

NICU

Current Awareness Newsletter

March 2017

(Quarterly)



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Training Calendar 2017

All sessions are one hour

<u>April</u>	(12pm - 1pm)
Thurs 6th	Literature Searching
Mon 10th	Critical Appraisal
Tues 18th	Interpreting Statistics
Thurs 27th	Literature Searching
<u>May</u>	(1-2pm)
Mon 8 th	Critical Appraisal
Mon 15 th	Literature Searching
Fri 26 th	Interpreting Statistics
Wed 31 st	Critical Appraisal

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Literature searching: We provide a literature searching service for any library member. For those embarking on their own research it is advisable to book some time with one of the librarians for a one-to-one session where we can guide you through the process of creating a well-focused literature research. Please email requests to library@uhbristol.nhs.uk

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Pediatrics

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Updates

NICE National Institute for
Health and Care Excellence

[Guidelines for the Provision of Paediatric Anaesthesia Services 2017](#) [PDF]

Source: [Royal College of Anaesthetists](#) - 15 March 2017

...major burns.11 3.16 Hospitals without a suitable PICU/NICU bed should obtain the advice of the local PICU transport team...their surgery in a hospital/unit with a designated PICU or NICU.33 3.22 If the patient is too sick to transfer to such...

[Counselling and management for anticipated extremely preterm birth](#)

Source: [Canadian Paediatric Society](#) - 02 March 2017 - Publisher: Canadian Paediatric Society

Counselling couples facing the birth of an extremely preterm infant is a complex and delicate task, entailing both challenges and opportunities. This revised position statement proposes using a prognosis-based approach that takes the best estimate of

[Read Summary](#)



[Antenatal corticosteroids for accelerating fetal lung maturation for women at risk of preterm birth](#)

Devender Roberts, Julie Brown, Nancy Medley, Stuart R Dalziel

21 March 2017

[Frenotomy for tongue-tie in newborn infants](#)

Joyce E O'Shea, Jann P Foster, Colm PF O'Donnell, Deirdre Breathnach, Susan E Jacobs, David A Todd, Peter G Davis

Online Publication Date: March 2017

[Calcium and phosphorus supplementation of human milk for preterm infants](#)

Jane E Harding, Jess Wilson, Julie Brown

Online Publication Date: February 2017

[Molecular assays for the diagnosis of sepsis in neonates](#)

Mohan Pammi, Angela Flores, James Versalovic, Mariska MG Leeflang

Online Publication Date: February 2017

[Skin-to-skin care for procedural pain in neonates](#)

Celeste Johnston, Marsha Campbell-Yeo, Timothy Disher, Britney Benoit, Ananda Fernandes, David Streiner, Darlene Inglis, Rebekah Zee

Online Publication Date: February 2017

[Nasal intermittent positive pressure ventilation \(NIPPV\) versus nasal continuous positive airway pressure \(NCPAP\) for preterm neonates after extubation](#)

Brigitte Lemyre, Peter G Davis, Antonio G De Paoli, Haresh Kirpalani

Online Publication Date: February 2017

[Intravenous midazolam infusion for sedation of infants in the neonatal intensive care unit](#)

Eugene Ng, Anna Taddio, Arne Ohlsson

Online Publication Date: January 2017

[Cromolyn sodium for the prevention of chronic lung disease in preterm infants](#)

Geraldine Ng, Arne Ohlsson

Online Publication Date: January 2017

[Early administration of inhaled corticosteroids for preventing chronic lung disease in very low birth weight preterm neonates](#)

Vibhuti S Shah, Arne Ohlsson, Henry L Halliday, Michael Dunn

Online Publication Date: January 2017

[Inhaled nitric oxide for respiratory failure in preterm infants](#)

Keith J Barrington, Neil Finer, Thomas Pennaforte

Online Publication Date: January 2017

UpToDate[®]

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NEONATOLOGY

Potential predictive tool for successful discontinuation of phototherapy for neonatal hyperbilirubinemia (March 2017)

For clinicians managing neonatal jaundice, the optimal time to discontinue phototherapy to minimize need for reinitiation of therapy is unclear. A clinical tool to estimate the probability of rebound hyperbilirubinemia after inpatient phototherapy was developed using retrospective data from a large birth cohort of infants ≥ 35 weeks gestational age (GA) [21]. The prediction tool, which calculated a score based on three indices: GA < 38 weeks, younger age at phototherapy initiation, and total bilirubin level relative to the treatment phototherapy threshold at termination, performed well in the validation data set. However, external validation is needed prior to recommending clinical use of this tool. (See "[Treatment of unconjugated hyperbilirubinemia in term and late preterm infants](#)", section on 'Rebound hyperbilirubinemia'.)

