ID: 142

**TITLE:** NEONATAL X-RAYS: IMPROVEMENT OF THE QUALITY AND DIAGNOSTIC EFFICACY

**AUTHORS:** Cleaver, Caroline 1; English, Linzi 2; Garg, Shalabh 3

**AFFILIATIONS:**
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**CONTENT:**

Plain film X-rays are frequently used in neonatal intensive care units (NICU) to diagnose potentially life-threatening conditions and to guide management. As neonates are often attached to complex equipment, portable X-rays are required that pose specific challenges affecting the diagnostic efficacy. An optimal x-ray taken in the first instance facilitates timely diagnosis, avoid repeat imaging and undue increased radiation exposure. The concerns were raised by NICU and Radiology staff regarding the quality of neonatal x-rays. We planned to undertake this project to try to standardise the procedure for neonatal x-rays for both the departments and improve quality.

The objectives of this project were:
- To identify the range of issues with neonatal X-rays
- To ensure compliance with local guidelines
- To Identify best practice and any specific suboptimal aspects

In our tertiary neonatal unit, we retrospectively evaluated the chest and abdominal x-rays (sample size 101) over a 3 month period using a search query on the Picture Archiving Computer Systems (PACS) database.

Pre-defined assessment criteria were identified after discussion with the radiologist and included positioning, collimation, lead protection, artefact, exposure, rotation, lordosis. These are all linked and determined by the exposure factors used to obtain the images (Table 1).

The results of the image quality and diagnostic acceptability are shown in Table 2. It is appreciated that neonatal imaging is very challenging and possibly striving for 70% of X-rays to have no errors at all may be unrealistic. The vast majority of imaging was deemed diagnostically acceptable, however, for 14% of chest and abdominal X-rays to be unacceptable was poor.

We further assessed the radiographs particularly for two main categories, image quality and positioning. The various aspects to achieve these two standards were further evaluated (Table 3).

We included regular x-ray teaching as part of the nurses’ education programme. We implemented to have two nurses helping for NICU x-rays. We did not assess the need for repeat radiographs due to poor quality or diagnostic inability which is something to study in future. This project highlighted the need to identify basic practice points to improve the quality of NICU x-rays as well as diagnostic ability and reduce the need for repeat x-rays.

**IMAGES:**

https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=47d1b7102b249195a237fca3f32df8fdd-MjAxOS0wNSM1Y2UyNjY2YmRjZWFi

Table 1- Assessment criteria for Neonatal X-rays
Table 2: Image Quality and Diagnostic Acceptability
Table 3- Common practical themes related to image quality and position in Neonatal Radiographs
COI: None declared
**ID:** 296  
**TITLE:** PROGNOSTIC MODEL FOR THE DEVELOPMENT OF LETHAL OUTCOMES IN PREMATURE INFANTS WITH SEVERE INTRAVENTRICULAR HEMORRHAGES  
**AFFILIATIONS:** State Institution "Institute of Pediatrics, Obstetrics and Gynecology named after academician O. Lukyanova of National Academy of Medical Sciences of Ukraine", Department of Neonatology, Kyiv, Ukraine  
*Department of Pediatrics #1 with Propedeutics and Neonatology, Higher state educational institution «Ukrainian medical stomatological academy», Poltava, Ukraine  
**CONTENT:**

Intraventricular hemorrhages (IVHs) in premature infants constitute one of the causes of neonatal deaths, early and late neurological complications. Our previous study showed that mortality rates in the infants with severe IVH were changeless during the 2009 – 2016, they remain high among infants weighing <1000 g (50 % to 50 %), also among infants with weight 1000 – 1499 g (71.4 % and 25.0 %, p = 0.09) and they are significantly higher than in the developed countries of the world. Therefore, the purpose of our study was to work out a prognostic model for the development of lethal outcomes in premature babies.

