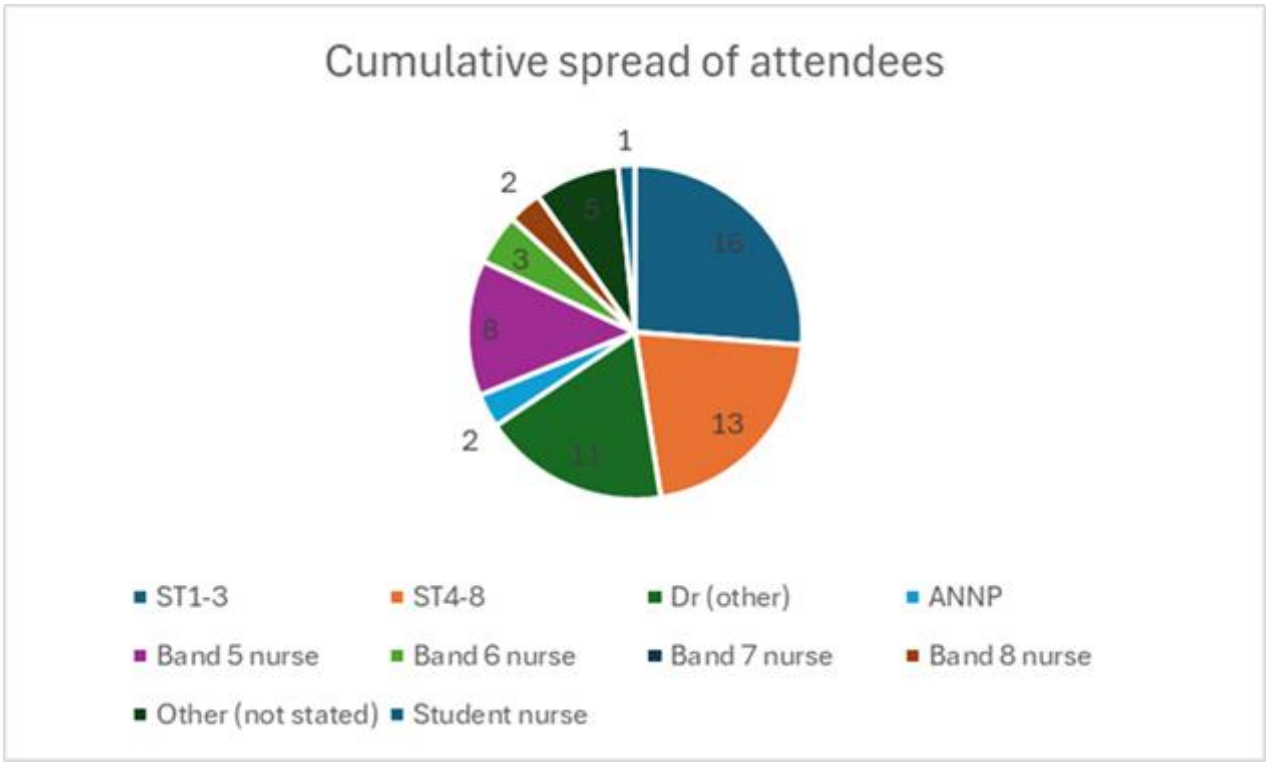
Method:
We introduced Simmersion weeks, an alternate monthly programme for 3 days, simulation faculty delivered repeated, consecutive short clinical simulations on the unit. Designed for 2-3 participants and 1-2 faculty for 30 minutes to fit within elements of the working day. Scenarios were repeated 3 or 4 times to allow all medics on shift, and as many nurses as possible, to attend. Concurrently we facilitated skills stations relevant to the scenarios to practice on a drop-in basis. This included in-reach tasks, bringing sim equipment to bays so that staff don’t need to leave their clinical area. Scenario themes were identified from topical patient safety issues or QI goals.
We collated quantitative Likert scale feedback and learning points, then disseminated these with certificates of attendance. We shared highlights via unit “Sim-formation stations” to maximise shared learning.

Results:
Overwhelming feedback was positive with staff keen for more sessions. We delivered 8 sessions with 56 participants.

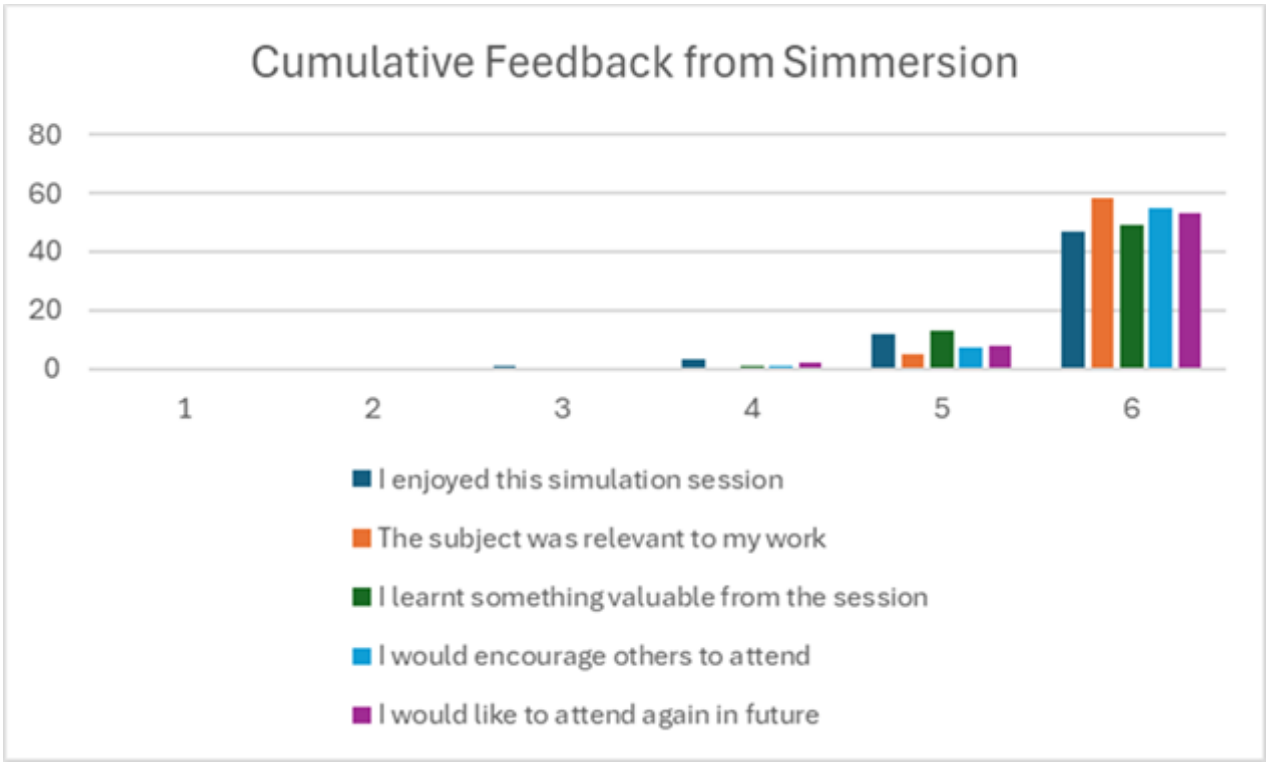
Quotations:
“Love quicker format to fit around clinical shifts”
“Good way of practicing”
“Simulation realistic to what we do in practice, organising more would be helpful”

Conclusion:
‘Simmersion’ enabled us to increase staff engagement in simulation, creating a culture of supporting regular training around the working day. As it is multi-professional we are able to share important learning about patient safety and QI as well as values about our care. It has also been beneficial for staff morale as they feel their development is valued.

Graphs


Cumulative spread of attendees
1
2
3
8
2
16
13
11
ST1-3
ST4-8
Dr (other)
ANNP
Band 5 nurse
Band 6 nurse
Band 7 nurse
Band 8 nurse
Other (not stated)
Student nurse

Image


Cumulative Feedback from Simmersion
80
60
40
20
0
1
2
3
4
5
6
I enjoyed this simulation session
The subject was relevant to my work
I learnt something valuable from the session
I would encourage others to attend
I would like to attend again in future

Birthday cuddles are safe to perform and enjoyed by parents

Serrano-Llop A[1], Papagianni K[1], Darren A[1], Zorro C[1], Greenough A[1,2]
[1]King's College Hospital NHS Foundation Trust, [2]King's College London

Birthday cuddles are safe to perform and enjoyed by parents

Background:

Skin-to-skin contact is widely regarded as beneficial for babies and parents. This should be started soon after birth, even if neonatal admission is required.

Aim: To implement cuddles at birth, birthday cuddles (BC), as a safe and enjoyable experience for parents of babies requiring admission.

Methods:

Quality Improvement Project developed following PDSA model.

Plan:

- Review of evidence/current practice

Do:

- Guideline with safety criteria: stable observations, pre-cuddle temperature ≥36.5oC, safe airway
- Multidisciplinary teaching
- Identification of champions
- BC for all inborns requiring admission if safety criteria met

Study:

- Prospective observational cohort study
- Demographic and safety data collection
- Parental feedback questionnaires (scored from 1 to 10)

Act:

- Change in practice: BC routine practice
- New QIP: BC for birth partners

Results:

Two hundred twenty-two BC (March 2023-March 2024, King's College Hospital): median gestational age 34.3 (range 22.7-42.0) weeks, birth weight 2230 (550-5050) grams; 50.9% males. Congenital surgical anomalies in 15.7% (neural tube defects 35.7%). Most BC (71.6%) were performed in obstetric theatres, 71.6% while on respiratory support (CPAP 32.1%). All babies remained stable throughout the cuddles and no incidents were reported.

Temperature:

- Median pre-cuddle temperature, assessed in 77.5% of babies: 36.9 (36.0-39.6)oC.
- Median admission temperature: 36.9 (35.5-39.2)oC, 8.8% below 36.5oC.

Twenty-six percent did not have a BC as their mother had general anaesthetic.

Questionnaires:

- Completed by 50 parents; 36 had had a BC.
- Assessed as an enjoyable experience: median score 10 (6-10), 9.57 average score.
- Eighty-nine percent felt well supported.
- All parents would recommend BC.

Conclusions:

BC were safely performed and an enjoyable experience for all parents. Those who could not have one stated they would have wanted to be offered one. Birth partners should be considered when mothers are not able to have a cuddle.

Improving provision of maternal breastmilk for preterm babies on the Neonatal Unit

Ntovolou A[1], Garcia F[1], Angell J[1], Morales R[2], Menezes E[2], Wallen-Mitchell V[1], Lhamo T[1], James L[2], Plunkett L[1], Camacho M[1], Bunn G[1], Perez Molina E[2], Serrano-Llop A[1]
[1]King's College Hospital Neonatal Unit, [2]Princess Royal University Hospital Neonatal Unit

Background
The benefits of early maternal expressed breastmilk (MEBM) feeds for preterm babies are well known. King's College Hospital (KCH) was national outlier for breastmilk feeding in the first two days of life (NNAP optimal perinatal care measure), with only 22% of babies under 34 weeks' gestation receiving it in time.

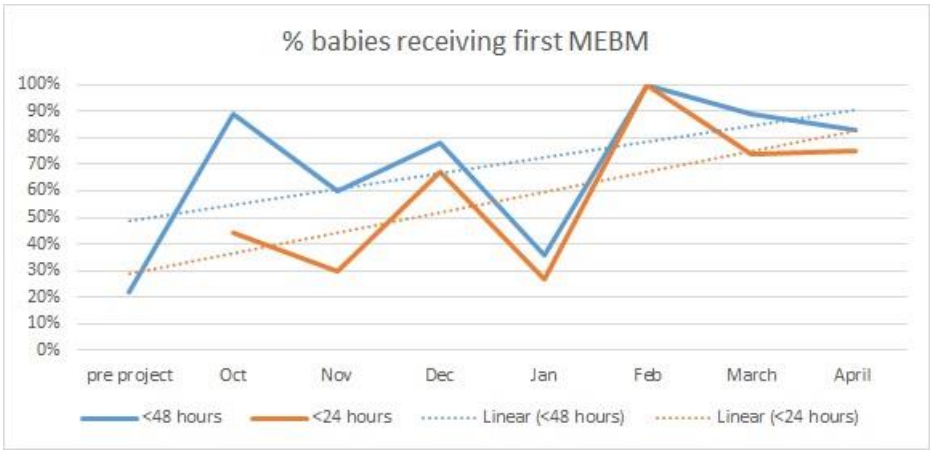
Aim
To improve the time to first MEBM and achieve its administration within the first 24hours of life, for all babies under 34 weeks' gestation, born at KCH, by the end of August 2024.

Methods
The project was named 'Supermilk- early maternal breastmilk', a title chosen in collaboration with Maternity Voices. We completed multiple Plan-Do-Study-Act (PDSA) cycles:
PDSA 1 – October 2023:
forming the 'Supermilk' team: doctors of all levels, neonatal nurses, midwives; project introducing poster displayed on NICU.
PDSA 2- November 2023:
expanding the team, raising awareness: the midwifery infant feeding team joined; formal campaign announcement to the Neonatal, Midwifery and Obstetric teams via mass email.
PDSA 3- December 2023:
teaching and training: formal teaching sessions for doctors, 1:1 sessions with nurses.
PDSA 4- February 2024:
continuous reinforcement, results' dissemination to teams.
PDSA 5- March 2024:
specialist input, ongoing training: breastfeeding advisor recruited for NICU; perinatal optimisation session at junior doctors' induction.
PDSA 6- April 2024:
'Supermilk' newsletter, star of the month award

Results
Seventy-eight eligible babies were included from October 2023 to April 2024 at KCH. Median birth gestation 32+0 (range 24+0-33+6), average birth weight 1450g (480-2495g).
The median time to first MEBM improved from 46.5 (3-210) hours in September 2023, to 13.5 (2-83) hours in April 2024. More than 80% are receiving MEBM within the first 48hours, consistently, since February 2024.

Conclusion
Whole team involvement, specialist input, continuous positive reinforcement and training helped develop a robust early breastfeeding campaign and improve breastfeeding outcomes for our babies.

Graphs


% babies receiving first MEBM
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
pre project
Oct
Nov
Dec
Jan
Feb
March
April
<48 hours
<24 hours
Linear (<48 hours)
Linear (<24 hours)

A rare case of micro-deletion presenting as central hypotonia in a term baby.

Wickramaratne S[1], Rukshani D[1], Arachchilage C[1], Ranasundara T[1], Wilkinson D[1]
[1]Oxford University Hospitals

Introduction
Phenotypes of microdeletions depend on the type and the size of the genes involved. 19p 13.3 microdeletion is extremely rare but is reported to cause severe developmental morbidity.

Case
A baby boy with antenatal scan finding of isolated bilateral talipes was born at term with normal growth parameters. Tachypnoea with subcostal recessions since birth warranted high flow therapy and de-escalated to low flow oxygen from day 3 onwards. His polysomnography confirmed continuous oxygen requirement.

During acute stages he was tube fed. Subsequently, swallowing assessment showed signs of incoordination. He was kept on tube feeds and stimulatory exercises. Gradually breast feeding was started with nasogastric tube top-ups.

There was a suspicion of mild central hypotonia from birth which was initially attributed to acute illness. It became marked by second week of life but with preserved joint reflexes. No dysmorphism was apparent clinically. Family history was unremarkable.
Thyroid screening and metabolic screening including blood gas, lactate, ammonia, creatine phosphokinase, liver profile and renal profile was unremarkable. Eye and hearing assessments were also normal.

MRI brain-spectroscopy showed structurally normal brain with multiple lactate peaks over frontal subcortical white matter raising the suspicion of mitochondrial disorder as a differential.
His microarray analysis revealed 19p13.3 deletion sized significantly of 1.56Mb suggesting possible correlation with his phenotype.

Discussion
19p13.3 deletion is a rare, emerging syndrome and five out of seven reported cases so far (Table1) were asymptomatic as neonates and were diagnosed late following significant gross motor with fine motor and/or speech delay. All reported cases had central hypotonia.

Conclusion
This emphasises the importance of being vigilant on neurological signs in neonates such as tone and feeding abnormalities in order to avoid delay in diagnosis providing the opportunity for early interventions.

Image

Table 1:Reported cases

Patient	Gender	Growth	presentation	MRI brain	Deleted length	Age at diagnosis (months)
1	Female	Macrocephaly	Gross motor, speech delay at 6 months, central hypotonia	Normal	0.6Mb	22
2	Female	Macrocephaly Long fingers, toes	Developmental delay, poor fixing at 6 months	frontal atrophy	1.3Mb	36
3	Male	Macrocephaly	Gross and fine motor delay at 12 months, hypotonia	absent corpus callosum	0.3Mb	18
4	Female	Macrocephaly	Gross motor, speech delay, Hypotonia, strabismus	Chiari-I	0.8Mb	14
5	male	microcephaly	Feeding difficulties, seizures from 2 months, gross motor, speech delay, behavioural abnormalities	Normal	1.9Mb	06
6	Female	Microcephaly, craniosynostosis	Central hypotonia, arthrogryposis	Ventriculomegaly	0.66Mb	05
7	Male	Gigantism	Hypotonia, gross motor delay, seizures	Normal	2.52Mb	12

Poster Accepted

3

Outcomes Following Implementation of Non-Invasive Positive Pressure Ventilation (NIPPV) as the Primary Mode of Extubation in Infants < 29 weeks in a Tertiary Neonatal Unit

Ashton J[1], Prakash R[1], Kamal M[1], Rehman F[1]
[1]Royal Oldham Hospital

Background and Objectives

Evidence suggests that utilising NIPPV as the primary extubation modality in preterm infants may lower extubation failure rates. 2017 and 2023 Cochrane reviews both provide evidence in support of NIPPV over CPAP.

In September 2021, our tertiary NICU implemented NIPPV as the primary extubation modality for preterm infants. This project aims to compare the outcomes of preterm infants born before and after this practice change.

Methodology

We conducted a comparative analysis of outcomes among infants born at <29 weeks gestation during two distinct periods: January 1 to June 30 2021, (pre-NIPPV group), and January 1 to June 30 2022, (post-NIPPV group). Eligible infants were identified through Badgernet®. Outcome data were collected from Badgernet® and paper records.

Results

Twenty-one infants in the pre-NIPPV group and 18 infants in the post-NIPPV group met the inclusion criteria. In the pre-NIPPV group, 7 out of 21 infants (33%) required reintubation within five days, compared to 4 out of 18 infants (22%) in the post-NIPPV group. There were lower rates of chronic lung disease, reduced instances of discharge with home oxygen and a reduction in the administration of dexamethasone for extubation in the post-NIPPV group. The occurrence of complications, including NEC, nasal injury, pneumothorax etc, was similar in both groups.

Conclusions

Our project indicates that introduction of NIPPV in our tertiary NICU yielded outcomes similar to those reported in existing literature on the use of NIPPV as the primary extubation modality in preterm infants. These findings suggest that employing NIPPV in this population is both feasible and safe.

Assessing the Feasibility of Lowering the Birth Weight Threshold for Routine Cranial Ultrasounds in Preterm Newborns Born Over 32 Weeks Gestation

Maghrabia F[1], Miall L[1], Oddie S[2]
[1]Leeds Teaching Hospitals, [2]Bradford Teaching Hospitals

Background:
Cranial ultrasound scan (CrUSS) is the gold standard for evaluating intraventricular haemorrhage (IVH) in premature babies. Setting a high birth weight (BW) cut-off for routine CrUSS may lead to more scans and findings, causing stress for families and burdening the radiology team.
Limited evidence exists on the rates of IVH in preterm infants born at over 32 weeks gestational age (GA) with a birth weight (BW) of 1000-1500g. Our study analysed data from two NICUs in the Yorkshire and Humber Neonatal Network to explore whether restricting routine CrUSS for babies born at over 32 weeks GA to those with BW under 1000g (instead of 1500g), would overlook any significant pathology.

Aim:
This study aims to assess the feasibility of lowering the birth weight threshold (from <1500g to <1000g) for routine cranial USS in preterm newborns born at >32 weeks GA.

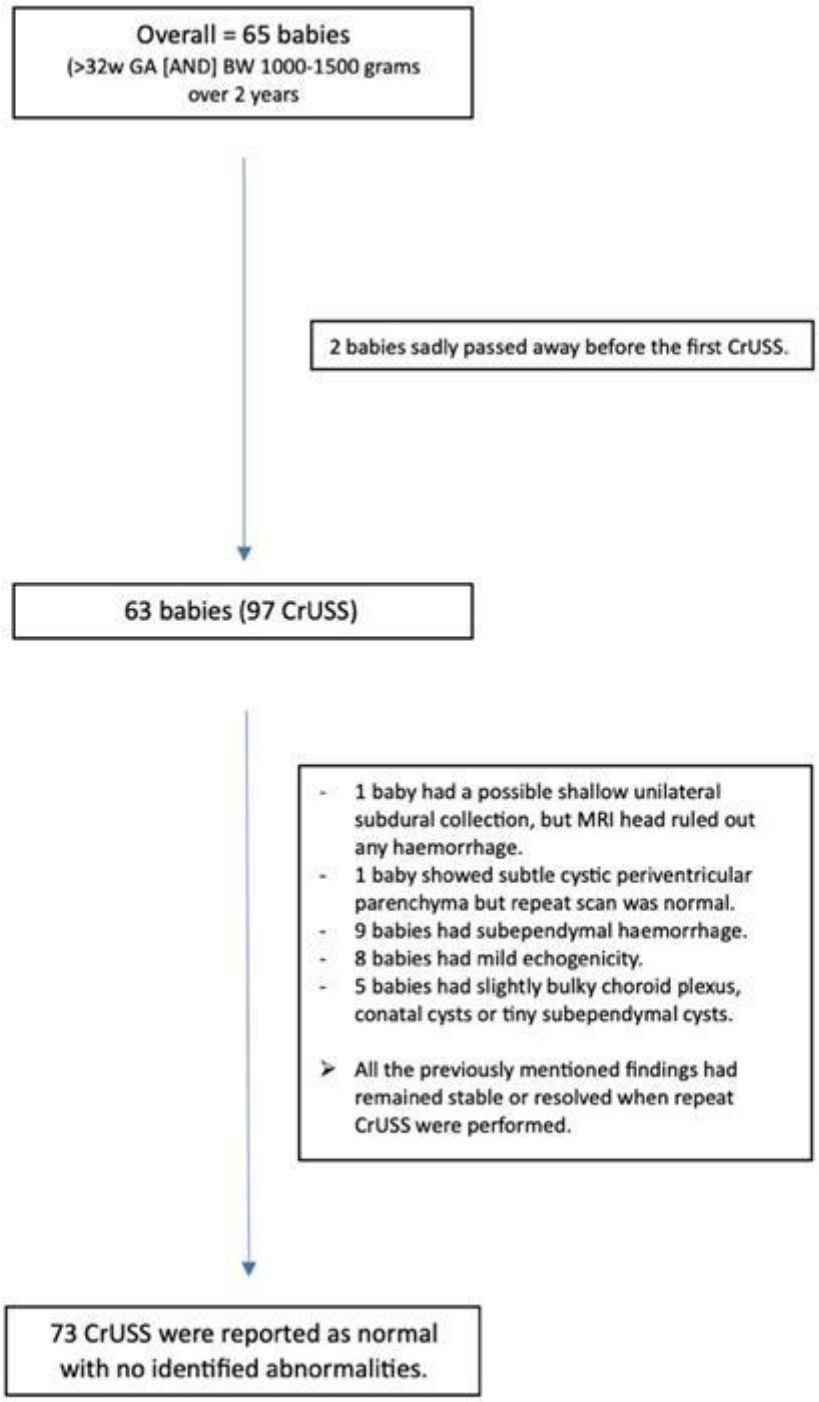
Methods:
We conducted a retrospective analysis of data for preterm infants admitted to two tertiary NICUs in the Yorkshire and Humber Neonatal Network who required routine CrUSS over two years (2021-2023). There were 65 babies identified using the BadgerNet system with inclusion criteria of gestational age >32 weeks GA [AND] birth weight between 1000- 1500 grams during the previously mentioned period. The CrUSS data were collected using the Xeroviewer system. Data collected included birth weight, gestational age, date of birth, CrUSS results and clinical outcome.

Exclusion criteria:
- Babies who were transferred to the unit before having their first CrUSS.

Results:
Among the initial group of 65 babies, 2 infants died before undergoing their first CrUSS. A total of 97 routine CrUSS were carried out for the remaining infants. Out of all the routine CrUSS that have been performed, a total of 73 scans (75%) were reported as normal with no abnormalities.
In one case, the initial scan was normal, but on the repeat scan, there were concerns about a possible shallow unilateral subdural collection. Subsequently, an MRI of the head was performed, which ruled out any haemorrhage. Another case had their first CrUSS reported as ''subtle cystic periventricular parenchyma'' but the repeat CrUSS was normal with no evidence of cystic changes.
Amongst the remaining infants, 9 had subependymal haemorrhage, and 8 had mild echogenicity which had all remained stable or resolved when repeat CrUSS were performed. Also, slightly bulky choroid plexus, conatal cysts or tiny subependymal cysts have been reported for 5 babies but again all findings remained stable or resolved when repeat CrUSS were performed.

Conclusion:
Lowering the birth weight cut-off for routine CrUSS from <1500 to < 1000 grams for babies born over 32 weeks GA is appropriate and in this small cohort would not have missed any significant pathology.

Image


Overall = 65 babies
(>32w GA [AND] BW 1000-1500 grams
over 2 years
2 babies sadly passed away before the first CrUSS.
63 babies (97 CrUSS)
- 1 baby had a possible shallow unilateral subdural collection, but MRI head ruled out any haemorrhage.
- 1 baby showed subtle cystic periventricular parenchyma but repeat scan was normal.
- 9 babies had subependymal haemorrhage.
- 8 babies had mild echogenicity.
- 5 babies had slightly bulky choroid plexus, conatal cysts or tiny subependymal cysts.
➢ All the previously mentioned findings had remained stable or resolved when repeat CrUSS were performed.
73 CrUSS were reported as normal
with no identified abnormalities.

Neuroimaging features of Vein of Galen malformation in a Newborn infant.

Omidiji M[1], Jalloh S[1], McKay-Ferguson A[1]
[1]Queen Elizabeth Hospital Nhs Foundation Trust, Kings Lynn

Introduction

Baby S, the firstborn of non-consanguineous parents, is a product of a term pregnancy without antenatal issues, delivered via caesarean section in favorable condition in a District General Hospital. On routine Newborn and Infant Physical Examination (NIPE), she was noted to have subtle craniofacial disproportion alongside macrocephaly measuring 37.5cm (99.6th centile), with a familial closed lumbosacral cleft and a slightly widened anterior fontanelle. Cranial ultrasound showed a cyst-like structure in the posterior fossa with mild ventricular dilatation prompting urgent MRI request which was completed on day 15 of life. MRI head with MRA revealed a vein of Galen aneurysmal malformation, communicating with adjacent veins and resulting in mild ventricular dilatation. Additionally, subcortical white matter demonstrated increased signal indicative of trans-epididymal edema, with restricted diffusion noted on Diffusion-Weighted imaging (DWI) images. In the third week of life baby S developed difficulty with breathing and signs of heart failure. She eventually underwent successful embolization surgeries at the age of 2 months and 5 months. Presently at 3 years of age, Baby S displays no neurological deficits or concerns, thriving in good health.

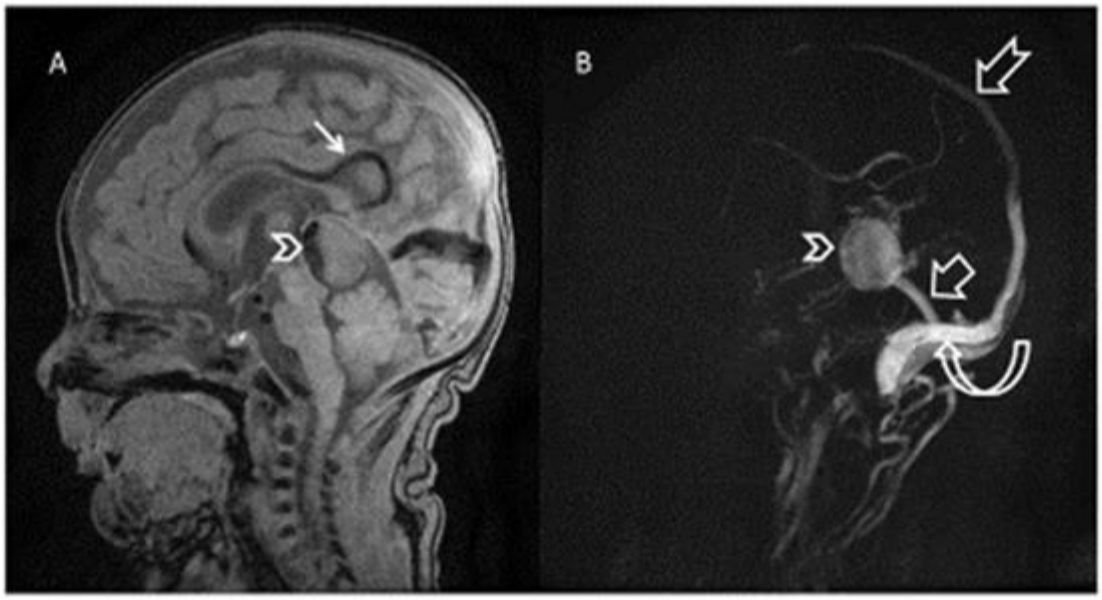
Discussion

Vein of Galen Aneurysmal Malformation (VGAM) is an uncommon intracranial arteriovenous malformation typically manifesting dramatically in early childhood, characterized by a left-to-right shunt and high-output cardiac failure. VGAMs represent less than 1-2% of intracranial vascular malformations but contribute to 30% of cerebral vascular malformations in pediatric patients. It can be associated with adverse neurodevelopmental outcome due to brain injury if undetected and treated early.

Conclusion

While VGAM is often antenatally diagnosed, in this instance, it went undetected before birth. A thorough NIPE holds equal significance to other prenatal assessments in detecting congenital anomalies in newborns. Timely intervention can greatly improve survival and neurodevelopmental outcome.

Image



A Midsagittal T1 weighted image and **B** Sagittal Maximum Intensity Projection (MIP) from a Magnetic Resonance Venogram (MRV) showing the great cerebral vein (of Galen) malformation (chevron). Note also the enlarged feeding pericallosal artery (straight arrow). Also labelled are the sagittal sinus (notched arrow), straight sinus (open arrow) and transverse sinuses (curved arrow)

Enhancing preterm health: Exploring the benefits of delayed cord clamping.

Hatata A[1], Vakharia B, Ahmed F, Doyle H, Sampaio S, Tuchlei Y
[1]Luton and Dunstable University Hospitals

Background:

Delayed cord clamping (DCC) in preterm infants supports a smoother transition to life outside the womb, fostering cardiovascular stability and bolstering blood volume and iron reserves, vital for their delicate health. Before implementing the Quality Improvement Project (QIP), only 15% of infants born before 34 weeks received DCC for at least one minute, falling short of the 80% network target.

Aim:

Our objectives were;

- To ensure that at least 80% of preterm infants in our unit received DCC for at least one minute.

- Increase awareness among neonatal teams, midwives, theatre nurses, obstetricians, and anesthetists regarding the use of the LifeStart resuscitaire.

Methods:

- Prospective data collection using Excel sheets spanned one year (January 2022 to January 2023). All infants born before 34 weeks and admitted to our unit were eligible.
- Simulation scenarios were conducted to familiarize healthcare professionals with the LifeStart resuscitaire. Posters and guidelines were developed for its use.
- Long T-pieces with trans warmers were employed during emergencies.
- Short-term outcomes such as initial temperature, initial hemoglobin, 10-minute APGAR scores, and the need for inotropes within the first 48 hours, as well as long-term outcomes including intraventricular hemorrhage (IVH), necrotizing enterocolitis, sepsis, and mortality, were studied.

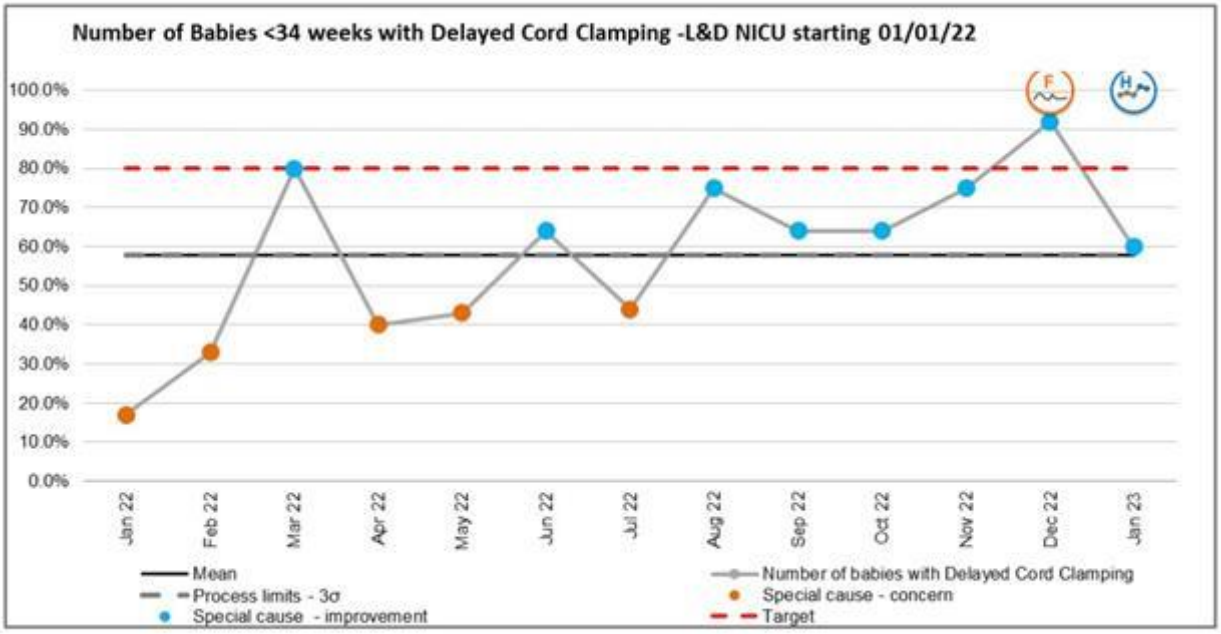
Results:

A total of 103 preterm infants were audited over the year. The rate of DCC increased from 15% initially to meet the target of 80%. Among infants who received DCC, 82% achieved normal body temperature at admission, only one required blood transfusion within the first 48 hours, and 9% experienced IVH necessitating inotropic support. No cases of necrotizing enterocolitis or sepsis were reported, although unfortunately, three infants did not survive.

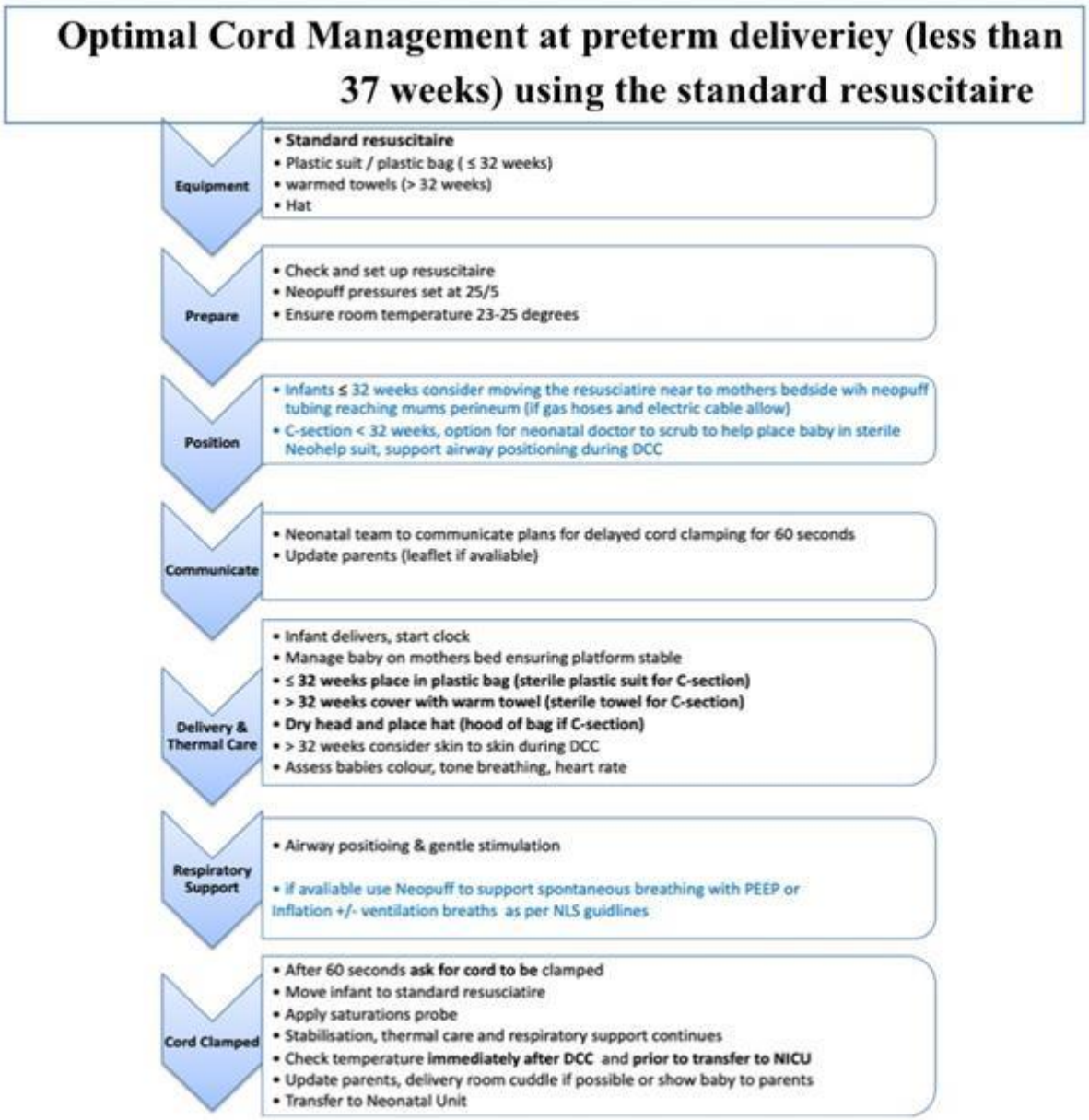
Conclusion:

Raising awareness about the LifeStart resuscitaire significantly improved DCC rates in our unit, underscoring the importance of such initiatives in enhancing preterm infant care.