Increase in survival without impairment for periviable infants (March 2017)

For periviable infants, both overall survival and survival without neurodevelopmental impairment have increased over time. In a multicenter National Institute of Child Health and Human Development (NICHD) study of infants born at 22 to 24 weeks of gestation, survival and survival without neurodevelopmental impairment assessed at 18 to 22 months of corrected age increased across three consecutive birth-year epochs (2000 to 2003, 2004 to 2007, and 2008 to 2011) [22]. However, prognosis still remains guarded as only 36 percent of these infants survived and only 20 percent survived without neurodevelopmental impairment in the most recent epoch. (See "[Periviable birth \(Limit of viability\)](#)", section on

['Changes in survival rate without impairment'.\)](#)

EEG unproven predictor for neurodevelopment outcome in preterm infants (February 2017)

Although small observational studies have suggested that amplitude-integrated electroencephalography (aEEG) and conventional EEG predict neurodevelopmental outcome for preterm infants, a systematic review concluded that these studies varied widely in study design and had a high risk of bias [23]. As a result, UpToDate advises restricting aEEG and EEG to the research setting and not using these tests clinically pending further study. (See "[Long-term neurodevelopmental outcome of preterm infants: Management](#)", section on '[Electroencephalography: Unproven tool](#)'.)

Newborn screening for congenital CMV infection (February 2017)

The value of screening newborns for congenital cytomegalovirus (CMV) infection is controversial. A study including nearly 100,000 neonates performed both CMV and hearing screening in all newborns, with additional testing and follow-up for those with abnormal screening results [24]. CMV infection was identified in 0.4 percent of newborns, of whom 8 percent were diagnosed with CMV-related sensorineural hearing loss (SNHL). Newborn hearing screening alone failed to detect 43 percent of newborns with CMV-related SNHL because the onset of hearing loss was delayed. Although this study adds to mounting evidence supporting newborn CMV screening, CMV is not included on the national routine universal screening panel in the United States since the most reliable and cost effective method for CMV screening in newborns has not been established. (See "[Congenital cytomegalovirus infection: Clinical features and diagnosis](#)", section on '[Targeted newborn screening](#)'.)

Delayed cord clamping (January 2017)

Delaying umbilical cord clamping for at least 30 to 60 seconds after birth in both term and preterm vigorous infants is the recommendation of an updated committee opinion by the American College of Obstetricians and Gynecologists (ACOG) [25]. Previously, ACOG had recommended individualizing the timing of cord clamping in term infants. Although the optimal amount of time before cord clamping has not been studied extensively, we believe data support a minimum duration of delay of at least one minute in term births and 30 seconds in preterm births. (See "[Management of normal labor and delivery](#)", section on '[Cord clamping](#)'.)

Risk of birth defects with Zika virus infection during pregnancy (January 2017)

The risk of birth defects resulting from in utero exposure to Zika virus was 6 and 42 percent

in two recent reports [26,27]. The wide range likely reflects differences in study design, populations studied, maternal Zika case definition, and the range of clinical abnormalities included. The most common fetal/newborn findings in these reports were abnormal brain imaging, microcephaly, small size for gestational age, and abnormal neurologic examination. The greatest risk of serious sequelae in offspring appeared to be with first or second trimester infection, but serious sequelae also occurred with third trimester infection. (See ["Zika virus infection: Evaluation and management of pregnant women"](#), section on 'Risk of vertical transmission and anomalies' and ["Congenital Zika virus infection: Clinical features, evaluation, and management of the neonate"](#), section on 'Clinical findings'.)

Neonatal hypoglycemia in preterm infants and neurodevelopment impairment (December 2016)

For preterm and term infants, a low blood glucose threshold that accurately predicts long-term outcome has not been identified. An analysis of data from the Infant Health and Development Program study of infants born at a gestational age <32 weeks reported **no** difference in intellectual and cognitive skills or academic achievement at 3, 8, and 18 years of age between patients with and without neonatal hypoglycemia (defined as blood glucose level ≤ 45 mg/dL [2.5 mmol/L]) [28]. However, these findings do **not** provide a definitive threshold for treating neonatal hypoglycemia. We continue to use a threshold of 50 mg/dL (2.8 mmol/L) for intervention in preterm infants as this provides a margin of safety until conclusive evidence establishes a level that accurately predicts long-term outcome. (See ["Management and outcome of neonatal hypoglycemia"](#), section on 'Preterm infants'.)