The study included 76 premature infants: n=40 (weight 903.72 ± 56.61 g, GA 26.15 ± 0.34 weeks) – the group of those, who died, and n=36 (weight 1187.3 ± 58.0 g, GA 28.09 ± 0.37 weeks) – the group of survived. We identified risk factors that were reliably associated with the development of lethal events in infants with IVH and the influence of the genetic models: (DD + DІ vs. II) of the ACE, (CA + AA vs. AA) of the AGT2R1, (aa + ab vs. bb) of the eNOS gene and their combinations. The blood of newborns was the material for genetic studies, sampling occurred on the 6-10th day of life after diagnosis. To determine the polymorphic variants of the ACE, AGT2R1 and eNOS genes, the polymerase chain reaction and the restriction analysis of the amplification reaction products were conducted.

In this study, 40 (52.6 %) infants with severe IVHs died, the median incidence of the death was on the 11th day. The simple logistic regression analysis proved the associations between the child death and GA (OR 0.66; p = 0.01), trachea intubation (OR 0.4; p = 0.055); surfactant administration (OR 0.16; p = 0.025); sepsis (OR 3,2; p = 0,027), severe RDS (OR 8,1; p = 0,001), the level of CRP (OR 2.45; p = 0.072), the number of leukocytes (OR1,1; p = 0,01) and platelets (OR 0,99; p = 0,007) on the 6th day of life. The analysis of the lethal case function by Kaplan-Meier method revealed increased risk of mortality in infants with the combination of dominant models of ID & DD ACE gene + 4ab & 4aa eNOS gene. The prognostic model of the development of lethal events has high operational characteristics.

The prognostic model for the development of lethal outcomes in newborns with IVHs, which includes: intubation during resuscitation (β = -4.16), severe RDS (β = 4.4), platelet count (β = -0.02 ) and the level of leukocytes (β = 0.11) for 6th day of life has a sensitivity of 71.43 %, a specificity of 100.0 %, a positive predictive value of 100 %, a negative predictive value of 76 % and an area under the ROC curve – 0.9373.

**COI:** None declared
ID: 324

TITLE: USE OF A DECISION MAKING TOOL TO REDUCE ELECTIVE EXTUBATION FAILURE RATES IN A TERTIARY NEONATAL UNIT

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CONTENT:

Though there has been an increasing focus on use of decision making tools (DMT) for intubation in critical care, there has been less emphasis on use of DMTs to ensure safe and successful elective extubation. Data suggest that approximately 40-50% of extremely preterm (EP) babies require re-intubation within 72 hours following-elective extubation failure (EEF) (1). Re-intubation has a number of potential risks and side effects. Here we present data regarding the use of an elective extubation DMT in a level 3 neonatal unit. Our hypothesis was that use of the DMT would reduce the elective extubation failure rate on the neonatal unit.

We conducted a baseline evaluation (01/08/17-31/07/17) using routinely collected neonatal data (Badger net, Clevermed, Edinburgh) to establish the proportion of EP babies who required re-intubation within 72 hours following a first episode of elective extubation (outcome). The elective extubation DMT (as shown in figure three) was then introduced into clinical practice along with staff education (02/01/18-28/2/18) and the outcome re-measured for a 10 month period (01/03/18-31/01/19). A total of 22 infants were included in the survey in the pre-intervention group and 13 infants in the post intervention group. Initially presented as a poster at the British Association of Perinatal Medicine (BAPM) in September 2018 (as shown in figure four), but since then 5 more infants have been included.

The data suggest a reduction in elective extubation failure rates in extreme preterm infants compared to baseline levels, from 40.9% to 23% (as shown in figures one and two).

This is an improvement in elective extubation success rate after more infants were included. (Reduction in extubation failure now 23% as opposed to 25% previously (as shown in figures one and two and table one). However, the infant characteristics of the post intervention group were significantly different for Birth weight and gestational age (as shown in table one). They were similar in other aspects like percentage of males in both groups, surfactant administration and antenatal steroid administration.

