

NICU

Current Awareness Newsletter

December 2016



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Training Calendar 2016/17

All sessions are 1 hour

December (12.00)

Fri 16th **Literature Searching**

Mon 20th **Critical Appraisal**

January (13.00)

Tues 10th **Literature Searching**

Wed 18th **Critical Appraisal**

Thur 26th **Statistics**

February (12.00)

Fri 3rd **Literature Searching**

Mon 6th **Critical Appraisal**

Tues 14th **Statistics**

Wed 22nd **Literature Searching**

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Latest Updates for October to December

NICE National Institute for
Health and Care Excellence

[Neonatal specialist care](#)

<https://www.nice.org.uk/guidance/qs4>



[Supporting parents of premature infants transitioning from the NICU to home: A pilot randomized control trial of a smartphone application.](#)

Garfield CF , Lee YS , Kim HN , Rutsohn J , Kahn JY , Mustanski B and Mohr DC

Internet Interventions. Part 2, 2016, 4, 131

UpToDate[®]

OpenAthens login required. Register here: <https://openathens.nice.org.uk/>

[NICU](#)

Other – Behind the Headlines, Guidance

Searched Behind the Headline but found nothing relevant

Current Awareness Database Articles

1. Role of antioxidants in gestational diabetes mellitus and relation to fetal outcome: a randomized controlled trial.

Author(s): Maged, Ahmed M; Torky, Haitham; Fouad, Mona A; GadAllah, Sherine H; Waked, Nevien M; Gayed, Ahmed S; Salem, Ashraf K

Source: The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians; Dec 2016; vol. 29 (no. 24); p. 4049-4054

Publication Date: Dec 2016

Abstract: To examine the effect of antioxidant administration on the oxidative parameters in both blood and placental tissue and its relation to fetal outcome in women with GDM. Two-hundred pregnant women with gestational diabetes mellitus (GDM) were randomized into 2 groups, Group 1 received 1 gram L-ascorbic acid per day and Group 2 received placebo. The use of antioxidants significantly lower the needed insulin dose for blood sugar control (25.6 ± 20.3 versus 40.5 ± 23.7 , respectively). In placental tissue homogenates, glutathione (GSH) was 49.6 ± 5.9 versus 62.34 ± 4.99 , malondialdehyde (MDA) was 165.7 ± 9.2 versus 264.15 ± 12 , superoxide dismutase (SOD) was 0.3 ± 0.3 versus 0.054 ± 0.16 while catalase (CAT) was 14.06 ± 2.4 versus 15.52 ± 3.97 and glutathione peroxidase (GPx) was 14 ± 4.1 versus 26.3 ± 4.26 in antioxidant group compared to the control group ($p < 0.001$). In maternal blood, GSH was 1.5 ± 0.3 versus 0.74 ± 0.088 , CAT was 380.7 ± 11 versus 325.44 ± 21.8 , GPx was 52.3 ± 8.7 versus 75.82 ± 6.84 and SOD was 188 ± 15.3 versus 98.56 ± 11.05 in antioxidant group compared to control group ($p < 0.001$). In neonatal blood, the level of MDA and SOD showed a statistically significant difference between antioxidants and control groups (4 ± 0.7 versus 6.67 ± 0.66 and 188 ± 15.3 versus 98.5 ± 11.05 , respectively) ($p < 0.001$). The neonatal blood sugar after 1 and 2 hours of delivery was more stable in antioxidant group (56.7 ± 10.9 versus 39.7 ± 11.1 and 58.5 ± 10.8 versus 41.7 ± 13.1 , respectively) ($p < 0.05$). The neonates NICU admission was lower in antioxidant group (5 versus 11) ($p < 0.05$). The use of antioxidants markedly reverses the oxidative stresses in women with GDM with marked improvement on neonatal outcome.

Database: Medline

4. Human milk feeding protects very low-birth-weight infants from retinopathy of prematurity: a pre-post cohort analysis.

Author(s): Ginovart, Gemma; Gich, Ignasi; Verd, Sergio

Source: The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians; Dec 2016; vol. 29 (no. 23); p. 3790-3795

Publication Date: Dec 2016

Abstract: To examine the effect of early human milk (HM) feeding on the incidence of retinopathy of prematurity (ROP) among very low-birth-weight (VLBW) infants. Observational cohort research in a Level III neonatal intensive care unit. A total of 186 infants were enrolled in this pre-post cohort study (114 infants were included in the HM-fed group and 72 in the formula-fed group). ROP, type of feeding (early exclusive HM versus any formula), and potential confounding variables were measured. Differences between groups were explored. The clinical characteristics of the neonates did not differ between the two groups. By bivariate analysis, HM feeding was associated with 75% lower odds of Stage 2 or 3 ROP (OR = 0.25, 95% CI: 0.091 to 0.705; $p = 0.009$). At multivariate logistic regression, type of milk feeding retained significance, exclusive HM being protective with $p = 0.002$. This study found an association between early exposure to formula in VLBW infants and ROP. An

initial HM diet, devoid of cow milk-containing products before achieving full enteral feeding, may help prevent ROP.