Support for lower oxygen concentration for neonatal resuscitation for very preterm infants (December 2016)

Increasing evidence supports the use of a lower initial fraction of inspired oxygen (F_{iO_2}) when beginning resuscitation of preterm infants. In a follow-up report of two trials that compared initial resuscitation of preterm infants <32 weeks of gestation using an F_{iO_2} of 30 percent versus 60 or 65 percent, no difference in survival or neurodevelopmental outcome was observed at 24 months corrected age between the groups [29]. These data support our practice of beginning resuscitation of preterm infants using an F_{iO_2} of 30 percent, with subsequent adjustment based on our predetermined target ranges for peripheral capillary oxygen saturation (SpO_2). (See ["Neonatal resuscitation in the delivery room"](#), section on 'Supplemental oxygen'.)

Other – Behind the Headlines, Guidance

[Can colic really be cured by acupuncture?](#)

Tuesday Jan 17 2017

"Is sticking needles in babies really the best way to ease distress from colic?" the Daily Mail asks. The question was prompted by a study that looked at whether acupuncture can help with colic in babies...

Current Awareness Database Articles

If you would like any of the articles in full text, or if you would like a more focused search on your own topic, please contact us: library@bristol.nhs.uk

1. Improved method for the detection of catheter colonization and catheter-related bacteremia in newborns.

Author(s): Martín-Rabadán, P; Pérez-García, F; Zamora Flores, E; Nisa, E S; Guembe, M; Bouza, E

Source: Diagnostic microbiology and infectious disease; Apr 2017; vol. 87 (no. 4); p. 311-314

Publication Date: Apr 2017

Publication Type(s): Journal Article Observational Study

Abstract:Accurate diagnosis of catheter-related bloodstream infection (CRBSI) is mandatory for hospital infection control. Peripherally inserted central venous catheters (PICCs) are widely used in intensive care units, but studies about procedures for detection of colonization are scarce in neonates. We sequentially processed 372 PICCs by 2 methods, first by the standard roll-plate (RP) technique and then by rubbing catheters on a blood agar plate after being longitudinally split (LS). With both techniques, we detected 133 colonized PICCs. Ninety-four events of CRBSI were diagnosed. The sensitivity, specificity, positive predictive value, and negative predictive value for detection of CRBSI were 58.5%, 92.8%, 73.3%, and 86.9%, respectively, for RP technique and 96.8%, 88.5%, 74.0%, and 98.8%, respectively, for LS technique. The LS technique increased the proportion of detected CRBSI by 38.3%. Neonatal PICC tips should be cultured after cutting them open. This technique is simple and sensitive to detect catheter colonization and also to diagnose CRBSI.

Database: Medline

2. An ultra-high pressure liquid chromatography-tandem mass spectrometry method for the quantification of teicoplanin in plasma of neonates.

Author(s): Begou, O; Kontou, A; Raikos, N; Sarafidis, K; Roilides, E; Papadoyannis, I N; Gika, H G

Source: Journal of chromatography. B, Analytical technologies in the biomedical and life sciences; Mar 2017; vol. 1047 ; p. 215-222

Publication Date: Mar 2017

Publication Type(s): Journal Article Validation Studies

Abstract:The development and validation of an ultra-high pressure liquid chromatography (UHPLC) tandem mass spectrometry (MS/MS) method was performed with the aim to be applied for the quantification of plasma teicoplanin concentrations in neonates. Pharmacokinetic data of teicoplanin in the neonatal population is very limited, therefore, a sensitive and reliable method for the determination of all isoforms of teicoplanin applied in a low volume of sample is of real importance. Teicoplanin main components were extracted by a simple acetonitrile precipitation step and analysed on a C18 chromatographic column by a triple quadrupole MS with electrospray ionization. The method provides quantitative data over a linear range of 25-6400ng/mL with LOD 8.5ng/mL and LOQ 25ng/mL for total teicoplanin. The method was applied in plasma samples from neonates to support pharmacokinetic data and proved to be a reliable and fast method for the quantification of teicoplanin concentration levels in plasma of infants during therapy in Intensive Care Unit.