Although the sample size is small, and the results not statistically significant, our preliminary data suggest that use of an elective extubation DMT may be of benefit in reducing elective extubation failure in extreme preterm infants. It may also allow for collaboration between the clinician and the nursing staff and uniformity of practice in the elective extubation of extreme preterm infants.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=c6458f5a4f5899df61f506abece4dc875-MjAxOS0wNSM1Y2UyNyY2YzJIMTI5

Figure one: Graph demonstrating a reduction in extubation failure rate between baseline and intervention groups.
Figure two: Graph showing extubation failure rate in the poster presented at BAPM conference in September 2018.
Figure three: Decision making tool for extubation in extreme preterm infants
Figure four: Poster presented at the BAPM conference in September 2018
Table one: Demography of infants included in the survey (both pre and post intervention groups)
COI: None declared
TITLE: IMPROVING HYPOTHERMIA IN PRETERM INFANTS AT ADMISSION TO A TERTIARY NEONATAL UNIT – A QUALITY IMPROVEMENT PROJECT

AUTHORS: Caroline Woolley 1; Pinki Surana 2; Laura Gilbert 3; Rachel OSullivan 4; Gurpreet Sunsoay 5; Danika Simkins 6

AFFILIATIONS: Neonatal Intensive Care Unit, Heartlands Hospital, Birmingham, England

CONTENT:

Hypothermia in preterm infants is associated with increased morbidity and mortality. The National Neonatal Audit Programme (NNAP) recommends temperature between 36.5-37.5°C at admission to the neonatal unit (NNU) for babies born at <32 weeks gestation. Our tertiary NNU was a national outlier for the NNAP measure of appropriate temperature at admission for two consecutive years 2016 and 2017 with only 39% and 52% infants respectively having normothermia; whilst the national average being 65%.

A baseline retrospective audit was conducted on all hypothermic infants born <32 weeks between Apr17-Mar18 to ascertain areas that can be targeted to improve admission temperature. Incomplete documentation of thermal-control measures, variable theatre temperature, procedures in delivery-suite and transportation on resuscitaire rather than in transport incubator were the themes linked with hypothermia. A quality improvement (QI) initiative (Sep18) was implemented by a team of nurses and doctors. Staff awareness was raised about the importance of euthermia in preterm infants in NNU meetings and posters (Fig 1) highlighting good practice was displayed around NNU. A prospective audit was conducted between Dec18-Feb19 to evaluate compliance with above measures and improvement, if any.

21 babies included in the audit period, mean gestation of 28+5 weeks (23 – 31+3 weeks) and birth-weight of 1150g (500g-1790g). All had temperature measured after admission and 62% were normothermic, 5(24%) were hypothermic and 3(14%) were hyperthermic. 18(86%) had their temperature measured in delivery suite. 16(76%) had transport incubator used and 15(72%) a transwarmer. Of the 5 hypothermic babies at admission, 3 were hypothermic in delivery-suite. 4 babies were hyperthermic before transfer. Of these, 3 remained hyperthermic at admission. All hyperthermic babies had transwarmers. Only 37% of babies born in theatre compared to 75% of babies born in delivery rooms were normothermic at admission. 4 of the 5 hypothermic babies were born in theatre (average theatre temperature 23°C). Births out of hour’s or at weekends and time to transfer to NNU did not influence the admission temperatures.

Following the QI, rates of normothermia at admission improved from 52% to 62%. QI highlighted importance of establishing normothermia before transfer to facilitate normothermia at admission and hence the importance of actively measuring the temperature at the earliest point during initial stabilisation and making adjustments accordingly. Monitoring theatre temperature closely will also be part of our continuous QI project.