Graphs


Number of Babies <34 weeks with Delayed Cord Clamping -L&D NICU starting 01/01/22
100.0%
90.0%
80.0%
70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
Jan 22
Feb 22
Mar 22
Apr 22
May 22
Jun 22
Jul 22
Aug 22
Sep 22
Oct 22
Nov 22
Dec 22
Jan 23
Mean
Process limits - 3σ
Special cause - improvement
Number of babies with Delayed Cord Clamping
Special cause - concern
Target

Image


Optimal Cord Management at preterm deliveriey (less than 37 weeks) using the standard resuscitaire
Equipment
• Standard resuscitaire
• Plastic suit / plastic bag (≤ 32 weeks)
• warmed towels (> 32 weeks)
• Hat
Prepare
• Check and set up resuscitaire
• Neopuff pressures set at 25/5
• Ensure room temperature 23-25 degrees
Position
• Infants ≤ 32 weeks consider moving the resusciatire near to mothers bedside wih neopuff tubing reaching mums perineum (if gas hoses and electric cable allow)
• C-section < 32 weeks, option for neonatal doctor to scrub to help place baby in sterile Neohelp suit, support airway positioning during DCC
Communicate
• Neonatal team to communicate plans for delayed cord clamping for 60 seconds
• Update parents (leaflet if avaliable)
Delivery & Thermal Care
• Infant delivers, start clock
• Manage baby on mothers bed ensuring platform stable
• ≤ 32 weeks place in plastic bag (sterile plastic suit for C-section)
• > 32 weeks cover with warm towel (sterile towel for C-section)
• Dry head and place hat (hood of bag if C-section)
• > 32 weeks consider skin to skin during DCC
• Assess babies colour, tone breathing, heart rate
Respiratory Support
• Airway positioing & gentle stimulation
• if avaliable use Neopuff to support spontaneous breathing with PEEP or Inflation +/- ventilation breaths as per NLS guidlines
Cord Clamped
• After 60 seconds ask for cord to be clamped
• Move infant to standard resusciatire
• Apply saturations probe
• Stabilisation, thermal care and respiratory support continues
• Check temperature immediately after DCC and prior to transfer to NICU
• Update parents, delivery room cuddle if possible or show baby to parents
• Transfer to Neonatal Unit

LISA, where we are?

Hatata A[1], Carmichael A, Farah R, Binti Abdul Rahman Z, Amjad H, sundaralingam K, Aumaro A
[1]Luton And Dunstable University Hospital

Background

In recent years, neonatal care has witnessed notable advancements in addressing respiratory distress syndrome (RDS) in preterm infants. Among these innovations, less invasive surfactant administration (LISA) has emerged as a promising strategy for delivering surfactant therapy to infants with RDS while minimizing reliance on endotracheal intubation and mechanical ventilation. LISA involves administering surfactant through a thin catheter inserted into the trachea under continuous positive airway pressure (CPAP), thereby mitigating the risk of volutrauma and barotrauma.

Aim:

This study seeks to raise awareness regarding the use of LISA and reduce reliance on invasive ventilation methods. Additionally, it aims to lower rates of chronic lung disease (CLD) and mortality, as evidenced by a literature review comparing LISA with other forms of surfactant administration.

Methods:

Prospective data collection over 14 months (November 2021 to January 2023) utilized Excel sheets. Infants were categorized into two groups: <28 weeks and >28 weeks gestational age, to assess the utilization of LISA in each category. Simulation scenarios were conducted with the neonatal team to ensure proficiency in LISA catheter usage and familiarity with managing sedated infants on CPAP. Posters and guidelines for LISA implementation were created, and both short-term and long-term outcomes were evaluated.

Results:

A total of 131 infants were audited over two cycles. The utilization of LISA increased from 5% initially to 33% in the >28 weeks gestational age group, while remaining around 13% in the <28 weeks group. Among infants <28 weeks, 81% who received LISA continued on non-invasive ventilation (NIV), with only 20% requiring intubation.

Conclusion:

The implementation of LISA significantly increased the utilization of NIV, particularly for infants >28 weeks gestational age. However, there remains room for improvement in infants <28 weeks. Recommendations after two cycles included allowing more time for stimulation at delivery and using higher positive end-expiratory pressure (PEEP).

Crafting a postnatal handbook has the potential to become your most enduring legacy.

Hatata A[1], Abouelnaga A, Roberts J, Ahmed A, Patel A, Patel D, Johal S, Thiyagarajah J
[1]Bedford Hospital

Background:

Ensuring effective postnatal care for newborns requires well-defined guidance and referral pathways within postnatal wards. These protocols are essential for promptly identifying and addressing neonatal issues, thus averting potential complications. However, the absence of standardized guidelines may result in inconsistent care delivery and delays in necessary interventions. Establishing specific guidance and referral pathways is crucial for optimizing neonatal care outcomes during this pivotal period.

Aim:

Our objectives were to develop a customised postnatal handbook for the hospital, serving as a comprehensive guide for managing common cases in the postnatal ward, and to establish clear referral pathways for both internal and external referrals.

Methods:

We conducted a survey to assess current practices and the sentiments of junior staff upon starting their rotations in the department. An enthusiastic team was assembled, with each member assigned topics for literature review and subsequent writing, followed by review against local policies and guidelines. Over a period of three months, the handbook was meticulously crafted, benefiting from input from junior doctors familiar with the operational dynamics of the postnatal ward.

Results:

The survey revealed the necessity to address 15 main topics, yet due to the team's enthusiasm, the handbook covered 32 topics. It was meticulously tailored to the hospital, featuring local contact details of specialists for easy consultation. The handbook's accessibility was enhanced by its compatibility with mobile and personal devices, as well as hospital drives. Presented at a clinical governance meeting, the handbook received approval and was subsequently integrated into the induction program for new departmental staff.

Conclusion:

By identifying the specific needs of the setting, incorporating diverse perspectives from team members, seeking input from frontline staff, and empowering junior staff to contribute, significant, unforeseen improvements can be achieved within the department.

Survey of oral feeding practices for infants receiving non-invasive respiratory support

Murphy R[1,2], Drey N[2], Cruice M[2]
[1]Kings College Hospital NHS Foundation Trust, [2]City, University of London

Introduction: Currently there is uncertainty regarding oral feeding on non-invasive respiratory support with no guidance to support clinicians with clinical decision-making. Several papers cite caution when considering oral feeding on nasal Continuous Positive Airway Pressure (nCPAP). However, there are no studies with objective data for oral feeding on High Flow Nasal Cannula (HFNC). The aim of this study is to investigate current practice, amongst health care professionals, when deciding to offer oral feeds to infants on nCPAP/HFNC.

Methods: A novel survey designed and conducted using the online platform Qualtrics. Purposive sampling was used to recruit participants via professional associations. Participants completed the 41-item survey which explored feeding practices for infants on nCPAP/HFNC. The survey included closed-choice and open-ended questions. Descriptive statistics, using SPSS software, were used to analyse quantitative findings. Qualitative analysis is ongoing.

Results: 103 responses were analysed. Regarding frequency of oral feeding on nCPAP, most respondents (45%) never did; 30% rarely fed; 21% sometimes fed; 3% often fed, and 1% always fed (n=73). Regarding HFNC, most respondents (48%) sometimes fed; 23% often fed; 1% always fed and 28% never or rarely fed (n=69). 58% of respondents followed no guidelines when making decisions regarding oral feeding on nCPAP/HFNC, and 42% did or had guidelines in development (n=83). Assessments tools were infrequently used (n=81). The most used tools were the Infant Driven Feeding Scale (13%), Neonatal Oral-Motor Assessment Scale (9%), Non-nutritive Sucking Scoring System (7%), Early Feeding Skills Assessment (6%) and the Neonatal Eating Assessment Tool (6%). 12% of respondents reported use of ‘other’ assessment tools and 10% reported using ‘no’ assessment tools.

Conclusion: More clinicians feed on HFNC than on nCPAP, and there is little use of formal assessment tools. Further research is recommended, including empirical studies using instrumental assessment of swallow safety, to guide clinicians with their decision-making.

Improving Neonatal Unicef Baby Friendly Initiative (BFI) in-house staff education across the West Midlands – a service development project.

Fox C, Causier J[2], Raiman C[3], Clarke S[4], Parnell K[5], Harris-Scanlon B[6], Olson V[7]
[1]West Midlands Perinatal Network, [2]West Midlands Perinatal Network, [3]West Midlands Perinatal Network, [4]West Midlands Perinatal Network, [5]West Midlands Perinatal Network, [6]West Midlands Perinatal Network, [7]Worcester Acute NHS Trust

Fox C[1], Causier J[1], Raiman C[1], Clarke S[1], Parnell K[1], Harris-Scanlon B[1], Olson V[2]

[1]West Midlands Perinatal Network, [2]Neonatal Unit, Worcester Acute Hospitals NHS Trust.

Background: BFI and Perinatal Network leads in the West Midlands identified significant challenges with access to high quality, standardised Neonatal BFI educational resources for in-house training. Releasing staff to attend training from clinical duties was also a barrier to progress through the accreditation process. Of 14 neonatal units in the West Midlands, only 2 had achieved full BFI accreditation.

Aims:

To standardise and improve the quality of staff BFI education resources.

To support and enhance progress though the accreditation process.

To provide improved breastmilk rates, outcomes and consistency of care for families across the West Midlands.

Methods:

A multidisciplinary group including the Neonatal Network Care Co-ordinators, Allied Health Professionals (AHP's) and Trust BFI leads co-produced a bespoke one- day neonatal specific training package for neonatal unit staff.

The presentations, videos and narrated sessions were compliant with mandatory BFI curriculum content reflecting Neonatal Network-wide and local care practices.

2 services worked collaboratively across the Local Maternity and Neonatal System (LMNS) footprint to deliver their education together where possible.

6 neonatal units trained over 400 staff using the new education package over a 12-month period.

Results:

Written feedback and user satisfaction with the quality and content of the resources was excellent and progress through to Stage 2 accreditation accelerated in all participating units. Staff audits will further assess the effectiveness of the training and will inform any amendments to the resources. This model could be replicated nationally to improve and standardise Neonatal BFI education.

Improving Optimal Antenatal Steroid Administration

Hixson T[1], Dey M[1], Perkins L[1], Cannell S[1], Najiya A[1], Davis E[1], Lee R[1], Sunasi R[1], Muxworthy H[1], Barry S[1]
[1]Singleton Hospital, Swansea Bay University Health Board

Background:
Evidence demonstrates the benefits of antenatal steroids for preterm babies born <34 weeks gestation are optimal between one to seven days before delivery, and national benchmarking standards have changed in 2022 to incorporate this evidence in national data collection. With a national shortage of Fetal Fibronectin testing, our quality improvement project looked at alternate interventions to improve rates of optimal antenatal steroid administration in Singleton Hospital, Swansea, with a focus on effective perinatal team working.

Methods:
Comparing practice with the new standard against the previous standard of receiving “any steroids” our performance had reduced. We formed a perinatal team to tackle this and through quality improvement methodology have designed and implemented two PDSA cycles.

Aim: Increase optimal antenatal steroid administration from 55% to 65% of mothers who give birth prematurely by September 2024.

PDSA 1: Perinatal staff awareness and education campaign.

PDSA 2: Standardising antenatal counselling. We created a parent information leaflet and simulated antenatal steroid counselling video to ensure a consistent message regarding antenatal steroids.

Outcome measure: percentage of premature babies born following optimally timed antenatal steroids. Data collected from electronic health records on a monthly basis from September 2022.

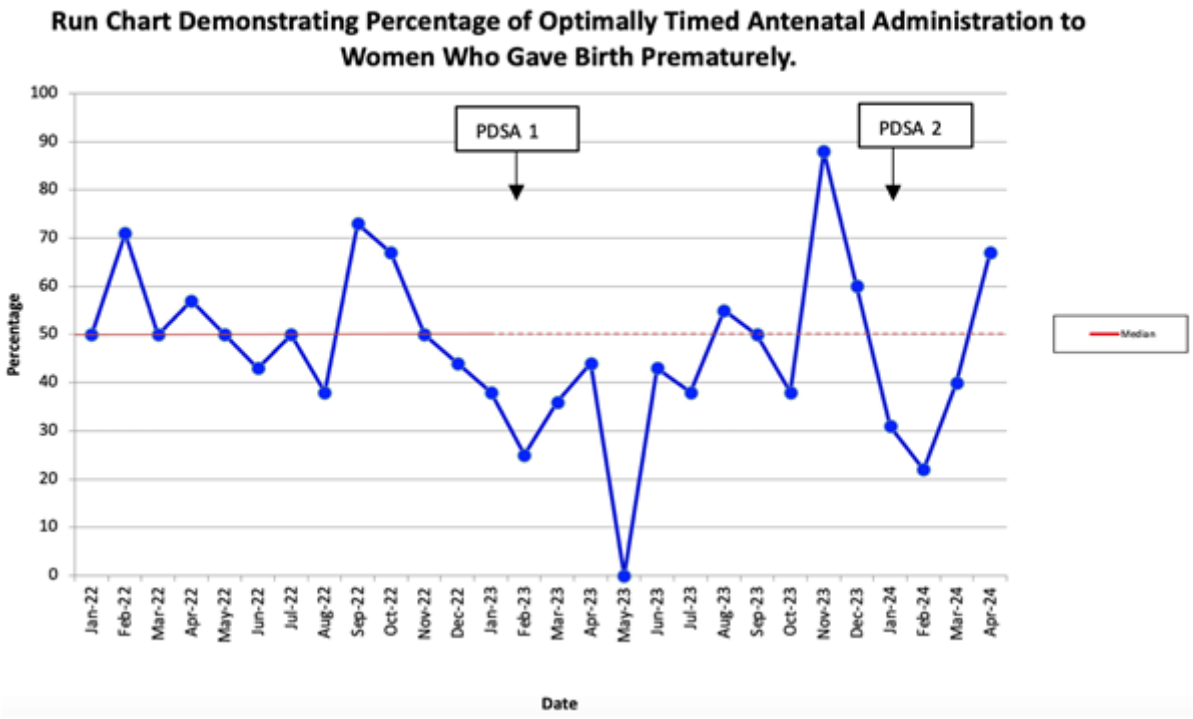
Results:
Graph 1 shows our rates of optimal antenatal steroid administration. We were able to produce short-term improvements after implementation of PDSA cycles. Our mean average following PDSA 2 remains at 55%.

Conclusion:
Improving antenatal steroid administration is a difficult task, with a multitude of factors effecting the ability to achieve optimal timing. We have yet to achieve sustained improvement. However, a valued outcome of this project has been improved perinatal team communication and decision making.

Our leaflet is being adapted for national implementation in Wales as part of PERIPrem Cymru, and a Welsh working group formed to evaluate set standards and implement nationally agreed quality improvement measures.

Graphs

Graph 1:


Run Chart Demonstrating Percentage of Optimally Timed Antenatal Administration to Women Who Gave Birth Prematurely.
PDSA 1
PDSA 2
Median
Percentage
Date
100
90
80
70
60
50
40
30
20
10
0
Jan-22
Feb-22
Mar-22
Apr-22
May-22
Jun-22
Jul-22
Aug-22
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Apr-24

The Introduction of Home phototherapy to Avoid Term Admissions and Facilitate Early Discharge, Keeping Families Together.

Underwood S[1], Gruitt R, Keeling D
[1]University Hospitals Plymouth Nhs Trust

Background

Almost 25% of community admissions are for jaundice[1]. Community referrals for jaundice are reviewed within our Transitional Care (TC) and if admitted for treatment, reduce patient flow from NICU and separate families. A retrospective audit from October 2021 – October 2022 identified the implementation of home phototherapy(HP) would potentially avoid 94 admissions, equivalent to 224 cot days, improving parental experience and reducing the financial burden for families[2]. UHP has a well-established Outreach and TC service with low rates of separation (Appendix 1). The project aimed to build upon this, in line with safety action 3 of the maternity incentive scheme[3].

Aims

- To provide phototherapy treatment to infants in an environment that best supports their developmental needs whilst keeping the family together.

- To optimise patient flow and reduce cot occupancy within the neonatal services at UHP.

Methods

A business plan was submitted to highlight the anticipated service benefits. Consequently, the outreach team was uplifted by 0.6 WTE.

The MDT produced a guideline to clarify the inclusion/exclusion criteria and socialised this through teaching.

A parental information leaflet was created as a source of reference.

Outreach collected data on each potential and actual infant eligible for home phototherapy, including feedback from families and carers.

Results

Over a 6 month period 25 infants received HP, saving 108 cot days.

76 SBRs were taken in the community, avoiding ward attendance to TC.

Parental feedback was overwhelmingly positive with no eligible families declining home phototherapy

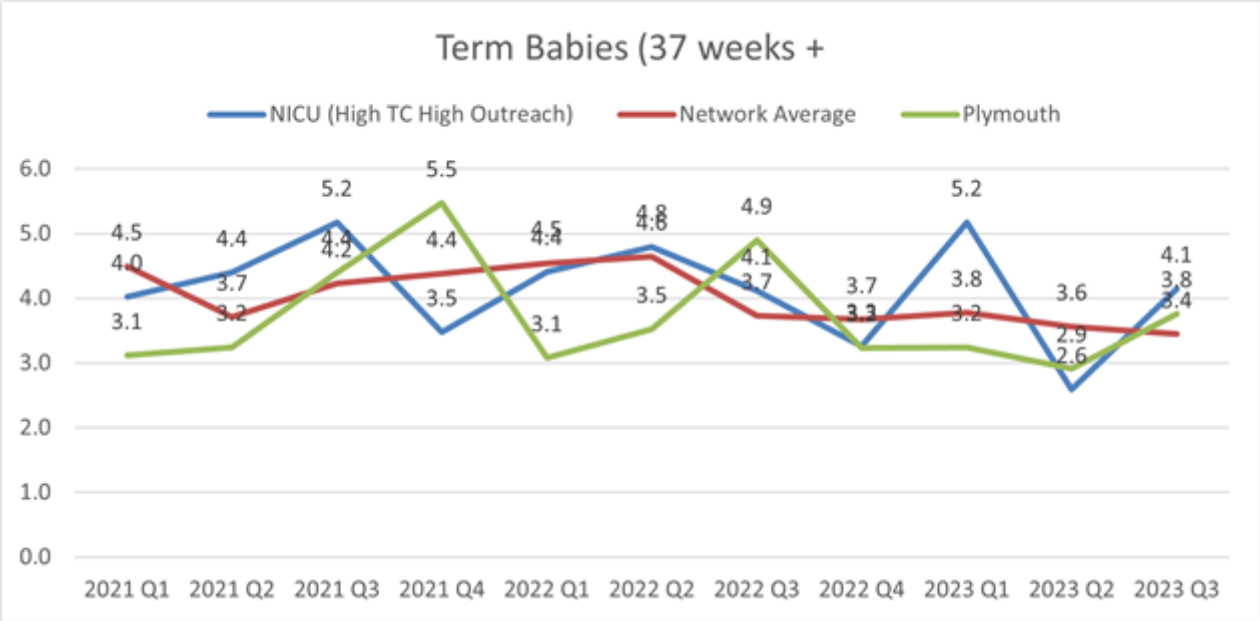
Conclusion

Parents have embraced the opportunity for home phototherapy.

Home phototherapy and SBR monitoring in the community avoids travel and admission to hospital, keeping families together.

The introduction of bilisticks will enable home assessment of SBR, improving efficiency of staff time.

Graphs


Term Babies (37 weeks +
NICU (High TC High Outreach)
Network Average
Plymouth
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2021 Q1
2021 Q2
2021 Q3
2021 Q4
2022 Q1
2022 Q2
2022 Q3
2022 Q4
2023 Q1
2023 Q2
2023 Q3

Use of Arabin Pessary for Treatment of Cervical Shortening on TVUS with cerclage already in-situ. A Case Series of 3 women.

Stevenson H[1], Hillman-Cooper C
[1]Worcestershire Royal Hospital

Background:

In women with cervical insufficiency on ultrasound several strategies have been suggested to reduce the risk of preterm birth. These include vaginal progesterone, cervical cerclage or vaginal pessaries such as the Arabin. There is little guidance for management of women with ongoing cervical shortening despite a cerclage. We present 3 cases of cervical shortening after a cerclage managed with an Arabin pessary.

Cases:
1. A primip undergoes McDonald rescue cerclage inserted at 20+2 weeks at 2-3cm dilated, following an incidental finding on Mid T scan. An Arabin pessary is then inserted at 23 weeks due to further cervical shortening of 22mm. It s removed due to antepartum haemorrhage at 29+2 gestation and a live baby delivered by Caesarean Section. Baby discharged home at 7 weeks.

2. Para 1 undergoes TVUS at 14+6 due to previous 18 week loss which shows a cervical length of 22-24mm. A McDonald suture is inserted but repeat scan at 16 weeks shows further shortening to 16-18mm. An Arabin pessary is inserted and pregnancy continues until delivery by Caesarean at 28+2 following PROM. Baby discharged home at 9 weeks.

3. Para 3 who had 3 previous spontaneous labours at 37, 36+4 and 36 weeks gestation. A scan for recurrent PV bleeding at 18+2 showed a cervical length of 15mm with funnelling, Fetal Fibronectin was 132 and a McDonald cerclage was inserted. Follow-up scan at 23+2 showed further cervical shortening to 12mm and an Arabin pessary was inserted. Delivered at 32+4 following spontaneous labour and baby discharged at 3 weeks.

Conclusion: There is minimal evidence or guidance for management of ongoing cervical shortening despite treatment with progesterone and cervical cerclage. These cases show the Arabin pessary can be used with success to prolong gestation in this subset of women.

Neonatal Cranial Ultrasound: Standardising Training Through E-learning

Jefferies K[1], Weddell J[1], Thyagarajan B[1]
[1]University Hospital Southampton NHS Foundation Trust

Background:
Cranial ultrasound is a valuable tool for evaluating term and preterm brain pathologies. In many units, the neonatal team perform most of these scans but clinician skill varies significantly because there is currently no standardised training scheme.

Aims:
- To respond to staff requests and create an e-learning package
- To review feedback and establish whether the package has met training needs and improved trainee knowledge and skill

Methods:
In May 2023, a feedback questionnaire distributed amongst the neonatal medical team in our tertiary level neonatal unit identified barriers to learning cranial ultrasound which included difficulties finding a convenient course (36.4%) and courses being too expensive (18.2%). 92% of respondents agreed they would use an interactive e-learning package. Recommended content included guidance on how to obtain standard views, identify normal variants, grade IVH and write a structured report.

Using these recommendations, four interactive modules and a post-course assessment were created, rigorously reviewed at governance, and published on the trusts e-learning platform, with free accessibility for employees. After successful completion of this package, five consultant supervised scans are required to complete basic training.

Results:
Feedback was obtained from users who completed the modules and assessment. Interim results revealed that most users rated their current skill level as “competent” (75%). All users rated modules 1-4 as either “useful or extremely useful” and found them easy to access. 100% of users reported that these modules had helped to improve their knowledge and understanding of cranial ultrasound and would recommend the package to their colleagues.

Conclusion:
This e-learning package has received positive feedback, improved trainee knowledge and is helping to standardise training and ensure high quality scanning and interpretation. At a regional level, a demo package received great interest with scope to widen its application across the Neonatal Network and potentially beyond.

Implementation of routine use of probiotics to prevent necrotising enterocolitis in high-risk preterm infants in neonatal unit of a DGH - A QI project

Jha S[1], Marholeva B[1], Akporiaye E[1], Reddy S[1]
[1]The Princess Alexandra Hospital Nhs Trust, [2]The Princess Alexandra Hospital Nhs Trust, [3]The Princess Alexandra Hospital Nhs Trust, [4]The Princess Alexandra Hospital Nhs Trust

Probiotics are gram positive, non-pathogenic and non-toxigenic live microbes which, when administered enterally, have shown to successfully colonise gut of preterm infants. Colonisation with these organisms (e.g. Lactobacillus and Bifidobacterium) is thought to protect gut from colonisation by more pathogenic species, reducing risk of LOS, severe NEC and death.

AIM: To review compliance with Trust guideline on routine use of probiotics to prevent NEC in high-risk preterm infants born at a level 2 neonatal unit of a DGH

METHOD:

- PDSA model used to implement guideline on probiotics in our neonatal unit (Image 1)
- Guideline was officially implemented on 21st September 2023 following which, a retrospective audit conducted on babies from 01/10/2023 to 31/03/2024 (6 months)
- Eligibility criteria:
  - Infants born at <32 weeks of gestation
  - Infants born between 32 to 36+6weeks AND <1.5 kg birth weight
  - All local births
- Total number of babies audited (n) = 15
- Data collection tool designed, data collected as per Caldicott principles and analysed.

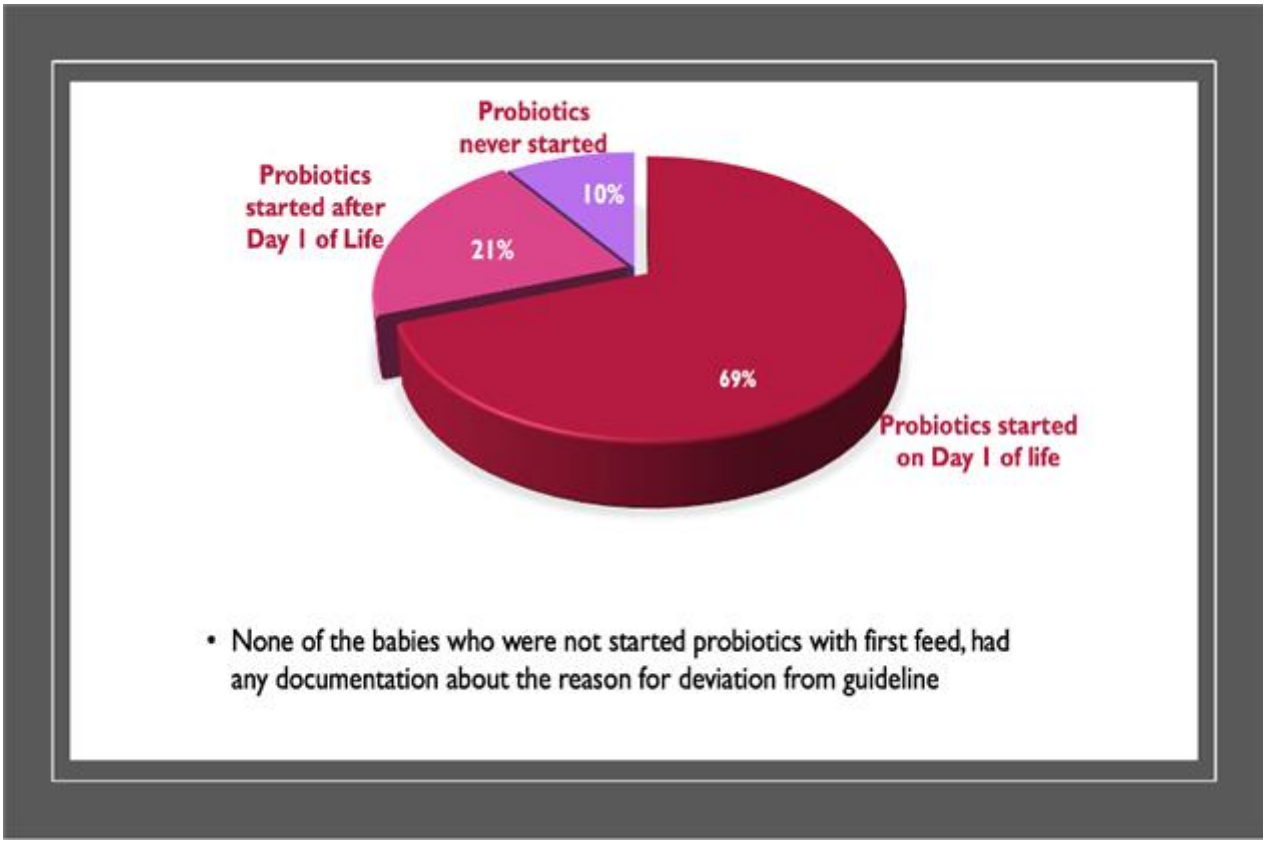
RESULTS:

- 69% of the babies were started on probiotics on Day 1 of life, 21% were started 48-72 hours after starting feeds, 10% were never started on probiotics (Graph 1)
- Parents of 61% babies received verbal/written information about probiotics. 39% did not receive any information. It was identified that parent information leaflet was not made available in NICU folder due to administrative delay in processing the leaflet's approval.
- 92.3% babies had probiotics stopped in line with Trust protocol.
- No cases of severe NEC/Sepsis/death after starting probiotics. None of the babies had culture positive sepsis or NEC prior to starting probiotics

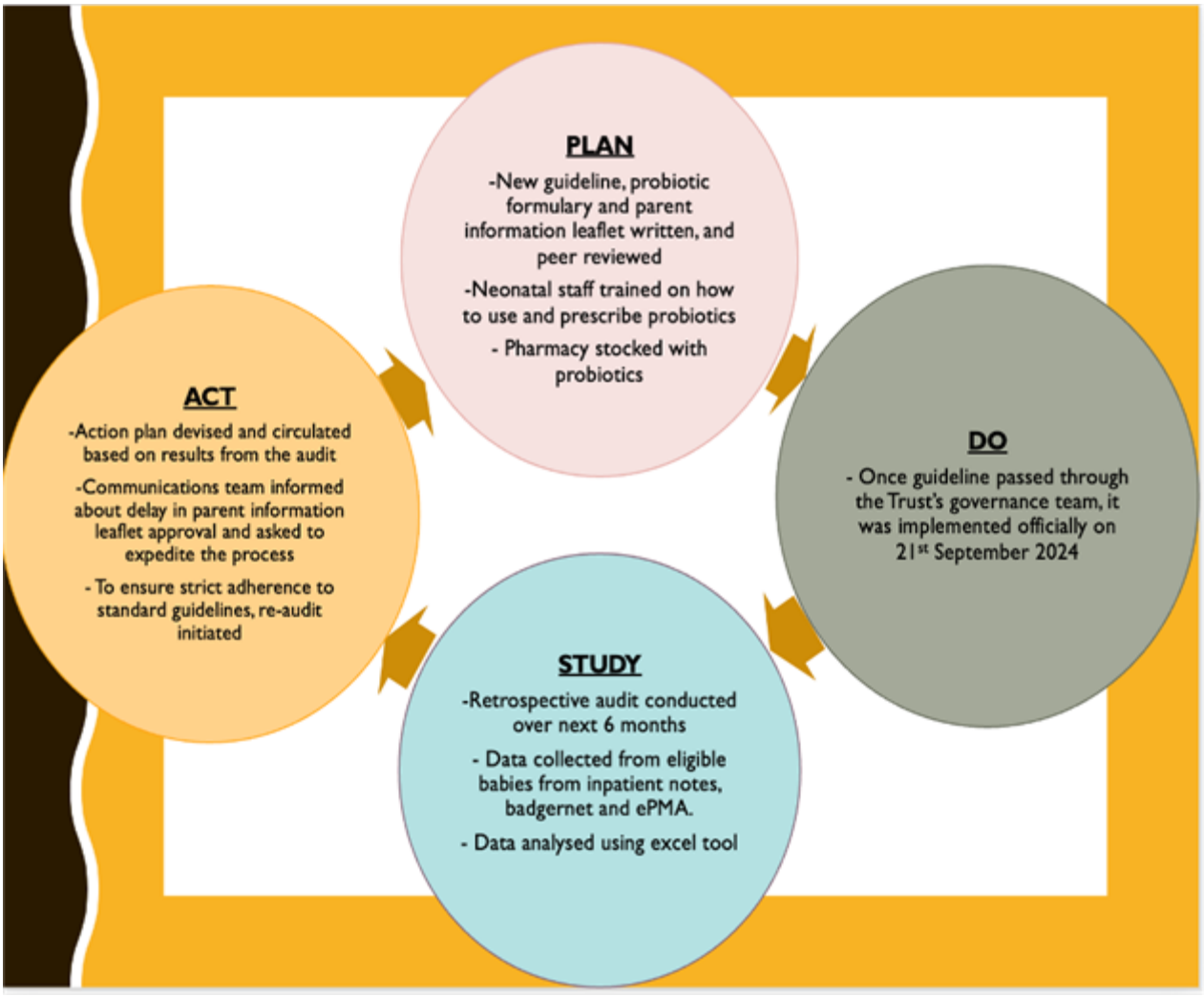
CONCLUSION:

Probiotics guideline is safely implemented and continues to be used in our neonatal unit. Re-audit is recommended after action plan is circulated, to ensure strict adherence to guidelines.

Graphs


Probiotics never started
10%
Probiotics started after Day 1 of Life
21%
69%
Probiotics started on Day 1 of life
• None of the babies who were not started probiotics with first feed, had any documentation about the reason for deviation from guideline

Image


PLAN
-New guideline, probiotic formulary and parent information leaflet written, and peer reviewed
-Neonatal staff trained on how to use and prescribe probiotics
- Pharmacy stocked with probiotics
DO
- Once guideline passed through the Trust's governance team, it was implemented officially on 21st September 2024
STUDY
-Retrospective audit conducted over next 6 months
- Data collected from eligible babies from inpatient notes, badgernet and ePMA.
- Data analysed using excel tool
ACT
-Action plan devised and circulated based on results from the audit
-Communications team informed about delay in parent information leaflet approval and asked to expedite the process
- To ensure strict adherence to standard guidelines, re-audit initiated

Disseminated High-Grade Undifferentiated Tumours – A Rare Cause of Fetal Hydrops

Sharma N, Tombling M[1], Wilson V
[1]University Hospital Plymouth, Derriford Hospital

Aim: To raise awareness regarding disseminated high-grade undifferentiated tumours as a rare cause of non-immune fetal hydrops.

Material and Method: This is a unique case of a 29+1 week preterm female infant who was born via an emergency caesarean due to maternal pre-eclampsia. She was born in an unexpectedly poor condition with undiagnosed fetal hydrops. There were no significant family history or antenatal concerns. She remained mysterious to the medical team throughout her length of stay and had a multi-organ dysfunction of unclear aetiology. This included refractory hypotension, hypoglycaemia, hyperbilirubinemia, hepatosplenomegaly, renal impairment, oedema, suspected infection, disseminated intravascular coagulopathy and profound thrombocytopenia. She remained challenging to oxygenate and ventilate and had a very suboptimal response to the various ongoing therapies. On day 10th of her life a multidisciplinary neonatal team following an agreement with the family reoriented her care and she died peacefully in the arms of her mother. It was concluded that further medical management was futile and was not in her best interest.

Results: She was extensively investigated for an over-riding diagnosis. Initial blood, imaging results, and genetic reports were inconclusive. Post-mortem examination identified disseminated high-grade, undifferentiated tumours affecting the skin, soft tissues, bone, and various other organs. There were confirmed fetal hydrops, hepatosplenomegaly, and cardiomegaly. Despite extensive testing, a precise underlying tumour type could not be identified but was likely a primitive tumour of epithelial origin.

Conclusions: Non-immune fetal hydrops is a complex condition with varied aetiologies. It carries a poor prognosis, especially when associated with the prematurity. This case depicts a rare cause of non-immune fetal hydrops with significant morbidity and mortality.

Keywords: Non-immune fetal hydrops, disseminated high-grade undifferentiated tumours, mortality, preterm

30

An investigation into a burn to the foot sustained by a baby during a capillary blood test.