Database: Medline

5. Does platelet mass influence the effectiveness of ibuprofen treatment for patent ductus arteriosus in preterm infants?

Author(s): Akar, Selahattin; Karadag, Nilgun; Gokmen Yildirim, Tulin; Toptan, Handan Hakyemez; Dincer, Emre; Tuten, Abdulhamit; Yavuz, Taner; Topcuoglu, Sevilay; Karatepe, Hande Ozgun; Ozalkaya, Elif; Karatekin, Guner; Ovali, Fahri

Source: The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians; Dec 2016; vol. 29 (no. 23); p. 3786-3789

Publication Date: Dec 2016

Abstract: The aim of this study is to evaluate whether the platelet mass in the first 24 h of life is effective on closure of patent ductus arteriosus (PDA) or not. Preterm infants with a gestational age of < 32 weeks, hospitalized at a tertiary neonatal intensive care unit (NICU) and requiring medical treatment (intravenous or oral ibuprofen) for hemodynamically significant PDA (hsPDA) were enrolled in this study. The patients were divided into two groups after first course of pharmacologic treatment according to closure of PDA (Group 1: PDA closure, Group 2: PDA without closure). Groups were compared in terms of demographics findings, morbidities, platelet measurements like counts, mean platelet volume (MPV) and platelet mass (platelet count \times mean platelet volume). The study included 77 preterm newborns in Group 1, and 30 preterms in Group 2. There were no differences in birth weight, gestational age, gender and maternal risk factors between the study groups. The mean platelet count in the first postnatal blood count was in Group 1: $211.3 \pm 89.2 \times 10^3/\text{mm}^3$ and in Group 2: $216.5 \pm 26 \times 10^3/\text{mm}^3$, respectively ($p = 0.783$). The mean platelet volumes (MPV) were similar in both groups ($p = 0.535$). No statistically significant difference between platelet mass values was detected (Group 1: $1811 \pm 884 \text{ fl/nl}$, Group 2: $1868 \pm 717 \text{ fl/nl}$) ($p = 0.753$). Our data suggest that platelet count, MPV and platelet mass did not affect the closure of hsPDA with ibuprofen.

Database: Medline

6. Mesenchymal stem/stromal cells-a key mediator for regeneration after perinatal morbidity?

Author(s): Mueller, Martin; Wolfs, Tim G A; Schoeberlein, Andreina; Gavilanes, Antonio W D; Surbek, Daniel; Kramer, Boris W

Source: Molecular and cellular pediatrics; Dec 2016; vol. 3 (no. 1); p. 6

Publication Date: Dec 2016

Abstract: Perinatal complications in both term- and preterm-born infants are a leading cause of neonatal morbidities and mortality. Infants face different challenges in the neonatal intensive care unit with long-term morbidities such as perinatal brain injury and bronchopulmonary dysplasia being particularly devastating. While advances in perinatal medicine have improved our understanding of the pathogenesis, effective therapies to prevent and/or reduce the severity of these disorders are still lacking. The potential of mesenchymal stem/stromal cell (MSC) therapy has emerged during the last two decades, and an increasing effort is conducted to address brain- and lung-related morbidities in neonates at risk. Various studies support the notion that MSCs have protective effects. MSCs are an easy source and may be readily available after birth in a clinical setting. MSCs' mechanisms of action are diverse, including migration and homing, release of growth factors and

immunomodulation, and the potential to replace injured cells. Here, we review the pathophysiology of perinatally acquired brain and lung injuries and focus on MSCs as potential candidates for therapeutic strategies summarizing preclinical and clinical evidence.

Database: Medline

8. Presepsin for the detection of early-onset sepsis in preterm newborns.

Author(s): Montaldo, Paolo; Rosso, Roberto; Santantonio, Alfredo; Chello, Giovanni; Giliberti, Paolo

Source: Pediatric research; Dec 2016

Publication Date: Dec 2016

Abstract:Early-onset sepsis (EOS) is responsible for an important fraction of neonatal morbidity and mortality all over the world. The aim of this study was to assess whether presepsin (P-SEP) can be a more accurate biomarker of EOS compared with pro-calcitonin (PCT) and C-reactive protein (CRP). Consecutive preterm neonates (<34 wk gestational age, admitted to Neonatal Intensive Care Unit by 6 h of age and undergoing sepsis evaluation) were recruited as part of a case-matched control study. We determined CRP, PCT and P-SEP at admission, and then at 12, 24, and 48 h of age. Neonates recruited into the study were divided into the EOS group (n = 32) and the uninfected group (n =38) according to their infection screening. P-SEP values were significantly higher in the EOS group than in the uninfected group at different time intervals. The highest accuracy was achieved by P-SEP at 24 h after birth. The AUC for P-SEP was 0.97. In our sample, P-SEP achieved the best accuracy for prediction of EOS at the cut-off of 788 ng/l with 93% sensitivity and 100% specificity. This study shows that P-SEP is significantly higher in preterm infants with EOS compared with uninfected infants. *Pediatric Research* (2016); doi:10.1038/pr.2016.217.