COI: None Declared
ID: 576

TITLE: PREVENTING HYPOTHERMIA IN EXTREME PRETERM NEWBORN ADMISSIONS: CONTINUOUS INFANT TEMPERATURE MONITORING IN THE DELIVERY ROOM ENHANCES A REGIONALLY IMPLEMENTED THERMOREGULATION CARE BUNDLE

AUTHORS: Paul Cawley 1, Lynn Jones 1, Paul Clarke 1, Priya Muthukumar 1

AFFILIATIONS: 1. Neonatal Intensive Care Unit, Norfolk & Norwich University Hospital, UK

CONTENT:

Neonatal hypothermia is associated with increased morbidity & mortality. Maintaining normothermia and preventing cold stress, is an important aspect of early newborn care.

In the East of England, a regional First Hour of Care quality improvement project has improved rates of normothermia in extremely preterm infants in our unit. However, a significant proportion remain outside our 36.5-37.5°C target.

As part of enhanced monitoring of infant’s delivery room cuddles, we have implemented a continuous infant temperature monitoring Standard Operating Procedure (SOP).

Aim: to assess if our continuous temperature monitoring SOP has improved rates of admission normothermia.

Retrospective audit of inborn infants ≤28+0 weeks gestation.

Historical data provided by the First Hour quality improvement project across 2 audit cycles on our unit between 2014-2017.

Contemporary admission temperatures, gestation, birth weight and admission time were from our electronic system for all admissions from 01/01/2019 to 31/03/2019.

Continuous data were analysed by a two-tailed Mann-Whitney test & categorical data analysed by the Chi-square test for trend. Data are medians, range (R) or interquartile range (IQR).

For continuous temperature monitoring we affix a skin temperature probe under the infant’s axilla. Our regional thermoregulation care bundle specifies optimal ambient room temperature, use of radiant heater, minimisation of drafts and use hat & plastic bag or hoodie.

Historical Data:
Pre-implementation (2014) n=7, median admission temperature 36.4°C [R 35.5-37.7°C]. August 2015-January 2016 n=11, median admission temperature 36.6°C [R 35.5-38.1°C]. March–August 2017 n=13, median temperature 36.9°C [R 35.8-38.0°C].

Contemporary Data
January-March 2019 n=8, median birth weight 848g, median gestation 26+5 weeks & median admission time 27 minutes. Median admission temperature 37.1°C [IQR 36.6-37.3°C]. Two infants’ admission temperatures were out of normothermia range; one infant 36.4°C and one infant, with gram positive early onset sepsis, 38.8°C.

Infants were significantly warmer on admission since starting the continuous temperature monitoring SoP, versus historical data: 37.1 Vs 36.5°C [IQR 36.6-37.3 Vs 36.0-37.0, p=0.04]

The figure shows a statistically significant trend of improving admission normothermia, as our audit cycles have progressed.

Within our small data series, we have observed an improving trend in admission normothermia. Continuous temperature monitoring has enhanced improvements from our regional care bundle. For the first time within our audit cycles, no infant was admitted with moderate hypothermia (Temperature<36.0°C). Continuous skin temperature monitoring started in the delivery room has the potential to assure admission normothermia for extremely preterm babies.
Contingency graphic: Percentage of Infants <28+0 Weeks Gestation with Admission Temperature Below, In and Above Target Range
Jan to March 2019 versus First Hour of Care Historical Data – Norfolk & Norwich NICU

COI: None declared
ID: 618  
TITLE: TEMPERATURE IN PRETERM INFANTS UNDERGOING PROCEDURES IN THE NEONATAL INTENSIVE CARE UNIT  
AUTHORS: Dr. Valerie Tsang,1 Dr. Nicoleta Barbu,1 Ms. Linda Smiles,1 Dr. Lisa K McCarthy1,2  
AFFILIATIONS: 1 The National Maternity Hospital, Holles St, Dublin 2, Ireland.  2 School of Medicine & Medical Science, University College Dublin, Ireland.  

CONTENT:  
Abnormal temperature in preterm infants after birth is associated with increased mortality and morbidity. Caregivers therefore aim to maintain normal body temperature (36.5 - 37.5°C) in newborn infants in the delivery room (DR) and on admission to the neonatal intensive care unit (NICU). The aim of this study is to monitor temperature in newborn preterm infants undergoing invasive procedures in the NICU.  