Database: Medline

3. Exhaled breath condensate analysis from intubated newborns by nano-HPLC coupled to high resolution MS.

Author(s): Kononikhin, A S; Starodubtseva, N L; Chagovets, V V; Ryndin, A Y; Burov, A A; Popov, I A; Bugrova, A E; Dautov, R A; Tokareva, A O; Podurovskaya, Y L; Ionov, O V; Frankevich, V E; Nikolaev, E N; Sukhikh, G T

Source: Journal of chromatography. B, Analytical technologies in the biomedical and life sciences; Mar 2017; vol. 1047 ; p. 97-105

Publication Date: Mar 2017

Publication Type(s): Journal Article

Abstract:Invasiveness of examination and therapy methods is a serious problem for intensive care and nursing of premature infants. Exhaled breath condensate (EBC) is the most attractive biofluid for non-invasive methods development in neonatology for monitoring the status of intubated infants. The aim of the study was to propose an approach for EBC sampling and analysis from mechanically ventilated neonates. EBC collection system with good reproducibility of sampling was demonstrated. Discovery-based proteomic and metabolomic studies were performed using nano-HPLC coupled to high resolution MS. Label-free semi-quantitative data were compared for intubated neonates with congenital pneumonia (12 infants) and left-sided congenital diaphragmatic hernia (12 infants) in order to define disease-specific features. Totally 119 proteins and 164 metabolites were found. A number of proteins and metabolites that can act as potential biomarkers of respiratory diseases were proposed and require further validation.

Database: Medline

4. Multi-spacer typing as an effective method to distinguish the clonal lineage of Clostridium butyricum strains isolated from stool samples during a series of necrotizing enterocolitis cases.

Author(s): Benamar, S; Cassir, N; Merhej, V; Jardot, P; Robert, C; Raoult, D; La Scola, B

Source: The Journal of hospital infection; Mar 2017; vol. 95 (no. 3); p. 300-305

Publication Date: Mar 2017

Publication Type(s): Journal Article Evaluation Studies

Abstract:BACKGROUND Necrotizing enterocolitis (NEC) is a devastating gastrointestinal disease with high morbidity and mortality that predominantly affects preterm neonates during outbreaks. In a previous study, the present authors identified 15 Clostridium butyricum isolates from stool samples during a series of NEC cases involving four neonatal intensive care units. A clonal lineage of these strains was observed by in-silico multi-locus sequence typing. AIM To confirm the previous findings by sequencing a larger number of C. butyricum genomes and using other genotyping approaches. METHOD The previously isolated 15 C. butyricum strains were characterized and compared with 17 other commensal and environmental C. butyricum strains using whole-genome sequencing (WGS). In addition, the clustering was analysed using multi-spacer sequence typing (MST). FINDING The core genome of C. butyricum was composed of 1251 genes, and its pan-genome consisted of 12,628 genes with high variability between strains. It was possible to distinguish the clonal lineage of strains from a series of NEC cases, forming three clades with geographical clustering. The results obtained using WGS and MST approaches were congruent. CONCLUSION MST is a fast, cheap and effective genotyping method for investigating NEC outbreaks associated with C. butyricum.

Database: Medline

5. Views and Decisions of Physicians in Encountering Neonates with Poor Prognosis.

Author(s): Nayeri, Fatemeh; Asghari, Fariba; Baser, Ali; Janani, Leila; Shariat, Mamak; Eabrhim, Bit

Source: Archives of Iranian medicine; Mar 2017; vol. 20 (no. 3); p. 172-177

Publication Date: Mar 2017

Publication Type(s): Journal Article

Available in full text at [Archives of Iranian Medicine](#) - from ProQuest

Abstract:BACKGROUND With the development of neonatal intensive care units (NICUs), new issues have emerged for physicians working in this area, including the ethical aspects of providing invasive and advanced care to neonates with extremely poor prognosis. This research was undertaken with the aim of investigating the factors affecting physicians' practice in management of newborns in such complicated circumstances. METHODS A cross-sectional study was carried out over a period of 5 months (Jan 2012 to Jun 2012) in 9 different tertiary levels and academic NICUs affiliated to Tehran University of Medical Sciences in Tehran, Iran. Checklists related to management of 3 hypothetical cases with very poor prognosis and factors affecting pertinent decisions were administered to 88 neonatologists and pediatricians. RESULTS Totally, 81.4% of participants approved the use of advanced invasive methods of treatment in the premature neonate. Concerning the neonate with genetic malformations, 51.3% recommended advanced methods. In severe asphyxia, 42.1% disagreed with use of advanced invasive procedures. Overall, 34.2% of the target physicians approved the use of aggressive procedures in all 3 cases. Age, gender, marital status, parental status, and work experience were identified as influencing factors. CONCLUSIONS With the prediction of acceptable levels of survivability in very premature infants, physicians are more inclined to treat this group. However, they do not favor aggressive measures in infants with severe asphyxia and advanced anomalies.