Database: Medline

9. The Effect of Head Positioning and Head Tilting on the Incidence of Intraventricular Hemorrhage in Very Preterm Infants: A Systematic Review.

Author(s): de Bijl-Marcus, Karen A; Brouwer, Annemieke J; de Vries, Linda S; van Wezel-Meijler, Gerda

Source: Neonatology; Dec 2016; vol. 111 (no. 3); p. 267-279

Publication Date: Dec 2016

Abstract:Despite advances in neonatal intensive care, germinal matrix-intraventricular hemorrhage (GMH-IVH) remains a frequent, serious complication of premature birth. Neutral head position and head tilting have been suggested to reduce the risk of GMH-IVH in preterm infants during the first 72 h of life. The aim of this study was to provide a systematic review of the effect of neutral head positioning and head tilting on the incidence of GMH-IVH in very preterm infants (gestational age ≤30 weeks). In addition, we reviewed their effect on cerebral hemodynamics and oxygenation. Literature was searched (June 2016) in the following electronic databases: CINAHL, Embase, Medline, SCOPUS, and several trial registers. One underpowered trial studied the effect of head positioning on the incidence of GMH-IVH. This randomized controlled trial enrolled 48 preterm infants and found no effect on the occurrence of GMH-IVH. Three observational studies investigated the effect of head rotation and/or tilting on cerebral oxygenation in 68 preterm infants in total. Their results suggest that cerebral oxygenation is not significantly affected by changes in head positioning. The effect of head positioning and/or tilting on cerebral hemodynamics was described in 2 observational studies of 28 preterm infants and found no significant effect. There is insufficient evidence regarding the effect of head positioning and tilting on the incidence of GMH-IVH and cerebral hemodynamics and oxygenation in preterm infants. We recommend further research in this

field, especially in extremely preterm and clinically unstable infants during the first postnatal days.
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Database: Medline

10. Patterns of Empiric Antibiotic Administration for Presumed Early-Onset Neonatal Sepsis in Neonatal Intensive Care Units in the United States.

Author(s): Oliver, Emily A; Reagan, Patricia B; Slaughter, Jonathan L; Buhimschi, Catalin S; Buhimschi, Irina A

Source: American journal of perinatology; Dec 2016

Publication Date: Dec 2016

Abstract:Objective To evaluate current patterns in empiric antibiotic use for early-onset neonatal sepsis (EONS). Study Design Retrospective population-based cohort study of newborns admitted on postnatal day 0 to 1 and discharged from NICUs participating in the Pediatric Health Information System (PHIS 2006-2013). Analyses included frequency of antibiotic initiation within 3 days of birth, duration of first course, and variation among hospitals. Results Of 158,907 newborns, 118,624 (74.7%) received antibiotics on or before postnatal day 3. Within 3 days of treatment, 49.4% (n = 58,610) were discharged home or remained hospitalized without antibiotics. There was marked interhospital variation in the proportion of infants receiving antibiotics (range: 52.3-90.9%, mean 77.9%, SD 11.0%) and in treatment days (range: 3.2-8.6, mean 5.3, SD 1.4). Facilities with higher number of newborns started on antibiotics had longer courses (r = 0.643, p < 0.001). The cost of admissions for infants born at ≥35 weeks started on antibiotics and discharged home after no more than 3 days of antibiotics was \$76,692,713. Conclusion Site variation in antibiotic utilization suggests antibiotic overtreatment of infants with culture unconfirmed EONS is common and costly. Thieme Medical Publishers 333 Seventh Avenue, New York, NY 10001, USA.

Database: Medline

11. Perioperative hypothermia in neonatal intensive care unit patients: effectiveness of a thermoregulation intervention and associated risk factors.