This prospective study was carried out between November 2018 and April 2019 at the National Maternity Hospital, Dublin. Infants < 32 weeks’ gestation or a birth weight < 2000 g undergoing invasive procedures (intubation +/- surfactant, central line insertion, thoracocentesis or lumbar puncture) in the NICU within the first 7 days of life were included. For each individual procedure infants core (rectal) temperature was measured at the start and end of the procedure. Infant demographics, admission temperature, procedure type, warming adjuncts, mode of ventilation etc. were also recorded.  

Data from 46 procedures performed in 29 eligible infants were included for analysis (see Results table). Almost half (46%) procedures were carried out in the first 12 hours of life. Mean axillary temperature on admission to the NICU was in the normal range 36.7 (0.5)°C; 12 (41%) infants had abnormal admission temperature. Mean core temperature just prior to procedure start was 36.3 (0.7)°C, this fell further to 36.1 (0.8)°C by procedure end. In 32 (70%) cases, infants had a core temperature outside of the normal range by procedure end, predominantly due to hypothermia (30 [65%]).  

Abnormal temperature, particularly hypothermia, is common in preterm newborn infants in our NICU. Infants undergoing invasive procedures in the NICU are at additional risk of temperature instability and hypothermia. Further studies are required to improve thermoregulatory care in small, preterm newborns during their NICU course.  

IMAGES: 
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=5365472411c3ac36c70fdaf833ce51dc-MjAxOS0wNSM1Y2UyNjY2Y2E4NmIj  

Results Table: Patient demographics, procedure characteristics and temperature at various time points.  

COI: None declared
ID: 646

TITLE: PREVENTION OF SIGNIFICANT HYPOTHERMIA (POSH) IN PRETERM INFANTS ≤32 WEEKS GESTATION.

AUTHORS: Dr Nicola McMullan 1; Lucy Bradley 2; Cora Hiatt 3; Dr Sarah Ellis 4

AFFILIATIONS: University Hospital Coventry, United Kingdom

CONTENT:

Effective care in the delivery room is crucial for ensuring good neonatal outcomes of preterm babies. Hypothermia during stabilisation is associated with increased neonatal mortality and morbidity, including an increased risk of necrotising enterocolitis, intraventricular haemorrhage, respiratory distress syndrome and hypoglycaemia. We recorded a high rate of hypothermia on admission in preterm babies ≤32 weeks gestation on our level three neonatal unit. We aimed to improve admission temperatures in this group through the implementation of a thermoregulation bundle, POSH (prevention of significant hypothermia) in preterm infants.

This quality improvement project started in December 2018. Pre-intervention data was collected retrospectively for the preceding 3-month period. Changes implemented included the delegation of a team member at resuscitation to manage thermoregulation, and the routine use of polythene bags, hats and nesting. Other guidance included recording temperature prior to transfer, and the use of an exothermic mattress if <37°C. Delivery room temperatures were monitored, and ventilation covers in theatre placed to reduce draughts. No-entry signs were placed on doors to prevent inappropriate interruptions during stabilisation. Neonatal staff were educated through posters, newsletters, and huddles. Data during the implementation process was collected prospectively between December 2018 and April 2019.

Pre-intervention analysis showed that in the 3 months prior to implementation 44 babies ≤32 weeks gestation were delivered. Of these babies, 20.45% had an admission temperature below 36.5°C. Since introduction of the bundle, between December 2018 and April 2019, 51 babies ≤32 weeks have been delivered. Birth gestation ranged between 23+5-32+0 weeks (mean 29+6), with a mean birth weight of 1039g (490-2160g), and 5 minute Apgar of 8 (4-10). 66.67% of babies were born via caesarean section.