Tyler G[1]
[1]Buckinghamshire Healthcare trust

Situation:
Following an incident which resulted in a baby sustaining a burn to it's heel during a routine capillary blood sample, it became evident that well-intended 'customary practices' have been adopted and adapted over time to warm the baby's heel prior to taking a heel prick sample, on this occasion a warm water filled surgical glove was used which caused a 1% mixed depth burn requiring regular dressings and hospital visits.

Background:
The World Health Organisation (WHO) recommends that the sides of the heel should be used to obtain small blood samples for newborn babies. A common belief is that there is better blood flow if the heel is warmed and therefore enables a faster sampling time, thus reducing pain and discomfort for the baby. The techniques used to obtain a sufficient sample are variable and a possible reason for this is that the procedure is taught by staff who tend to teach their own preferred method rather than following the most recent research-based guidelines.
The National Institute for Health and Care Excellence (NICE) guidance for taking capillary blood samples states that the baby should be warm and comfortable but warming of the foot is not required and highlights that this practice can result in scalds or burns
An eLearning for healthcare (eLfH) training video relating to capillary heel prick sampling recommends the use of a warmed surgical glove, this goes against National Guidance

Actions:
All staff at BHT were advised to stop using customary warming techniques with immediate effect. Ensure that National guidance is followed with regard to warming of the baby rather than specifically the heel by encouraging skin to skin contact prior to the procedure being carried out.

Recommendations:
Creation of a local SOP and sharing of incident.

Image

Improving Quality of Interpretation of Cerebral Function Monitoring in a tertiary neonatal unit

Koritena M, Kyu E, Shabaka D, Borooah M
[1]Birmingham Women's hospital

Background:
The utilization of brain electrical monitoring has significantly increased in cases of newborns with abnormal brain function. Interpretations of cerebral function monitoring are carried out by on-call staff with varying levels of expertise in interpretation. Many doctors and advanced nurse practitioners in our neonatal unit lack confidence in interpreting and reporting the brain electrical monitoring traces of infants, posing a safety risk.

Aim:
By the end of March 2024, the aim is for at least 50% of infants on cerebral function monitoring machines to receive a daily adequate and reported interpretation of their brain function monitoring traces.

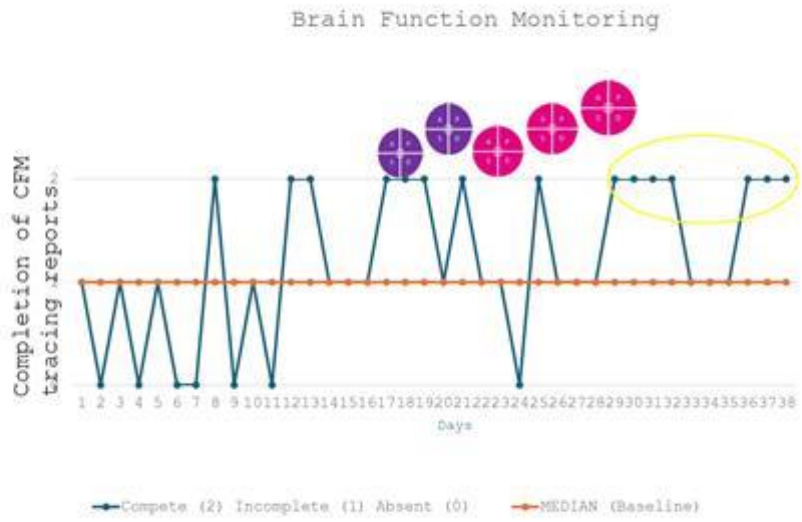
Measurement:
The number of days brain function monitoring traces are accurately interpreted and reported. Data is gathered from both the badger net and CFM machines before and after the implementation of the suggested modifications.

Proposed Changes:
Providing laminated cards illustrating how to report traces, implementing QR codes for machine operation instructions and basic interpretation knowledge, conducting bedside teaching on operating a brain function monitoring device, and administering surveys for feedback and quizzes to assess knowledge.

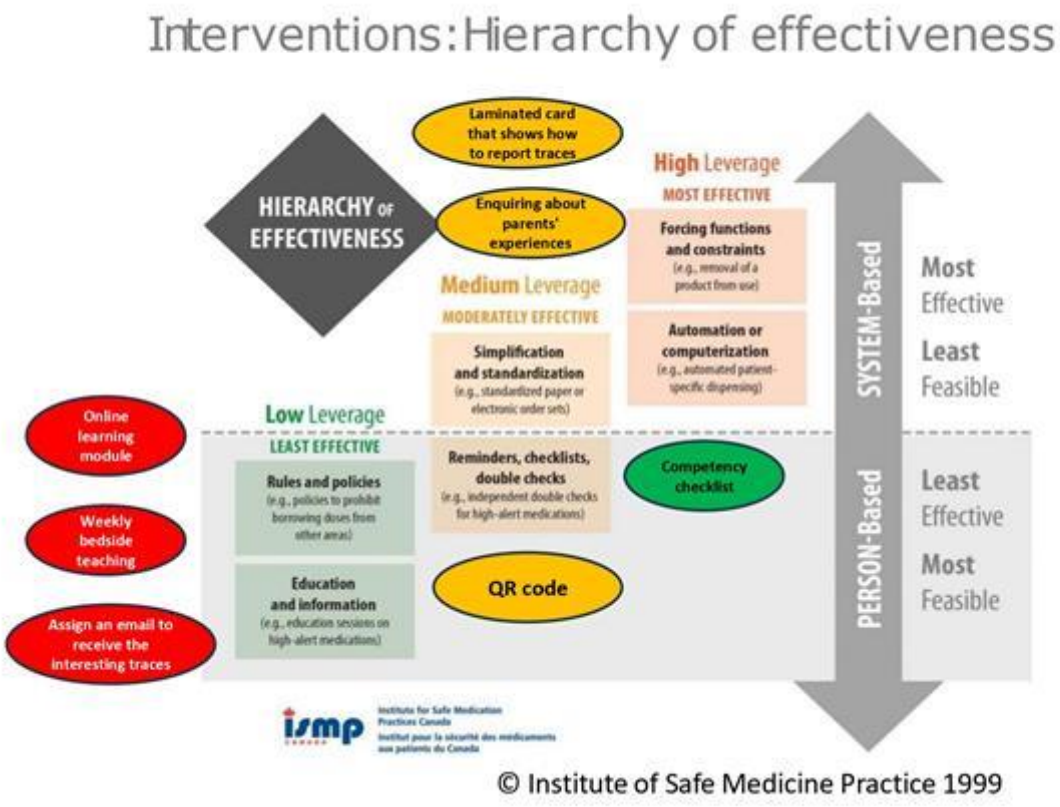
Results:
During the period from September 2023 to March 2024, a total of 38 days were dedicated to assessing infants undergoing cerebral function monitoring for a satisfactory and documented analysis of their brain function monitoring results. Following the implementation of recommended adjustments, the percentage of daily adequate and documented interpretations of brain function monitoring results rose from 18.7% to 54.5%. The run chart demonstrates a shift towards daily adequate and reported interpretations of brain function monitoring traces.

Conclusion & Reflection:
Confidence in dealing with brain function monitoring has improved, as reflected in the quality and quantity of CFM tracing reports. The next steps involve induction for new trainees and the development of a teaching module.

Graphs


Brain Function Monitoring
Completion of CFM tracing reports
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
Days
Compete (2) Incomplete (1) Absent (0)
MEDIAN (Baseline)

Image


Interventions: Hierarchy of effectiveness
HIERARCHY OF EFFECTIVENESS
Laminated card that shows how to report traces
Enquiring about parents' experiences
High Leverage
MOST EFFECTIVE
Forcing functions and constraints (e.g., removal of a product from use)
Automation or computerization (e.g., automated patient-specific dispensing)
Medium Leverage
MODERATELY EFFECTIVE
Simplification and standardization (e.g., standardized paper or electronic order sets)
Low Leverage
LEAST EFFECTIVE
Online learning module
Weekly bedside teaching
Assign an email to receive the interesting traces
Rules and policies (e.g., policies to prohibit borrowing doses from other areas)
Education and information (e.g., education sessions on high-alert medications)
Reminders, checklists, double checks (e.g., independent double checks for high-alert medications)
QR code
Competency checklist
SYSTEM-Based
PERSON-Based
Most Effective
Least Feasible
Least Effective
Most Feasible
ismp
Institute for Safe Medication Practices Canada
Institut pour la sécurité des médicaments aux patients du Canada
© Institute of Safe Medicine Practice 1999

STABILISATION OF EXTREME PRETERM INFANTS WITH NON-INVASIVE VENTILATION FROM BIRTH IS ASSOSCIATED WITH REDUCED INCDIENCE OF HAEMODYNAMICALLY SIGNIFICANT PDA - A RETROSPECTIVE REVIEW

Smith A[1], Foster E[1], Gowda H[1]
[1]Birmingham Heartlands Hospital

Background: Spontaneous Ductus Arteriosus closure is reduced in preterm infants due to immature physiology of the ductus tissue and its increased sensitivity to prostaglandins. PDA and BPD are common co-morbidities of multi-factorial, and presumed inter-related, aetiology.

Evidence and NICE guidance supports stabilisation of preterm infants at birth with non-invasive ventilation (NIV) and avoidance of mechanical ventilation (MV) to reduce BPD. Animal and post-mortem studies evidence pulmonary vascular remodelling, supporting an association between PDA and BPD, However, clinical studies remain limited and are fraught with limitations.

Aim: We postulate that stabilisation of extremely preterm infants with NIV from birth is associated with reduced rates of haemodynamically significant PDA (hsPDA).

Methods: A retrospective review of infants born 25+0/40 to 29+6/40 gestational age(GA) admitted to NICU between 1'June2021 to 30'Sept2023 (26 months) was performed. Demographics and outcome data were compared between infants stabilised with MV and infants stabilised with NIV from birth. Echocardiography was performed when indicated by clinical suspicion of hsPDA. Primary outcome was the incidence and treatment modality of hsPDA.

Results: 158 infants admitted during the study period were included; 82 were stabilised with MV versus 76 with NIV. Echocardiography was performed in 69 (84.1%) and 47 (61.8%) infants stabilised with MV and NIV respectively. Table1 shows PDA incidence and treatment modality.

Statistical analysis showed PDA incidence was significantly reduced in infants stabilised with NIV compared to MV (Chi-squared $p<0.001$). Stratified analysis indicates the association of PDA reduction with NIV stabilisation may be greater with increasing GA. Secondary outcomes (BPD, IVH, NEC and ROP incidence) also showed a statistically significant reduction associated with NIV stabilisation from birth.

Conclusion: Results demonstrate a statistically significant association between NIV stabilisation from birth and a reduced incidence of hsPDA in extreme preterm infants, providing further physiological reasoning to support NIV in reducing BPD.

Image

Table1. PDA incidence and treatment modality for preterm infants stabilised with Mechanical Ventilation (MV) compared to Non-invasive Ventilation (NIV)

	MV	NIV
Total, n (%)	82 (51.9)	76 (48.1)
Gestational Age: Mean (Range)	26.5 (25-30)	27.8 (25-29)
Birth Weight, g: Mean (Range)	900 (420-1460)	1082 (600-1666)
Echo Performed	69 (84.1)	47 (61.8)
PDA		
None	4 (4.9)	8 (10.5)
Small (<1.5mm)	16 (19.5)	11 (14.5)
Medium (1.5-2.5mm)	9 (11.9)	12 (15.8)
Large (>2.5mm)	40 (48.8)	16 (21.1)
Treatment Modality		
Medical	22 (26.8)	10 (13.2)
Surgical	3 (3.7)	0 (0)

Feasibility of implementing ultrasound to optimise neonatal central line position

Jefferies K[1], Rutherford K[1]
[1]University Hospital Southampton NHS Foundation Trust

Background

Umbilical venous catheters and long lines allow provision of life-saving treatment to neonates receiving intensive care. However, malposition can have devastating consequences, to include pericardial effusion, cardiac tamponade and extravasation injuries. Ultrasound has been increasingly used to confirm optimal line position, limit line manipulations, and minimize x-ray exposure.

Aims

- Initiate a pilot project to assess the feasibility of ultrasound guided central line insertion in our tertiary NNU
- Determine whether ultrasound can help optimise central line position and potentially reduce x-ray exposure (the units current gold standard).

Methods

A prospective study to evaluate the use of ultrasound during line insertion and post-insertion manipulation. In each case, the position on ultrasound was correlated with an x-ray to determine if ultrasound could replace x-ray in the future.
To facilitate this pilot project, a unit guideline was published, and trainees received education at induction and during practical bedside demonstrations.

Results

Interim results demonstrate that ultrasound is performed more frequently to assist post-insertion line manipulations (71%).
When used during the initial insertion, ultrasound confirmed the correct position in 100% of cases resulting in a single x-ray. This could potentially be eliminated in the future.
When used to guide post-insertion manipulation, ultrasound successfully correlated with subsequent x-ray findings in 80% of cases. In the remaining 20%, the line tip was visualised in the correct position on ultrasound but appeared either too low or too high on x-ray and required further manipulation whilst x-ray remains the gold standard.

Conclusion

It is feasible to introduce an ultrasound programme to optimise central line positioning. In the hands of highly skilled operators, ultrasound could minimise or even eliminate the need for x-ray exposure. However, clear guidelines and governance procedures alongside training and accreditation are essential. Limitations include accessibility to a suitable ultrasound machine and trainer availability.

How we can learn from our grown-up patients and their families – more than the lone conference speaker.

MacFadyen U[1]
[1]NHS Forth Valley

Background

Going beyond Family Integrated Care might mean identifying other healthcare professionals and support organisations that are key to the experience of parents through the pregnancy and perinatal period.

Method

Involvement of a neonatal paediatrician in a webinar initiated by SOFT UK, the support organisation for families affected by Trisomy 13 and 18, identified the needs of both parents and staff and specifically the potential greater involvement of the ultrasonographer performing an antenatal screening scan. Staff learning, wellbeing and professional practice were reported to be improved while volunteering parents have indicated that sharing their stories with healthcare providers can be a positive element in their lived experience irrespective or the outcome of the pregnancy.

TOFS is the support organisation for those born with oesophageal atresia/tracheoesophageal fistula and their parents/carers. Through their shared experiences the members have created resources for learning as the management of the condition has progressed and changed over time. The neonatal care includes both complex early surgery, often for premature infants, and prolonged medical intensive care. With improved survival the need for coordinated multi-disciplinary follow up and learning shared across specialties as well as Primary Care throughout childhood and adulthood is ever more important. To supplement their publications for families and professionals, TOFS has offered online Q&A events for members with invited speakers with specific interest in OA/TOFS. Such professionals are few in number and their presentations offer advanced learning opportunities for practitioners involved in the care of these, often complex, patients.

Conclusion

Respecting the voice of lived experience through active involvement in relevant support organisations and co-produced education resources can improve professional practice and ensure the relevance of the focus for research and care delivery.

References

https://tofs.org.uk/product/the-tof-book/

https://www.soft.org.uk/

Prophylactic Hydrocortisone (PH) Use in Preterm Babies: Seeking Consensus on a Standardised Approach for Wales

Cosgrove E[1], Burke K[1], Perkins L[1]
[1]Singleton Hospital

Introduction

In early 2023 there remained variation in PH use in <28 week gestation babies to improve survival without Bronchopulmonary Dysplasia(1) in Wales, and ongoing concerns regarding adverse effects(1,2). Prior to launching PERIPrem Cymru (Perinatal Excellence to Reduce Injury in Preterm birth, Cymru) a collaborative process was undertaken to agree a unified approach.

Methods

A case series review of babies receiving PH from October 2021 – 2022 in Singleton Hospital was undertaken, following concerns of increased Spontaneous Intestinal Perforation (SIP). This identified high rates of SIP and Late Onset Sepsis in high-risk babies <25 weeks gestation, resulting in discontinuation of routine PH use locally in December 2022.

PERIPrem Cymru drew on this experience and that of other centres in Wales, to inform a consensus process which included a national survey of neonatal professionals, meeting with Professor Olivier Baud (PremiLOC trial lead) and a well-attended consensus meeting, with representation from all Welsh tertiary NICU's and the Supra Regional Neonatal Intensive Care Centre (SuRNICC) in Wales, informed by international experts.

Conclusion

As a perinatal community in Wales, the decision was made to exclude PH use as standard for infants born <28 weeks gestation from PERIPrem Cymru. Rationale for this decision included:
-the PremiLOC trial population not being representative of the Welsh population in 2023.
-half of babies enrolled in the PremiLOC trial not randomised based on poor prognostic factors outside exclusion criteria.
-concerns regarding risk of SIP, and associated high mortality, in infants born <25 weeks gestation.

This did not prohibit use of PH as part of individualised care. Objections to the consensus decision were invited over a 3 week period (none submitted). PERIPrem Cymru launched as a 10-intervention bundle in March 2023 with the aim of reducing brain injury and improving survival for babies born <34 weeks gestation in Wales #PobBabiBobTro.

Graphs

References

1. Baud O, Maury L, Lebail F, Ramful D, El Moussawi F, Nicaise C, Zupan-Simunek V, Coursol A, Beuchée A, Bolot P, Andrini P, Mohamed D, Alberti C; PREMILOC trial study group. Effect of early low-dose hydrocortisone on survival without bronchopulmonary dysplasia in extremely preterm infants (PREMILOC): a double-blind, placebo-controlled, multicentre, randomised trial. Lancet. 2016 Apr 30;387(10030):1827-36. doi: 10.1016/S0140-6736(16)00202-6. Epub 2016 Feb 23. PMID: 26916176
2. Shaffer ML, Baud O, Lacaze-Masmonteil T, Peltoniemi OM, Bonsante F, Watterberg KL. Effect of Prophylaxis for Early Adrenal Insufficiency Using Low-Dose Hydrocortisone in Very Preterm Infants: An Individual Patient Data Meta-Analysis. J Pediatr. 2019 Apr;207:136-142.e5. doi: 10.1016/j.jpeds.2018.10.004. Epub 2018 Nov 8. PMID: 30416014.

Image

Table 1: 12 of the 29 infants receiving PH in Singleton Hospital between October 2021-2022 who had a positive blood culture in association with biochemical and clinical evidence of sepsis

Sex	Date & Time of birth	Gestational age	Birth Weight	Positive Blood Cultures - in association with biochemical and clinical evidence of sepsis	Date
F	06/09/2022 15:20	22	515	Staph Haemolyitis	13-Sep
				Staph Haemolyicis	14-Sep
				E Coli	11-Oct
				Staph Haemolyiticus	13-Oct
M	05/06/2022 12:38	24	600	Staph Epidermidis	09-Jun
				Staph Capitis	14-Aug
				Staph Capitis	02-Sep
				Staph Aureus	20-Oct
M	28/11/2021 12:02	24	700	Staph Hamolyticus	09-Dec
				Staph Haemolyticus	28-Dec
				Klebsiella	31-Dec
M	23/04/2022 17:08	24	800	Staph Aureus	08-Aug
				Staph Epidermidis	15-Aug
M	23/04/2022 17:11	24	700	Staph Warnerei	27-Apr
				Staph Capitis	13-May
				Staph Aureus	04-Jul
M	01/10/2022 07:07	25	830	E Coli	05-Oct
				E Coli	08-Oct
				E Coli	09-Oct
				E Coli	11-Oct
F	06/04/2022 19:16	25	775	Staph Capitis	25-Apr
				Staph Aureus	13-May
M	26/11/2021 06:40	25	700	Staph Aureus	29-Nov
				Enterobacter Cloçae	05-Dec
				Staph Haemolyticus	09-Dec
M	25/05/2022 00:51	25	480	Staph Capitis	30-May
				Klebsiella	18-Jun
				Klebsiella	20-Jun
				Klebsiella	22-Jun
				Klebsiella	25-Jun
				Klebsiella	27-Jun
F	11/11/2021 13:03	26	900	E Coli	18-Nov
M	14/03/2022 07:35	27	700	Staph Cap/Staph Epi	26-Mar
				Staph Haem/Staph Cap	27-Mar
				Staph Capitis	31-Mar
				Staph Aureus	15-Apr
M	19/03/2022 22:04	27	630	Enterobacter Cloçae	25-Mar
				Enterbacter Cl. / Staph Haem	26-Mar
				Staph Haemolyticus	27-Mar
				Staph Hamolyticus	30-Mar
				Staph Haemolyticis	06-Apr
				Staph Haemolyticis	15-Apr

The use of social media to create a support network for neonatal families.

Smith A[1]
[1]Hull University Teaching Hospitals

Background
The idea that social media can provide a platform for communities to grow without geographical and time barriers is swiftly becoming the new norm yet there are limited neonatal focussed social media pages. I wanted to improve the service we deliver by creating social media pages that allow families to feel their experiences are acknowledged whilst also providing accurate information in a more relevant and appealing way.

Method
Instagram and X pages were set up in April 2022. To engage users, posts were published 2-3 times per week. The posts would be informative but understandable to the lay person and cover monthly unit statistics, patient graduate stories, awareness days, meet the team and advertisement of unit/community group activities.

Results
The quantitative data has been really positive. When asked how does the page help you? Parents reported, “It helped us stay connected to something that was vital in our journey” and “Made me feel part of a community”. We invite parents to voluntarily share their neonatal journeys with user feedback saying “The sharing of other people’s stories makes me feel like I’m not alone and supported”.

The followings on both pages have grown steadily. In 2 years we have amassed 1811 followers on Instagram and 395 on X.

Discussion
We identified the lack of accessible information to a generation who frequently use social media for connection, information and support. We strongly felt we should be reaching them to ultimately improve their neonatal experience. There have been minimal challenges so far. I have been contacted several times from other trusts for advice on how they can improve the service they deliver using similar social media platforms.

Future plans include expanding our information delivery on platforms such as TikTok and YouTube.

Parent Accommodation on Neonatal Units in England

Parkin M[1]
[1]Bliss

Background: UK Neonatal services promote Family Integrated Care (FICare), emphasising partnership between families and staff. However, parents lack overnight accommodation options, leading to frequent separation. This is a considerable barrier to parents being partners in care. Our study led to three key recommendations for NHS England and the Government.

Methods: To assess parent accommodation facilities and barriers to improvement, we conducted a survey between November 2023 and January 2024, reaching 87% of neonatal units in England through Family Care Coordinators.

Results

- For every ten babies, only one bedroom is available for parents to stay overnight.
- 34% of units had nearby, but not in-unit, parent bedrooms.
- 56% had temporary beds like reclining armchairs or fold-out beds.
- Only 17% sometimes allowed siblings to stay overnight.

The primary barriers identified by Care Coordinators were:

- Lack of capital investment for building accommodation.
- Insufficient physical space on the unit and Trust estate.
- Limited space for temporary beds.

Care Coordinators' top priorities for improvement spending were:

- Capital funding for increasing unit space.
- Grants to upgrade facilities (laundry, kitchen, dining, counselling areas).
- Financial support for family expenses (meals, travel, parking).

Further comments highlighted that current accommodation standards are inadequate, risk assessments and eligibility criteria may exclude vulnerable families, and inconsistent Infection Prevention and Control guidance complicates furniture purchases. Additionally, 67% of respondents don't think their units can support increased parental presence with upcoming Neonatal Care Leave entitlements from April 2025.

Bliss recommends:

1. Updating guidance to reflect Family Integrated Care and holding Trusts accountable.
2. Developing a small grants program for immediate funding to improve neonatal environments.
3. Identify capital investment needed to meet minimum accommodation standards in the next Spending Review.

Conclusion: Overnight parent accommodation is crucial for FICare. Improvements require NHS England and Government commitment.

Staff who work together, train together: A multi professional approach to teaching on the Foundations in Neonatal Care Course within the West Midlands.

Randell L[1,2], Francis M[1,2], Evans D[1], Causier J[1], Parnell K[1], Raiman C[1]
[1]West Midlands Perinatal Network, [2]Keele University

Background:

- Increasingly neonatal care is being delivered by a multidisciplinary team including nursing, medical, allied health, psychological professionals and pharmacists. Educating this growing, diverse workforce presents an opportunity to bring together knowledge from a broad range of perspectives to develop a high quality, evidence-based, efficient and integrated approach to learning. The Neonatal Network Foundations in Neonatal Care (FINC) course is a well-established programme accredited by Keele University. Predating recent national reports, it was determined Allied Health Professionals (AHP) roles within neonatal units would require specialist post–graduate training. As a multidisciplinary network team (MDT) we made changes to the FINC course to accommodate this need and ensuring staff could access education that underpinned clinical skills and practice with concepts from developmental care, family integrated care, therapeutic approaches and psychologically informed neonatal care, in a bio-psycho-social framework. Over a 12-month period, the FINC course delivered education to:

-35 Nurses
- 3 Midwives
- 3 Registered Nurse Associates (RNA)
-10 AHPs across 13 hospitals within the West Midlands.

Aims:

- To fully integrate the bio-psycho-social framework throughout the FINC course.

Methods:

- Multi-professional faculty group including neonatal network educators, AHPs, psychologists and care coordinators
- Formulated case discussions were written by the MDT faculty, underpinned by psychologically informed, family integrated care, developmental care and clinical skills
- Case discussion scenarios were shared with students asynchronously
- Case discussion feedback was facilitated by an MDT approach
- Key learning points collected and shared with students post session

Results:

Written feedback and user satisfaction about the quality and content of the case discussions indicated they were well received by the students. Constructed reflections were given to help develop this approach for future iterations.

Conclusion:

Continued evaluations will take place to further support this approach's development.

A Mixed Methods Study of Neonatologists' Views on Challenges and Optimisation of Surgical Decision Making in Necrotising Enterocolitis (NEC)

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[1]University Surgery Unit, Faculty of Medicine, University of Southampton. , [2]Neonatal medicine, Faculty of Medicine, Imperial College London., [3]School of Health Sciences, University of Southampton.

Background
The decision to undertake surgery or continue medical management in NEC is often challenging. These challenges may lead to delays in undertaking surgery and be a barrier to improving clinical outcomes. We aimed to understand views around surgical decision-making in NEC, why it is challenging and what is required to optimise this.

Methods
Three semi-structured in-person focus groups with 22 consultant participants (7 neonatologists, 15 neonatal surgeons) were undertaken with inductive thematic analysis of transcripts. These informed national survey of consultant neonatologists working in surgical units and neonatal surgeons, exploring surgical decision-making in NEC. Survey analysis was both quantitative and qualitative. Funding: NIHR doctoral fellowship (NIHR302541); ethical approval: University of Southampton (ref:80973).

Results
Focus group analysis allowed generation of four themes relating to challenges, and five themes relating to optimisation, of surgical decision-making (table).

There were 115 survey responses; 67 neonatologists, 48 surgeons. Amongst neonatologists, the most commonly regarded absolute indication for surgery was pneumoperitoneum (76%) followed by abdominal distension causing ventilatory failure (24%). Overall, 33% felt that earlier surgery is likely to be beneficial in NEC however most were uncertain. Reasons expressed that it might not be useful include lack of evidence, risk of harm and difficulty identifying diseased bowel. Regarding timing of surgery for NEC, 71% felt that it currently takes place at the right time, 3% too early in the disease course and 26% too late.

Conclusions
We have identified specific themes that illuminate the difficulties experienced by neonatologists and surgeons. Both specialties would welcome changes to current practice including standardised transfer criteria for babies with NEC and greater objectivity around several aspects of surgical decision-making. Better evidence is needed surrounding timing and benefits of surgery in NEC. This knowledge may inform future research and systems change to ultimately facilitate early and accurate decision-making.

Graphs

What are the challenges?	How to optimise these?
(i) uncertainty of NEC diagnosis	(i) desire for a simple and objective decision aid
(ii) absence of objective criteria for surgery including limitations of current investigations	(ii) need for reduced variability in practice with promotion of a multidisciplinary approach
(iii) uncertainty of optimal timing of referral and transfer of infants	(iii) development of criteria for both transfer to surgical centres and referral to surgeons
(iv) uncertainty of requirement for and the benefits of surgery	(iv) expression of willingness to change practice
	(v) anticipated barriers to change of practice

Table – focus group themes highlighting challenges of decision making in NEC and what is required to optimise these.

Point of care ultrasound for umbilical venous Catheter InSertION (PRECISION)- A Regional Quality Improvement Project

Rajaraman N, Foster E[1], van Hasselt T[2], Singh A[3], Gowda H[1], Paediatric Research Across the Midlands Collaborative P[1,2,3,4]
[1]University Hospitals Birmingham Nhs Trust, [2]University of Leicester, [3]Birmingham Women's and Children's Hospital NHS Trust , [4]University of North Midlands NHS Trust
Background

Point of care ultrasound (POCUS) is an emerging evidence-based tool in Neonatology for evaluating umbilical venous catheter (UVC) placement. It enhances accuracy, reducing malpositions, manipulations, and radiation exposure compared to radiographs. Our QIP aims to implement routine POCUS as an adjunct for UVC insertion and tip position evaluation across NICUs within our region.

Methods

In our first phase, we analysed a baby's UVC placement journey through process mapping to define the problem (Diagram 1). We retrospectively collected data from records of neonates admitted to four regional NICUs between 1st January 2022 and 31st December 2022, who required UVC insertion, to understand the incidence of malpositions, manipulations and number of X-rays required, before implementing UVC POCUS. We engaged stakeholders and initiated local and regional UVC POCUS training.

Results

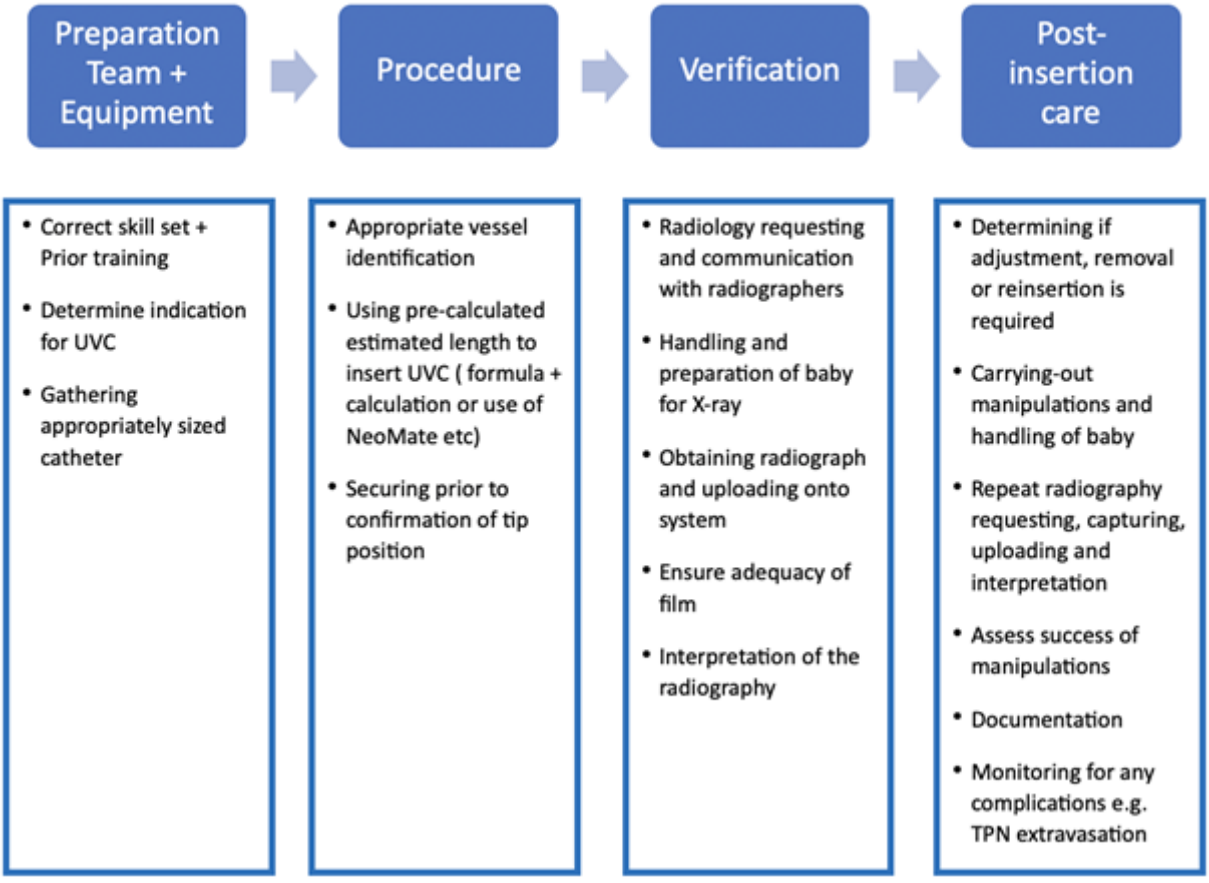
During the study period, 290 neonates required UVC insertions for various indications: prematurity (n=176,60.6%), cardiovascular and haemodynamic issues (n=58,20%), access and monitoring (n=22,7.6%), respiratory issues (n=21,7.2%), and metabolic congenital issues (n=13,4.4%). Only 60 (20.6%) had the UVC tip appropriately positioned according to BAPM recommendations, on the first X-ray. The remaining catheters were positioned in the heart (95/230,41.3%), liver (40/230,17.3%), low-lying (80/230,34.7%), UAC (6/230,2.6%), or other unacceptable positions (9/230,3.9%). Among those with unsatisfactory positions, 136 required adjustments (range 1 to 5, mean=0.8), and 26 required re-insertions. The number of X-rays needed to confirm UVC tip position ranged from 1 to 6 per patient (mean=1.9). Of the neonates with initially unsatisfactory UVC tip positions, 89(38.7%) required alternate access within 24 hours, including long-line (59/89,66.3%), peripheral venous cannula (29/89,32.5%) or UAC for infusion (2/89,2.2%).

Conclusions

Our data highlights the need for a more efficient, evidence-based approach to UVC insertion using POCUS to reduce handling and radiation exposure. We are implementing UVC POCUS across regional NICUs and will conduct Plan-Do-Study-Act cycles to monitor progress and improvement.

Image

Diagram 1- Process mapping to define problem



The INTERGROWTH-21st app: facilitating the follow-up of preterm infants at birth and postnatally.

Villar De Onis J[1], Fernandes M[1,2], Winsey A[3], Younger A[3], Miyazaki Sankar R[3], Villar J[3], Kenendy S[1,3], Papageorghiou A[1,3]
[1]Oxford Maternal and Perinatal Health Institute, [2]Department of Pediatrics, University of Oxford, [3]Nuffield Department of Women's and Reproductive Health, University of Oxford

Background: In 2014, the Oxford Maternal and Perinatal Health Institute, published the first prescriptive, international standards for the growth monitoring of preterm infants. The construction of the standards replicated WHO's Multicentre Growth Reference Study's methodology, which led to the publication of the WHO Child Growth Standards. The INTERGROWTH-21st preterm postnatal growth standards merge seamlessly with the WHO Child Growth standards at 64 weeks postmenstrual age. An increasing number of NHS Trusts and health care facilities around the world have been implementing the INTERGROWTH-21st standards into their clinical practice.

Methods: Following feedback from collaborating centers in Uruguay, Argentina and Italy, our team created a mobile-device based application to facilitate the use of the standards. The tool consists of a free of use app available on iOS and android devices, on phones, tablets, and computers. Healthcare providers can plot the length, weight and head circumference of newborns (born from 24 until week 43 gestational age), within 24 hours of birth, to assess size at birth. They are then able to follow-up with growth assessments for the preterm infants (until age 64 weeks postmenstrual age). Charts with patient information can be downloaded to join to paper files or integrated into computer-based systems.

Results: The app was launched on March 10th and has a total of 1364 active downloads as of August 22nd, 2024, originating from 51 countries. Argentina, Brazil, and Mexico have some of the largest number of downloads, as the app is being used across hospitals in those countries.

	iOS	Google Play	Total
Total downloads	993	371	1364
Brazil	324	77	401
Mexico	147	61	208
Italy	65	14	79
Russia	69	25	94
United Kingdom	52	7	59
Argentina	59	44	103

The standards are also used in electronic patient record systems, ultrasound and picture archiving and communication systems as well as other apps.