Author(s): Engorn, Branden M; Kahntroff, Stephanie L; Frank, Karen M; Singh, Sarabdeep; Harvey, Helen A; Barkulis, Charles T; Barnett, Annika M; Olambiwonnu, Olamide O; Heitmiller, Eugenie S; Greenberg, Robert S

Source: Paediatric anaesthesia; Dec 2016

Publication Date: Dec 2016

Available in full text at [Pediatric Anesthesia](#) - from Ovid

Abstract:Hypothermia in neonatal intensive care unit patients is associated with morbidity. Perioperative normothermia is the standard of care. We hypothesized that a quality improvement intervention (transport protocol, transport education, ongoing monitoring) would decrease the incidence of perioperative hypothermia. Secondly, we hypothesized that patients undergoing surgery at a postmenstrual age of <37 weeks or at a weight of <1.5 kg would be at higher risk for perioperative hypothermia. Lean Six Sigma methodology was used to institute a quality improvement intervention. In a retrospective chart review, we identified 708 cases for which the neonatal intensive care unit was the preoperative and postoperative destination and documented patient characteristics, including postoperative temperature. Cardiac surgical cases and cases with no postoperative temperature record were excluded. Patients in the postintervention group had a statistically significant decrease in hypothermia compared to those in the preintervention group (P < 0.001; OR: 0.17; 95% CI: 0.09-0.31). The absolute risk of hypothermia was 23% in the

preintervention group and 6% in the postintervention group. Weight <1.5 kg on day of surgery ($P = 0.45$; OR: 0.63; 95% CI: 0.16-2.24) and postmenstrual age ($P = 0.91$; OR: 1.07; 95% CI: 0.33-3.98) were not risk factors. Odds of hypothermia were increased in patients undergoing interventional cardiology procedures ($P = 0.003$; OR: 17.77; 95% CI: 2.07-125.7). Perioperative hypothermia is a challenge in the care of neonatal intensive care unit patients; however, a thermoregulation intervention can decrease the incidence with sustained results. Future studies can examine why certain procedures have a tendency toward increased perioperative hypothermia, determine the relative value of quality improvement interventions, and characterize the morbidity and mortality associated with perioperative hypothermia in neonatal intensive care unit patients. © 2016 John Wiley & Sons Ltd.

Database: Medline

12. Early Initiation of Newborn Individualized Developmental Care and Assessment Program (NIDCAP) Reduces Length of Stay: A Quality Improvement Project.

Author(s): Moody, Cheryl; Callahan, Tiffany J; Aldrich, Heather; Gance-Cleveland, Bonnie; Sables-Baus, Sharon

Source: Journal of pediatric nursing; Dec 2016

Publication Date: Dec 2016

Abstract: Infants born at ≤ 32 weeks gestation are at risk of developmental delays. Review of the literature indicates NIDCAP improves parental satisfaction, minimizes developmental delays, and decreases length of stay, thus reducing cost of hospitalization. Half (50.6%) of the infants admitted to this 84-bed Level IV Neonatal Intensive Care Unit (NICU) with a gestational age of ≤ 32 weeks were referred for NIDCAP. The specific aims of this quality improvement project were to 1) compare the age at discharge for infants meeting inclusion criteria enrolled in NIDCAP with the age at discharge for those eligible infants not enrolled in NIDCAP; and 2) investigate the timing of initiation of NIDCAP (e.g., within six days of admission) on age at discharge. During the 12-month period of data collection, infants enrolled in NIDCAP ($M=27.85$ weeks, $SD=1.86$) were 2.02 weeks younger than those not enrolled in NIDCAP ($M=29.87$ weeks, $SD=2.49$), and were 2.32 weeks older at discharge ($M=38.28$ weeks, $SD=5.10$) than those not enrolled in NIDCAP ($M=35.96$ weeks, $SD=5.60$). Infants who enrolled within 6 days of admission were discharged an average of 25 days sooner ($p=0.055$), and at a younger post-menstrual age (by 3.33 weeks on average), than those enrolled later ($p=0.027$). Copyright © 2016 Elsevier Inc. All rights reserved.

Database: Medline

13. The significance and the necessity of routinely performing lung ultrasound in the neonatal intensive care units.

Author(s): Liu, Jing; Cao, Hai-Ying; Wang, Xin-Ling; Xiao, Li-Jun

Source: The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, the Federation of Asia and Oceania Perinatal Societies, the International Society of Perinatal Obstetricians; Dec 2016; vol. 29 (no. 24); p. 4025-4030

Publication Date: Dec 2016

Abstract: Various lung diseases are the most common conditions and the leading cause of hospital admission and death in newborns. Historically, the diagnosis and differential diagnosis of lung diseases primarily relied on conventional chest X-ray and computed tomography (CT) scans, however, chest X-ray and CT scans suffer from obvious limitations, while lung ultrasound has many kinds of advantages for the diagnosis and differential diagnosis of lung diseases. The significance and

the necessity of lung ultrasound in the diagnosis of neonatal lung diseases will be introduced in this paper.