Over this period, the incidence of hypothermia has reduced from 20.45% to 3.92%. The lowest admission temperature was 36.3°C. There has been an increase in rates of hyperthermia >37.5°C from 11.36% to 21.57% (5.8% above 38°C). Overall 74.5% of babies had a temperature within the recommended range of 36.5-37.5°C. This is above the national NNAP (National Neonatal Audit Programme) average of 64% in 2017.

This thermoregulation bundle has resulted in improvements in admission temperatures of preterm infants since December 2018. Increasing awareness and staff education has had a significant positive impact on reducing hypothermia in preterm babies ≤32 weeks admitted to the neonatal unit. The next step of our project is to address the increase in hyperthermia, particularly over 38°C that has been noted since the bundle was implemented.

COI: None declared
ID: 779

**TITLE:** REDUCING RETRIEVAL TIME IN HIGH RISK TRANSPOSITION OF THE GREAT ARTERIES (TGA) SIGNIFICANTLY IMPROVES CLINICAL OUTCOMES: A QUALITY IMPROVEMENT STUDY

**AUTHORS:** Amir Zayegh 1
Michael Stewart 2
Bennett Sheridan 3

**AFFILIATIONS:** Amir Zayegh: Neonatal Unit, Royal Children’s Hospital Melbourne, Australia
Michael Stewart: Paediatric Infant and Perinatal Retrieval Service (PIPER), The Royal Children’s Hospital Melbourne, Australia
Bennett Sheridan: Paediatric Intensive Care Unit, The Royal Children’s Hospital Melbourne, Australia

**CONTENT:**

Babies with Transposition of the Great Arteries (TGA) can deteriorate rapidly post birth if they have inadequate intracardiac blood mixing due to no or small restrictive ventricular septal defects and a restrictive foramen ovale. Prompt administration of prostaglandin E1 (PGE1) and urgent balloon atrial septostomy (BAS) are often required prior to definitive corrective surgery in this high risk group. Following concerns raised about a perceived high rate of pre-surgical ECMO utilisation for TGA babies, a quality improvement project was implemented to reduce retrieval team response time and improve outcomes for babies born outside a cardiac centre with antenatally diagnosed high risk TGA.

Retrospective cohort study involving babies with antenatally diagnosed TGA anticipated to require urgent BAS. The babies were born in a tertiary maternity service and required transfer by the regional neonatal retrieval service to the nearby paediatric cardiac intensive care (ICU) at the Royal Children's Hospital in Melbourne, Australia. This study of a quality improvement project implemented in 2015 assessed if reducing retrieval team response time to achieve a more rapid retrieval to the cardiac ICU resulted in improved clinical outcomes. The primary outcome was time from birth to arrival in the cardiac ICU. Secondary outcomes included need for emergent extracorporeal membrane oxygenation (ECMO) and clinical outcomes following BAS and definitive surgery.

There were 15 babies in the three years before and 27 in the three years after the quality improvement changes who had antenatally diagnosed TGA anticipated to require urgent BAS. The mean (SD) time from birth to cardiac ICU arrival was 159 (12) minutes pre intervention, and 103 (6) minutes post (mean difference −57 minutes [95% CI, −81 to −32]). There was a significant decrease in need for ECMO (33% pre intervention and 4% post, RR 0.11 [95% CI 0.02 to 0.65]), with a number needed to treat of 3.4 to prevent one ECMO episode.

Reducing the time from birth to arrival in the cardiac ICU for high risk babies with TGA is achievable and significantly improves clinical outcomes. Designing and implementing a process that details the critical steps in the collaboration between the tertiary maternity service, retrieval service and the cardiac ICU is the key to achieving improved outcomes.