Graphs

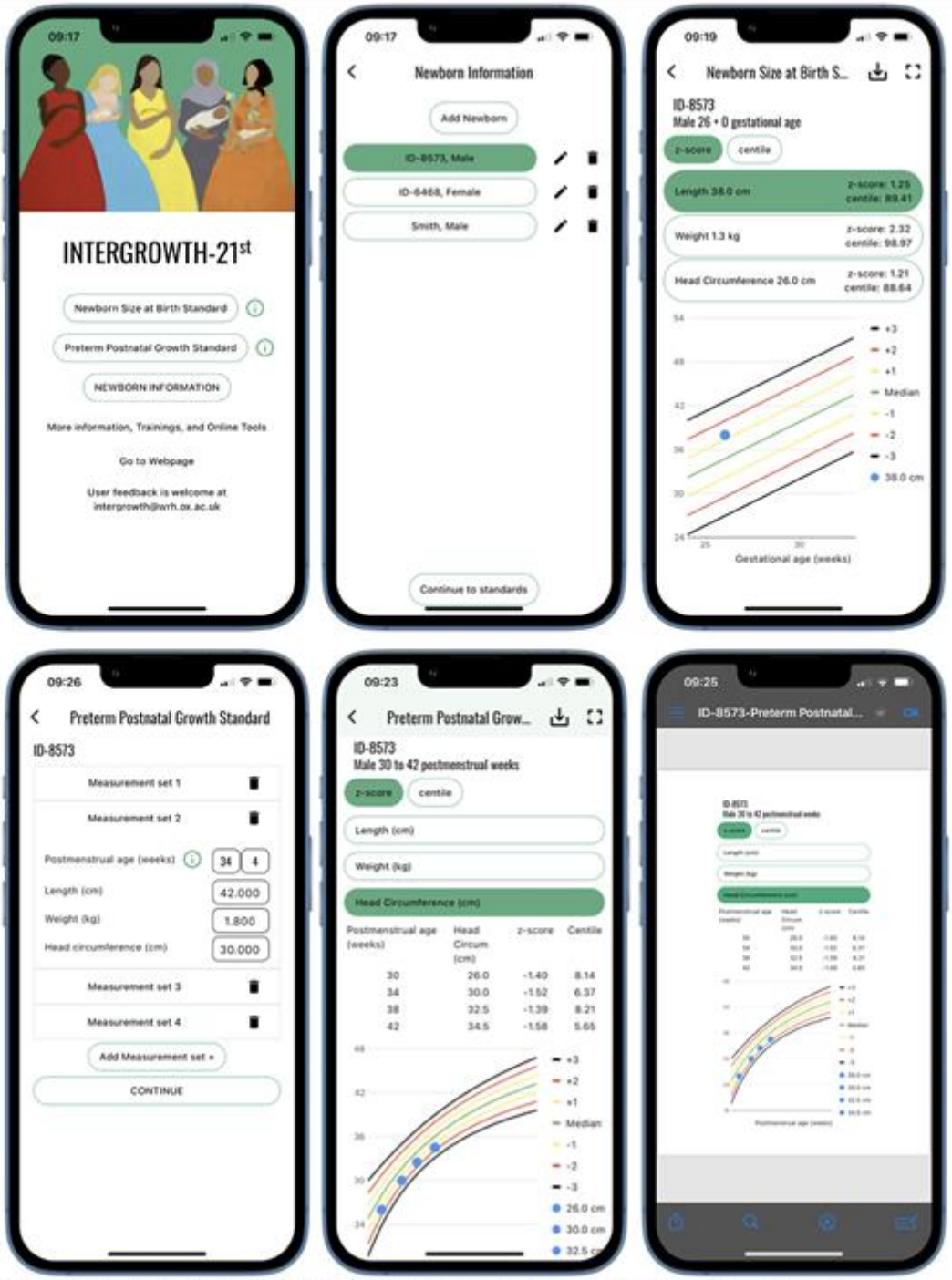


Figure 1. Different steps of usage for the INTERGROWTH-21st app. Users can select the standard, select their patient, plot the patient's length, weight, and head circumference, and download the charts.

Building ANNP Collaboration Across a Region

Anders N[1]
[1]NWNODN

Background

Advanced Neonatal Nurse Practitioners (ANNPs) are a valuable, stable, autonomous workforce. This group are fundamental to providing high quality, safe neonatal care. Restrictions such as: time, funding, lack of recognition and focus around how to progress can often hinder ANNP development. The Neonatal Operational Delivery Network have recognised the growing need to support and develop the expanding ANNP workforce in the North-West (NW).

Aims

- Engage NW ANNPs.
- Provide NW ANNPs with the opportunity to work collaboratively with peers, contribute to quality improvement and improve wellbeing, whilst ensuring compliance to the Advanced Practice Framework.

Method

- Collate workforce data and contacts for 132 NW ANNPs.
- Share questionnaire to explore ANNP experience and expectations.
- Face to Face Study Day for ANNPs.
- Develop regional ANNP forum.

Results

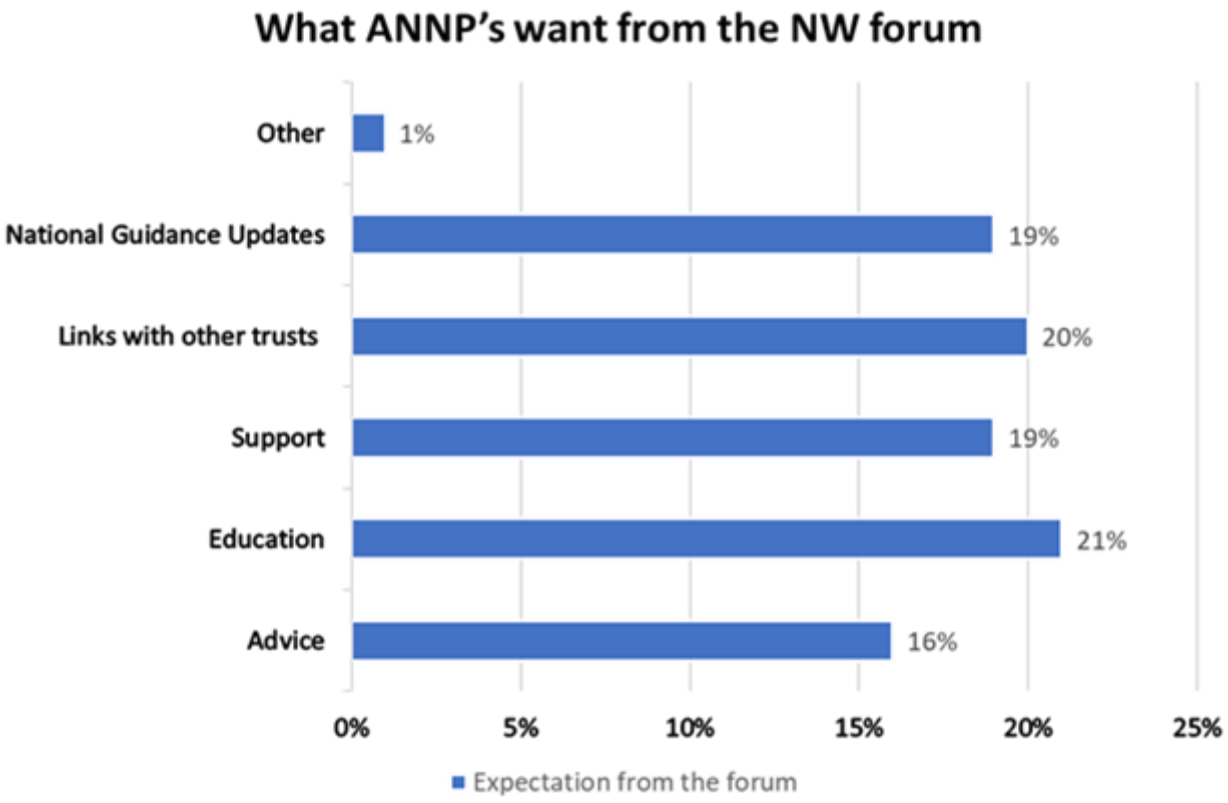
To date the NW ANNP Forum has:

- Surveyed ANNPs in the region to understand their experience, learning requirements, and expectations of the regional forum.
  - 45 responses concluded that they would benefit from advice, education, updates on national guidance, links with other trusts and peer support.
- Hosted a face to face conference for the NW ANNP Forum covering the 4 pillars of advanced practice. Attended by 97 out of 132 ANNP's (including trainees).
- Commenced quarterly webinars including topics such as antenatal counselling, probiotics, critically appraising articles, how to run a journal club, Allied Health Professional roles, and mindfulness for wellbeing. The three webinars were attended by 40, 7 and 11 ANNPs.
- Developed an MS Teams channel to encourage ANNP communication. Including access to development opportunities, national guidelines, QIP projects and presentations.

Conclusion

Whilst we have engaged ANNP's across the NWNODN collaboratively, further work needs to understand how to support CPD opportunities and progression within ANNP roles to maintain motivation and well-being, or retention may become difficult.

Graphs


What ANNP's want from the NW forum
Other
1%
National Guidance Updates
19%
Links with other trusts
20%
Support
19%
Education
21%
Advice
16%
0%
5%
10%
15%
20%
25%
Expectation from the forum

Evaluating the use of continuous vancomycin infusions in a tertiary neonatal unit.

Leszkiewicz K[2], Howells A[1], Alsabagh N[3], Bharania B[4], Crook J[5], Pasztorikova P[6], Arasu A[7]
[1]Lewisham Nhs Trust, [2]Kings College Hospital NHS Foundation Trust, [3]Kings College Hospital NHS Foundation Trust, [4]Kings College Hospital NHS Foundation Trust, [5]Kings College Hospital NHS Foundation Trust, [6]Kings College Hospital NHS Foundation Trust, [7]Kings College Hospital NHS Foundation Trust

Introduction

Continuous intravenous vancomycin (CIV) infusions have advantages over intermittent regimens including achieving therapeutic levels with fewer dose adjustments, flexibility of drug-level sampling and good safety profiles [1 2 3 4].

Our tertiary NICU introduced a CIV regimen in July 2022. This multi-disciplinary project assesses the new regimen by analysing drug levels, prescribing practices, microbiology and staff opinion.

Methods

Cases of CIV with complete records July 2022 - March 2023 were included.

Information on drug levels and positive microbiology was retrieved from our electronic record system and information on prescribing practices from paper infusion charts. A survey of staff opinion was completed by ITU/HDU nurses.

Analysis was performed in Excel using descriptive statistics for quantitative data (continuous: median (interquartile range), ordinal: number (percentage)). Qualitative data was presented as a pie chart (Likert scale) and themes.

Results

This project reviewed 83 cases of CIV in 43 neonates. The majority were in premature neonates but 47/83 (57%) had reached term-corrected at the time of administration (Table 1).

Drug Levels:

The average time to reach first therapeutic level was 26 hours (24 – 51.3).

46/791 (6%) levels taken were supratherapeutic (1/46 (2%) were associated with deranged renal function) and 121/791 (15%) were subtherapeutic (Table 1).

Microbiology:

15/83 (18%) cases had positive blood/CSF cultures. The average time to achieve a subsequent negative culture was 10.5 hours (4 – 17.5) (Table 1).

Prescribing:

Loading dose was prescribed correctly in 70/83 (84%) cases, maintenance dose in 72/83 (87%) cases and dose amendment in 52/83 (63%) cases (Table 1).

Staff Opinion:

50/52 (96%) of nurses preferred the CIV. Common reasons were more timely administration of doses, more stable levels, and ease of preparation.

Conclusions:

The introduction of a CIV regimen resulted in good prescribing accuracy, drug levels within therapeutic range and was positively received by nursing staff.

Image

	Clinical feature	Gestation *(weeks+days)*	n(%)	median (hours)	IQR (hours)
	Gestation at birth	<24	8 (10)		
		24-25+6	10 (12)		
		26 - 27+6	16 (19)		
		28 - 29+6	21 (25)		
		30 - 33+6	6 (7)		
		34 - 36+6	11 (13)		
		37 and above	11 (13)		
	Duration (days)				
	<7		36 (43)		
	7 to 14		29 (35)		
	>14		18 (22)		
Drug Levels	**Time to 1st therapeutic level**			26	24 - 51.3
	Cases with out of range levels				
	High	*24 - 27 +6*	3 (3)		
		28 - 33+6	13 (16)		
		34 - 36+6	6 (7)		
		37 and above	11 (13)		
	Low	*24 - 27 +6*	3 (3)		
		28 - 33+6	24 (29)		
		34 - 36+6	12 (14)		
		37 and above	36 (43)		
	Total high levels		46 (6*)		
	High levels associated with deranged renal function		1 (2)		
	Total low levels		121 (15*)		
	Time to resolve $				
	High level			24.8	16.6 - 29.5
	Low level			27.5	24.6 - 32.0
	Late/missed levels		64 (8*)		
Microbiology	Positive blood/CSF culture		15 (18)		
	Time to negative from therapeutic level			12	4 - 17.5
Prescribing	Correct Loading Dose		70 (84)		
	Correct Maintanence		72 (87)		
	Correct rate amendment		52 (63)		

*Table 1: Gestation at birth, duration of CIV, drug levels, microbiology outcomes and prescribing practices. Please note gestation listed for drug level data is gestation at which infant received CIV. * percentage calculated using estimate of total number of drug levels taken throughout all courses of CIV (estimated 791). $ time to resolve is considered to be time at which a low level was then above 15mmol/L and a high level was then below 25 mmol/L.*

Can pre-operative SNAPPE II scores predict mortality in newborns with surgical NEC?

Shah Z[1], Crankshaw D[2], Penman G[2]
[1]Division of Medical Education, University of Manchester, [2]St Marys Hospital

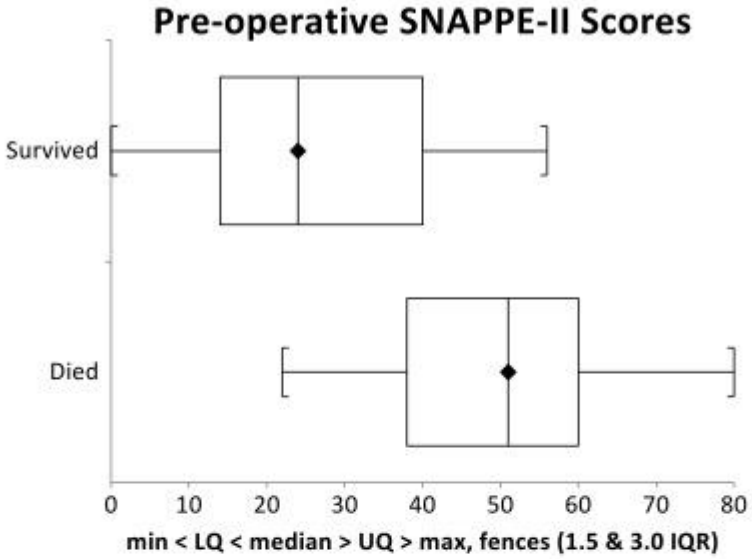
Background - Necrotising enterocolitis (NEC) affects 7% of very-low birth weight infants. It has a 23% mortality overall which increases to 50% in those needing surgery. Surgical intervention certainly improves outcomes in some patients, but with such a high mortality understanding who is likely to survive could help in deciding whether to operate. SNAPPE-II scores are a structured approach to assessing physiological status validated for predicting mortality in preterm infants. We investigated the scores' ability to do so in newborns with surgical NEC.

Methods - Patients at St. Mary's neonatal unit in Manchester with NEC between the 1st of January 2021 to the 31st of December 2023 were retrospectively identified on the BadgerNet system. Those for whom surgery was indicated were identified by reviewing the discharge summary and electronic patient records. SNAPPE-II scores were calculated based on data in the 12 hours prior to their operation or decision not to operate, as well as survival to discharge. The scores' ability to predict outcome was tested by comparing scores in survivors and non-survivors, and using receiver operator characteristic curves to assess their ability to predict outcome.

Results - 44 patients were included of whom 38 had a surgical intervention. 58% of this cohort survived. SNAPPE-II scores were significantly lower in survivors (24 vs 51, $p < 0.0001$), and predicted mortality with an area under the curve of 0.83 (95% confidence interval 0.72 to 0.95). Exclusion of those not operated on did not affect the findings. Mean blood pressure and 5 minute APGAR scores were significantly higher in survivors, whereas gestation was not.

Conclusion - Our retrospective observational cohort study shows that SNAPPE-II scores can reliably predict survival in patients who require surgery for NEC. We suggest further work is completed with a larger number of patients.

Graphs


Pre-operative SNAPPE-II Scores
Survived
Died
0
10
20
30
40
50
60
70
80
min < LQ < median > UQ > max, fences (1.5 & 3.0 IQR)

Counting the cost of medicines on the neonatal unit

Wyllie T[1]
[1]University Hospital of Wales

Background
Annual medication spend is second only to staff costs in the overall NHS budget. Neonatal care is expensive and the cost of drugs contributes significantly to this cost. Initiatives such as prudent or value-based healthcare aim to encourage best use of resources. Efficient use of resources requires an awareness of the cost of those resources.

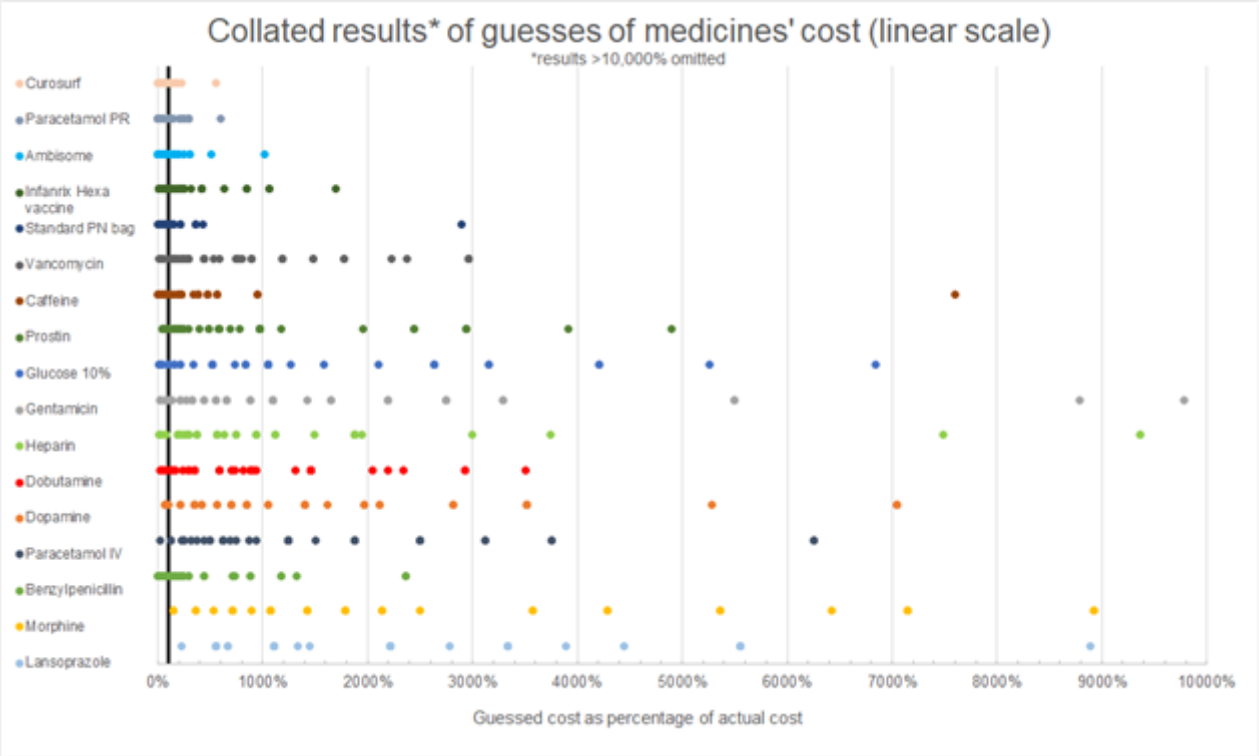
Aim
This project explores the views and knowledge of healthcare professionals (HCPs) about the price of the medicines they prescribe and/or administer.

Methods
Nurses, doctors & ANNPs on a tertiary neonatal unit were invited to complete a survey to explore their views regarding the cost of medicines. The second part of the survey asked respondents to estimate the cost of 17 different medicines in routine use on the unit.

Results
45 HCPs responded (25 nurses, 19 doctors, 2 ANNPs) with a broad range of experience within neonatology. 53% of respondents said that the cost of medicines should be a factor in prescribing decisions and 40% thought that it was 'important' or 'very important' to know the cost of medicines prescribed. However, when asked if they knew the cost of the medicines they used HCPs self-reported low knowledge (mean 1.8 out of 5; range 1-3). This was borne out by the results of the test. Estimations of cost varied between 1.5% and >70,000% of the true monetary value. 70% of all answers overestimated the price of the medicine.

Conclusions
While prescribing decisions should not be based on cost alone, an awareness of the cost of medicines would influence decisions between equivalent treatments or deprescribing. Many HCPs believed the cost of medicines should be a factor in prescribing decisions, however this study reveals a lack of awareness of medication prices. This presents a significant challenge to educate HCPs about the cost of medicines in common use.

Graphs


Collated results* of guesses of medicines' cost (linear scale)
*results >10,000% omitted
Curosurf
Paracetamol PR
Ambisome
Infanrix Hexa vaccine
Standard PN bag
Vancomycin
Caffeine
Prostin
Glucose 10%
Gentamicin
Heparin
Dobutamine
Dopamine
Paracetamol IV
Benzylpenicillin
Morphine
Lansoprazole
0%
1000%
2000%
3000%
4000%
5000%
6000%
7000%
8000%
9000%
10000%
Guessed cost as percentage of actual cost

Severe hypocalcaemia and hypomagnesaemia in a neonate following maternal cinacalcet therapy

Wyllie T[1], Odd D[2]
[1]University Hospital of Wales, [2]Cardiff University

Case summary

A baby boy weighing 2kg was born at 34+3 weeks gestation due to maternal chronic hypertension. Mother had a medical history including two renal transplants and hyperparathyroidism, and was on various medications including tacrolimus, cinacalcet & labetalol.

The baby was admitted to the neonatal unit where feeding was initiated with breast milk. Feeds were changed to formula on day 2 of life due to concerns around existing maternal medications.

On day 6 tests revealed hypocalcaemia (1.53mmol/L) and hypomagnesaemia (0.5mmol/L), and the patient received IV infusions of calcium and magnesium. Parathyroid hormone (PTH) was within the normal range (2.7pmol/L). The patient was commenced on oral supplements of calcium 1mmol/kg/day & magnesium 0.6mmol/kg/day, in addition to daily supplements of vitamin D3 (colecalciferol 400 units) and alfacalcidol 100nanograms as advised by paediatric endocrinology.

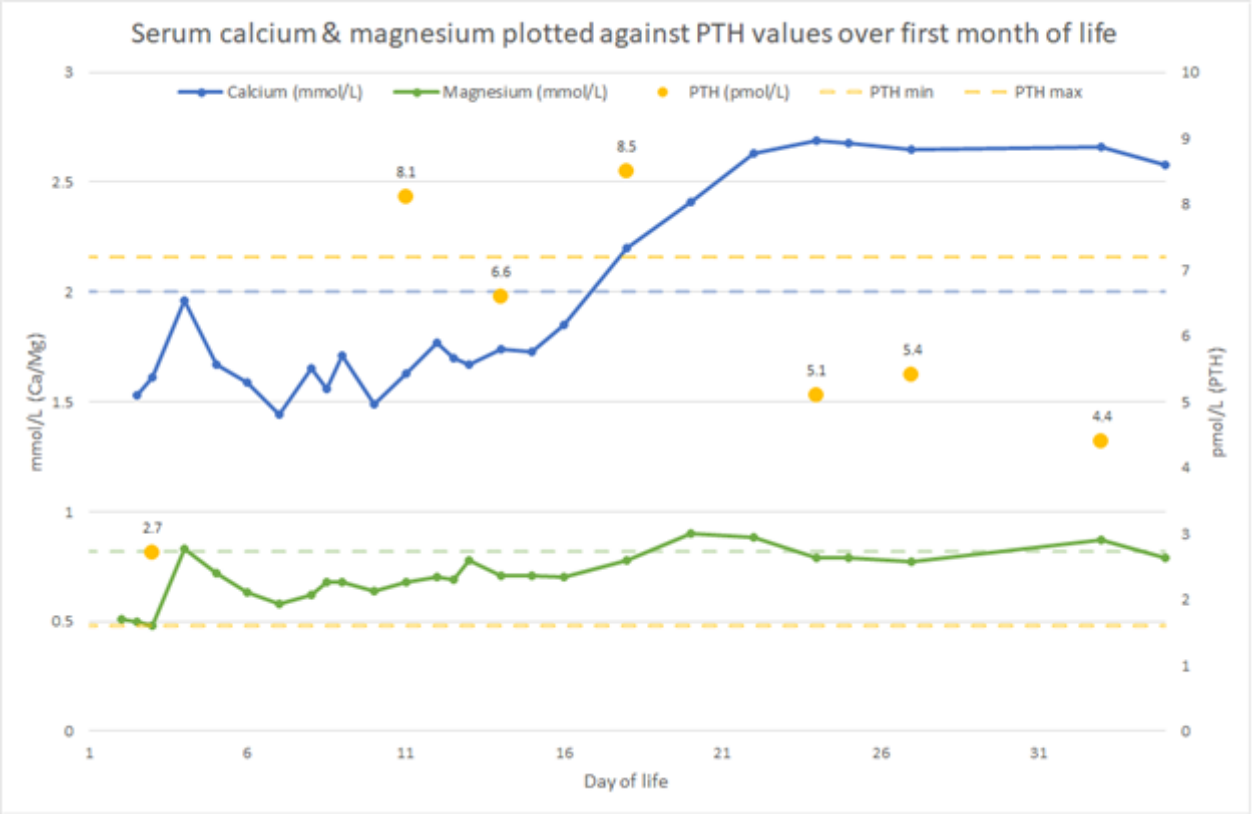
Two further calcium infusions were required, while oral calcium supplementation was increased in a stepwise manner up to a dose of 8mmol/kg/day. Serum phosphate was raised from day 5, peaking at 4.46mmol/L on day 13 before falling back into normal ranges. Parathyroid hormone had increased to 8.1pmol/L when it was rechecked at day 11 of life.

Calcium and magnesium supplements were discontinued at day 22 with both results within the normal range. Colecalciferol and alfacalcidol were continued on endocrinology advice and the infant went home on day 28.

Discussion

Cinacalcet acts as a calcimimetic by allosterically activating the calcium-sensing receptor expressed in various human tissues. It mimics the action of calcium, leading to lower PTH levels. This reduction in PTH is associated with a decrease in serum calcium levels. Cinacalcet has a half life in adults of 30-40 hours. The experience of this patient is similar to the one case in the literature in which a neonate required calcium supplementation for 6 weeks.

Graphs


Serum calcium & magnesium plotted against PTH values over first month of life
Calcium (mmol/L)
Magnesium (mmol/L)
PTH (pmol/L)
PTH min
PTH max
mmol/L (Ca/Mg)
pmol/L (PTH)
Day of life
8.1
6.6
8.5
5.1
5.4
4.4
2.7

External Perinatal Mortality Reviewers: A Network Approach to Facilitating Independent Reviewers within Organisational Panels.

Martin H[1]
[1]NWNODN

Background

The 2023 Perinatal Mortality Review Tool (PMRT) fifth annual report highlighted that nationally only 45% of PMRT panels have an independent external representative. The absence of externality, a recommendation of the PMRT process to provide independent review of care within the North-West region was recognised as a challenge throughout the network and reflected in governance processes.

Aims

Develop a North-West network approach to facilitate external representatives at every PMRT panel by July 2025.

Method

- Survey units to explore current PMRT provision
- Source funding for representatives
- Embed external review process

Results

- 19 neonatal units were surveyed:
  - 6 /7 NICU and 7/12 LNU responded
  - Only 1 unit aways has external reviewers
  - 6 units never have external reviewers
- Ockenden money utilised to fund:
  - 1PA per week in 7 North-West Neonatal Intensive Care Units (NICU)
  - 1.5PA per week in Local Neonatal Units (LNU) for consultants to complete all LNU PMRTs
  - A network administrative to facilitate reviews and support development of the project

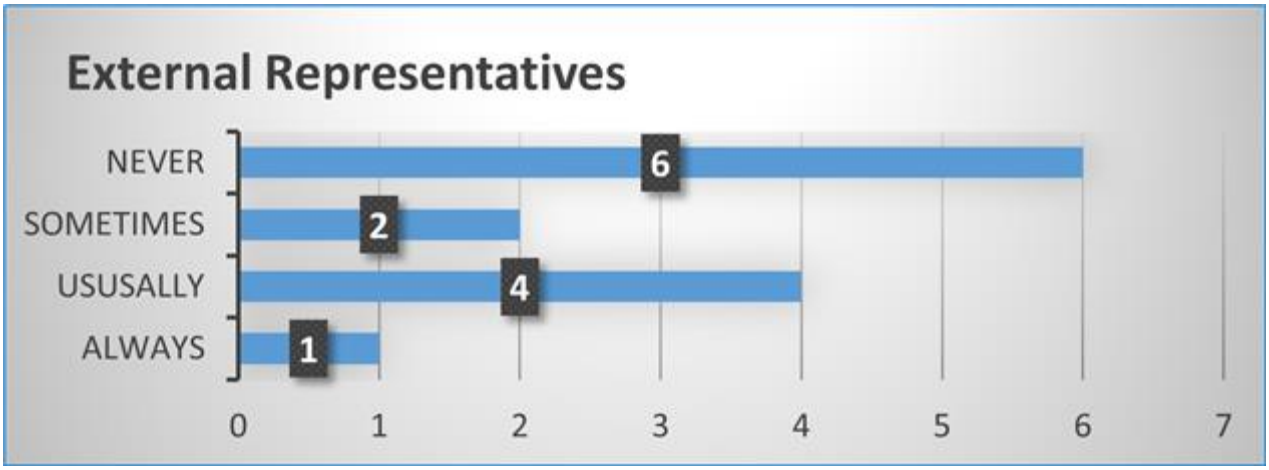
Conclusion

Facilitation of external representation will support improved, robust neonatal reviews across the North-West. This will improve the identification of themes and learning within neonatal services and across the network, reducing future risk and adverse events as a result. The Allocation of panels will be North-West wide offering perspective and objectiveness to remove any bias. The reviews will provide information and answers to families regarding the care their baby received, helping them to understand if this was appropriate or may have made a difference to their baby's outcome.

References

Jennifer J Kurinczuk., et al. (2023) Learning from Standardised Reviews When Babies Die. National Perinatal Review Tool: Fifth Annual Report. Oxford: National Perinatal Epidemiology Unit. 2023 ISBN: 978-1-7392619-6-2

Graphs


External Representatives
NEVER
SOMETIMES
USUSALLY
ALWAYS
6
2
4
1
0
1
2
3
4
5
6
7

Undiagnosed Tracheal Atresia - Is it possible to survive?

Hettiarachchi B[1], Sharma N[1]
[1]University Hospitals Plymouth NHS Trust
Undiagnosed Tracheal atresia- is it possible to survive?
Dr Neha Sharma1, Dr Beneeta Hettiarachchi1
1University Hospitals Plymouth NHS Trust

Background
Tracheal atresia/Congenital High Airway Obstruction Syndrome (CHAOS), is a rare fatal congenital anomaly characterized by complete interruption or absence of the trachea. Diagnosis during the antenatal period, particularly in extreme preterm gestations, poses significant challenges. It can be associated with polyhydramnios and other malformations (VACTERL)

Case report
A female neonate was delivered via normal vaginal delivery at 25+1 weeks gestation to a mother with sepsis and preterm prolonged rupture of membranes following a complete course of steroids. Shortly after birth, she was intubated and administered surfactant. Her chest X-ray revealed the endotracheal tube at T2 with adequate lung expansion, nasogastric tube in the stomach and abnormal vertebral bodies between T4-T6. Upon extubation after 12 hours, she displayed signs of respiratory distress and desaturation. Despite multiple intubation attempts, difficulties were encountered, leading to the involvement of an emergency airway team consisting of anesthesiologists and ear, nose, and throat (ENT) consultants.

Subsequent video laryngoscopy identified a significant defect in the posterior laryngeal wall. Further examination using a flexible scope and bronchoscopy detected a blind-ended trachea with an oesophageal fistula. Following a comprehensive multidisciplinary team (MDT) review, the prognosis was deemed untenable, prompting a decision to pivot the focus of care. The infant peacefully succumbed in her mother's embrace. Genetic testing yielded no abnormalities, while the post-mortem analysis raised the prospect of VACTERL association.

Conclusion
Tracheal atresia should be considered in neonates experiencing respiratory distress and failing to be intubated beyond the vocal folds. The survival of these neonates within the first few hours relies significantly on successful oesophageal intubation in the presence of a patent fistula.

Keywords : Congenital High Airway Obstruction Syndrome , mortality , preterms , Tracheal atresia , VACTERL

V -Tach on the Neonatal Unit: A Case Report

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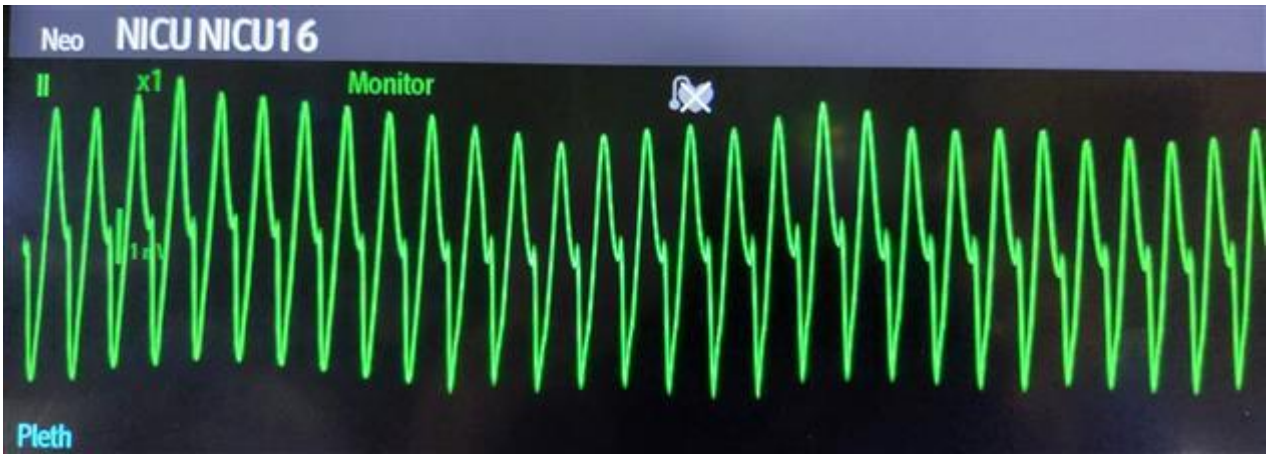
Background:
The incidence of ventricular tachycardia (VT) is around 1.1 in 100,000 children. Although rare, it can be life threatening, leading to ventricular fibrillation and sudden cardiac arrest. It may occur either in the structurally normal heart or in the setting of congenital heart disease. Several aetiologies of VT must be considered, including myocarditis, electrolyte and metabolic abnormalities, drug toxicity, and cardiac channelopathies. Here, we discuss a case from our neonatal unit.
Case:
A term baby boy with normal male genitalia and no antenatal concerns was admitted for mild respiratory distress. He was hypotonic with subtle facial dysmorphism. He was slow at feeding needing nasogastric tube feeds. Genetic bloods were sent for Prader Villi syndrome. Plans were underway to discharge home on nasogastric tube feeds. Blood test on day 10 of life showed borderline low sodium (135) and slightly high potassium levels (6.1). On day 12 of life, he developed respiratory distress and whilst being screened for sepsis, he developed episodes of broad complex tachycardia up to 230bpm. CRP was <10. Serum sodium was 118 mmol/L and serum potassium was 10 mmol/L. Blood glucose was 4.6. ECG was done and VT was suspected (see image); urgent paediatric cardiology and endocrine advice were sought. IV antibiotics, potassium free IV fluids started, and hyperkalaemia was treated with IV salbutamol.
Reducing potassium levels in the blood reverted the arrhythmia. Investigations sent as advised by endocrinologists revealed it to be Congenital Adrenal Hyperplasia. He was initiated treatment with hydrocortisone, fludrocortisone and oral sodium.
Conclusion:
We promptly identified ventricular tachycardia (VT) and corrected its cause (hyperkalemia), resulting in the restoration of normal heart rhythm. Had this occurred after the baby was discharged home, the outcome could have been fatal. While VT is rare in neonates, recognizing it and understanding its reversible causes can be life-saving.

Graphs



HOME PHOTOTHERAPY FOR NEONATAL JAUNDICE - A SINGLE CENTRE SERVICE EVALUATION

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[1]Darent Valley Hospital

Background
Jaundice is very common in the first few days of life and is one of the commonest reasons why infants are re-hospitalised after birth. In the UK where treatment for neonatal jaundice is required, it is largely done in the hospital setting. However, taking a family-centred approach, it is possible to safely deliver phototherapy in the patient's own home, to treat neonatal jaundice.

Aim
To evaluate the Home Phototherapy (HPT) Service of the Special Care Baby Unit (SCBU) of Darent Valley Hospital.

Objectives
•To identify the number of our eligible babies who undergo HPT
•To review themes from parental feedback
•To determine whether the HPT remains a safe alternative to inpatient treatment

Methods
We identified all patients who were admitted to the neonatal unit between April 2022 to March 2024, requiring treatment for jaundice. We then identified the subgroup of patients who met our Home Phototherapy eligibility criteria and determined whether they subsequently had home phototherapy. We reviewed both parent feedback and whether incident reports were raised for any babies on their HPT days and looked for themes.