Database: Medline

14. Reducing Unplanned Extubations in the NICU Using Lean Methodology.

Author(s): Powell, Bonnie M; Gilbert, Edeltraud; Volsko, Teresa A

Source: Respiratory care; Dec 2016; vol. 61 (no. 12); p. 1567-1572

Publication Date: Dec 2016

Abstract:Unplanned extubations can lead to iatrogenic injury and have the potential to contribute to serious safety events. We adopted lean methodology to reduce the unplanned extubation rate in a Level 3b NICU. We hypothesized that the use of a rapid-cycle PDSA (plan, do, study, act) initiative would reduce the unplanned extubation rate. Baseline unplanned extubation data were collected from November 1, 2012 to June 6, 2014. A voice of the customer survey ascertained perceptions regarding unplanned extubation causes and impact on care. The confidential survey contained 2 open-ended and 4 closed-ended questions and was distributed to a random sample of nurses and respiratory therapists. A fishbone diagram helped to identify opportunities. Six improvements were identified and rolled out in 2 phases using didactic and kinesthetic techniques. Phase 1 standardized the process for turning intubated infants, assessing endotracheal tube (ETT) placement with growth, and communicating tube position with caregivers. Phase 2 addressed respiratory plans of care, correcting ETT migration, establishing ETT re-securement methods, and standardizing position during radiography. The Fisher exact test was used to determine differences in the number of unplanned extubations per 100 intubated days. Descriptive statistics were used to report survey results. Statistical significance was established at $P < .05$. A 68% (17 of 25) survey response rate was realized. Baseline data revealed 3.8 unplanned extubations/100 intubated days, and 2.7 unplanned extubations/100 intubated days occurred in the post-improvement phase ($P = .01$). We noted a statistically significant decrease in the number of intubated days between the pre- and post-improvement groups ($P < .001$). Staff underestimated the prevalence of unplanned extubations but recognized the need for improvement. Rapid cycle PDSA significantly reduced the unplanned extubation rate. The decrease in intubated days may have been a by-product of the post-improvement phase improvements, which encouraged practice changes. Copyright © 2016 by Daedalus Enterprises.

Database: Medline

16. Development of Accumulated Pain/Stressor Scale (APSS) in NICUs: A National Survey.

Author(s): Xu, Wanli; Walsh, Stephen; Cong, Xiaomei S

Source: Pain management nursing : official journal of the American Society of Pain Management Nurses; Dec 2016; vol. 17 (no. 6); p. 354-362

Publication Date: Dec 2016

Abstract:High-risk neonates experience numerous painful/stressful procedures daily in neonatal intensive care units (NICUs). Accumulated pain and stress have a detrimental impact on infants' neurodevelopment. Few valid tools are available to measure accumulated pain/stressors among NICU infants. The aim of this study was to obtain nurses' perceptions about severity and acuity levels regarding each painful/stressful procedure that infants may experience in the NICU. The data will support developing a new instrument, the Accumulated Pain/Stressor Scale (APSS) in NICUs. A nationwide online survey was conducted through the U.S. National Association of Neonatal Nurses membership. Respondents were asked to rate the perceived severity of pain/stress associated with

68 procedures using a 5-point Likert scale and to categorize pain/stress as acute or chronic. Modal values were used to determine summary rankings among the procedures. Eighty-four neonatal nurses completed the survey. Among 68 procedures, nearly all were rated as painful/stressful to some degree. Five procedures (7%) had a modal value of five (extremely painful/stressful), nine (14%) had a value of four, 20 (29%) had a value of three, 30 (44%) a value of two, and four (6%) had a value of one (not painful/stressful). Forty-four procedures (65%) were perceived as acute, six (9%) as chronic, and 18 (26%) as both acute and chronic. Nurses' perceptions of pain severity and acuity regarding procedures in NICUs varied somewhat. Further studies are needed in developing and validating the scale. The development of the APSS can quantitatively measure the accumulated neonatal pain/stress. Copyright © 2016 American Society for Pain Management Nursing. Published by Elsevier Inc. All rights reserved.

Database: Medline

17. Demonstrating the relationships of length of stay, cost and clinical outcomes in a simulated NICU.

Author(s): DeRienzo, C; Kohler, J A; Lada, E; Meanor, P; Tanaka, D

Source: Journal of perinatology : official journal of the California Perinatal Association; Dec 2016; vol. 36 (no. 12); p. 1128-1131

Publication Date: Dec 2016

Abstract:Health-care leaders place significant focus on reducing the average length of stay (ALOS). We examined the relationships among ALOS, cost and clinical outcomes using a neonatal intensive care unit (NICU) simulation model. A discrete-event NICU simulation model based on the Duke NICU was created. To identify the relationships among ALOS, cost and clinical outcomes, we replaced the standard probability distributions with composite distributions representing the best and worst outcomes published by the National Institutes of Health Neonatal Research Network. Both average cost per patient and average cost per ≤ 28 week patient were lower in the best NICU (\$16,400 vs \$19,700 and \$56,800 vs \$76,700, respectively), while LOS remained higher (27 vs 24 days). Our model demonstrates that reducing LOS does not uniformly reduce hospital resource utilization. These results suggest that health-care leaders should not simply rely on initiatives to reduce LOS without clear line-of-sight on clinical outcomes as well.