**IMAGES:**
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=a6f8e7209e21edebcead6892189e9481-MjAxOS0wNSM1Y2UyNjY2Y2UyNjQ3

Table 1: Clinical outcomes post balloon atrial septostomy (BAS) pre and post quality improvement intervention to reduce retrieval time

**COI:** None declared.
ID: 884

TITLE: “REDUCTION IN DURATION OF LONG-TERM OXYGEN THERAPY IN BABIES WITH CHRONIC LUNG DISEASE WITH A NEW WEANING PROTOCOL”

AUTHORS: Mahesh Tammali 1
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AFFILIATIONS: Neonatal Department
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CONTENT:

The number of cases of chronic lung disease and babies discharged on long-term oxygen therapy (LTOT) have been increasing 1. There is a significant variation in the strategy of oxygen withdrawal due to lack of specific evidence, hence lack of consensus on best practice.2. Within University Hospitals Leicester, a time-based weaning protocol was followed until December 2015. From January 2016, a new protocol was trialed where weaning was based on clinical condition of the baby and overnight oximetry study (OOS) result. The aim of the study was to assess the clinical and economic impact of the new weaning method compared to the previous protocol.

Retrospective review of clinical records of babies discharged in 2014-15 were compared to 2016-17 for duration of oxygen (O2) therapy, number of clinic and community visits, number of OOS and cost of O2 cylinders used. O2 flow is weaned by 0.1L/min based on OOS done every 2 weeks until the flow rate is 0.1L/min. With old protocol, further daytime weaning was done in increments of 30 min, 1 hr, 2 hr, 3 hr twice daily off, 6 hr, 8 hr, 10 hr off with an OOS at each step. With new protocol, clinical parameters i.e. general health and nutritional status guide the daytime O2 weaning. Weaning is done in increments of 30 min, 2 hr twice daily off, 6 hr and 12 hr off in day time followed 2-3 weeks later by two OOS, one in oxygen and one in air. Babies who moved out of region or died were excluded.

In 2014-15, 33 babies were discharged on LTOT; 2 babies were excluded as moved out of region. In 2016-17, 33 babies discharged on LTOT; 1 baby died and 3 moved out of region. Both groups were comparable with regards to mean birth weight (kg), gestational age at birth and proportion of babies having co-morbidity. New protocol was associated with shorter duration of O2 therapy (P value 0.005). There was saving of £3215.54 for cost of oxygen in 2016-17 group with change in protocol. The parent satisfaction and the Friends and Family test score were 100%.

Structured monitoring and weaning based on clinical parameters led to shorter duration of LTOT and significant cost benefits in addition. The service users’ feedback was 100% positive. With only calculating oxygen cylinder cost benefit shown 3,200 pounds. This highlights the importance of coding & calculation of services cost to improve the service provision. The new protocol was recommended to revise O2 weaning guidelines in our center.

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Results

COI: "none declare".
ID: 930
TITLE: AVOIDING TERM ADMISSIONS INTO THE NEONATAL UNIT (ATAIN) – HOW CAN WE ACHIEVE THIS?
AUTHORS: Sonia Goyal 1
Nuha Homeida 2
Satwant Kaur 3
Harsha Gowda 4
AFFILIATIONS: Neonatology Department
Heartlands Hospital
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United Kingdom (UK)

CONTENT:

In England 60% of the infants admitted to the neonatal unit are term infants. This indicates avoidable harm which might have been caused with an associated avoidable cost to NHS and families.

ATAIN is an NHS improvement initiative under patient safety to identify harm leading to term admissions. The program aims to benefit mother and baby by avoiding unnecessary separation.

Aims: 1. To evaluate the current admission rate of term neonates to the neonatal unit. 2. To identify the main causes of admission.

Retrospective observational study which included all the term babies admitted to the unit between July-September 2018. Data for above babies was collected using Badger net admission record. We included all full-term infants (>37 weeks) admitted within seven days of birth to the neonatal unit and expressed as a percentage of all full-term live births. The study included 102 infants for whom demographic details were collected. We also collected and analyzed the data for mode of delivery, cause for admission, age at admission, length of stay and treatment received.