Results
In 2022-2023, 21 (14%) of the 147 eligible babies underwent HPT. This accounted for 9% of all babies who were admitted for HPT that year. In 2023-2024 54 (51%) of the 107 eligible babies underwent HPT, and this accounted for 30% of all babies admitted for phototherapy in that year. Feedback from parents of babies cared for under the HPT service consistently highlighted positive experiences. There were no safety incidents reported over our review period.

Conclusions
Parents of patients undergoing HPT have had a positive experience with the service. Additionally, when appropriate, HPT is a safe alternative to hospital-based phototherapy.

Congenital Myotonic Dystrophy Type 1 in a Preterm Infant; A case report

Delpagoda Gamage T[1], Ranasundara T[1], Arachchilage C[1], Wickramaratne S[1], Oommen V[1]
[1]John Radcliffe Hospital

Introduction:
Congenital Myotonic Dystrophy type 1 (DM1) is a rare genetic disorder characterized by muscle weakness and systemic complications with a prevalence of 9.27 cases per 100,000. We present the case of Baby J, emphasizing the challenges faced in the early neonatal period and the significance of genetic analysis in identifying affected individuals and carriers within the family.

Case History:
Baby J was delivered by emergency cesarean section at 30 weeks gestation due to chorioamnionitis and abnormal cardiotocography (CTG). At birth, he presented with profound hypotonia and absent breathing efforts, consistent with the clinical presentation of congenital myotonic dystrophy. His/her clinical course was complicated as he needed prolonged mechanical ventilation, developed pneumothorax, and feed intolerance requiring Naso jejunal tube feeds. Genetic analysis confirmed the diagnosis of DM1, with Baby J's mother also testing positive for the condition, albeit with milder symptoms. Later, while on high flow, his condition deteriorated as he developed gram-negative septicemia, requiring reintubation and fluid resuscitation. Blood and CSF cultures Grew Serratia marcescens, indicating a severe infection. Imaging showed extensive brain damage, including necrosis, infarction, empyema, and hydrocephalus. Due to the bleak prognosis, His care was reoriented to palliation.

Discussion:
Baby J's clinical course exhibits the complexities of managing a newborn with CMD. Respiratory distress, feeding difficulties, and profound hypotonia are common manifestations requiring multidisciplinary care. Early diagnosis through genetic analysis, as demonstrated in this case, is crucial for appropriate management and genetic counselling.

Conclusion:
This case report sheds light on the intricate details of the clinical course of a premature infant with Congenital Myotonic Dystrophy type 1. It emphasizes the importance of genetic analysis in identifying affected individuals and carriers within the family. A comprehensive and multidisciplinary approach is essential for optimizing the care and outcomes of infants with congenital myotonic dystrophy.

Cardiac arrest during excision of a Sacrococcygeal teratoma - case report

Ranasundara T[1], Delpagoda Gamage T[1], Arachchilage C[1], Wickramaratne S[1], Oommen V[1]
[1]John Radcliffe Hospital

Introduction

Sacrococcygeal teratoma(SCT) is a type of germ cell tumor(GCT) and stands as the most common congenital tumor with a prevalence of 1in 10000. Resection of a large SCT in preterm neonates is associated with significant perioperative risks, including bleeding and hyperkalemia, necessitating careful perioperative management. Here, we present the case of a baby girl with a large SCT who experienced six cardiac arrests during surgery.

Case history

During the antenatal ultrasound scan (USS) at 20 weeks the fetus was diagnosed with a stage 1 large SCT(maximum diameter 14cm). withDoppler evidence of fetal anemia prompted two intrauterine transfusions. Due to the high risk of developing hydrops fetalis, the baby was delivered at 30 weeks via elective cesarean section, weighing 1100 grams in a relatively stable condition. Her postnatal USS showed a Stage 1 large SCT, a bladder cyst, and a horseshoe kidney. By day two, surgery was performed to resect the tumor. During surgery, she had six cardiac arrests due to hypovolemia, hyperkalemia, acidosis, and hypocalcemia. Hyperkalemia was managed with multiple calcium, sodium bicarbonate, and insulin-dextrose infusions. She needed several blood products and crystalloid transfusions to correct hypovolemia. Ventilation was optimized with High-frequency oscillation and inhaled nitric oxide during surgery. The abdominal incision was made due to suspected abdominal compartment syndrome. Postoperatively she developed transient poor cardiac function and hypertensive crisis needing treatment. Although it was a malignant mixed GCT as margins were clear tumor surveillance was planned by weekly alfa fetoprotein, Beta human chorionic gonadotropin, and monthly USS.

Conclusion

This case report highlights the complications to be anticipated during the SCT resection. Hyperkalemia due to tumor lysis during tumor handling, multiple transfusions of red cell transfusions and mixed acidosis leads to cardiac arrest. Hypovolemia during resection of SCTs, could be due to unrecognized intra-tumoral bleeding or surgery itself.

Hereditary Sensory and Autonomic Neuropathy Type VI: Lessons from Two Siblings Clinical Journey

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[1]Royal Bolton Hospital

Introduction

Hereditary sensory and autonomic neuropathy type VI is a rare autosomal recessive disorder presenting with respiratory difficulties, hypotonia and feeding challenges early in the neonatal period. It is associated with severely reduced lifespan and early death.

We present the clinical journey of two affected siblings born 18 months apart to consanguineous parents.

Case A

35+5 week male infant was delivered by emergency C-section due to pathological CTG. He had generalised hypotonia and minimal antigravity movements. He required non-invasive respiratory support with multiple episodes of escalation to intubation/ ventilation associated with sepsis/chest infections. He needed naso-jejunal feeds. DST-related HSAN VI was confirmed as the diagnosis by R14 Trio exome genetic testing at two months old. He was homozygous for a likely pathogenic DST frameshift variant, and his parents were heterozygous. His clinical phenotype was in keeping with the severe end.

Following multiple conversations with his parents, geneticist, neurologists and respiratory team, his parents agreed to palliative care, and he died at eight months old in the neonatal unit.

Case B

38+2 week female infant was delivered by emergency C-section due to pathological CTG. Parents had declined antenatal genetic counselling and testing. She had marked hypotonia and needed non-invasive respiratory support. Her clinical presentation was similar to her siblings; the diagnosis was confirmed by day 7 of life. Parents were devastated and wanted to spend time together at home. A care package was organised, facilitating 24/7 Nursing support, home CPAP, and continuous NG feeds at home. The baby was discharged home on Day 172, where she subsequently died.

Conclusion

These two cases highlight the importance of timely multispecialty input in establishing the diagnosis in complex rare cases and facilitating parental engagement to enhance patient care and family experience, fulfilling the ethos of family-integrated care.

Preventing Stillbirth: Patient and Public Involvement in Research

Younger A[1], Miyazaki Sankar R[1], Villar de Onis J[2], Craik R[1], Papageorghiou A[1]
[1]Nuffield Department Of Women's And Reproductive Health, University Of Oxford , [2]Oxford Maternal and Perinatal Health Institute, University of Oxford

Background
Stillbirth affects approximately 2 million pregnancies annually, leaving a profound impact on families and the healthcare system. Recognizing the psychological distress linked to stillbirth, research should incorporate patient input to ensure a respectful and sensitive approach.

Aim
To understand patient and healthcare provider perspectives on the testing of emerging technologies that may prevent stillbirth.

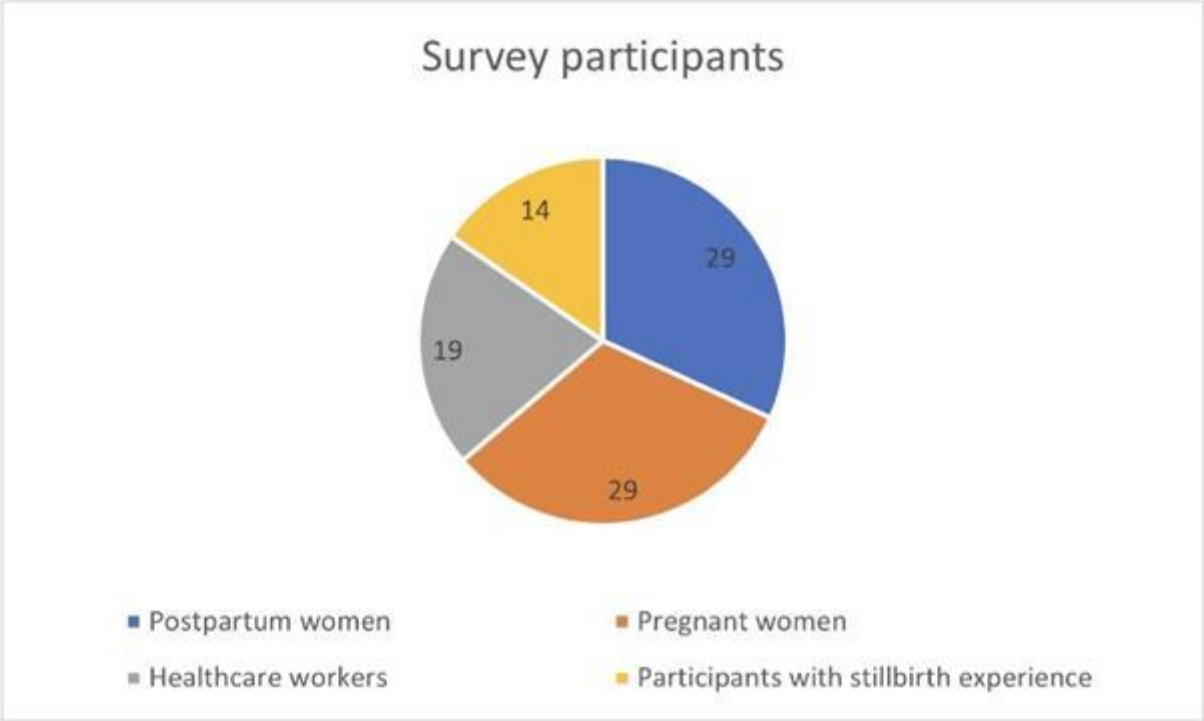
Methods
This was a Patient and Public Involvement Study as part of the Adaptive Methods for Antenatal Data Acquisition (AMADA) project. We recruited pregnant and postpartum women via antenatal clinics and social media, maternity healthcare workers through clinician networks, and those with stillbirth experience in collaboration with the Sands Network. Participants completed a questionnaire and were then invited to interviews or focus groups to evaluate the feasibility and design of the study. The discussions were transcribed, and themes were developed through an iterative process of inductive content analysis.

Results
Between December 2023-February 2024, a total of 91 participants (Figure 1) completed the survey, and five focus groups were conducted. Themes of acceptability, participation, and communication emerged during data analysis. Acceptability: Of note, the willingness of women to participate in research was much higher than healthcare providers thought. Participants were open to testing multiple devices. Concerns included comfort, potential risks to pregnancy, and increased stress. Participation: Motivations for participation included supporting research, seeking reassurance, interest in emerging technologies, and a desire for more stillbirth-focused research. Communication: Transparent communication about the study's scope, outcomes, and data collection methods, alongside clear communication during recruitment and integration with care team was emphasised.

Conclusion
Despite the emotional distress associated with stillbirth, pregnant women are more open to participating in stillbirth research than healthcare providers think. To facilitate their involvement, researchers should consider effective communication and providing continuous support with occasional incentives throughout the study.

Graphs

Figure 1. Participants who completed survey



Breast Milk Fortifier after Discharge Improves Breastfeeding Duration and Exclusivity for Preterm Infants

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Background
It is well accepted that Breast Milk Fortifier (BMF) is essential to support the growth and nutritional requirements of preterm babies who are fed with breastmilk. Continuing BMF after discharge is an increasing practice in UK neonatal units to improve growth of exclusively breastfed preterm infants.

Aim
We introduced a guideline for BMF after discharge, to continue fortification of breastmilk in selected preterm babies with the aim to prevent growth faltering and maintain breastfeeding in the transition to home.

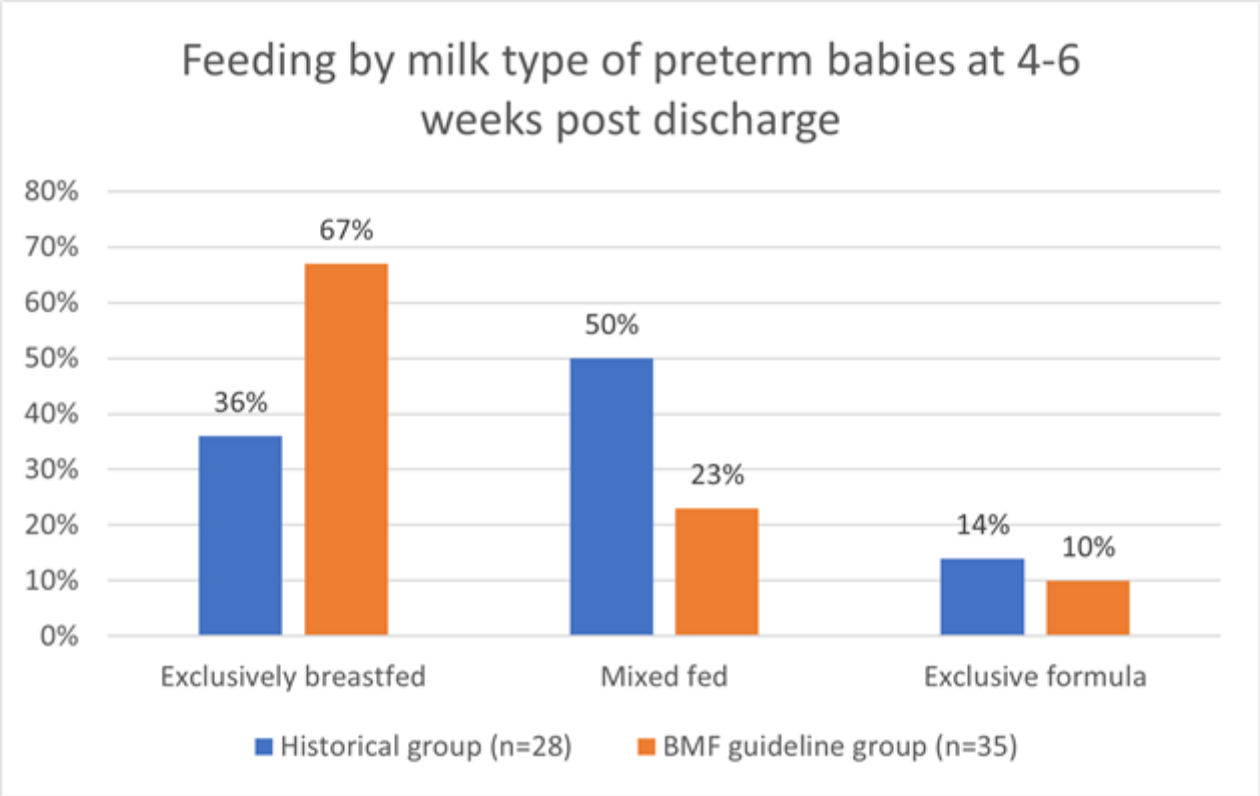
Methods
Preterm babies were offered BMF after discharge if they met the guideline criteria. Babies were reviewed weekly by the dietitian or outreach nurse. Feeding milk type was recorded at the 4-6 week post discharge neonatal review clinic.

Data was collected retrospectively using Badgernet and medical records. All preterm babies born <34 weeks with birthweight <1.8kg who were exclusively fed with breastmilk and with discharge weight <2.2kg were included in the BMF guideline group. We identified a similar historic cohort of babies in the year prior to the new guideline and compared the feeding milk type at 4-6 weeks post discharge of the two groups.

Results
Over 12 months, there were 35 babies who had data on feeding at 4-6 weeks in the BMF guideline group vs 28 babies in the historical group. The rate of exclusive breastfeeding at follow up was higher in the BMF guideline group than the historical group (69% vs. 36%). The majority (75%) of those who were exclusively breastfeeding at follow up had received BMF after discharge. A higher proportion of babies in the historical group had introduced formula (50% vs. 23%) at their 4-6 week review.

Conclusions
Continuing BMF after discharge with weekly support in the community increases rates of exclusive breastfeeding at 4-6 weeks after discharge from a Local Neonatal Unit.

Graphs


Feeding by milk type of preterm babies at 4-6 weeks post discharge
80%
70%
60%
50%
40%
30%
20%
10%
0%
36%
67%
50%
23%
14%
10%
Exclusively breastfed
Mixed fed
Exclusive formula
Historical group (n=28)
BMF guideline group (n=35)

Characteristics, outcomes and palliative care input for infants with congenital heart disease who transition from neonatal to paediatric intensive care

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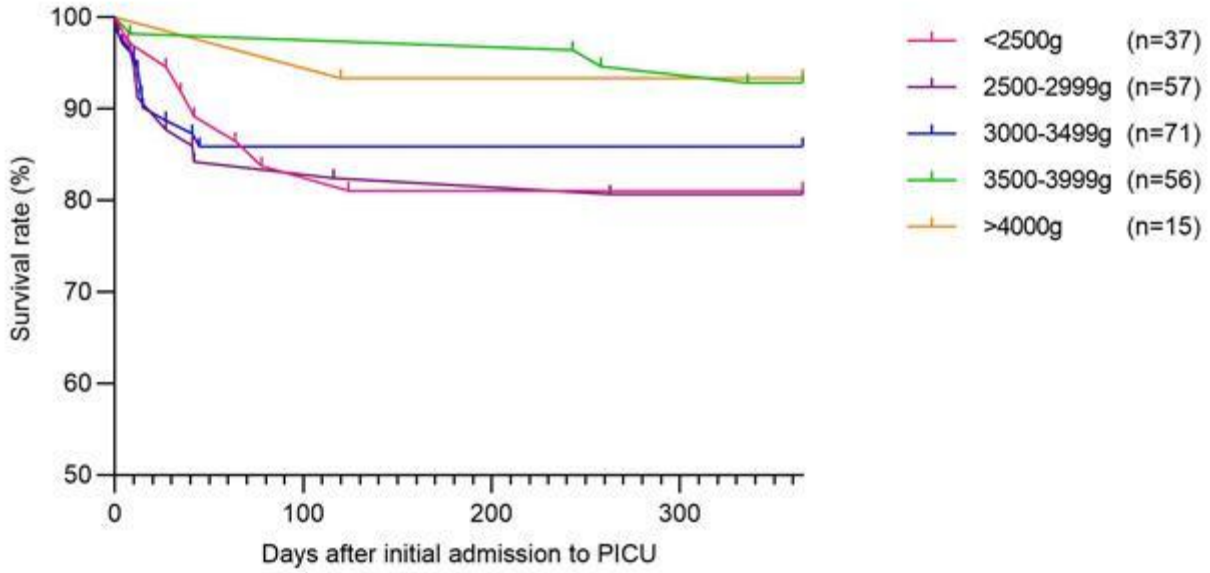
[1]Bristol Royal Hospital for Children, [2]Neonatal Intensive Care Unit, St Michael's Hospital, [3]Department of Research and Innovation

Background
Congenital heart disease (CHD) is the most common indication for transfer from neonatal (NIC) to paediatric intensive care (PIC). We reviewed the characteristics, outcomes and palliative care input for these infants.
Methods
Retrospective review of infants with CHD who transitioned from NIC to regional PIC over 5 years. Data extracted from local submissions to PICANet, NCHDA, digital patient records. Reported as median, interquartile range. Statistical analysis using Chi-squared, Mann-Whitney tests, log rank test for trend.
Results
236 infants with CHD were transferred from NIC to PIC between 2018 and 2023. 72% diagnosed antenatally. Median birth weight 3.1kg (2.7-3.5), gestation 38/40 (37-39). 217 babies (92%) had a surgical and/or interventional procedure in infancy. At primary procedure, median age was 7 days (4.3-11.0), weight 3.2kg (2.9-3.5), gestation 39/40 (38-40). 33 infants (14%) died in infancy. Mortality was significantly higher in lower birthweight infants $p<0.039$ (Fig 1). Death within 30 days of procedure was 18/217 (8%). Of the 33 who died in infancy, 36% had palliative care input, 33% had evidence of advanced care planning. 10% of infants born <3kg had palliative care input on PIC, compared with 5% of those >3kg. Median length of stay for primary admission was 6 days (2-12). Median length of invasive ventilation was 5 days (3-10). No statistically significant difference in post-procedural complications or death within 30 days between birthweight groups. 122 patients (52%) were readmitted to PIC within infancy (elective surgery 74%, unplanned/emergency 26%). Median ICU free days (alive) in infancy was significantly lower in infants born <3kg (335, 282-353) compared with those >3kg (352, 338-358) ($p<0.0001$).
Conclusion
Survival through infancy was reduced and ICU stay longer in CHD infants born <3kg. Family counselling and early palliative care input should be considered prior to and at PIC admission, especially in lower birthweight infants.

Graphs

Figure 1. Survival rate by birthweight in first year of life of infants with CHD who transition from NIC to PIC



Resource savings with implementation of new standardised TPN system

Craig S[1], Moohan M[1], Lyttle N[1], Walker A[1]
[1]Belfast H&SC Trust

Background.
The Royal Maternity Hospital (RMH) nutrition support team were commissioned to create standardised parenteral nutrition (PN) solutions for Neonatal Network Northern Ireland (NNNI). The aim was to have solutions which were NICE compliant, nutritionally optimised and suitable for 80% of PN recipients. Before this service development, there were only protein “starter” bags for use during the first 2 days of life. Ongoing protein delivery required bespoke bag preparation by Pharmacy Units which was unavailable at weekends. Nurses prepared lipid solutions (with added fat-soluble vitamins) daily at cot-sides because of Pharmacy limitations.
Method.
ESPGHAN, NICE-NG154 and BAPM recommendations for neonatal PN were reviewed, “ideal” solutions designed and a guideline was developed. Several manufacturing companies were engaged to ensure compound stability, shelf-life and sustainable supply. Implementation plans determined piloting all solutions in RMH before use elsewhere.
Two lipid bags containing fat and water-soluble vitamins were designed for infants with birthweight <2.5kg and >/=2.5kg. These were piloted for 6 months without adverse findings. Two protein bags were designed for peripheral or central venous delivery. During the 18 month pilot, there were refinements to glucose content and calcium/phosphate molar ratios. Training days were held before the new solutions were used outside RMH.
Results.
Comparing PN usage in RMH in 2019 (pre-project) to 2023, there has been 35-40% reduction in lipid use (2150-2400 vs 1440/year) and 25% reduction in protein usage (2500 vs 1852/year); only 5.5% (84) maintenance protein bags were bespoke. Commercial PN supply and minimal bespoke prescriptions saved £36,000-£53,000/year and 4000-4600 nursing/pharmacy staff hours/year.
Conclusion.
Despite commercial manufacturing capacity issues and the COVID pandemic, this project has delivered nutritionally optimised, standardised PN solutions with “24/7” availability, alongside cost and staff time savings.

Target saturations for home oxygen in neonates: Impact of differences in guidance

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Background

The British Thoracic Society (BTS) published guidance (2009) for target oxygen saturations for infants discharged on home oxygen to maintain: average saturation ≥ 93% and saturations <90% no more than 5% of time

It is not known whether or how units apply this (or other) guidance at discharge when determining home oxygen use and amount.

We implemented guidance using BTS criteria for overnight oximetry in 2022, with an additional criterion that saturations should not be be <94% for more than 10% of the time.

We aimed to compare current oximetry standards across UK units and determine the impact on the number of babies discharged home in oxygen applying alternate guidance where this varied.

Methods

A survey was sent out to all neonatal networks seeking their current guidance. We received no responses, so individual units were contacted. The lowest limits were then applied to overnight oximetry of babies discharged in oxygen during 2023. We also applied our guidance without our additional <94% criterion.

Results

8 responses were received. Two units had no guidance. The impact of applying different guidance is shown (Table). Important differences were seen in the number of babies discharged home in oxygen, and the amount of oxygen needed.

Conclusion

Oximetry thresholds significantly impact rates and amounts of oxygen at discharge. We call for efforts to standardise UK practice and guidance based on the best available current evidence.

Graphs

Guidance Applied	Current unit guidance	Strict BTS guidance	Lowest (average ≥93, <90% for <10%)
Number failing histogram criteria	40 (22 <32 weeks GA)	25	18
Number home in less low flow	NA	8	10
Number home in air	NA	7	12

Unravelling the Mystery: A Neonate's Journey with Hyperekplexia Due to SLC6A5 Gene Variant

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[1]Royal Bolton Hospital

Introduction

Hyperekplexia is a rare genetic disorder characterized by exaggerated startle responses and stiffness in neonates, often misdiagnosed as seizures, in response to sudden, unexpected stimuli. The genes causing this condition are associated with glycine protein receptors (GlyR), which mediate synaptic inhibition in the brain and spinal cord.

Case report

We present a case of a female neonate, born by elective caesarean section at 41 weeks with a birth weight of 3.45kg, to consanguineous British Asian parents. She did not need resuscitation at birth.

At 5 hours of age, she was admitted to the Neonatal Intensive Care Unit for a 'dusky episode'. She had frequent seizure-like episodes involving sudden fisting of both hands with jerking movements and dusky skin discolouration. These episodes were not responding to anticonvulsants. She underwent extensive neurometabolic, radiological and genetic testing for early-onset epilepsy as these episodes continued over the next few weeks. EEG findings initially suggested focal non-convulsive status epilepticus of bilateral frontal-temporal origin, but subsequent EEGs showed varying results, including normal findings during a 5-hour ambulatory EEG.

Her parents reported early on that these 'seizure episodes' settled gradually on picking up and comforting her. There was a history of a paternal aunt treated for epilepsy in infancy.

As the hyperekplexia phenotype became clearer, further testing revealed a homozygous pathogenic variant in the SLC6A5 gene, consistent with hyperekplexia. Both parents were carriers. She responded to Clonazepam. She is now nine months old and meeting her developmental milestones.

Conclusion

This case demonstrates the significance of recognizing historical cues, such as episodes settling with comforting, in diagnosing hyperekplexia. It also highlights the importance of revisiting genetic testing as the phenotype evolves, and, most importantly, challenging the diagnosis of epilepsy in cases seemingly refractory to antiepileptics.

Comparative efficacy of the use of Video Laryngoscopy (VL) vs. Direct Laryngoscopy (DL) in Endotracheal Intubation of Extremely Low Birth Weight Infants (≤ 750g) in a Level 3 Neonatal Unit

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[1]Burnley General Hospital, Neonatal Unit, [2]Burnley General Hospital, Neonatal Unit, [3]Burnley General Hospital, Neonatal Unit

Background
Recent recommendations (BAPM 2024) and evidence (Cochrane 2023, NEJM 2024) support the use of VL for neonatal endotracheal intubation. Concerns exist about the blade size for the smallest babies. We present retrospective analysis of 3.5 years of data on VL use in infants ≤750g.

Aim
To review practice change and compare intubation success rates at first attempt between VL and DL in infants ≤750g.

Method
Infants ≤750g undergoing endotracheal intubation from 2021 to mid-June 2024 were reviewed using the BadgerNet Electronic Patient Record. Data included patient demographics, intubation mode (VL vs. DL), and success rate at first attempt.

Results
Of 174 intubation attempts, 47 (27.01%) used VL and 127 (72.99%) used DL. The mean gestational age at intubation was 24+5/40 for VL and 25+1/40 for DL. Mean weight was 585g for VL and 614g for DL.

VL use increased from 4.08% in 2021 to 59.36% by mid-2024, while DL use decreased from 95.92% to 40.63%.

Success rate at first attempt was higher with VL (85.11%) vs. DL (70.87%), p=0.07.

Advanced intubators (Paediatric ST7/8, Tier II Advanced Neonatal Nurse Practitioners, Consultants) had higher success rates with VL vs. DL: 88.89% vs. 50.00%, 100% vs. 79.07%, and 80.00% vs. 75.00% respectively. In the delivery room, VL showed a higher success rate at first attempt (85.19% vs. 61.42%, p=0.029). Similar VL superiority was demonstrated in emergency intubations without pre-medications, (84.85% vs. 61.11%, p=0.022).

Key dimensions of the VL blade (Karl Storz CMAC 0) measured smaller than the DL blade (Timesco Optima 00).

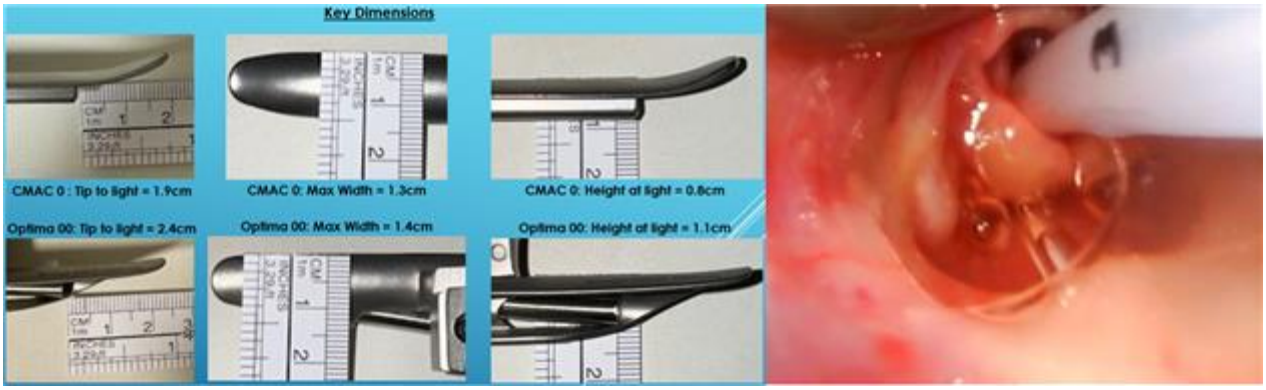
Conclusion
In infants ≤750g, VL use increased significantly from 2021 to 2024, with a higher success rate at first attempt compared to DL across all intubators, emergency intubations, and in the delivery room.

VL has become standard practice in our unit, and has been demonstrated to be safe and effective.

Graphs


Number of Intubation Attempts by Year
Video
Direct
2021
2 (4.08%)
47 (95.92%)
2022
7 (17.07%)
34 (82.93%)
2023
19 (36.54%)
33 (63.46%)
2024
19 (59.36%)
13 (40.63%)
50
45
40
35
30
25
20
15
10
5
0
47
34
33
19
19
13
7
2
2021
2022
2023
2024
Video
Direct
Success on 1st Attempt at intubation
Video
Direct
Successful
40/47 (85.11%)
90/127 (70.87%)
Not Successful
7/47 (14.89%)
37/127 (29.13%)
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
85.11
70.87
14.89
29.13
Video
Direct
Not Successful
Successful

Image


Key Dimensions
CMAC 0 : Tip to light = 1.9cm
CMAC 0: Max Width = 1.3cm
CMAC 0: Height at light = 0.8cm
Optima 00: Tip to light = 2.4cm
Optima 00: Max Width = 1.4cm
Optima 00: Height at light = 1.1cm

Hypoxic Ischaemic Encephalopathy (HIE): How Quality Improvement (QI) Methodology revealed weaknesses in a seemingly successful audit on enhancing comprehensive documentation and compliance with regional guidelines.

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[1]Leeds Teaching Hospitals Nhs Trust

Background :
HIE remains one of the major causes of mortality and morbidity in the term population of Neonatal Intensive Care and one of the most costly medical malpractice lawsuits. Approximately 13% of infants with neonatal encephalopathy will develop cerebral palsy (CP) despite Therapeutic Hypothermia (TH)(1). Legitimate documentation of resuscitation of those cases, their evolving clinical status and the treatment decisions are of crucial importance.

Method:
We reassessed the results from a completed audit cycle, revealing a 40% improvement in the utilization of Sarnat staging proforma and adherence to regional guidelines. Using 12 months of data, we identified the median baseline and developed a new driver diagram to guide our future Plan-Do-Study-Act (PDSA) cycles.

Results:
The median baseline revealed lack of documentation as per regional guidelines in 50% of cases with inconsistency in practice. Two PDSA cycles were implemented:

1. Design of an HIE related electronic education pack
2. Regular senior led bedside teaching, reminder emails on the existence of the resources and departmental teaching sessions

Each PDSA cycle lasted for 5 months due to the low number of cases. The implemented changes did not result in sustainable improvement (< 7 consecutive points below the median baseline (2)), and there was shift towards non-compliance coinciding with the rotation of trainees.

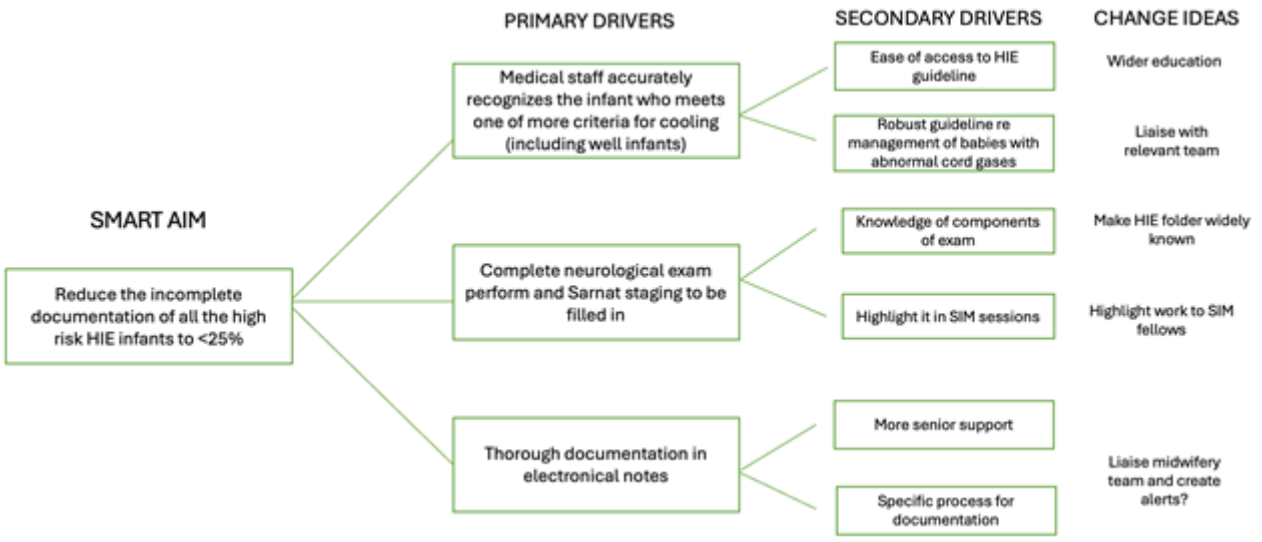
Conclusion:
Clinical audits are closely linked to QIs but can be ineffective, due to the lack of well developed approach to the ‘action’ part of the audit (3). QI methodology can identify issues and solutions that benefit multiple pathways. Our neonatal unit has a dedicated multidisciplinary team which supports QI training.

In this case, the new driver diagram focuses on involving more stakeholders and implementing the Sarnat staging proforma to a wider group of babies (including those with abnormal cord gases) to enhance trainees' confidence in maintaining consistent records.

Graphs


Lack of daily documentation as per ODN guideline
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
PDSA1
PDSA 2
No cases
No cases
0%
0%
0%
0%
May-22
Jun-22
Jul-22
Aug-22
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
Mar-24
Months

Image


SMART AIM
Reduce the incomplete documentation of all the high risk HIE infants to <25%
PRIMARY DRIVERS
Medical staff accurately recognizes the infant who meets one of more criteria for cooling (including well infants)
Complete neurological exam perform and Sarnat staging to be filled in
Thorough documentation in electronical notes
SECONDARY DRIVERS
Ease of access to HIE guideline
Robust guideline re management of babies with abnormal cord gases
Knowledge of components of exam
Highlight it in SIM sessions
More senior support
Specific process for documentation
CHANGE IDEAS
Wider education
Liaise with relevant team
Make HIE folder widely known
Highlight work to SIM fellows
Liaise midwifery team and create alerts?

Defining the problem: Vitamin K prophylaxis in the newborn – How many people are saying no?

Dodd H[1], Nair V[James Cook University Hospital]
[1]James Cook University Hospital

Background:
Vitamin K is given to all newborn babies to prevent Vitamin K related deficiency bleeding (VKDB). Intramuscular (IM) injection reduces the risk of bleeding by 98% and is superior to oral drops. There has been a perceived decrease in uptake of IM Vitamin K within our local region, with 2 infants experiencing intracranial bleeds leading to death and severe neurodisability secondary to not receiving prophylaxis.

Aim:
• Establish the number of children who have not had IM Vitamin K at birth within South Tees region

Method:
• Badger Net data for South Tees, England was reviewed between October 2023 - April 2024.
•Inclusion criteria:
o Children who received Oral vitamin K or where IM Vitamin K was ever refused.
•Exclusion criteria:
o Children admitted to Neonatal unit
•Additional data collected:
o Reasons for refusal
o Maternal demographics, antenatal history, method of feeding

Results:
Over a 7-month period, 2416 babies were given IM Vitamin K. 19 women (0.7%) opted to have oral vitamin K, and 22 women (0.9%) initially declined all forms of vitamin K. 8 women consented to a form of Vitamin K after neonatal counselling. In most cases, there was no apparent reason for refusal. Some families felt:
- Vitamin K was unnecessary.
- IM Vitamin K was a “vaccine”,
- Wanted to avoid a painful procedure.
- Did not have enough information about Vitamin K

There was no documentation of counselling for women who chose oral Vitamin k from the outset. The majority of babies were breast fed at time of discharge.