Database: Medline

18. Risk factors for persistent bacteremia in infants with catheter-related bloodstream infection due to coagulase-negative Staphylococcus in the neonatal intensive care unit.

Author(s): Furuichi, Munehiro; Miyairi, Isao

Source: Journal of infection and chemotherapy : official journal of the Japan Society of Chemotherapy; Dec 2016; vol. 22 (no. 12); p. 785-789

Publication Date: Dec 2016

Abstract:Coagulase-negative Staphylococcus (CoNS) is the predominant cause of catheter-related bloodstream infections (CRBSI). Infants in neonatal intensive care units (NICU) often suffer from CoNS CRBSI, which are often refractory to treatment. We sought to evaluate risk factors for developing persistent bacteremia due to CoNS CRBSI in infants, in order to identify those who require early aggressive management. We conducted a retrospective case-control study of infants in the NICU who developed CRBSI due to CoNS. Patient demographics, condition and management of CRBSI were compared between those with persistent and non-persistent bacteremia. Furthermore, prognosis of infants in the NICU after CoNS CRBSI was evaluated. Seventy six episodes of CRBSI,

including 17 persistent bacteremia and 59 non-persistent bacteremia, were analyzed. In univariate analyses, persistent bacteremia was significantly associated with corrected age equivalent to gestational age of 22-28 weeks at onset of CRBSI [Odds ratio (OR) = 4.33; P = 0.04], platelet count <100,000/ μ L (OR = 11.5; P < 0.001), use of vasopressor (OR = 5.38; P = 0.003), and delayed CVC removal (OR = 6.25; P = 0.003). In multivariate analysis, persistent bacteremia was significantly associated with platelet count <100,000/ μ L (OR = 7.80; P = 0.007), and delayed CVC removal (OR = 5.07; P = 0.03). Infants with persistent bacteremia tended to have a lower survival rate after CoNS CRBSI, however this was not statistically significant (P = 0.21). Early CVC removal should be considered for the treatment of CRBSI due to CoNS in infants with platelet counts of less than 100,000/ μ L. Copyright © 2016 Japanese Society of Chemotherapy and The Japanese Association for Infectious Diseases. Published by Elsevier Ltd. All rights reserved.

Database: Medline

19. Review of drug utilization patterns in NICUs worldwide.

Author(s): Krzyżaniak, N; Pawłowska, I; Bajorek, B

Source: Journal of clinical pharmacy and therapeutics; Dec 2016; vol. 41 (no. 6); p. 612-620

Publication Date: Dec 2016

Abstract:When considering acute care settings, such as the neonatal intensive care unit (NICU), the inappropriate use of medicines poses a great risk to vulnerable babies at the start of their lives. However, there is limited published literature that explores the current medication management practices in NICUs and where the main misuse issues lie. Therefore, the purpose of this review was to give an overview of medicine use in NICUs worldwide and identify therapeutic areas requiring more targeted pharmaceutical care. Specific objectives include the following: identifying the most commonly used medicines, comparing these to the A-PINCH (Anti-infectives, Potassium and other electrolytes, Insulin, Narcotics and sedatives, Chemotherapy agents, Heparin and other anticoagulants), high-risk medicines list, and determining whether there are any differences in medicine use between countries. Quasi-systematic literature review. Google Scholar, MEDLINE/PubMed, Scopus and EMBASE were searched utilizing selected MeSH terms. A total of 19 articles from 12 countries were reviewed. Medication use between countries was very similar with no discernible differences in types of medicines prescribed. The most commonly used medicines included gentamicin, ampicillin, caffeine, furosemide and vitamin K. The median number of medicines prescribed per patient ranged from 3 to 11, and an inverse relationship was identified between gestational age and the number of medications that were prescribed. Nine of the 20 most commonly used medicines were listed as A-PINCH medicines, and included antibiotics, fentanyl, morphine and heparin. Inappropriate prescribing, as well as the high use of off-label/unlicensed medicines, was highlighted as areas of practice that require consideration to improve medication safety and minimize the potential risk for medication errors. Overall, the types of medicines used in NICUs worldwide are similar, with consistent reports on the common use of antibiotics, caffeine and vitamins. However, it cannot be definitively stated that the findings of the review accurately depict current practice in NICUs, due to the limited amount of published literature available. There are several areas of concern that warrant further investigation to improve rational use of medicines in the neonatal populations, including high use of antibiotics and off-label and unlicensed medicines. © 2016 John Wiley & Sons Ltd.