Database: Medline

6. Evaluation of Initial Respiratory Support Strategies in VLBW Neonates with RDS.

Author(s): Afjeh, Seyyed Abolfazl; Sabzehei, Mohammad Kazem; Khoshnood Shariati, Maryam; Shamshiri, Ahmad Reza; Esmaili, Fatemeh

Source: Archives of Iranian medicine; Mar 2017; vol. 20 (no. 3); p. 158-164

Publication Date: Mar 2017

Publication Type(s): Journal Article

Available in full text at [Archives of Iranian Medicine](#) - from ProQuest

Abstract:BACKGROUND Non-invasive ventilation (NIV) has brought about a significant change in care and treatment of respiratory distress syndrome (RDS) in very low birth weight (VLBW) neonates. The present study was designed and conducted to evaluate different strategies of initial respiratory support (IRS) in VLBW neonates hospitalized in the neonatal intensive care unit (NICU). METHODS This prospective study was conducted over three years (March 21, 2011 to March 20, 2014). Each eligible VLBW baby with RDS diagnosis received a specific IRS, including room air (RA), oxygen therapy (O₂ RX), n.CPAP, NIPPV, MV ± SURF, based on clinical evaluation; then, the next strategies were selected based on the disease progression. Obtained data was entered in SPSS and the groups were compared for disease consequences or death. Then, contributing factors to the failure of NIV strategies, and the need for endotracheal mechanical ventilation (eMV) were determined. RESULTS In total, 499 neonates were included in the study. The mean birth weight was 1,125 ± 254 g and the gestational age was 29.2 ± 2.5 weeks. The IRS included: RA = 43, O₂.RX = 60, n.CPAP/NIPPV = 219, INSURE = 83 and MV ± SURF = 177. In terms of the need for IRS upgrading

during hospitalization, neonates not on mechanical ventilation (64.5%) were divided into three groups. In 45.3% of cases, the IRS did not change (Never upgrading); in 24.5% of cases, the level of IRS increased but there was no need for eMV in the first three days of life (Specific); in 24.8% of cases, there was need for eMV within the first three days of life (Absolute) and during hospitalization (after the first three days of life) 5.3% of cases were in need of eMV (General). In terms of correlation between the effective variables in IRS upgrading, univariable analyses showed that low gestational age, low birth weight, multiple pregnancy, maternal disease, low one-minute Apgar score, and need for surfactant therapy had significant correlation, and multivariable analysis showed that low gestational age, low birth weight and maternal disease were risk factors independently correlated to IRS upgrading, CLD and death. **CONCLUSION** Early use of NIV in preterm neonates with mild to moderate respiratory distress and spontaneous breathing significantly reduced the need for intubation, surfactant, mechanical ventilation and thereby pulmonary and non-pulmonary complications and neonatal mortality.

Database: Medline

7. The impact of preterm birth <37 weeks on parents and families: a cross-sectional study in the 2 years after discharge from the neonatal intensive care unit.

Author(s): Lakshmanan, Ashwini; Agni, Meghana; Lieu, Tracy; Fleegler, Eric; Kipke, Michele; Friedlich, Philippe S; McCormick, Marie C; Belfort, Mandy B

Source: Health and quality of life outcomes; Feb 2017; vol. 15 (no. 1); p. 38

Publication Date: Feb 2017

Publication Type(s): Journal Article

Available in full text at [Health and Quality of Life Outcomes](#) - from National Library of Medicine

Available in full text at [Health and Quality of Life Outcomes](#) - from BioMed Central

Available in full text at [Health and Quality of Life Outcomes](#) - from ProQuest

Abstract: **BACKGROUND** Little is known about the quality of life of parents and families of preterm infants after discharge from the neonatal intensive care unit (NICU). Our aims were (1) to describe the impact of preterm birth on parents and families and (2) and to identify potentially modifiable determinants of parent and family impact. **METHODS** We surveyed 196 parents of preterm infants <24 months corrected age in 3 specialty clinics (82% response rate). Primary outcomes were: (1) the Impact on Family Scale total score; and (2) the Infant Toddler Quality of Life parent emotion and (3) time limitations scores. Potentially modifiable factors were use of community-based services, financial burdens, and health-related social problems. We estimated associations of potentially modifiable factors with outcomes, adjusting for socio-demographic and infant characteristics using linear regression. **RESULTS** Median (inter-quartile range) infant gestational age was 28 (26-31) weeks. Higher Impact on Family scores (indicating worse effects on family functioning) were associated with taking ≥ 3 unpaid hours/week off from work, increased debt, financial worry, unsafe home environment and social isolation. Lower parent emotion scores (indicating greater impact on the parent) were also associated with social isolation and unpaid time off from work. Lower parent time limitations scores were associated with social isolation, unpaid time off from work, financial worry, and an unsafe home environment. In contrast, higher parent time limitations scores (indicating less impact) were associated with enrollment in early intervention and Medicaid. **CONCLUSIONS** Interventions to reduce social isolation, lessen financial burden, improve home safety, and increase enrollment in early intervention and Medicaid all have the potential to lessen the impact of preterm birth on parents and families.