Conclusion:
There is a small but significant number of families in South Tees who are opting to have no, or sub-optimal forms of Vitamin K due to misinformation. Neonatal counselling is helpful, however further research is needed to explore reasons for refusal and educate families.

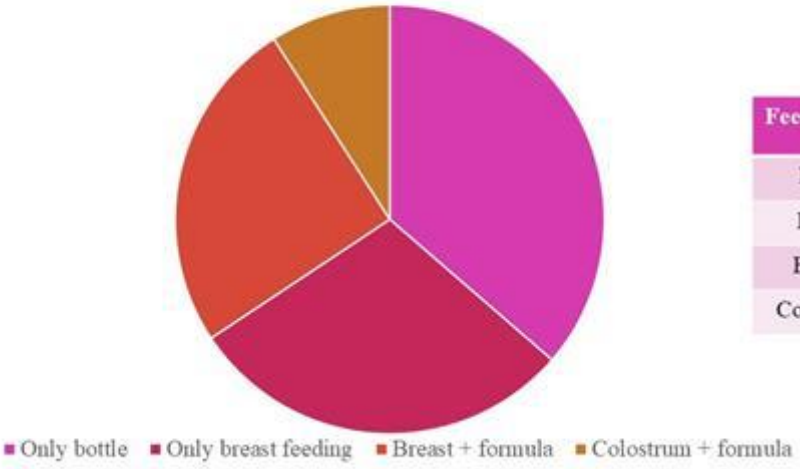
Factors affecting intention to breast feed among new mothers in Wales – QIP

Thangarajah Muthukrishnan K[1], Gunasekaran A[1], Nair N[1], Yeshwanth M[1]
[1]Prince Charles Hospital, CTMUHB

Background:
Breast feeding is a part of the natural reproduction process with significant impact on health of mother and baby. Currently the United Kingdom(UK) has very low breastfeeding initiation rates as compared to many comparable high-income countries as evident by the The Infant feeding survey conducted in 2010. Exlusive breastfeedibng at 6 months was only 1% while mixed feeding was 34% These numbers were achieved as an effect of the Baby Friendly Initiative.
This QIP aims to idetify potential hurdles to breastfeed and make plans to address them.
Methods:
Data was prospectively collected among 100 mothers in post-natal between March and June 2024 during their stay in Prince Charles Hospital using an anonymised digital questionnaire by scanning a QR code on their smart phones.
Results:
Among the 100 mothers who participated in the study, majority belonged to the age group 30-35 years(44%) and more than half were primiparous(52%). 36% wished to exclusively bottle feed while another 25% wanted mixed breast and bottle feeding. Only 29% chose exclusive breast feeding. Among the factors analysed, having support at home(p-0.007), obtaining information on breast feeding($p<0.05$), information provided on multiple occasions($p=0.002$) and previously breast feeding($p<0.05$) were significant in mothers choosing to breast feed. Logistic regression revealed previous breast feeding was the most important factor influencing breast feeding(p-0.001), followed by providing breastfeeding information on multiple occasions.
Conclusion:
The findings of the study were shared with multidisciplinary and a midwifery led initiative has begun to provide information on breast feeding on each contact during antenatal period, followed by inpatient and community breast feeding team follow ups to establish breast feeding and encourage the family to support breast feeding. Local breast feeding support groups information is also provided at discharge from the hospital.
We aim to review the feedback and breast feeding rates in a year's time.

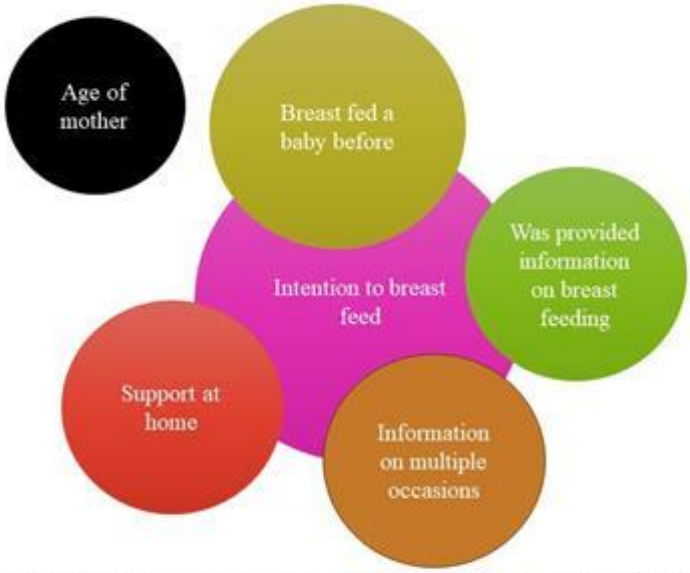
Graphs

Feeding plan for baby



Feeding plan for baby	Number (%)
Exclusive bottle	36(36)
Exclusive breast	29(29)
Breast + Formula	25(25)
Colostrum + formula	9(9)

Image



The image depicts different possible factors which affect intention to breast feed. The size and overlap of the circles depicts the level of impact of each factor on breastfeeding.

Admission to Special Care Baby Unit outside the admission criteria

Thangarajah Muthukrishnan K[1], Omolokun O[1], Latif N[1], Mohammed F[1]
[1]Prince Charles Hospital, Ctmuhb

Background:

Preterm babies require specialised care which contributes to survival and late neurological and developmental outcomes. This requires sensible centralisation of preterm births in tertiary units. Likelihood of severe brain injury is 2-3 times higher if delivered in a non-tertiary unit and then transferred ex-utero. Survival without severe brain injury is also 30% higher if delivered in a tertiary unit.1,2

The Neonatal Critical Care Service Specification has clear guidelines for each level of care and accordingly a Special Care Baby Unit in a DGH can admit neonates > 32 weeks if singleton, > 34 weeks if twin and > 1500g.3 Periprem Cymru was introduced to improve

This study aims to identify reasons why preterm babies outside the admission criteria of SCBU were admitted in the unit and follow-up their neuro developmental outcome at discharge.

Methods:

Data was collected retrospectively using a proforma to include neonatal birth information, antenatal and postnatal interventions and outcome. Data was collected using Badgernet information to include all neonates born outside the admission criteria in Prince Charles Hospital for the year 2022 and then reaudited for the year 2023 after the introduction of Periprem Cymru in our hospital.

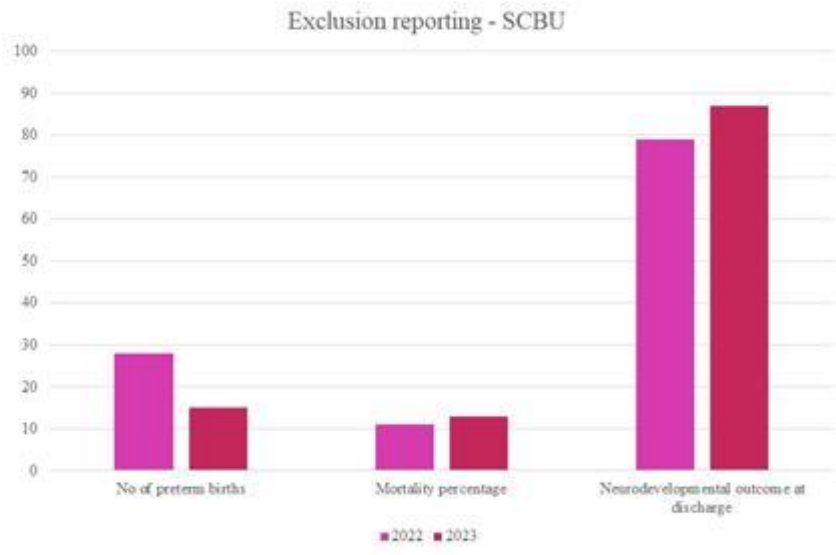
Results:

The number of admissions to SCBU has significantly reduced in 2023 as compared to 2022(43%). The mortality remained at 13% vs 11% in 2022. All the babies had good neurodevelopmental outcomes at discharge. Also the PERIPREM passport enabled better documentation of reasons for inability to transfer out.

Conclusion:

The introduction of Periprem Cymru has enabled in-utero centralisation of preterm births in tertiary units to ensure better neurodevelopmental outcome and survival.

Graphs



Image

In the study population, we notice improving adherence to PERIPrem parameters except for delivery at an appropriate location due to unavoidable circumstances.

Implementation of Standardised Infusion Concentrations with Smart-Pump Technology in a Tertiary Neonatal Intensive Care Unit

Sodhi H[1], Crook J[1], Elhussein A[1], Bharania B[1], Arasu A[1]
[1]King's College Hospital NHS Foundation Trust, [2]King's College Hospital NHS Foundation Trust, [3]King's College Hospital NHS Foundation Trust, [4]King's College Hospital NHS Foundation Trust, [5]King's College Hospital NHS Foundation Trust

Background
Injectable medicines account for a quarter of medication incidents reported, with many errors occurring during the administration phase, in calculating infusion rates and programming pumps. National recommendations to enhance the safety of high-risk injectable medicines advocate for the use of 'smart-pump' technology. This study describes the implementation of standard infusion concentrations (SCs) for neonates in a tertiary neonatal unit, including the integration of guardrails within smart pumps and the creation of bespoke prescriptions within our electronic prescribing system (EPRS).
Methods
Key stakeholders included the neonatal multidisciplinary team (MDT), pharmacy, neonatal technician, paediatric intensive care unit (PICU) representatives, EPRS electronic prescribing analysts, and the pump provider. SCs were proposed to cover weight bands from 0 to 20 kg to accommodate the wide dose range and size of patients, aiming for standardization with PICU. Variable concentrations were agreed upon for cases where SCs might not be appropriate. Drug data, including concentration and dose limits, were configured on smart pumps and validated before use. Prescriptions were designed, configured, and validated on the EPRS. The design of the project was made in collaboration with Department of Neonatology and Pharmacy Department at Evelina Children's Hospital, London. A comprehensive education program, including prescribing and administration simulations, was delivered to the neonatal MDT.
Results
Nineteen drug SCs covering four weight bands (<1, 1-2, 2-5, 5-20 kg) were implemented and validated within the smart pump and EPRS. Enablers for SC implementation included collaborative work across sites and specialties, including PICU, to maximize usability. Barriers included resource limitations during the introduction of a new EPRS.
Discussion
The SC introduction was effectively implemented in a tertiary NICU, supported by comprehensive MDT education program. Future projects include pump integration with EPRS to facilitate closed-loop drug administration and analysis of guardrail drug data. Audits are necessary to evaluate the impact on medication safety. This project aligns with the national drive for safer paediatric medication practices and sets a precedent for future implementations.

Extended PEEP in the delivery room for infants ≥34 weeks beyond 10minutes from birth - Retrospective audit

Davies S[1], Oldham S[1], Kannan Loganathan P[1]
[1]James cook University Hospital

Background: Evidence for use of positive end expiratory pressure (PEEP) in term and late preterm infants (≥34 weeks) is limited. Despite this, PEEP is commonly used in this group of infants for an extended period of time (>10mins after birth) with the aim of preventing neonatal unit admission.

Objective: To review the practice of extended PEEP in this population ≥34 weeks with persistent respiratory distress and/or low oxygen saturations in the delivery room beyond 10minutes of life.

Methods: We conducted a retrospective audit of practice (June – December 2023). Using the maternity database we identified all babies (≥34 weeks) needing any form of resuscitation at birth. Patient demographics and clinical details were collected from the neonatal database. We used descriptive analysis for our report. Audit registered at local hospital.

Results: During the study period of 7 months, there were 2667 deliveries ≥34 weeks. Of these, 280 babies needed some form of resuscitation (10.5%). 72 out of the 280 babies (25%), were admitted to the neonatal unit. Patient demographics and clinical characteristics are provided in Table 1. Most infants in this cohort were >37weeks (83%) and born by caesarean section. 35% of babies needed extended PEEP >10mins and 22% >20mins. Only one infant in this cohort was diagnosed with pneumothorax. Odds ratio for neonatal unit admission in infants who received extended PEEP was 4.5 (2.2 to 9), $p<0.0001$.

Conclusions: 10% of infants born ≥34 weeks received some form of resuscitation at birth. 1 out of 4 of these babies were admitted to the neonatal unit. Approximately 1/3rd of these infants received extended PEEP >10mins. Neonatal unit admission was highly likely for babies receiving extended PEEP which could be reflection of an underlying condition. Further evidence is needed regarding extended PEEP in the delivery room.

Image

Table 1: Patient and clinical characteristics	
	N=280 (%)
Median birth gestational age in weeks (IQR)	39 (37-39)
Median birth weight (IQR) in kilogram	3.3 (2.8-3.6)
Number of infants <37 weeks	47 (17%)
Male sex	157 (56%)
Born by Caesarean (elective/emergency) section	179 (64%)
Median Apgar @1 min (IQR)	6 (4-8)
Apgar @ 5min	8 (7-9)
Apgar @10 min	9 (6-10)
Median length of PEEP support	11 (6-25)
Number of infants received extended PEEP for >10mins	99 (35%)
Number of infants received extended PEEP for >20mins	63 (22%)
Number of infants needed admission	72 (25%)
Type of respiratory support post admission	• CPAP/ high flow: 38 • Ventilation: 4
Median duration of hospital stay in days (IQR)	3 (2-8)
IQR: inter-quartile range	

Delayed Cord Clamping. Gamechanger !

Adhikari A[1], Syed I[1], Hatata A[1], Alasaad N[1]
[1]George Eliot Hospital NHS Trust

Background:
Delayed cord clamping(DCC) in pre-term babies facilitates a smooth transition after birth, promoting cardiovascular stability and increasing blood volumes and stores which are essential for their vulnerable health.

Improvement measure:
- There was an increase in rate of DCC from 40.98% (between November 2022 to January 2023) to 92.2% (between November 2023 to January 2024)

Aim:
- To raise awareness about importance of DCC amongst the Neonatal and Maternity teams
- To improve the percentage of DCC at /above national average

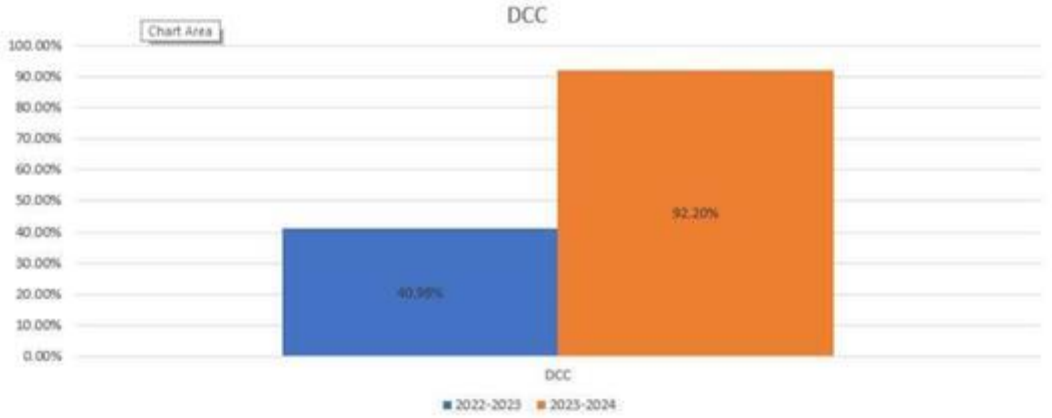
Method:
- Based on the result of first audit, we noted that the rate of DCC need to be improved.
Questionnaires were created to explore the barriers and challenges facing the service providers
- Subsequently, teaching sessions were arranged among the neonatal, maternity and midwifery team
- Visual aids (posters) have been designed which was approved by clinical governance team
- Patient leaflet was created to engage parents in our family-centered approach
- Data was collected using an excel sheet auditing all the babies who were born and admitted to special care baby unit and postnatal ward
- Monthly meetings were arranged between ward manager, matron and clinicians to monitor the progress

Results
A total number of 1091 babies were included over the period of 6 months.
The rate of DCC increased from 40.98% to 92.2% which was above the national target.
The statistics of DCC were presented in the department in seminar setting.
The local audit team was contacted and the team was awarded the certificates

Conclusion
Making a change is not an easy process. Root cause analysis, addressing individualized challenges, involving parents and different healthcare professionals can result in dramatic improvement in DCC rates.

Graphs

Primary Outcome



Image

Umbilical cord clamping

Delayed cord clamping >60 seconds is now recommended standard practice. A longer period may be more beneficial.

Where delayed cord clamping is not possible consider cord milking in infants > 28 weeks gestation.

Benefits of delayed cord clamping

- Avoidance of bradycardia seen after immediate cord clamping
- Reduced mortality in preterm babies
- Stabilizes cardiovascular status
- Improved blood pressures
- Improved peak haemoglobin level in first 24 hours
- Less use of inotropic drugs
- Provides higher iron stores at 4-6 months of age
- Less requirement of blood transfusion

NHS George Eliot Hospital NHS Trust

Recommended option is to delay the cordclamping for at least 60 seconds

Situations where DCC is not advisable

There are almost no indications for early cord clamping, nor contraindications to Optimal Cord management

- All babies will be eligible for delayed cord clamping unless there is
- Maternal concern e.g. PPH, shock, seizure, cardiac arrest
- Cord issues i.e. no pulsation, cord snapping or incision, limited cord length.
- Placental abruption or early separation.
- Uterine inversion.
- Monochorionic twins (where risk of placental vessel anastomoses may result in draining of blood from twin 2 to twin 1 during DCC procedure).
- Known congenital malformation
- Maternal HIV status with a high viral load.

Our vision is to EXCEL at patient care

COMMUNICATION

1. Parents should receive information about Optimal Cord Management at the time of antenatal counselling about their imminent preterm birth, along with information about early breast milk expression, the stabilisation process and the start of their neonatal journey. In some cases, this may not be possible.

2. A multidisciplinary team approach with high quality communication across the perinatal team is essential at the birth of a preterm baby. Staffs involved in delivery must be informed that DCC will be done if there are no contraindications.
   - Theatre delivery: DCC to be discussed during WHO checklist and its use confirmed.
   - Labour ward delivery: Neonatal team lead to discuss with obstetric team lead and its use confirmed.

DELAYED CORD CLAMPING

This information is relevant to all staff caring for preterm and term babies across neonatal intensive care and maternity.

This leaflet aims to facilitate a common approach to managing all babies at delivery. Based on the circumstances, deviation from guideline may be necessary and should be documented and is the responsibility of the attending neonatal doctor, obstetrician and midwife caring for the baby.

Overall, no adverse outcome (Post-partum haemorrhage), or neonatal outcome (hyperbilirubinemia, necrotizing enterocolitis, intraventricular haemorrhage) are related with delayed cord clamping

NHS George Eliot Hospital NHS Trust

Our vision is to EXCEL at patient care

National Survey for use of prophylactic hydrocortisone and nebulised budesonide in extreme prematurity for management of Bronchopulmonary Dysplasia.

Khalid S[1], Jain S[1]
[1]Royal Bolton Hospital

Introduction:

Bronchopulmonary dysplasia (BPD) is a prevalent long-term complication in premature infants. Systemic corticosteroids have been used for both prevention and treatment of lung inflammation. Corticosteroids have also been demonstrated to have long term negative impacts, so the clinician must balance. Several units across England have adopted Prophylactic Hydrocortisone a routine practice based on Primiloc. Nebulised budesonide use has limited published data.

Aim:

To review the current practice in Tertiary Neonatal Units in England.

Method:

Questionnaires were circulated among all tertiary neonatal units across England. Data was collected from 43 level 3 units,
Emails were sent to all clinical leads.
Follow-up telephone calls were made to the medical teams.
Reminder messages were subsequently sent.

Results:

We had a total of 35 responses, with two duplicate responses.

Prophylactic Hydrocortisone:

Thirteen units have established guidelines for prophylactic hydrocortisone use, fourteen units doesn't.

One neonatal unit has stopped after reports of spontaneous intestinal perforation. One unit uses it in selected cases based on risk factors. Four units reported variable practice, one unit is in the process of starting it.

Budesonide Nebulisation:

Five units have established guidelines for Budesonide use in treating CLD. .

Twenty-four units do not use it.

Four units have varied practices. One unit uses it as prophylaxis from day 1 of life in extremely preterm infants.

Conclusion:

We noticed a wide variation in practice, 42% of units do not use prophylactic Hydrocortisone, and 38% routinely do . Budesonide nebuliser's use is minimal. Further research is needed to support or

refute the routine use of Hydrocortisone as prophylaxis and Budesonide as part of the treatment strategy in established chronic lung disease. We propose creating a central registry of patients receiving prophylactic Hydrocortisone and nebulised Budesonide and ensuring their long-term follow-up to further our understanding of the associated perceived benefits and risks..

Death of the Neonatal Manikin: A Scoping Review

Apara T[2], Hogan T[1], Peterson J[1]
[1]Manchester University Nhs Foundation Trust, [2]The University of Manchester

Introduction:
Whether the manikin should die in paediatric simulation training is a controversial area. Some education providers believe paediatric manikin death is essential for realistic training and equips learners to handle patient death sensitively. Critics state the psychological burden of manikin death can derail learning and breaks the tenet of psychological safety that simulation training is built on.

Methods:
The literature was systematically searched for publications regarding paediatric and/or neonatal manikin death in simulation training. The same search strategy was used across OVID Medline, Embase, CINAHL and PsychInfo databases. Articles were screened against a predefined inclusion and exclusion criteria. Articles were screened by two reviewers (TA and JP) and Kappa score was calculated; this was 96%, indicating substantial agreement. A third reviewer (TH) was available to resolve any disagreement.

Results:
810 articles were identified, of which 67 were duplicates. After screening, 734 articles were excluded. Of the eight articles reviewed in full, a further 5 were excluded as they did not meet inclusion criteria. This left three articles included in the final review.

Conclusions:
There is a paucity of research in this important area of simulation training. From the limited research available, the following themes were identified:

- Death of the paediatric manikin can be seen to increase the realism of the simulation training.
- Paediatric manikin death scenarios increased participants stress levels. However, this was not perceived as negative by participants who appreciated being involved in this type of simulation.
- The debrief is crucial in maintaining psychological safety in simulations which contain death of the paediatric manikin.

Death of the paediatric and neonatal manikin is an important topic as healthcare practitioners need and desire opportunities to practice their skills in paediatric and neonatal bereavement care. However, psychological safety during simulation education is crucial.

Study on UVC Tip Migration and Complications

Thakur S[1], Abdelrahman R[1], Venkataramaiah R[1], Evans D[1]
[1]Southmead, North Bristol Trust

Background:
Umbilical venous catheters (UVCs) are frequently used in sick infants. Preventing malposition, which may lead to complications, is crucial.

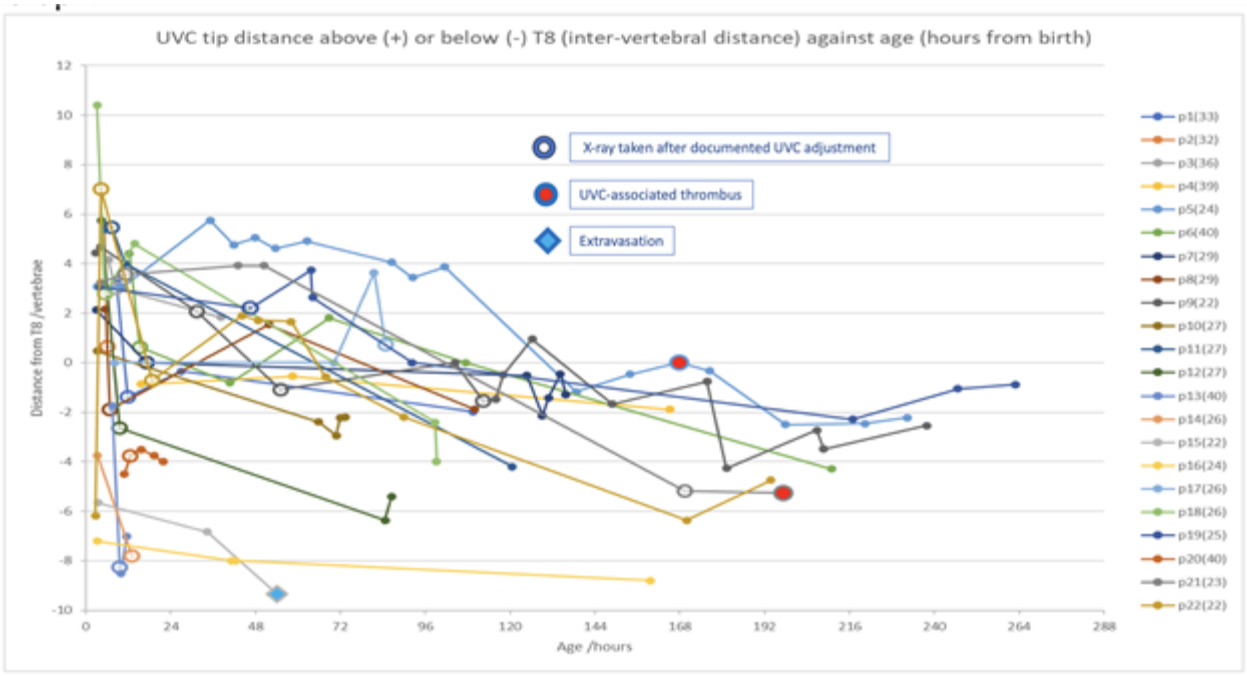
Aim:
To assess whether UVC tips migrate within the first 10 days of life, to describe the extent of any migration, and to evaluate the current practice of determining the line position using ECHO/ POCUS.

Methods:
Retrospective study. Inborn Infants born between 1 May 2023 and 31 October 2023 and with a UVC inserted were recruited. Data was collected from Badgernet and Electronic patient records until day 10 of life or until UVC removal, whichever occurred earlier. Serial X-rays were used to calculate the distance between the UVC tip and T8 vertebra (considered ideal position) in vertebral units for each infant. One vertebral unit corresponded to one vertebra. Positive and Negative were determined by whether the UVC tip is above or below the T8 vertebra.(Eg T6 +2, T9 -1).

Results:
- 22 infants included
- UVCs move during their dwell time despite fixation
- Movement is variable, but they mostly move out/ down
- Longstanding UVCs were very likely to be too low (T10 or below) after 7 days of life (67%)
- UVC-associated Thrombus - 9% (? related to being too long in early days)
- UVC Extravasation - 5% (known to be suboptimal position but used due to problems with access)
- Some ECHO/ POCUS reports included the exact location of the UVC tip, but not all.

Conclusions:
UVCs migrate during their dwell time. To minimise complications, it is essential to balance the risks vs benefits of keeping the line when suboptimal. It is recommended that UVC fixation and line tip be monitored regularly and that a standardised way of reporting the ECHO/POCUS with the categorisation of UVC tip position be used.

Graphs



P1- P22 are Patients, and Brackets show Birth Gestation

Preterm Perinatal Optimization: Are we improving in the management of Preterm Birth?

Thi Da W[1], Aslam N[2]
[1]Mid Yorkshire Teaching NHS Trust, [2]Mid Yorkshire Teaching NHS Trust

BACKGROUND

Preterm birth (PTB) is the single biggest cause of neonatal mortality and morbidity. The NHS Long Term Plan reiterates its commitment to the reduction of the PTB rate from 8% to 6% by 2025. In response, the updated Saving Babies Care Live Bundle 3 has been continuously focused on three key areas, including the prediction, prevention, and preparation of women at high risk of PTB.

Our aim is to ensure compliance by percent for the six items audited against the years 2020–2021, to evaluate the management of women at risk of PTB and the optimisation of suspected preterm birth (sPTB) against local and national guidelines.

DESIGN

A retrospective review of the case notes (85) of women who were referred to the Preterm Prevention Clinic (PPC) and those delivered less than 37 weeks over a three-month period (1st April 2023 to 30th June 2023) at Mid Yorkshire Teaching NHS Trust.

Key successes in current reaudit compared to previous audit in 2021

- Appropriate referral to PPC improved to 85% from 81%
- Timely Administration of ACS improved to 87% from 42%
- IV MgSO4 maintained at 100%
- Delayed clamping of the cord improved to 85% from 41%
- Appropriate place of Birth improved to 100% from 83%

Key concerns

- Indicated PTB - 52%
- Intrapartum antibiotics for sPTB – 80% (33)

CONCLUSION

- Majority of women were risk stratified and referred appropriately to PPC.
- Management at PPC was in accordance with local and national guidance.
- To improve perinatal optimization for those who are for indicated preterm birth
- MDT involvement and decision making for indicated PTB

Creation of the Liaison Consultant Role: A NICU Service Improvement

Tanney K[1], Mahaveer A[1], Parr M[1]
[1]Manchester University NHS Foundation Trust

Background

St Mary's Hospital NICU is a 69-cot tertiary referral centre for foetal medicine, surgery and specialist medical care. Adequate consultant cover is imperative to ensure patient safety, good clinical decision-making and optimal patient flow. Demand for advice / conference calls and capacity reviews has increased and requires 24-hour consultant input. Alongside managing ICU activities, attending FMU, antenatal / postnatal wards, complex deliveries, MDMs and safety huddles had become challenging. A new innovative role was introduced in October 2023 as Neonatal Liasion consultant. An evaluation was undertaken 6 months following introduction to assess impact for Neonatal patients and affiliated services, and to guide its further development.

Methods

We carried out a Surveymonkey questionnaire asking all Neonatal medical, senior nursing and operational staff their views on the impact the role has had. We also invited Obstetricians, Foetal Medicine and regional transport Service staff to contribute.

Results

We collated responses and found that 73% responders felt the role had had a positive impact for babies, families and staff.

Specific feedback included enhanced accessibility of consultants for reviews, counselling, deliveries and activity huddles, significant reduction of pressure and increased focus for ICU consultants, and improved MDT working with Obstetrics and Foetal Medicine. NICU coordinators feel there is enhanced patient flow due to earlier decision-making and senior medical helicopter view.

Some responders made suggestions to expand the role for wider antenatal counselling +/- workplace-based assessment clinics for trainees. There was caution not to overload the role, losing efficacy or efficiency.

Conclusions

Overall the Neonatal Liaison role has had a positive impact on workload, patient flow, patient care and parental communication, with improved working between maternity and Neonatal teams. The role will continue to be reviewed with the aim of seeking parental input as to where additional consultant interaction would be valuable for NICU families.

Image

Appendix 1 - Timetable of Liaison Consultant duties

	Monday	Tuesday	Wednesday	Thursday	Friday
08:30	8:30 NICU Huddle SR 8.35 Attend CDU for rapid review with Obstetrics 09.00 PNW trouble-shooting with tier 2 9:30 SMH patient Flow meeting (Teams) 10:30 Counselling FMU/CDU/Antenatal wards Transport liaison/ Attendance at Deliveries 11:00 Outreach Board Round/Trouble shooting Monthly Surgical mortality and morbidity meeting attendance.	8:30 NICU Huddle SR 8.35 Attend CDU for rapid review with Obstetrics 09.00 PNW trouble-shooting with tier 2 9:30 SMH patient Flow meeting (Teams) 10:30 Counselling FMU/CDU/Antenatal wards Transport liaison/ Attendance at Deliveries 11:00 Outreach Board Round/Trouble shooting Q&S meeting if appropriate	8:30 NICU Huddle SR 8.35 Attend CDU for rapid review with Obstetrics 09.00 PNW trouble-shooting with tier 2 9:30 SMH patient Flow meeting (Teams) 10:30 Counselling FMU/CDU/Antenatal wards 11:00 Perinatal transfer meeting – teams Transport liaison/ Attendance at Deliveries Outreach Board Round/Trouble shooting	8:30 NICU Huddle SR 8.35 Attend CDU for rapid review with Obstetrics 09.00 PNW trouble-shooting with tier 2 9:30 FMU Planning MDT Meeting 10:30 Counselling FMU/CDU/Antenatal wards Transport liaison/ Attendance at Deliveries 11:00 Outreach Board Round/Trouble shooting	8:30 NICU Huddle SR 8.35 Attend CDU for rapid review with Obstetrics 09.00 PNW trouble-shooting with tier 2 9:30 SMH patient Flow meeting (Teams) 10:30 Counselling FMU/CDU/Antenatal wards Transport liaison/ Attendance at Deliveries 11:00 Outreach Board Round/Trouble shooting
12:00	12:45 Monday Lunchtime meeting 14:00 Xray meeting 15:00 – 16:30 Results Triage Handover and FINISH 16.30	14.00 Consultant meetings if appropriate 14.30 Cardiology MDM 15.00 – 16.30 Results Triage Handover and FINISH 16.30	13:00 Junior Doctor Teaching 15:00 -16:30 Results Triage Handover and FINISH 16.30	12.00 -14.00 Simulation 12:30 Surgical MDT 13:30 Microbiology MDT 14:30-16:00 FMU Clinic 15.00-16.30 Results Triage Handover and FINISH 16.30	12:30 Consultant Education and Meeting 15:00-16:30 Results Triage Handover and FINISH 16.30

Clinical prediction models to diagnose neonatal sepsis in low-income and middle-income countries: a scoping review

Sturrock S[3], Neal S[1,2], Musorowegomo D[4], Gannon H[1], Zaman M[5], Cortina-Borja M[6], Le Doare K[3], Heys M[1], Chimhini G[4], Fitzgerald F[7]
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Background: Neonatal sepsis is a leading cause of neonatal morbidity and mortality. This burden is felt disproportionately by neonates in low- and middle-income countries where access to laboratory diagnostics and specialist care is limited. Clinical prediction models (CPMs) for neonatal sepsis can improve diagnostic accuracy, facilitating earlier treatment for cases and avoiding antibiotic overuse. However, no previous review has synthesised the evidence surrounding the types of CPMs validated in low- and middle-income countries.

Methods: We performed a scoping review of CPMs for neonatal sepsis diagnosis using Ovid MEDLINE, Ovid Embase, Scopus, Web of Science, Global Index Medicus, and the Cochrane Library. Any study reporting validation of a new or existing CPM for neonatal sepsis (sepsis occurring <28 days of life) in a low- or middle-income country as defined by the World Bank was included. Studies were excluded where neonates could not be separated from a larger paediatric population or where factors included in the CPM were not described. Studies were selected by two independent researchers.

Results: From 4024 unique records, we included 52 studies validating 35 distinct models. Most studies were set in neonatal intensive or special care units in middle-income countries and included neonates already suspected of sepsis, with only 3 studies set in the WHO African region. Three quarters of models were only validated in one study, and only 11 models did not use any laboratory parameters.

Conclusions: Our review highlights several literature gaps, particularly a paucity of studies validating models in the lowest-income areas where sepsis is most prevalent, and models for the general, undifferentiated neonatal population that do not require laboratory facilities. Furthermore, heterogeneity in study populations, definitions of sepsis and classification thresholds prevents meaningful comparison between studies of the same models and may hinder progress towards useful diagnostic tools.

Transformative Simulation: Using Simulation as a PDSA Cycle to Stress Test a New Neonatal Major Haemorrhage Protocol

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[1]Liverpool Women's NHS Foundation Trust

Introduction

Health Education England have recently endorsed simulation activity as a crucial mechanism through which new policies and procedures can be tested to identify latent patient safety threats.
Our tertiary neonatal intensive care unit (NICU) has, in response to national standards and recent safety incidents, developed a Neonatal Major Haemorrhage Protocol (NMHP). This is a complex, dual-site protocol, requiring action from staff in multiple departments over both sites. We explain how simulation was used in the context of a Plan, Do, Study, Act cycle to aid in guideline refinement.

Methods & Outcomes

PLAN
We designed a complex in-situ simulation of the NMHP aiming to identify issues in knowledge, processes and equipment which may increase risk to patients.

DO
The In-Situ Simulation took place on 13th February 2024. Twelve staff members participated: five nursing and three medical participants, plus four facilitators.
The simulation was conducted in real time: simulated drugs and blood products were drawn up and ran accurately and emergency blood products were delayed by forty minutes.

STUDY
In lieu of a traditional debrief, the debrief was utilised as a platform for participants and facilitators to highlight any problems encountered during the simulation. 16 primary issues were identified related to equipment, processes and educational needs of staff, as well as inaccuracies and/or omissions within the new protocol.

ACT
28 separate action points were developed, including amendments to the protocol, need for additional staff training, changes to processes in ordering blood and sending blood samples to a second site and creation of a ‘Neonatal Major Haemorrhage Box.’ A further simulation is planned for July to test the actions.

Conclusion

Simulation is a valuable tool in quality improvement and can be utilised in the PDSA Cycle to identify and minimise latent patient safety threats not identified earlier in the protocol development process.