Database: Medline

Journal Tables of Contents

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library@uhbristol.nhs.uk

Archives of Disease in Childhood: Fetal and Neonatal

November 2016, Volume 101, Issue 6

<http://fn.bmj.com/content/current>

- [Gestational age and birthweight for risk assessment of neurodevelopmental impairment or death in extremely preterm infants](#)
- [Neonatal gram-negative infections, antibiotic susceptibility and clinical outcome: an observational study](#)
- [Fetal inflammation associated with minimal acute morbidity in moderate/late preterm infants](#)
- [Cerebral oxygenation and echocardiographic parameters in preterm neonates with a patent ductus arteriosus: an observational study](#)
- [Assessment of myocardial function in preterm infants with chronic lung disease using tissue Doppler imaging](#)
- [The relation between splanchnic ischaemia and intestinal damage in necrotising enterocolitis](#)
- [The cardiovascular response to birth asphyxia is altered by the surrounding environment](#)
- [Lymphocyte subpopulations in premature infants: an observational study](#)
- [Early inhaled steroid use in extremely low birthweight infants: a randomised controlled trial](#)

Neonatology

November 2016, Volume 110, Issue 4

<http://fn.bmj.com/content/current>

- [Neonatal Haemophagocytic Lymphohistiocytosis Associated with Maternal Adult-Onset Still's Disease](#)
- [Cooling Effect on Skin Microcirculation in Asphyxiated Newborn Infants with Increased C-Reactive Protein](#)
- [A Prognostic Neonatal Neuroimaging Scale for Symptomatic Congenital Cytomegalovirus Infection](#)
- [Chorioamnionitis and Five-Year Neurodevelopmental Outcome in Preterm Infants](#)
- [Early Cord Metabolite Index and Outcome in Perinatal Asphyxia and Hypoxic-Ischaemic Encephalopathy](#)

Journal of Pediatrics

December 2016, Volume 179

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

- [Parental Decision-Making Preferences in Neonatal Intensive Care](#)
- Elliott Mark Weiss, Frances K. Barg, Noah Cook, Emily Black, Steven Joffe
- [Pulmonary Arterial Hypertension after Ibuprofen Treatment for Patent Ductus Arteriosus in Very Low Birth Weight Infants](#)
- Sae Yun Kim, Seung Han Shin, Han-Suk Kim, Young Hwa Jung, Ee-Kyung Kim, Jung-Hwan Choi
- [Propofol Dose-Finding to Reach Optimal Effect for \(Semi-\)Elective Intubation in Neonates](#)
- Anne Smits, Liesbeth Thewissen, Alexander Caicedo, Gunnar Nauelaers, Karel Allegaert

JAMA Pediatrics

December 2016, Volume 170, Issue 12

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

- [Antibiotic Use and Mortality Among Premature Infants Without Confirmed Infection—Perpetrator or Innocent Bystander?](#)
- [Association of Neurodevelopmental Outcomes and Neonatal Morbidities of Extremely Premature Infants With Differential Exposure to Antenatal Steroids](#)
- [Association Between Antibiotic Use and Neonatal Mortality and Morbidities in Very Low-Birth-Weight Infants Without Culture-Proven Sepsis or Necrotizing Enterocolitis](#)

Pediatrics

December 2016, Volume 138, Issue 6

<http://pediatrics.aappublications.org/content/138/6?current-issue=y>

- [Epidemiology of Invasive Early-Onset Neonatal Sepsis, 2005 to 2014](#)
- [Transcutaneous Bilirubinometry in Jaundiced Neonates: A Randomized Controlled Trial](#)