Database: Medline

8. Combined use of Neurally Adjusted Ventilatory Assist (NAVA) and Vertical Expandable Prosthetic Titanium Rib (VEPTR) in a patient with Spondylocostal dysostosis and associated bronchomalacia.

Author(s): Pons-Odena, Martí; Verges, Alba; Arza, Natalia; Cambra, Francisco José

Source: BMJ case reports; Feb 2017; vol. 2017

Publication Date: Feb 2017

Publication Type(s): Case Reports Journal Article

Abstract:Jarcho-Levin syndrome is a rare disorder characterised by defects in vertebral and costal segmentation of varying severity. Respiratory complications are the main cause of death or severe comorbidity due to a restrictive rib cage. A 3 months old infant with Spondylocostal dysostosis and associated bronchomalacia experiencing severe asynchrony during the weaning process is reported. The Neurally Adjusted Ventilatory Assist (NAVA) mode was used to improve adaptation to mechanical ventilation after Vertical Expandable Prosthetic Titanium Ribs (VEPTRs) were implanted. The synchrony achieved with the NAVA mode allowed a decrease of the sedoanalgesia he received. A follow-up CT scan showed a reduction in the volume of the posterobasal atelectasis. The evolution of this patient suggests that the combined use of VEPTR for thoracic expansion and ventilation using NAVA can favour the global improvement. This mode could be an option to consider in selected patients with difficult weaning from mechanical ventilation in paediatric intensive care units.

Database: Medline

9. Bedside Placement of the Postpyloric Tube in Infants.

Author(s): Clifford, Patricia; Ely, Elizabeth; Heimall, Lauren

Source: Advances in neonatal care : official journal of the National Association of Neonatal Nurses; Feb 2017; vol. 17 (no. 1); p. 19-26

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract:BACKGROUNDPatients in the neonatal intensive care unit are a vulnerable population with specific nutritional requirements, which include increased protein and caloric needs for adequate growth. Some infants cannot tolerate gastric feeds and need to have postpyloric feeds to grow. Placement of a postpyloric tube can be done by gastric insufflation. Gastric insufflation is a technique where air is inserted into the stomach as a nasogastric tube is advanced through the pylorus to the duodenum. There is research to support this technique in pediatrics, but scant evidence exists for placement of postpyloric tubes in the infant population.PURPOSEThe aim of this quality improvement practice project was to determine whether the current practice for postpyloric tube placement by the bedside nurses in the neonatal intensive care unit is safe and effective.METHODSData were prospectively collected on 38 infants requiring placement of 60 postpyloric tubes over an 8-week period.RESULTSThe results indicate a success rate of 95.6% for tube placement when a subset of infants diagnosed with congenital diaphragmatic hernia (CDH) (n = 15) was excluded. Six (40%) of the 15 infants with CDH had postpyloric tubes placed successfully. Nursing years of experience did not affect successful postpyloric tube placement.IMPLICATIONS FOR PRACTICEThe postpyloric tube placement policy was modified as a result of findings from this project. Placement of a postpyloric tube with one attempt by the bedside nurse was safe and effective in most preterm infants in our care excluding patients with CDH. The new policy reduced infants' exposure to radiation due to a decrease in the number of x-rays in comparison to interventional radiology placement.IMPLICATIONS FOR RESEARCHFurther research should be done by units that primarily care for low birth-weight premature infants.

Database: Medline

10. Meticillin-resistant Staphylococcus aureus (MRSA) acquisition risk in an endemic neonatal intensive care unit with an active surveillance culture and decolonization programme.