Navigating Neonatal Dengue Hemorrhagic Fever: A Case Report on Clinical presentation and Therapeutic Dilemmas

Dematawa P[1], Dissanayake C[1]
[1]Teaching Hospital Peradeniya/ Faculty Of Medicine Peradeniya

Dengue fever (DF) mosquito born, can also vertically transmit. Neonatal dengue (ND) is often misdiagnosed due to similarities with bacterial sepsis or birth trauma. Late pregnancy dengue can transmit the infection to the newborn. Here, we present a case of neonatal dengue hemorrhagic fever (DHF), emphasizing treatment challenges.

Case Report:
A term neonate delivered by LSCS due to fetal distress, but no resuscitation required presented with high fever from day 4 managed with IV antibiotics. The antenatal period was uneventful except maternal fever and thrombocytopenia two days prior delivery. By day 6, the condition deteriorated, exhibiting persistent fever and respiratory distress. Upon admission, the baby was febrile, had rhonchi on with a tachycardia of 170bpm and hepatomegaly. Investigations revealed leukopenia and thrombocytopenia of 5300 and 33000 *109/ l respectively. HCT was 48%. Positive NS1 antigen and Dengue IgG was positive. USS revealed moderate ascites and bilateral pleural effusions. Diagnosis of DHF was made, with the infant presumed to be 12 hours into the critical phase. Management included targeting a platelet count of 40,000, fluid therapy based on clinical assessment, maintaining hematocrit between 40%-45%, ensuring urine output of 1-2 mL/kg/hour. Respiratory support provided with CPAP with significant improvement at 16 hours post-admission.

Conclusion
Vertically transmitted ND presents a spectrum of disease without established management protocols. Clinical manifestations range from mild symptoms like fever with petechial rash, thrombocytopenia, and hepatomegaly to severe conditions such as pleural effusion, gastrointestinal bleeding and intracerebral hemorrhage. Neonatal presentation does not consistently correlate with maternal disease severity, immune status, or delivery method. However, maternal infection timing, especially around delivery, heightens the newborn's risk of symptomatic disease. Maternal dengue IgG antibodies passively transferred to neonates can induce intense, early-onset DHF necessitating vigilant monitoring with maintaining platelet above 40000, hematocrit of 40-45%, and targeting urine output > 1ml/hour

Direct Antiglobulin Test for Prediction of Neonatal Hyperbilirubinemia Needing Treatment: A Systematic Review and Diagnostic Test Accuracy Meta-analysis

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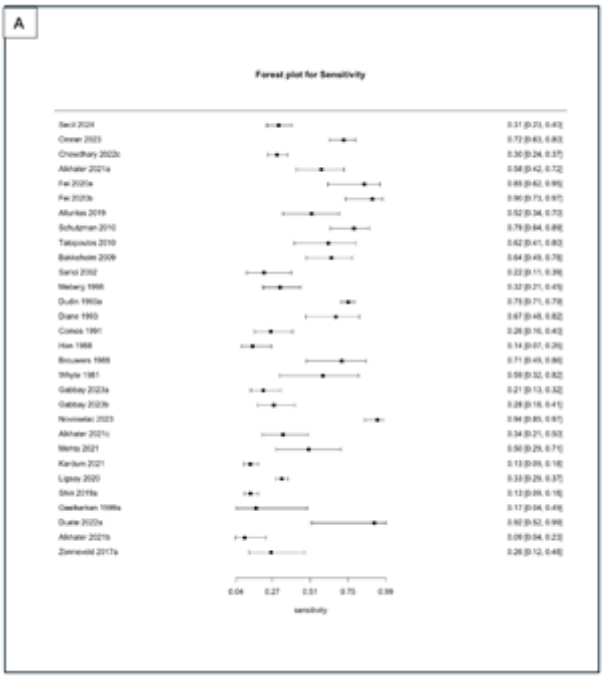
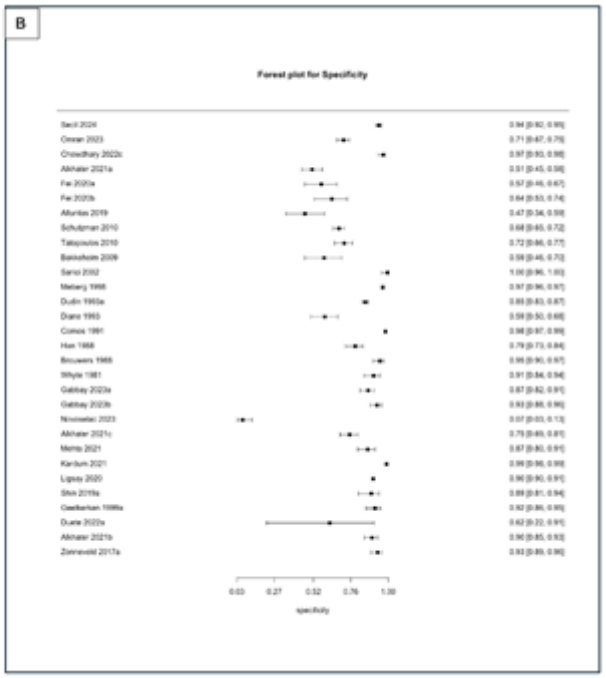
[1]James cook University Hospital, [2]Department of Neonatology, Institute of Medical Sciences and SUM Hospital, . , [3]Department of Neonatology, Ankura Hospital for Women and Children,

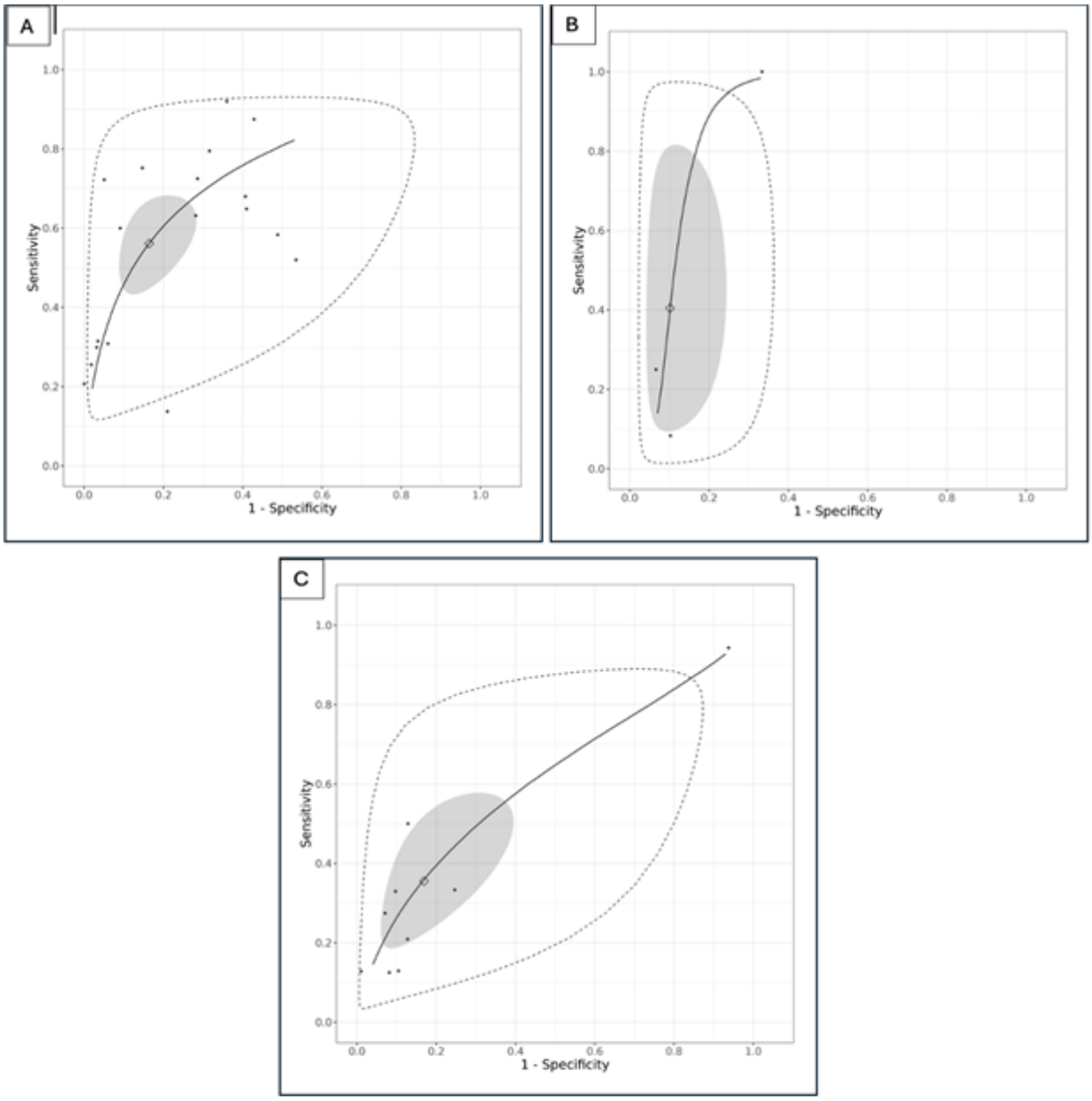
Importance: The Direct Antiglobulin Test (DAT) is commonly used as an additional tool for predicting significant neonatal hyperbilirubinemia (NNH) requiring intervention. However, evidence for this approach is limited.
Objective: To evaluate the diagnostic utility of DAT in predicting the need for phototherapy and double volume exchange transfusion (DVET) in neonates with ABO and Rh incompatibility settings. (PROSPERO: CRD42022297785)
Data sources: MEDLINE, Embase, CENTRAL, CINAHL, and Web of Science were searched from inception until 1st February 2024.
Study Selection: Randomized controlled trials (RCTs) and non-RCTs were eligible for inclusion.
Data extraction and synthesis: Two reviewers screened the titles and abstracts blinded to each other. A bayesian bivariate random-effects model was employed for the diagnostic study accuracy (DTA) meta-analyses. Risk of bias was assessed using QUADAS-2 and certainty of evidence (CoE) was adjudged according to the GRADE guidelines.
Main Outcome and Measures: Need for phototherapy and DVET.
Results: 53 studies were included in the systematic review, and 28 were synthesized in meta-analysis. For the outcome of the need for phototherapy, the pooled sensitivity (95% credible interval (CrI)) and specificity (95% CrI) of DAT in ABO incompatibility (18 studies, n=10,110) were 56.1% (44.5%, 67.8%) and 83.6% (71.6%, 90.8%). For Rhesus (Rh) incompatibility (3 studies, n=491), the sensitivity and specificity were 40.4% (12.2%, 81.7%) and 89.9% (72.7%, 94.6%). The CoE was predominantly low. For the outcome need for DVET, the pooled sensitivity and specificity of DAT in ABO incompatibility (3 studies, n=2,652) were 83.6% (35.8%, 99.6%) and 74.5% (40.3%, 92.7%). For Rh incompatibility (2 studies, n=240), the sensitivity and specificity were 80.3% (34.2%, 97.3%) and 68.0% (25.3%, 92.1%). The CoE was predominantly very low.
Conclusion and Relevance: In ABO and Rh incompatibility, DAT probably has moderate specificity and low sensitivity for predicting the need for phototherapy.

Graphs





Image



- Small circle represent each study
- Small triangle denotes the combined sensitivity and specificity
- Grey area represents the 95% credible region
- Dotted line represents the 95% prediction region

Cloudy urine in a neonate due to Tamm-Horsfall proteinuria

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Background:
Neonates with severe dehydration can present with cloudy urine. It is not uncommon to find renal medullary hyperechogenicity on ultrasound in these babies and the reported incidence is 3.9–37% within 7–10 days after birth(1). This is due to the deposition of Tamm-Horsfall protein produced in the renal tubules of neonates in a state of dehydration in the first few days of life. In these babies, there might be proteinuria and increase in serum creatinine, urea and uric acid. The laboratory parameters and the ultrasound findings normalise within few weeks with adequate hydration of the babies.

Case report:
A 36-hour old male neonate was reviewed for not passing urine since birth. He was born at term in good condition with birth weight of 3.6 kg. Antenatal scans were normal. He was exclusively breastfed. Examination showed palpable bladder and normal blood pressure. Urinary catheterisation drained very cloudy urine (Image 1). Urine dip showed 2+ protein and no WBCs. Renal function showed high creatinine (80 micromol/l) with normal electrolytes. Urine protein-creatinine ratio was raised at 69.3mg/mmol but serum albumin was normal. He was treated with iv antibiotics for suspected infection. Feeding plan and support was given.
Ultrasound on day 3 showed normal urinary tract and echogenicity within renal medullary pyramids bilaterally (Image 2), likely in keeping with Tamm-Horsfall proteinuria. Urine microscopy, blood and urine culture were negative. Antibiotics were stopped after 48 hours. On follow up, proteinuria subsided at 8 weeks. Repeat renal Ultrasound showed disappearance of medullary echogenicity. Baby was feeding well with adequate weight gain.

Conclusion:
Tamm Horsfall proteinuria is a common benign cause of cloudy urine in a neonate and this produces transient renal medullary hyperechogenicity on Ultrasound.

Reference:
1. Makhoul IR et al. Neonatal transient renal failure with renal medullary hyperechogenicity: clinical and laboratory features. Pediatr Nephrol. 2005

Graphs

Image

Use of Budesonide nebulisers as a treatment for Chronic lung disease – Review of practice in a Tertiary Neonatal Unit

Fitzpatrick S[1], Kennedy V[1], Jain S[1]
[1]Royal Bolton Hospital

Background
Systemic corticosteroids are widely used to support weaning from mechanical ventilation in extremely preterm infants. However, they have side effects and may have an impact on neurodevelopment. Inhaled corticosteroids, such as nebulised Budesonide, could theoretically provide targeted lung treatment whilst reducing systemic effects. Budesonide nebulisers are used in a few neonatal units in the UK, including Bolton Neonatal Unit (level 3 NICU), but the practice is varied.
This project aimed to review the use of budesonide nebulisers and develop a local guideline.

Methods
Data was collected retrospectively using BadgerNet and medical records of < 32-week gestation infants treated with budesonide nebulisers in Bolton NICU between October 2020 and November 2023.

Results
Thirty-three infants received budesonide nebulisers, 84.8% (n=28) of which had received an entire course of antenatal steroids. Twenty-five infants born <28/40 gestation received prophylactic hydrocortisone. Twenty-four infants (72.7%) received dexamethasone.
The mean postnatal age for commencing budesonide nebulisers was 49.75 days, ranging from 26 to 133 days. The corrected gestational age at commencement ranged from 28+3/40 to 48+0/40 (median 32+1). Five hundred micrograms twice daily was the commonest dose (n=30, 90.9%). The duration varied widely from 9-81 days (n=23). Of these infants, 78.2% (n=18/23) had stepped down their mode of respiratory support during their course.

39.4% (n=13) of infants in the study needed replacement Hydrocortisone for adrenal insufficiency. 51.5% (n=17) did not have a short synacthen test. Three infants (9.1%) were treated for oral thrush whilst receiving budesonide nebulisers.

Conclusion
Although many infants weaned their respiratory support whilst on nebulisers, cumulative steroid dose was high in this patient group. We will review our practice against current evidence and develop a local guideline for improving our service provision. Further research is needed to understand this treatment strategy's long-term implications, risks, and benefits.

Introducing a change to the management of early-onset neonatal infection: Intravenous to oral antibiotic switch

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[1]Royal Devon University Healthcare NHS Foundation Trust

Background
Management of early-onset neonatal infection involves at least 36 hours of IV antibiotics. If there are ongoing concerns, IV antibiotics are continued for up to 7 days. This carries several disadvantages. We are changing this practice.

Methods
After significant stakeholder engagement involving MDT members across the South West, we have formulated a new guideline for the management of early onset neonatal sepsis. This involves a switch from IV to oral antibiotics (co-amoxiclav) for eligible babies at 48 hours of life. We have introduced this guideline from June 2024 and a number of babies have already been managed accordingly.

Our guideline applies to:
- Babies > 37 weeks
- Clinically well
- Negative blood cultures at 36 hours
- Ongoing infection concerns (CRP >10).
- Peak CRP <50 and falling

All babies treated with oral antibiotics have a telephone consultation with a clinician prior to the end of their course to ensure that they remain well. A standardised proforma is used. Any baby requiring review attends the neonatal unit.

Results
To evaluate the potential impact of our guideline, we conducted a retrospective analysis of babies born in 2022. 66 babies received a prolonged course of IV antibiotics. Of these, 50 (76%) would have been eligible to switch to oral antibiotics. This equates to a reduction in hospital stay of 150 days per year.

At present, quantitative outcomes are being recorded including the number of babies switched to oral antibiotics, the number of hospital days avoided, rates of re-attendance, and any adverse events. We are also measuring parental and staff feedback.

Conclusion
To our knowledge, we are the first UK centre to pilot this change in practice. We hope that proactively sharing our successes and challenges will inspire others to consider incorporating IV-to-oral antibiotic switch in the management of neonatal infection.

A HUMAN FACTORS APPROACH TO LEARNING FROM FAMILY FEEDBACK IN A SCOTTISH NEONATAL INTENSIVE CARE UNIT

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Background
Implementing Family Integrated Care (FICare) requires understanding families' experiences in the Neonatal Intensive Care Unit (NICU) and capitalising on their feedback to improve these experiences. Taking a human factors approach, using the Systems Engineering Initiative for Patient Safety (SEIPS) model can help NICU staff identify relevant system barriers and facilitators (i.e., persons, tasks, tools/technology, organisational, internal and external environment factors) to FICare and improve learning from family feedback for future practice and training.

Aims
- To review currently collected family feedback;
- To develop a family feedback learning system that integrates information from different sources, prompts for a systems analysis through SEIPS, providing concrete learning points for dissemination to the whole NICU team.

Methods
Retrospective analysis of feedback sources, i.e., Care Opinion and Parent Discharge Questionnaires (PDQs), over 1 year (June 23 – June 24);

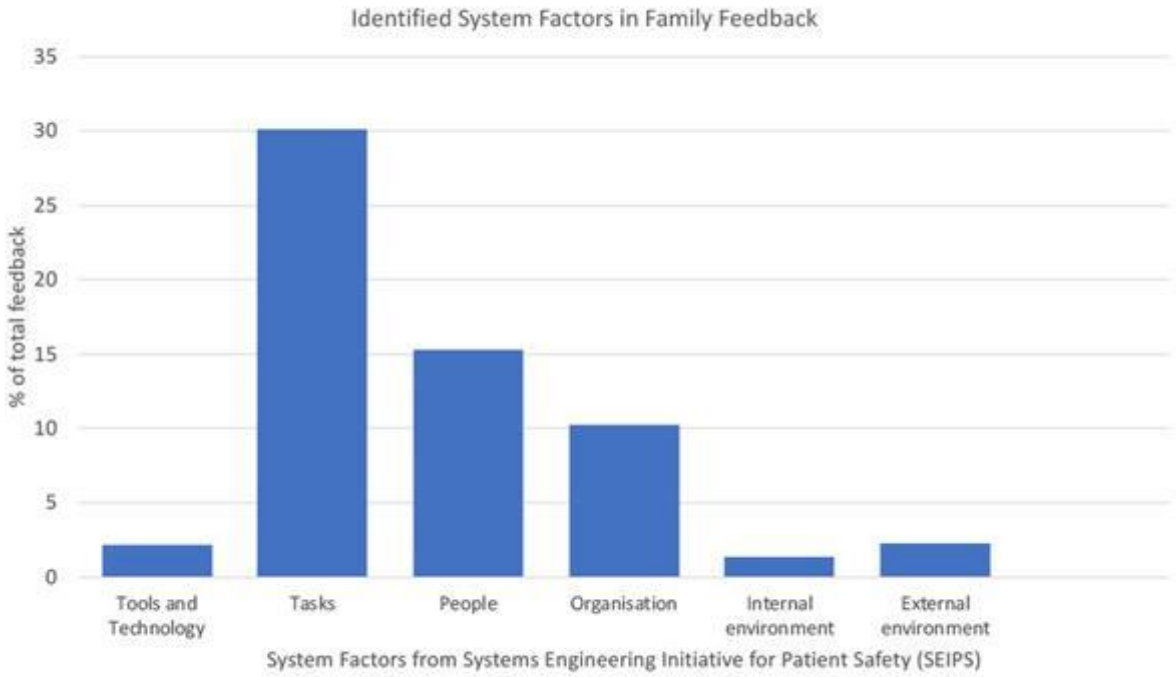
Inclusion criteria: all feedback sources relating to family experiences at a Scottish NICU;

Document Analysis: deductive thematic analysis of all feedback sources using NVivo, inter-rater reliability using kappa.

Results
Overall, 28 feedback documents were thematically analysed, 6 Care Opinion stories and 22 PDQs, with substantial agreement between raters (kappa=0. 739). All feedback described positive experiences, with some suggestions for improvement. The SEIPS analysis identified and categorised relevant system factors contributing to family experiences in NICU (Figure 1) and their improvement suggestions (Table 1).

Conclusion
Family feedback shows the importance of the systems approach, with mostly Tasks performed within the unit, interactions with helpful People and positive Organisational structures contributing to a positive experience. Suggestions for improvement also show the importance of the systems approach in exploring all relevant factors that can improve family experiences. Using the SEIPS model from human factors can systematically help NICU teams categorise family feedback in a meaningful and consistent way in their analysis and their learning as a team.

Graphs



Image

Systems Engineering Initiative for Patient Safety Factor	Suggestions for Improvement
Tools and Technology	- V-Create (baby diary) access and ease of use
Tasks	- Information provision on breastfeeding and topping up feeds - Paternal involvement in skin to skin - Communication between parents and staff - Family involvement in baby's care
People	- Neonatal and community nurses - Breastfeeding team
Organisation	- Family card access to the unit - Collaboration between NICU and Obstetrics & Gynaecology unit
Internal Environment	- Side rooms for privacy
External Environment	- Collaboration between NICU and other hospitals

Co-production and pilot of a visual communication board to improve family and staff experience in the NICU

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[1]University Of Cambridge, [2]Rosie Hospital NICU, [3]Rosie Hospital NICU, [4]Rosie Hospital NICU

Background

Frequent nursing allocation changes and inconsistent information provision are key barriers to effective communication and family integrated care. A visual communication board providing an 'at-a-glance' insight into baby's care needs and parental perspectives may improve communication and family experience.

Aims

Co-develop and pilot a visual communication board and explore factors affecting future implementation

Methods

A new board, containing information about baby, their family and care plans, was co-designed and refined iteratively with parent focus groups. We piloted it with 7 families at different stages in their NICU journey, for one week each. Semi-structured interviews were held with parents to explore the utility of the board and its impact on parent-staff relationship, communication and parental involvement in care. Feedback from nurses was sought using a paper questionnaire.

Results

Parents described how the communication board positively impacted their experience through improving their autonomy and helping them adjust to the NICU, stating "anything that makes you feel involved in this situation where you can't do a lot is really good".

The board demonstrated a broad scope of utility; families used it in different ways and identified different sections to be most useful. Parents felt reassured that "nurses can understand more about [baby] when I'm not here" and that staff used the information to provide individualised care.

Parents wanted more frequent staff updates of the board and very few nursing feedback forms were completed, highlighting the importance of staff education and engagement in future implementation efforts. Nevertheless, completed forms demonstrated that nurses found the board useful and did not find detrimental to their workload.

Conclusions

The visual board improved communication and family experience on the NICU. Further staff education and engagement is necessary prior to wider implementation. The next phase is to conduct a larger pilot with a more diverse group of families.

Image

My Communication Board

My Name Is:

Today's Date:
My Nurse Today:
My Latest Weight:

My Family

My parents are:

Other important people:

My Care Plans

Physiotherapy:

Occupational Therapy:

Speech and Language Therapy:

SEED
Supporting • Empowering • Enhancing Development

All About Me!

These things make me happy:

I do not like these things:

Top tips to take care of me:

Things my Parents can do:

	On their own	With support
Nappy Change		
Mouthcare		
Tube Feeds		
Medications		
Temperature		
Transfer for cuddles		
Top and tail		
Dress me		
Position me in incubator		

Plan for the Day

Feeding Times:

Weighing Days:

M T W T F S S

Other care

For example: stoma care, catheterisation

My parents would like to do/know:

BAPM NSQI 3 Parental partnership in care: – How best can we implement it?

Wanigasekara R[1], Dunn E[1], Ponnusamy V[1], Wanigasekara R
[1]Ashford and St.Peter's NHS Trust
Aim:

As per BAPM Neonatal Service Quality Indicators, we aimed to gather parental feedback on their babies' care in our NICU to actively involve them in service development.

Method:

Parents were invited to participate in a semi-structured interview during their baby's discharge or transfer from our unit. Fifteen Interviews were recorded with consent, transcribed using Otter AI, and verified manually. Two reviewers undertook a thematic analysis of the qualitative feedback, followed by an overall third independent review.

Results:

Whilst the overall care provided was positively viewed by the families, four main themes (Human Connections and the Journey, Proactive Empowerment, Navigating Obstacles, Challenges and Dynamics of Structure) and several sub-themes covering various service elements were noted in the analysis, as shown in the Figure. Multiple service improvement projects were implemented as a direct result of parent feedback. These include environmental changes to optimise expressing rooms, the introduction of regular peer support opportunities to build resilience, the introduction of NICU Milestone stickers to celebrate individual journeys, 'Thank you for my Milk' cards to provide connection whilst physically separated and the launch of Peer Support Coffee mornings following Parent-led ward round. Optimisation of Perinatal teamwork and provision of accessible parent information through a new NICU Padlet was also prioritised to reduce stress for families undergoing preterm deliveries and empower them. Furthermore, this project has changed how we collect parent feedback, with plans progressing for parent focus groups on targeted NICU issues and a move to NICU-specific electronic feedback instead of generic hospital feedback.

Discussion:

Listening to families through open-ended questions provides more valuable information than commonly used structured electronic feedback forms. This paves the way for a true partnership in care with families and provides valuable insight for staff in understanding the complexities of neonatal care and hospital stays from a parental perspective.

Image

Themes	Sub themes	
Human Connections and the journey	Reassurance	• Pre-visits can be vital in providing re-assurance • Clear communication, professionalism, prompt reassurance reduces parental pressures • High level of staff knowledge helps to build parental confidence. • Discharge planning requires different reassurance and support.
	Memories/Milestone Celebration	• Staff Efforts to provide cherished memories, brings a sense of normality. • Heartwarming keepsakes; Meaningful gifts and celebrating milestones. • Reducing Physical and emotional distance through creating a homely environment (Bonding square etc)
	Relationship -Staff Support	• Open and honest relationship with the medical team and continued care with interest in families. • Inclusivity and constructive discussions. • Familiarity, personal connection with staff, and urging self-care made NICU homely
	Relationship- Peer support	• Connecting with other parents and sharing experiences help to be calm and navigate similar challenges • "Buddy system" for support.
Proactive empowerment	Parent Empowerment	• Inclusive personalised care. • Respectful, responsive and Proactive communication.
	Improving Individualised care	• Technical engagement and provision of early accessible information • Exploring possibilities of remote ward round attendance.
	Education: preparation for Preterm Birth (inc. prebirth visit)	• Pre-birth visits, NICU orientation, easily accessible information empowers and reassures parents. • Discussing calmly and comprehensively.
Navigating Obstacles	Resilience	• Building resilience from understanding the progress on NICU. • Drawing strength and knowledge from past experiences and putting it to practice
	Voicing concerns	• Inconsistency of plans and voicing concerns when agreed plans are not followed. • Respecting parents informed decision on choices and methods of feeding.
	Over medicalising	• Lack of clarity on treatment leading to seek 2nd opinion and extra investigations. • Requesting updates from only doctors and lacking confidence on the updates given by the nursing staff.
Challenges and Dynamics of Structure	Environment	• Availability of facilities and refreshments instilling comfort to continue parent care through out the day • To facilitate supportive visitation/ sibling support with dedicated space
	Worry/Frustration/ Uncertainty	• Emotionally intense, challenging and variable environment. • Fear of not knowing the rules/Breaking rules.
	Communication	• Effective, responsive communication without medical jargon and effective intercommunication among staff. • Importance of being in ward rounds and providing feedback to questions even if unable to attend in person.
	Variation In Practice	• Incomparable care with other units. • Frequency of ward rounds and difference in compassion

Empowering staff to facilitate Delivery Room Cuddles in a Tertiary Neonatal Unit

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[1]Oliver Fisher Neonatal unit , Medway NHS Foundation Trust

Background: Delivery room cuddles (DRC) are vital for improving health outcomes, enhancing maternal and infant well-being, and promoting a holistic, family-centred approach to care. DRC workshops were developed as part of a broader strategy to enhance acceptability among neonatal staff, which resulted in DRC successful implementation and embedding in our unit as standard practice.

Methods:
Delivery room workshops designed and delivered on labour suite utilising debriefing and demonstration by facilitators and staff practice to consolidate learning objectives.
Workshop delivered on multiple dates to facilitate attendance of the team members.

Results:
• A total of 32 members attended either of the three DRC workshops. including neonatal nurses, consultants, ANNP, junior doctors, physician associate and the midwifery team and 50% provided feedback.
• Out of those 16 staff members 87.5 % (n= 14) mentioned they had no previous training about DRC.
• Majority of participants self-assessed their confidence level in performing delivery room cuddles before attending the training on a scale of 1-5 where 5 is very confident and 1 not confident at all. A majority of about 56.3% scored 3 (n=9), 18.8% scored 4 (n=3),18.8% scored 1 (n=3), 6.3% scored 2(n=1).
• After workshops participants self-assessed on the same score their confidence level in performing delivery room cuddles and 68.8% scored 5 (n=11), 31.3% scored 4 (n=5).
• Some of the feedback from participants was “Well explained, to the point with hands-on”, “Brilliant workshop, clear, concise”,” really informative, reassuring and realistic”, “Workshop provided me with more understanding about moving the equipment to facilitate the cuddle”,” Excellently delivered session”, “Excellent temperature maintenance also discussed”, “highlighted the key points we need to know”.

Conclusion:
Training of staff to encourage and facilitate delivery room cuddles promotes a high-quality, family-centred approach to care, involving the family in the early moments of the baby's life.

Image

Antenatal abdominal cysts – Not as benign as you think!: Case report and literature review

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[1]West Hertfordshire NHS Trust Watford General Hospital

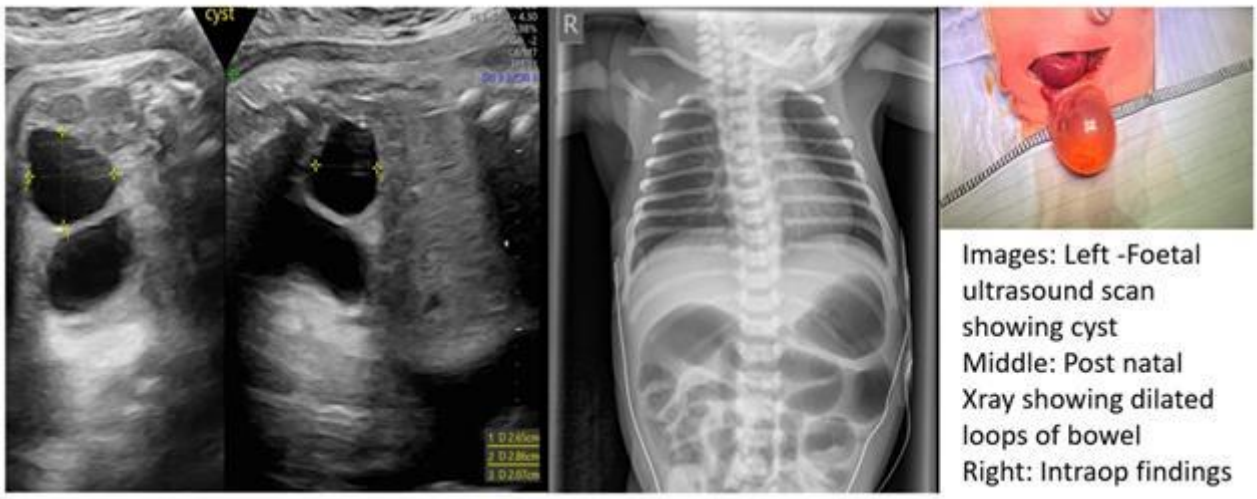
Background:
Fetal abdominal cysts, frequently seen on routine antenatal ultrasound, are usually benign singular structures. In a female, the most common cause is an ovarian cyst which often appear in the third trimester and disappear within few weeks after birth.
We present a case of an antenatal abdominal cyst which required surgical intervention and literature review of fetal abdominal cysts.

Case:
Female term gestation baby presented at 24 hours with non-bilious vomiting and bowels not opened since birth. Apart from a fetal avascular abdominal cyst 28x26x27mm at 28 weeks gestation there were no other concerns. At 30 hours of life, she developed abdominal distension and tenderness. Xray showed dilated bowel loops with no signs of perforation. Postnatal ultrasound showed an ovarian cyst with multiple daughter cysts. Laprotomy revealed right ovarian cyst torsion and had cystectomy with preservation of both ovaries and fallopian tubes.

Discussion and conclusion:
Fetal abdominal cysts can be ovarian, enteric duplication, genitourinary, mesenteric or choledochal cysts. Antenatal diagnosis may not be definitive but may be suggested by cyst position, relationship and normality of other organs. Ovarian cysts, although rare (1/2600 live births) are the commonest fetal abdominal cysts in a female. They are usually benign and are formed secondary to hormone stimulation during pregnancy and disappear in the early weeks post-delivery. However, 25% of these with large cysts >40mm can cause ovarian torsion, if >60mm can cause polyhydramnios and can lead to ascites if the cyst ruptures. Clinically this will be seen with abdominal signs and symptoms, requiring surgical intervention. Genomic testing is not needed for isolated cysts however if associated with other anomalies then testing should be considered.

This case highlights that perinatal health professionals need to be aware of the common causes of fetal abdominal cysts, their evolution and escalation of care if needed.

Image



Images: Left -Foetal ultrasound scan showing cyst
Middle: Post natal Xray showing dilated loops of bowel
Right: Intraop findings

Parental experience with Delivery Room Cuddles in a tertiary neonatal unit

Ahmed H[1], Atuanya N[1], Thake S[1], Harizaj H[1], Kirby C[1], Gbinigie H[1]
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Background: The importance of delivery room cuddles (DRC) for parents of preterm babies cannot be overstated. This practice offers numerous emotional, and psychological benefits that contribute to the well-being and confidence of the parents.

Methods:
A structured survey designed to explore parental experience with DRC.
Results:
• A total of 7 responses were received, 6 were DRC done with either one or both parents and one response from parents who did not have DRC.
• Some parents felt initially scared at the prospect of holding their baby and some felt reassured when they had the chance to cuddle their baby after birth.
• “Even though she was early, she was strong enough at that point to have a cuddle and that put me at ease” – Parent of a 28-week newborn.
• “I was not expecting the cuddle as she was extremely premature but happy I was able to hold her and see how she looked. It was very emotional, but everyone was reassuring”-Parent of a 23-week newborn.
• “Having a cuddle after birth would have reassured us, she was ok but equally we knew she would require extra help” -Parent of a 27-week newborn.
• “Having a cuddle after birth would have helped reduce my anxiety about the birth trauma and develop an emotional connection with my baby. I was just happy that he was stable, and dad was able to cuddle.”- Parent of a 24-week newborn.
• “The cuddle meant the world. I had an emergency c-section at 28 weeks and was all a rush so having that cuddle was calming”.

Conclusion:
Delivery room cuddles enhanced parental involvement as partners in care straight from the delivery room and healthcare providers play a key role in promoting this family-integrated care practice of proven benefits to both parents and babies

Implementation, Evolution and Embedding FICare as unit culture in a Local Neonatal Unit (LNU).

Ekanayake N[1], Shamsuddin M[1], Pardo Gras M[1], Lek E[1]
[1]The Hillingdon Hospitals NHS Foundation Trust

Background/Introduction

FICare is a model of neonatal care which advocates collaboration between families and staff. It was introduced by BAPM as a framework of practice in November 2021. Following the COVID pandemic, our neonatal unit embarked on a journey implementing FICare to enable parents to be partners in care with us.

Aim

We aim to present our journey to the wider neonatal network by sharing our experiences, the difficulties/ barriers we faced and sustainability moving forward.

Method/Intervention

A multidisciplinary core group was formed in October 2021. The London ODN was invited, joined and carried out a scoping exercise in November 2021. Parent representatives joined meetings from January 2022.

A new logo was created in keeping with the Hillingdon Cares logo. The hands represent the neonatal team supporting the parents care for the baby and keeping them in the 'heart' of everything we do. FICares was officially launched in March 2022. Monthly meetings (with ODN) and quarterly meetings (ODN/parent representatives) were held to discuss steps to fully embed it and solve issues which emerged.

Outcome

By early 2023, FICares was fully embedded within our NNU and launched in Transitional Care Unit (TCU), the first TCU in London to do so. From the Oct 23 NWL dashboard, Hillingdon had the highest percentage for breastmilk at 14 days/at discharge. This has continued into 2024.

As FICares is now unit culture, it has been merged as one of the 12 interventions in the BestPrem framework. Positive feedback have also consistently been received from parents/ODN representative.