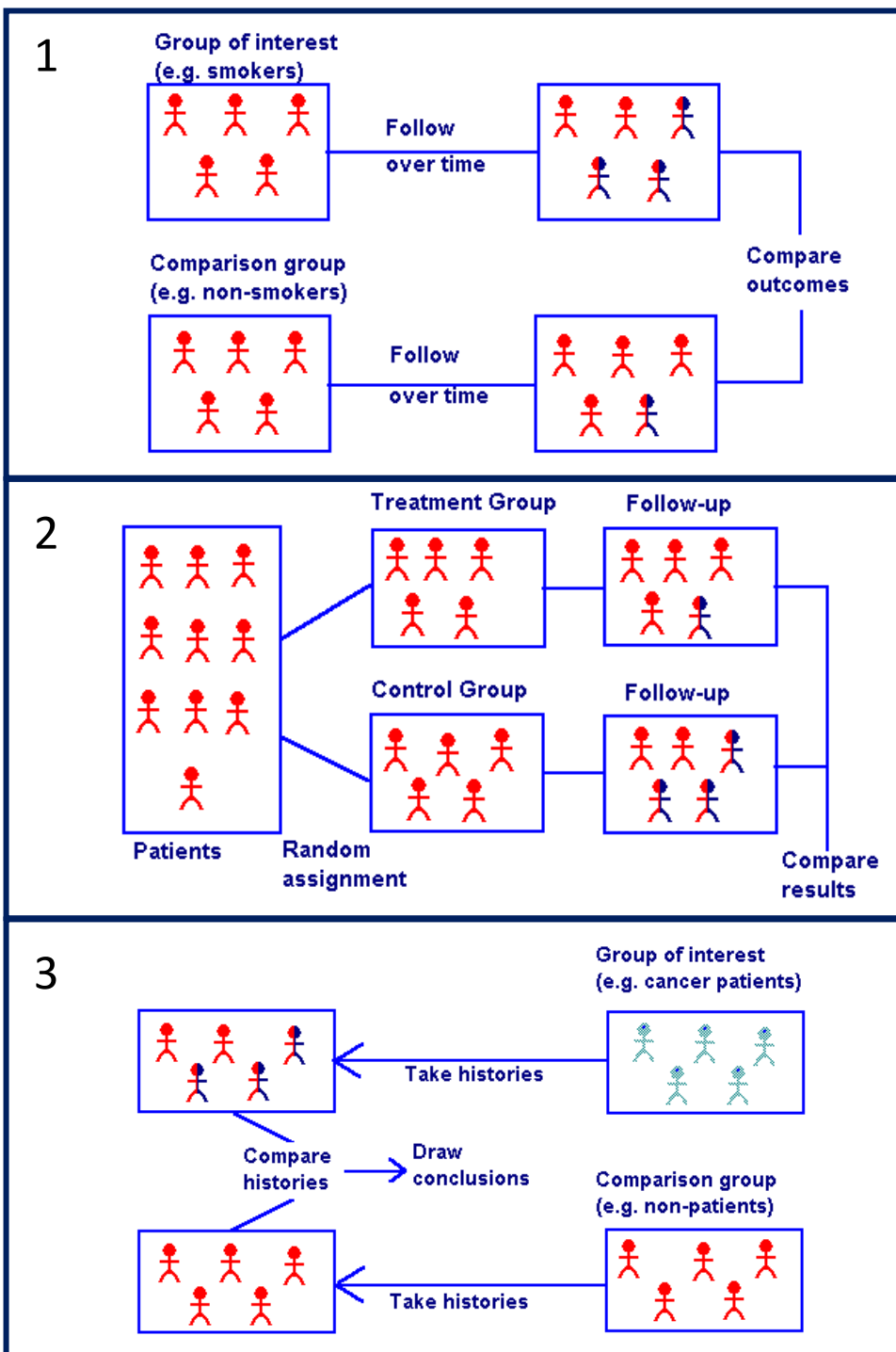
Journal of Perinatology

December 2016, Volume 36, Issue 12

<http://www.nature.com/jp/journal/v36/n12/index.html>

Exercise: Research Designs

Match the diagrams to the corresponding research designs.



- A: Randomised Controlled Trial
- B: Cohort Study
- C: Case-control Study

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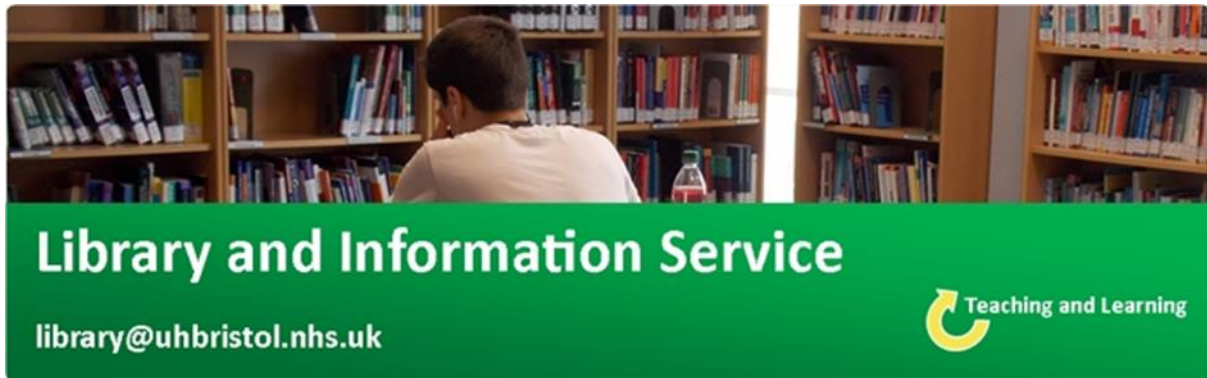
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