Author(s): Pierce, R; Lessler, J; Popoola, V O; Milstone, A M

Source: The Journal of hospital infection; Jan 2017; vol. 95 (no. 1); p. 91-97

Publication Date: Jan 2017

Publication Type(s): Journal Article Observational Study

Abstract:BACKGROUND Meticillin-resistant Staphylococcus aureus (MRSA) is a leading cause of healthcare-associated infection in the neonatal intensive care unit (NICU). Decolonization may eliminate bacterial reservoirs that drive MRSA transmission. AIM To measure the association between colonization pressure from decolonized and non-decolonized neonates and MRSA acquisition to inform use of this strategy for control of endemic MRSA. METHODS An eight-year retrospective cohort study was conducted in a level-4 NICU that used active surveillance cultures and decolonization for MRSA control. Weekly colonization pressure exposures were defined as the number of patient-days of concurrent admission with treated (decolonized) and untreated (non-decolonized) MRSA carriers in the preceding seven days. Poisson regression was used to estimate risk of incident MRSA colonization associated with colonization pressure exposures. The population-attributable fraction was calculated to assess the proportion of overall unit MRSA incidence attributable to treated or untreated patients in this setting. FINDINGS Every person-day increase in exposure to an untreated MRSA carrier was associated with a 6% increase in MRSA acquisition risk [relative risk (RR): 1.06; 95% confidence interval (CI): 1.01-1.11]. Risk of acquisition was not influenced by exposure to treated, isolated MRSA carriers (RR: 1.01; 95% CI: 0.98-1.04). In the context of this MRSA control programme, 22% (95% CI: 4.0-37) of MRSA acquisition could be attributed to exposures to untreated MRSA carriers. CONCLUSION Untreated MRSA carriers were an important reservoir for transmission. Decolonized patients on contact isolation posed no detectable transmission threat, supporting the hypothesis that decolonization may reduce patient-to-patient transmission. Non-patient reservoirs may contribute to unit MRSA acquisition and require further investigation.

Database: Medline

11. Routine application of lung ultrasonography in the neonatal intensive care unit.

Author(s): Chen, Shui-Wen; Fu, Wei; Liu, Jing; Wang, Yan

Source: Medicine; Jan 2017; vol. 96 (no. 2); p. e5826

Publication Date: Jan 2017

Publication Type(s): Journal Article Observational Study

Abstract: The aim of this study was to study the features of lung ultrasonography (LUS) in lung disease and to evaluate the usefulness of LUS in the neonatal intensive care unit (NICU). All of 3405 neonates included in this study underwent an LUS examination. Diagnoses were based on medical history, clinical manifestation, laboratory examination, and signs on chest radiography (CR) and/or computed tomography (CT). A single expert physician performed all LUS examinations. There were 2658 cases (78.9%) with lung disease and 747 cases (21.9%) without lung disease. The main signs of neonates with lung disease on LUS were as follows: absence of A-lines, pleural-line abnormalities, interstitial syndrome, lung consolidation, air bronchograms, pulmonary edema, and lung pulse. These abnormal signs were reduced or eliminated on LUS as patient conditions improved. There were 81 cases that could not be diagnosed as lung disease by CR but were discovered as pneumonia, respiratory distress syndrome (RDS), or transient tachypnea of newborn (TTN) on LUS. Likewise, 23

cases misdiagnosed as RDS by CR were diagnosed as TTN on LUS. Among 212 cases of long-term oxygen dependence (LTOD) that failed to yield signs of pulmonary edema and lung consolidation on CR, 103 cases showed abnormal signs on LUS. Among 747 cases without lung disease, B-lines of 713 neonates (95.4%) could be found within 3 days after birth, and 256 neonates (34.3%) could be observed from 3 days to 1 week after birth. B-lines of 19 cases could be detected from 1 to 2 weeks after birth. The longest time at which B-lines could still be observed was 19 days after birth. LUS has clinical value for the diagnosis of lung disease and the discrimination of causes of LTOD in premature infants, particularly for the diagnosis and identification of RDS and TTN. Moreover, LUS has additional advantages, including its lack of radiation exposure and its ability to noninvasively monitor treatment progress. Therefore, LUS should be routinely used in the NICU.

Database: Medline

12. General endotracheal vs. non-endotracheal regional anesthesia for elective inguinal hernia surgery in very preterm neonates: A single institution experience.

Author(s): Gurria, Jean; Kuo, Phillip; Kao, Angie; Christensen, Luisa; Holterman, AiXuan

Source: Journal of pediatric surgery; Jan 2017; vol. 52 (no. 1); p. 56-59

Publication Date: Jan 2017

Publication Type(s): Journal Article

Abstract:BACKGROUND Very pre-term infants (VP) at <32 weeks post menstrual age PMA have a high incidence of bronchopulmonary dysplasia BPD. BPD places them at risk for pulmonary-related perioperative complications from general endotracheal anesthesia GE during elective inguinal hernia repair. METHODS A retrospective cohort study was done to compare pulmonary-related perioperative risks between VP patients undergoing non-emergent inguinal hernia repair prior to NICU discharge under GE (n=58) vs regional anesthesia RA (n=37). RESULTS Median PMA (RA 26 vs GE 27 weeks), operative weight (RA 2.2 vs GE 2.27 kg), % with BPD, medical and surgical comorbidities, number of concurrent procedures are similar between groups, except for sac laparoscopy (0% RA vs 36% GE). Procedural anesthesia time was 40 minutes for RA vs 69 minutes for GE, (p < 0.001). GE (17%) vs RA (0%) remained intubated post op (p<0.001). Oral feeding was fully tolerated in RA (97%) vs GE (72%, p=0.002) by 48h after surgery. The statistical differences hold after regression analysis controlling for sac laparoscopy and procedure time. No difference in intraoperative or postoperative hernia complications is found. CONCLUSION RA is safe. RA is associated with early resumption of full feed, avoidance of prolonged mechanical intubation. We recommend a randomized controlled trial comparing the safety and efficacy of GE vs RA in VP infants undergoing elective NICU inguinal hernia repair. LEVEL OF EVIDENCE II Retrospective study.