102 term infants were admitted to the neonatal unit and the total number of term live births in the hospital was 1460. Admission rate was 6.98% per 1000 term live birth. 53% were born by caesarean section and 47% were normal vaginal delivery. The average age at admission was 11.72 hours. The most common causes for the admission were suspected sepsis (65%), respiratory problems (48%), Hypothermia (3.9%), Hypoglycaemia (4.8%), Asphyxia (6.8%) and Jaundice (7.8%). Average duration of stay was 3.8 days. There was a considerable overlap between hypoglycaemia and hypothermia infants. 40% infants admitted with respiratory distress were born via normal vaginal delivery as compared to 60% born via caesarean section. All infants with hypoglycaemia and hypothermia were screened for suspected sepsis. All the blood cultures were negative.

The admission rate for our unit was almost 7%, which was more than the national reported rate of 6%. Respiratory problems are the major cause for the term admission to the newborn unit. More than half of them were born by caesarean section. Reducing Caesarean section, antenatal steroids for elective section and a robust management of neonatal respiratory distress pathway is necessary to reduce the respiratory problems in neonates.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=c775191dfdcef4fc4fb3d9b98cb0551d-MjAxOS0wNSM1Y2UyNjy2ZDI5M2E0

Causes of term admission to Neonatal Intensive care unit

COI: none
ID: 980
TITLE: PILOT TEST OF A MODULE ON NIRS FOR THE SAFEBOOSC III WEB-BASED TRAINING AND CERTIFICATION PROGRAM
AUTHORS: Mathias Lühr Hansen, 1
Marie Isabel Skov Rasmussen, 2
Gorm Greisen, 3
AFFILIATIONS: Neonatal Intensive Care Unit, Rigshospitalet
Copenhagen, Denmark

CONTENT:

SafeBoosC-III is an international clinical trial, aiming to randomise 1600 extremely preterm infants across twenty countries, to evaluate the effect of treatment based on cerebral near-infrared spectroscopy monitoring (NIRS) versus treatment and monitoring as usual. To ensure high quality of trial data and patient care, we have developed a multilingual online training program, to train relevant staff and test their competence. As we enter an under-explored area of e-learning, we have conducted a pilot study on the first of the five modules comprising the online training program, to test the feasibility of developing such a program on limited resources, for an international trial.

All modules are designed as integrated teaching and test modules and consist of initial learning material followed by a quiz, based on Blooms' taxonomy. The teaching methodology is case-based and uses immediate detailed feedback. The quiz is designed to recognise prior learning. The piloted module in this study focuses on the principles of NIRS monitoring. One-hundred doctors and nurses from five Neonatal Intensive Care Units across China, Spain and Denmark were invited to participate. Due to limited resources, translation of the module to Chinese and Spanish was done by local staff. Upon completion of the NIRS module, participants were invited to evaluate their experience by completing a survey consisting of close-ended questions with Likert scale responses based on Wang’s principles.

In total 81 of 100 invited staff members entered the training module and completed the online survey. Overall, 57% had prior experience with NIRS monitoring. In Denmark and China, the prevalence of experienced staff was similar (40% and 50%), while 94% of Spanish staff had previous experience. The median time and number of questions for completion was fifteen minutes and seven questions, respectively. Spanish participants were faster than both Danish and Chinese (median 10, 14 and 20 minutes respectively), and used less questions (median 4, 7 and 8 questions). Almost all staff found the academic level of the learning material and quiz appropriate (85% and 93%), as well as agreeing that the module was relevant to prepare them to use the NIRS device (90%). Of those disagreeing on the latter, Spanish staff were strongly represented with 20% compared to 13% of Danish and 6% of Chinese staff.

We provide evidence of the feasibility of developing an online multilingual training program for an international trial, despite challenges such as low budget, language barriers and clinical differences. Exploring the integration of training and certification for international trials, the positive results of this study motivate further developments.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=a39b3e79e0d259586492edadce492af4-MjAxOS0wNSM1Y2UvNyZDNmOGF!

Table 1 - Overview of survey responses stratified by country in %.

COI: None declared