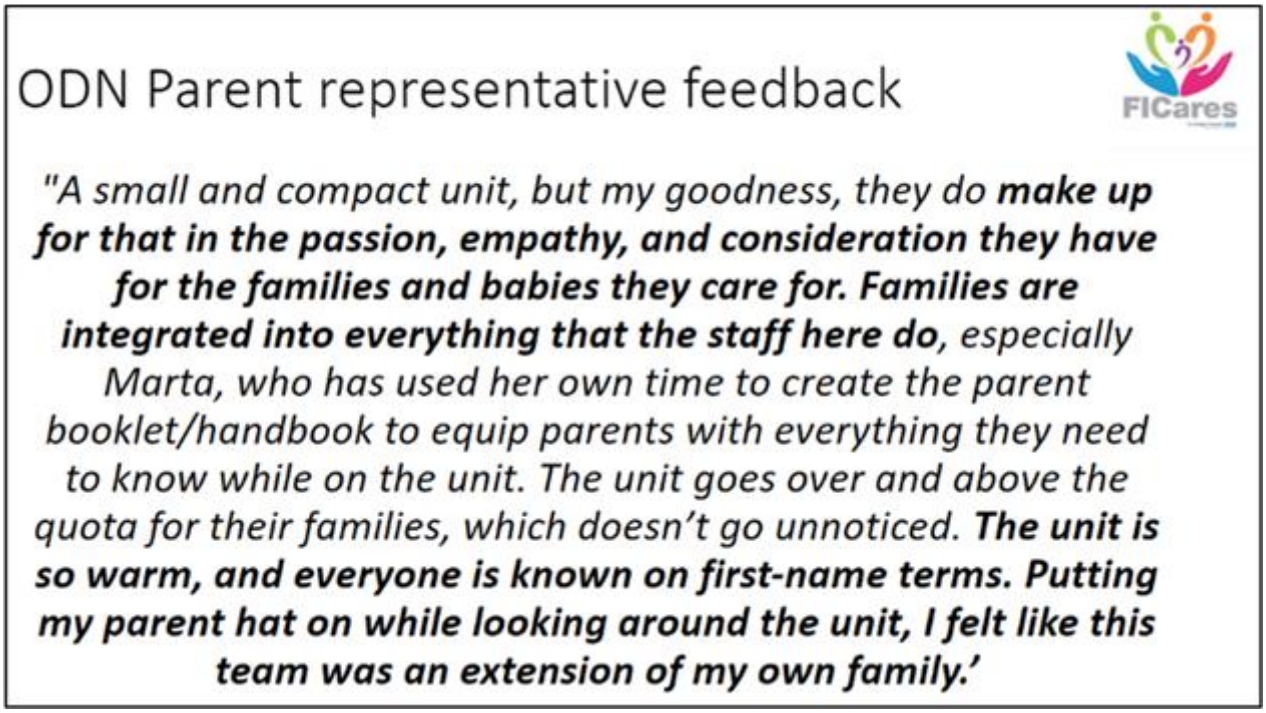
Summary

Through FICares, families are listened to, strengths identified and parents are encouraged to contribute to the care of their baby. This creates an environment that ensures necessary medical care goes hand in hand with the nurturing and loving care that parents provide for their baby.

Graphs

PARENT PARTNERSHIP	Standard	London	NWL	Hillingdon
Parental presence at consultant ward rounds *Was at least one parent included in a consultant ward round*	*N/A*	85.0% 9158/10771	82.0% 1974/2406	94.5% 378/400
Data Completion (Parents on ward rounds)	*</> 5% Ldn*	**85.0%**	**93.4%**	**89.8%**
Breastmilk feeding at day 14 *Babies born <34wks receive any of mother's milk at day 14*	*N/A*	86.1% 1341/1557	90.1% 346/384	97.2% 35/36
Data Completion (Breastmilk on day 14)	*</> 5% Ldn*	**98.1%**	**97.9%**	**97.2%**
Breastmilk feeding at discharge home *Babies born <34wks receive any of mother's milk at discharge home*	*>= 80%*	73.4% 1391/1895	78.3% 375/479	83.9% 78/93
Data Completion (Breastmilk at discharge)	*</> 5% Ldn*	**96.7%**	**96.2%**	**100.0%**

Image



GIANT CHORIOANGIOMA – A CASE REPORT OF NEONATAL NEAR MISS

Sundarapandian L[1], Gupta R[1]
[1]Lancashire Teaching Hospitals NHS Foundation Trust

Background:
Literature on neonatal presentation and management of chorioangiomas is scarce.
Case Report:
A primigravidous woman was detected with isolated “benign” chorioangioma of 4cm diameter at 28 weeks on follow-up scans for poor foetal growth. Neonatal MDT was not generated as complications were unlikely at that stage. Baby was delivered at 33+4 weeks by emergency C-section for reduced fetal movements, pathological CTG, and meconium-stained liquor under incomplete steroid cover. At birth, he was extremely pale with HR>100 needing brief resuscitation, and PEEP with cord gas showing pH 7.0, raised lactate, and Hb 60g/L. He further required surfactant and mechanical ventilatory support for 6 days. He had signs of hydrops, cardiac failure with anaemia from birth, and significant thrombocytopenia without active bleeding. The maternal Kleihauer test was positive. Management involved emergency blood, followed by three blood transfusions, a platelet transfusion, and inotropes from day 1-8. Nutrition and electrolytes were optimized with TPN whilst establishing full enteral feeds at day 20. There were no sepsis or neurological concerns. Parents were distressed as high-risk delivery was not anticipated. On follow-up, he was anaemic, managed successfully with iron, and is normal neurodevelopmentally.
Placental examination revealed histology consistent with chorioangiomatosis.
Discussion:
Chorioangiomas >4cm present with complications including foetal hydrops due to arteriovenous shunting; thrombocytopenia and anaemia due to sequestration; growth restriction and potential intra-uterine deaths.
Conclusion:
Anticipated potential preterm birth with close growth monitoring and perinatal counselling would help reduce neonatal morbidity and mortality in chorioangioma.

References:
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2. Ma H, Liu Z, Ruan J. Placental chorioangioma and pregnancy outcome: a ten-year retrospective study in a tertiary referral centre. BMC Pregnancy Childbirth. 2023 May 25;23(1):381. doi: 10.1186/s12884-023-05719-x.

Design and dissemination of an evidence-based pain management communication tool: a knowledge transfer initiative

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[1]University College London, [2]University College London Hospital

Background:
Babies in NICU experience repeated invasive procedures, however pain is managed in less than 30% of procedures received.[1] Consistent pain management is important to reduce negative long-term consequences of repeated noxious stimulation during a critical window of brain development.[2] Accessible knowledge transfer initiatives on neonatal pain management are needed to effect change in policy and practice. Our systematic review of estimated pain severity of 15 common procedures[3] is a potential resource to improve communication around pain management.

Aim:
To engage neonatal health professionals and parents with an evidence-based communication tool promoting neuroprotection through family-centred pain management.

Methods:
A communication tool for pain management was co-designed consisting of an infographic poster and explanatory video with a key message on neuroprotection. Estimated pain of 15 procedures were linked with recommended pain management strategies. The tool underwent 15 iterative cycles with feedback on accessibility from neonatal staff (n=15) and parents (n=11). Parents preferred areas by the cotside to access the poster. The final design was then actively disseminated in the local Level-III neonatal unit. Acceptability was assessed using an adapted Theoretical Framework of Acceptability questionnaire (Likert scale 1-completely unacceptable, 5-completely acceptable). Wider engagement initiatives targeted neonatal networks and professional bodies.

Results:
The tool's final design was introduced to neonatal staff for one month followed by pilot display above sink areas of nursery rooms. General acceptability of the tool was high among parents (n=9), median 5 [range 3-5], and slightly lower for nurses (n=14) and doctors (n=2), median 4 [range 2-5]. Twenty-eight health professionals registered interest in disseminating the tool to their local units. Twenty-five of these were allied health professionals.

Conclusion:
An accessible evidence-based pain management communication tool has potential to improve collaboration between health professionals and parents in managing neonatal pain. Future work will evaluate its impact on family-centred pain management.

Image

References:

1. Orovec A, Disher T, Caddell K, Campbell-Yeo M. Assessment and Management of Procedural Pain During the Entire Neonatal Intensive Care Unit Hospitalization. *Pain Manag Nurs*. 2019;20(5):503-511. doi:10.1016/j.pmn.2018.11.061
2. Duerden EG, Grunau RE, Chau V, et al. Association of early skin breaks and neonatal thalamic maturation: A modifiable risk?. *Neurology*. 2020;95(24):e3420-e3427. doi:10.1212/WNL.0000000000010953
3. Laudiano-Dray MP, Pillai Riddell R, Jones L, Iyer R, Whitehead K, Fitzgerald M, et al. Quantification of neonatal procedural pain severity: a platform for estimating total pain burden in individual infants. *Pain*. 2020;161(6):1270-1277. doi.org/10.1097/j.pain.0000000000001814

Current antibiotic choices for early and late onset sepsis in UK neonatal intensive care units

Kantyka C[1], Wanigasekara, R[2], Ponnusamy V[2], Clarke P[1,3]
[1]Norfolk And Norwich University Hospital, [2]Ashford and St Peter's Hospital, [3]Norwich medical school, University of east anglia

Background:
With increasing antibiotic resistance, and an extremely vulnerable patient group, judicious use of antibiotics on the NICU is required to achieve appropriate pathogen coverage. To understand current practice, we aimed to compare UK NICU guidelines for early and late onset sepsis (EoS and LoS) against National Institute for Health and Care Excellence (NICE) recommendations.
Methods:
Between January and May 2024, we contacted UK NICU's via email/telephone and requested their antibiotic guidelines.
Results:
We obtained guidelines from 53/53 (100%) NICUs. in-line with NICE guidance, the EoS recommendation was primarily benzylpenicillin and an aminoglycoside 96% (51/53); Largely consistent across gestations, Gentamicin was the most used aminoglycoside 85% (45/53). 4% (2/53) used a cephalosporin as monotherapy. 21% (11/53) specified second line antibiotics for EoS, with significant agent variance.
For LoS, 98% (52/53) of units had guidelines for empiric first line antibiotics; agents varied widely, with 77% (41/53) using narrow spectrum, in-line with NICE guidance. The combination of flucloxacillin and gentamicin was the most common 54% (29/53).
54% (29/53) of units had recommendations for infants with indwelling central venous catheters (CVC). There were many combinations, the most widely used single agent being vancomycin 60% (32/53), used in combination with Gentamicin in 18% (10/53).
Gentamicin was used, in combination with other agents, in 58% (31/53) of units. Pipercillin-tazobactam and Teicoplanin were both used in 13% of units (7/53) respectively. There were 2 units with different recommendations for preterms with indwelling CVC.
A second line agent for LoS was specified in 73% (38/53) units, but the agents varied widely, the most common second line combination being vancomycin and gentamicin, in 18% (10/53) NICUs
Conclusion:
Many units dictate no specific antibiotics for LoS in preterm infants, practice is varied in infants with indwelling CVCs. This potentially reflects these situations not being addressed in current NICE guidance.

An audit and improvement plan into timing of cranial ultrasound screening in premature neonates within University Hospital Wishaw

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[1]University Hospital Wishaw, [2]University Hospital Wishaw

Background

Neonatal brain injury in the form of intraventricular haemorrhage (IVH) and periventricular leukomalacia is most prevalent in neonates born <32 weeks gestation. Ultrasound screening protocols vary, but most will have at least one scan in the first week of life. Local protocol is to perform IVH screening scans at 1, 3, 7 days, and PVL screening on day 28 as minimum.

Aim

This retrospective audit set out to quantify the proportion of routine cranial ultrasound scans (CrUS) performed within a target timeframe, and the proportion of CrUS reviewed by a Consultant, with the aim of identifying areas for improvement.

Methods

Data was collected via Badger EPR from all neonates born at <32 weeks in University Hospital Wishaw from 01/01/23 – 31/12/23.
CrUS were classed as having been performed within target timeframe when performed within the first 24 hours of life for day one; and within 24 hours of target day for day 3, 7 and 28 scans.
CrUS were classed as having been reviewed by a Consultant where this was documented on the CrUS form on Badger.

Results

192 planned CrUS were performed. 148(77%) were performed within the target timeframe.
97(51%) were performed by a Consultant; 65(34%) were performed by a Tier 2 with Consultant review; and 30(17%) were performed by a Tier 2 with no Consultant review.

Conclusion

Most CrUS are performed within the target timeframe, however there is room for improvement.
Improvement plans:

- Highlighting patients due CrUS scans or consultant review on the patient handover
- Compiling a weekly list of scans for team review at a planned 'CrUS meeting'
- A supervised in-house training programme for ANNPs and medical staff to develop and maintain skills in CrUS

We aim to improve compliance of scanning in target timeframes to 90% within one year, with continual re-audit.

Multidisciplinary Quality Improvement Initiatives improving perinatal optimisation in the Southern Health and Social Care Trust.

McGuigan F[1], Verner A, McCaughey J
[1]Craigavon Area Hospital

Background:
Perinatal mortality is significantly higher in Northern Ireland with the majority of the deaths occurring in the less than 32 week gestation population. Perinatal optimisation has been shown to decrease both mortality and morbidity in this vulnerable group of babies.
Aim:
To implement perinatal optimisation in Craigavon Area Hospital and improve key perinatal outcome measures.

Methods:
A Perinatal multidisciplinary team (PMDT) was formed and reviewed current outcome measures within our unit compared to national standards. Three key areas were identified that were below national standard. QI initiatives were designed and implemented using QI methodology. The PMDT meets quarterly to review progress and determine ongoing strategies. Education of staff and sharing of results quarterly to ensure continued engagement within the wider perinatal team continues.

Results
The three key areas are:

- Early maternal breast milk (EMBM) – baseline level was no EMBM administered within 6 hours of birth. Currently 20% of eligible babies receive EMBM.
- Normothermia: Recognition of ongoing challenges with achieving normothermia led to the introduction of servo control probes on the resuscitaires. Standard is now achieved.
- Respiratory support at birth: An initiative to jointly improve the provision of CPAP from birth alongside increased maternal skin to skin time in delivery suite by using humidified CPAP was implemented. Baseline frequency was 34 % of babies receiving CPAP at birth (20% which was humidified) to currently 78%, (100% humidified).

Conclusion
Effective perinatal team working using QI methodology to implement change results in a more standardised approach of the care of preterm babies, with improved outcomes for our most vulnerable babies.

Management of antenatally diagnosed foetal volvulus and anaemia in a 28-week neonate

Han L, Kage A
[1]Royal London Hospital , [2]Royal London Hospital

Background
Volvulus occurs when a portion of the intestine becomes twisted around itself, leading to lack of perfusion, and eventually to haemorrhage, perforation or necrosis.
Volvulus occurs more commonly after birth; Foetal volvulus is a rare occurrence with an unknown incidence. Foetal volvulus can be difficult to diagnose as it often presents with non-specific signs which require a high level of suspicion for diagnosis. Typical postnatal ultrasound findings of a whirlpool/ coffee bean sign are less common.

Current literature supports in-utero transfer to a tertiary centre. Serial scans and monitoring should be used, and deterioration of scan findings or foetal distress should prompt delivery irrespective of gestation.

Case report
The mother presented to triage at 28+0 with reduced foetal movements. Detailed scan demonstrated foetal ascites and echogenic bowel, and dopplers were suggestive of foetal anaemia and distress. Concerns about the possibility of antenatal volvulus were raised. Worsening Cardiotocography was suggestive of ongoing haemorrhage, therefore a Caesarean-section was performed due to high risk of in-utero demise.

The neonate was born in poor condition, and was pale with a distended, dark abdomen. He was actively resuscitated, requiring high pressures and intubation, and an Umbilical venous catheter was inserted in theatre for a blood transfusion.

A postnatal ultrasound demonstrated the classic swirling mesenteric vessels and free fluid – suggestive of a perforated volvulus.

A laparotomy was performed the subsequent day and showed 15cm of dead volved small bowel and >25 ml of dark fluid intraperitoneally. The dead bowel was resected, and a jejunostomy with mucous fistula created.

Conclusion
Due to the rarity of Foetal volvulus, there is a paucity of case reports in infants less than 32 weeks. This case report highlights the need to have a low threshold to consider the diagnosis even in very preterm infants.

Current antifungal prophylaxis policies and practices in UK NICUs

Wanigasekara R[3], Kantyka C[1], Ponnusamy V[3], Clarke P[1,2], Wanigasekara R
[1]Norfolk And Norwich University Hospital, [2]Norwich medical school, University of East Anglia, [3]Ashford and St Peter

Background:
Invasive fungal infections cause significant mortality and morbidity in the neonatal intensive care unit (NICU). In 2021, the National Institute for Health and Care Excellence (NICE) recommended the use of antifungals to prevent fungal infections in preterm, <30 weeks' gestation and birthweight up to 1500g during antibiotic treatment for late-onset sepsis. We aimed to review current policies and practices for antifungal prophylaxis in UK tertiary-level NICUs.
Methods
Between January and May 2024, we contacted all 53 UK level 3 NICUs via telephone/e-mail to request a copy of their local antifungal prophylaxis guidelines.
Results
We obtained the guidelines from all 53/53 (100%) NICUs. 45/53 (85%) units had clear written guidance for the use of antifungal prophylaxis, while 8 (15%) units had no recommendation for routine antifungal prophylaxis. In comparison with NICE guidelines, there was great variability In in terms of recommendation for the gestational age (GA), birth weight (BW) for high risk neonates and the choice of antifungal prophylaxis. Only 16/53 (30%) units followed the specific NICE recommendations for GA and BW cutoffs. 19/53 (36%) units used either oral Nystatin or intravenous Fluconazole as first line depending on oral tolerance, GA and BW. 15/53 (28%) units used IV Fluconazole as first line, some stated switching to oral fluconazole when able but oral Nystatin was not considered despite the NICE recommendation. 4/53 (8%) unit guidelines stated necrotising enterocolitis as an indication to initiate antifungal prophylaxis.
conclusion
Compared to a previous UK survey done in 2006-7, our survey has found that use of antifungal prophylaxis has increased significantly but is still not universal. At-risk preterm neonates in units not receiving antifungal prophylaxis may be at an increased risk of invasive fungal infection, compared to those who receive antifungal prophylaxis in line with NICE recommendation.

Repeat blood gas monitoring of infants with foetal acidosis noted on cord blood

Brooks-Moizer A[1], McNay K[2]
[1]East Lancashire Teaching Hospitals, [2]North Western Deanery Paediatrics

Background: A policy for repeating capillary blood gases in infants with poor cord gases was introduced to LWNC in 2023. This was to ensure a repeat was performed for babies with cord gases that showed a degree of hypoxia.

Methodology: Audit of performance of the initial SOP, followed by 2 cycles where the cord gas parameters were altered and re-audited. The compliance with each step of the policy was measured individually as well as compliance with the policy in its entirety.

Results: In audit 1 31% of all babies in the trust had a cord gas checked after delivery, of these 49% needed a repeat. Compliance with the SOP was poor with it being followed entirely only 23% of the time with 24% not having any repeat gases. In cycle 2 despite threshold changes there was a static level of 47% requiring a repeat. In both cycle 1 and 2 (totalling 244 infants) none had a pathology which led to NICU admission that was detected by the repeat capillary gas (4 were admitted later for other reasons).
In cycle 3 the thresholds were changed following a literature review of levels of base excess and lactate which are predictive of future pathology. The base excess threshold was set to -10 and the lactate was set to 7. In this audit only 8% of the babies who had cord gases required a repeat.

Conclusion: Over successive audit cycles and with an associated literature review we adjusted the thresholds to reduce the burden of repeat capillary gases from 47-49% of the cord gases performed to 8%. Despite this reduction in repeats there were no missed cases of illness. There is still work to do to improve the timeliness of the repeats and work to review the numbers of cord gases being performed.

Image

Newborn cord gas SOP

Quality Improvement of Transition of Babies from a Level Three Neonatal Unit to Tertiary Paediatric Care

Musson R[1], Thomas R[2]
[1]Jessop Wing Neonatal Unit (JW), Sheffield Teaching Hospitals NHS Foundation Trust, [2]Critical Care Unit, Sheffield Children's NHS Hospital Foundation Trust (SCFT)

Background
There is no national neonatal to paediatric transition guidance, despite Neonatal and Paediatric Critical Care Clinical Network Specifications(1,2) recommending collaboration. Approximately 50% under 2-year-old children admitted to Paediatric Intensive Care Units (PICU) are Neonatal Unit (NNU) graduates, only 4.8% NNU graduates are admitted to PICU by 2 years age(3).

Regional tertiary NNU, JW and tertiary children's hospital, SCFT are separate NHS Trusts, 0.2 miles apart(4). Following parents' and staff feedback, a cross-Trust multidisciplinary/speciality (paediatric complex-care, respiratory, gastroenterology, critical care, and neonates) Transition Working Group (TWG) was formed to support enhanced transition (ET), i.e. advance planning; regularly documented multi-speciality/disciplinary information-sharing; parental involvement and support for babies with multi-speciality comorbidities and/or predicted prolonged in-patient stays.

Methods:
Quarterly TWG meetings identify and review care of babies who would have benefited from ET. Recently, we focused on delays to transfer or progression of care.

Results:
Between 2021-2024 (3.5years), sixty babies transitioned from JW to SCFT. Increasing numbers needed ET, 21-27% to 40-45% between 2021 and 2024.
Between January-June 2024, eight babies needed, yet only three received, ET. At transfer, mean age was 56 days (all >35weeks corrected gestation), mean weight 2.93kg, total hospital stay of at least 93 days.
Three had significantly delayed transfer attributed to lack of engagement/lead consultant (some sub-specialities), multidisciplinary team not involved, not combining investigations/surgery at SFCT with transfer, inappropriate admission/transfer to NNU, and reduced capacity and/or continuity of receiving sub-speciality team.
Key TWG outputs are complex-care team leading co-ordination, an improved joint guideline; new communication/transition-pathway documentation and parent information leaflets.

Conclusions:
Babies needing multi-speciality care may experience delays to transition. Multi-disciplinary/speciality collaboration can support effective enhanced transition.

References:
1) NHS England (2023) Neonatal Critical Care Clinical Network Specification.
2) NHS England (2023) Paediatric Critical Care Clinical Network Specification.
3) Seaton et al. Arch Dis Child 2024;109.
4) Google

Schwartz rounds on the neonatal unit – Time for reflection

Boothby E, Spierson H

Background:
Schwartz Rounds enable the multi-disciplinary team (MDT) opportunity to "explore the challenges and rewards intrinsic to providing care"[1]. Outcomes are multi-factorial for staff, patients and the organisation. The impact of rounds is cumulative[2] Whilst benefits are largely purported, difficulties are rarely discussed. How the session is run, panel preparedness and perception of safe space all affects the success of the round[2]. Those who understand and engage, are more likely to benefit from Schwartz rounds[3].

Methods:
Rounds were introduced in our neonatal unit in November 2022. Held quarterly they are attended by 10-20 MDT members and facilitated by Trust Schwartz facilitators. Potentially difficult themes e.g. 'Under pressure' have been balanced by positive themes e.g. 'Appreciation'. Rounds have been attended by doctors, ANNPs, nurses, housekeepers, managers, ward clerks, secretaries, AHPs and students. The panel have also represented different roles. We surveyed staff in May - June 2024 to gain a better understanding of experiences so far.

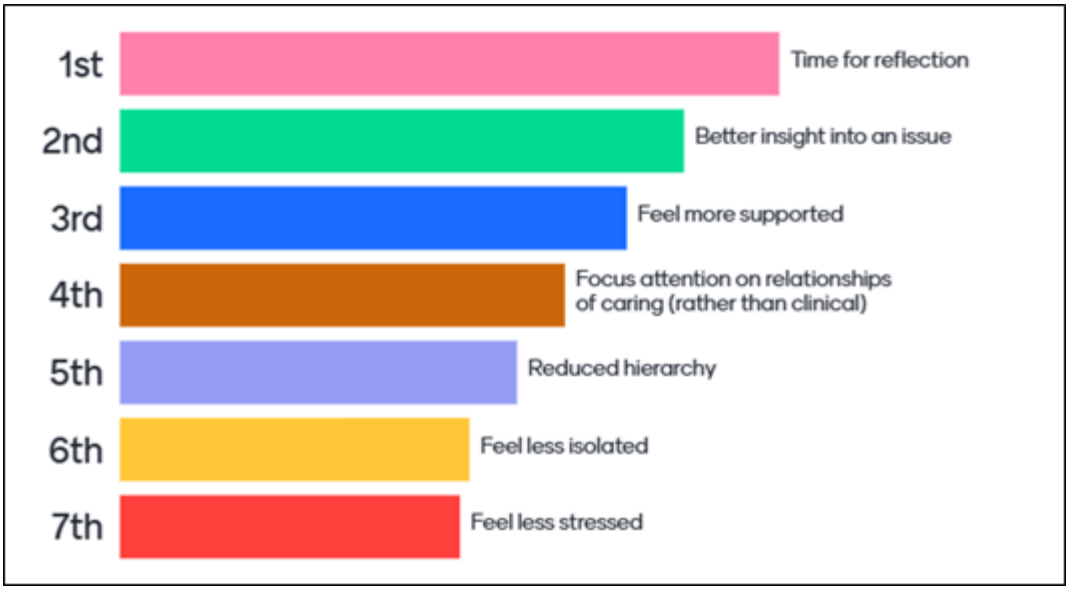
Results:
Of 34 survey respondents, 9 had never attended, mostly due to lack of time (such as rota patterns). Attendance has been highest in the medical team, likely reflecting nursing clinical commitments. No non-clinical staff responded to the survey.
Benefits described included: "feeling of being heard and understood", "shared stress lessens the load", "positive discussions with colleagues". Refreshments were complimented.

Figure 1. Participants ranking of known benefits of Schwartz rounds.

31% of respondents provided a negative comment. Themes identified were awkward silences, discomfort sharing, and environment.

Conclusion:
Introducing Schwartz rounds has provided the team with space to reflect. Providing refreshments promotes a relaxed atmosphere and encourages attendance. Creating a safe and comfortable space for all members of the MDT is a key consideration going forwards. Understanding participant experiences will help facilitators adapt rounds such as better awareness of silences.

Image


1st
Time for reflection
2nd
Better insight into an issue
3rd
Feel more supported
4th
Focus attention on relationships of caring (rather than clinical)
5th
Reduced hierarchy
6th
Feel less isolated
7th
Feel less stressed

Comparison of Early versus Late Milk Fortification for High-Risk Preterm Infants admitted to a Tertiary NICU

Elyas M[1], Forster C[1]
[1]Leeds teaching hospitals trust

Background:

Breast milk provides essential nutrition and protective benefits for all infants. Fortifying breast milk is critical for meeting the nutritional demands of preterm infants.
ESPGHAN 2023 guidelines recommend the early initiation of fortification once infants tolerate 40-100 ml/kg of breast milk, or using fortified donor breast milk or preterm-specific formula if necessary.

Aim:

To compare the impact of early versus late milk fortification on preterm infants at high risk for metabolic bone disease.

Methods:

A retrospective review included preterm infants under 32 weeks gestational age or with birth weights under 1500 g, across three time periods:

• Late fortification group: (June – Nov 2022)
1/2 fortifier at 100ml/kg/d feeds
Full fortifier at 150ml/kg/d feeds

• Early fortification (full fortifier at 100 ml/kg/d feeds)
- Group 1: Jan – June 2023
- Group 2: Sep 2023 – Feb 2024

Exclusion criteria:

• Patients who died or transferred before 14 days of age
• Surgical patients

Results:

- In the late fortification group :

45% of infants had high ALK P levels with nearly half requiring calcium/phosphate treatment, and 33% still needing treatment at discharge.

- Early fortification Group 1 :

32% had ALK P levels between 500-700.
58% required treatment and 26% remained on treatment at discharge.

- Early fortification Group 2 :

demonstrated further improvement, with 37% having ALK P levels between 500-700, only 18% needing calcium/phosphate treatment, and a minimal 4% discharged while still on treatment.

Conclusion:

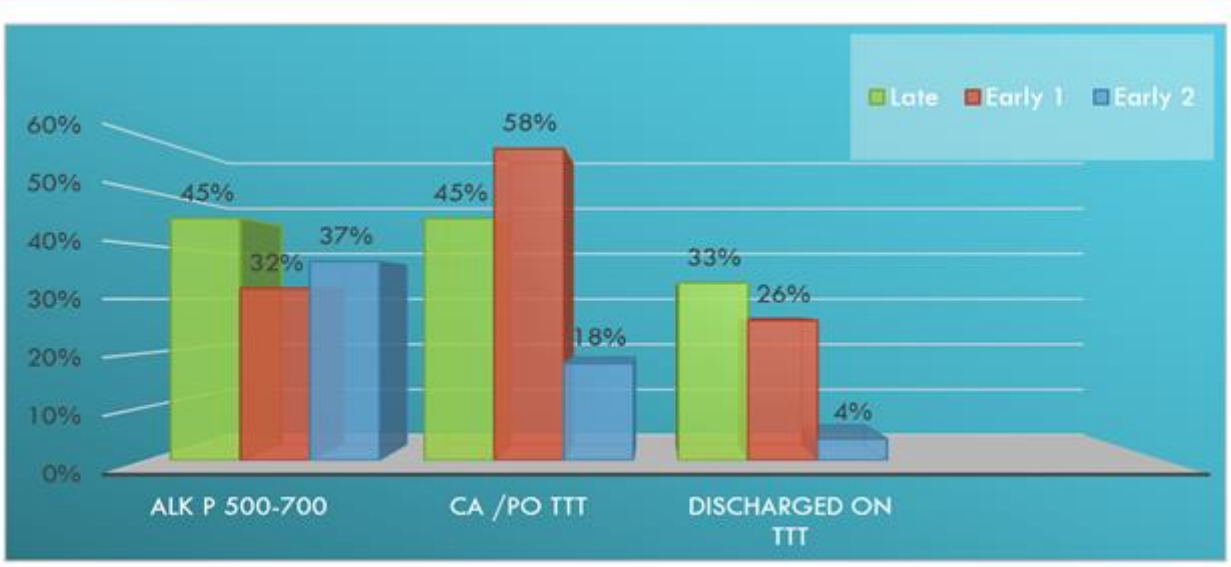
- Fortification at 100ml/kg/d feeds has shown reduction in ALK P levels and decreased the necessity for calcium/phosphate treatment both during hospitalization and upon discharge.

-This approach improves outcomes for preterm infants at risk of metabolic bone disease compared to late fortification. Additionally, it minimizes post-discharge clinic visits and monitoring, alleviating the burden on families.

Graphs

Group	Number of patients	ALK P 500-700 %	On Ca/Po4 ttt %	Discharged on Ca/Po4 %
Late fortification	24	45	45	33
Early group 1	19	32	58	26
Early group 2	27	37	18	4

Image



Cyanoacrylate glue application in neonatal Central Venous Catheters (CVC): a tertiary centre experience

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Background:
Migration of the Umbilical Venous Catheter (UVC) is related to many causes including progressive desiccation of the Wharton Jelly, expansion of lungs and external catheter dislodgement (1). Similarly, Peripherally Inserted Central Catheters (PICC) may migrate due to suboptimal dressing technique or changes in limb position (2,3).
Medical cyanoacrylate glue for CVCs reduces the risk of movement and dislodgement of the line and has antimicrobial properties reducing the risk of central line bloodstream infections (CLABSI). (4)
In the context of the ongoing Quality Improvement (QI) work in the neonatal units of Leeds Teaching Hospitals focused on CVC safety and training, line glue was introduced to prevent migration of the device.

Method:
The outcomes of the six-month (September 2023- March 2024) usage of line glue have been analysed. The line tip position was assessed based on the traffic light system, which was developed as part of the QI project. Additionally, standardisation of limb and body position have been implemented as an attempt to avoid misinterpretation of images.

Results:
A total of 197 lines were identified. 55/197 (30 UVCs and 25 PICCs) catheters had glue applied (28%). 5/24 (21%) glued UVCs migrated outside the 'green' area as per traffic light system versus 7/20 non glued (35%). 0/16 glued PICCs migrated outside range versus 9/49 non glued catheters which were found either 'short' or within the cardiac silhouette.
The cases which had no repeat X-Rays post confirmation of initial correct position, along the low-lying/ short catheters which were replaced within 24hours were excluded.

Conclusion:
More education is needed regarding the use of cyanoacrylate glue, as it has only been utilized in a quarter of the cases. The results are very promising, particularly for PICCs, where the standardization of limb position and the use of glue have effectively minimized migration to zero.

Graphs

Image

Line glue data:

232 catheters in 6 months

Excluded:

- **35 UACs→ Total of 197 CVCs**

55/197 catheters had documented line glue applied: 28%				
UVC				
	Number	Excluded as low lying	Excluded as no X-Ray available on D2-3	Migration (outside range as per local Traffic light diagram) *
With glue	30	0	6 (20%)	5 (21%) **
Without glue	52	19 (36%)	13 (25%)	7 (35%)
PICC				
With glue	25	0	9 (36%)	0
Without glue	90	3 (3%)	38 (42%)	9 (18%) ***

***For UVCs which are @ T10 STRAIGHT POSITION have also counted as within range (consultant decision)**

**** All catheters migrated in low lying position**

**** 8/9 in low lying position and 1/9 in the cardiac silhouette**

Regional Neonatal and Paediatric Patient Flow.

Right bed, Right time, Right way

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Background
Working collaboratively across the Neonatal and Paediatric Networks in Yorkshire & Humber, we recognised challenges around transition (progression) of patients and families between services. We sought to create best practice guidance aiming to address issues observed and reported.
The goal being to enhance existing processes, provide consistency in approach, and improve patient flow within the system- with the right use of the right beds for the right patients, and to ensure the best child, family, and carer experience within this process

Method
Inspired by the work of Dr Sarah Seaton, we sought to understand the current local successes and challenges across both neonatal and paediatric care within the region.
Scoping was undertaken via:

- Staff survey - referring and receiving units.
- Parent/family engagement via social media
- Discussion with Network Clinical Leads
- Interview of AHP experience
- Neonatal and Paediatric Transport Service

Results
Feedback from parents, carers, and staff members was clear that there are opportunities to reduce the unnecessary negative impact that poorly planned progression has on the patient and their family, and for us to replicate what works well.
It became apparent whilst undertaking this work that the need was much broader than first considered (NIC-PIC), and the document developed needed to encompass a set of generic principles that could be applied to many different scenarios.

Conclusion
The broad principles developed apply equally to both neonatal and paediatric care and we have used the term 'Progression' to describe this process with the definition:

‘Transfer of any Baby, Child, or Young Person (BCYP) to another service following a period of intensive, high dependency and/or specialist care, which may include transfer across regional boundaries.

We have developed a guidance document ready to pilot and embed.

Birthday cuddles are a safe and beneficial experience for preterm babies

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[1]King's College Hospital NHS foundation Trust

Background
Perinatal optimisation in preterm deliveries is essential. King's College Hospital (KCH) implemented cuddles right after birth, birthday cuddles (BC), to improve perinatal experience for babies and their parents, while adhering to the BAPM framework for perinatal optimisation.

Aim
To assess whether birthday cuddles are safe to do in preterm babies and how they influence other perinatal optimisation measures (thermoregulation, early maternal breastmilk).

Methods
- Population: all babies born at less than 34weeks' gestation at KCH from October 2023 to May 2024.
- Retrospective analysis of performance on BAPM perinatal optimisation measures and BC rates and comparison on outcomes between the babies that received birthday cuddles and those that did not.
- Outcomes: serious adverse event (extubation, significant desaturation/ bradycardia), hypothermia on admission, administration of maternal expressed breastmilk (MEBM) within 24 hours.

Results
- Eighty-nine eligible babies were included: median gestational age at birth 31+0 (range 23+3-33+6) weeks, average birth weight 1431 (480-2510)grams. Of them, 69 babies had BC and 20 did not.
- No serious adverse events during BC were reported.
- There was no significant difference between the two groups for admission temperature to NICU below 36.5° (20% of the BC group VS 15% of the no-BC group). The median admission temperature was the same for both groups: 36.8 (36-39.2)° and 36.8 (36-38.3)° respectively.
- Babies who had birthday cuddles were significantly more likely to receive MEBM within the first 24 hours (70% of the BC group VS 30% of the no-BC group) and within 48 hours (87% VS 50%).

Conclusion
Birthday cuddles were safe to perform in preterm babies. Furthermore, this early contact proved to have a positive impact on early expressing and early MEBM feeds.

BAPM

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This document was produced by the British Association of Perinatal Medicine (BAPM).

BAPM is a membership organisation that is here to support all those involved in perinatal care to optimise their skills and knowledge, deliver and share high-quality safe and innovative practice, undertake research, and speak out for babies and their families.

We are a professional association of neonatologists, paediatricians, obstetricians, nurses, midwives, trainees, network managers and other health professionals dedicated to shaping the delivery and improving the standard of perinatal care in the UK.

Our vision is for every baby and their family to receive the highest standard of perinatal care. Join us today.

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