Database: Medline

13. Decreasing infection in neonatal intensive care units through quality improvement.

Author(s): Bowen, J R; Callander, I; Richards, R; Lindrea, K B; Sepsis Prevention in NICUs Group

Source: Archives of disease in childhood. Fetal and neonatal edition; Jan 2017; vol. 102 (no. 1); p. F51

Publication Date: Jan 2017

Publication Type(s): Multicenter Study Journal Article

Available in full text at [Fetal and Neonatal](#) - from Highwire Press

Available in full text at [Fetal and Neonatal](#) - from Highwire Press

Abstract:OBJECTIVE To decrease the incidence of bloodstream infection (BSI) for neonates 48 h, for a total of 33 933 bed days and 14 447 central line days. There was a significant decrease from 2012 to 2014 in BSI/1000 bed days (7.8 ± 3.0 vs 3.8 ± 1.1 , $p=0.000$), CLABSI/1000 bed days (4.6 ± 2.1 vs 2.1 ± 0.8 , $p=0.003$), CLABSI/1000 central line days (9.9 ± 4.3 vs 5.4 ± 1.7 , $p=0.012$) and antibiotic days/100 bed days (31.1 ± 4.3 vs 25.5 ± 4.2 , $p=0.046$).CONCLUSION This study demonstrates a >50% reduction in BSI in extremely premature neonates from D3 to 35 following a collaborative quality improvement project to reduce neonatal infection across an NICU network, supported by timely provision of data.

Database: Medline



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March 2017, Volume 102, Issue 2

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Neonatology

Published online first (2017) Volume 112, Issue 1

<http://www.karger.com/Journal/Issue/274834>

Journal of Pediatrics

March 2017, Volume 182

<http://www.jpeds.com/current>

JAMA Pediatrics

March 01 2017, Volume 171, Issue 3

<http://jamanetwork.com/journals/jamapediatrics/currentissue>

Pediatrics

March 2017, Volume 139, Issue 3

<http://pediatrics.aappublications.org/content/139/3?current-issue=y>

Journal of Perinatology

March 2017, Volume 37, Issue 3

<http://www.nature.com/ip/journal/v37/n3/index.html>

Exercise: Creating a Search Strategy

Scenario: A 64 year old obese male who has tried many ways to lose weight presents with a newspaper article about 'fat-blazer' (chitosan). He asks for your advice.

1. What would your PICO format be?

P opulation/problem	
I ntervention/indicator	
C omparator	
O utcome	

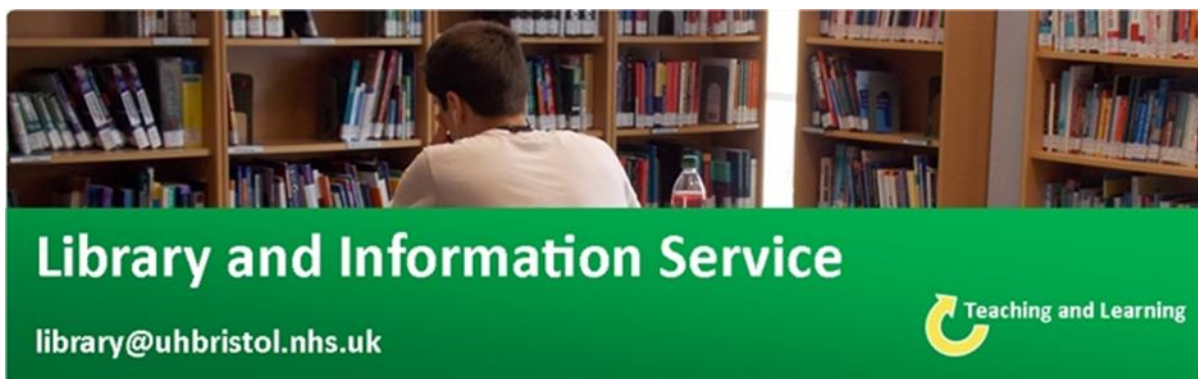
2. What would your research question be?

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Research question: In obese patients, does chitosan, compared to a placebo, decrease weight?



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