

PICU

Current Awareness Newsletter

February 2017



Respecting everyone
Embracing change
Recognising success
Working together
Our hospitals.



Training Calendar 2017

<u>February</u>	(12pm - 1pm)
Fri 3rd	Literature searching
Mon 6th	Critical Appraisal
Tues 14th	Interpreting Statistics
Weds 22nd	Literature Searching

<u>March</u>	(1pm - 2pm)
Thurs 2nd	Critical Appraisal
Fri 10th	Interpreting Statistics
Mon 13th	Literature Searching
Tues 21st	Critical Appraisal
Weds 29th	Interpreting Statistics

<u>April</u>	(12pm - 1pm)
Thurs 6th	Literature Searching
Mon 10th	Critical Appraisal
Tues 18th	Interpreting Statistics
Thurs 27th	Literature Searching

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[Regional paediatric palliative care model improves the quality of life of children on long-term ventilation at home](#)

F Rusalen, C Agosto, L Brugnaro and F Benini

Accepted manuscript online: 30 JAN 2017 05:20PM EST | DOI: 10.1111/apa.13769

[Insufficient evidence for ‘shaken baby syndrome’ - a systematic review](#)

Niels Lynøe, Göran Elinder, Boubou Hallberg, Måns Rosén, Pia Sundgren and Anders Eriksson

Accepted manuscript online: 27 JAN 2017 08:05PM EST | DOI: 10.1111/apa.13760

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D.B. Andropoulos and M.F. Greene | February 8, 2017 | DOI: 10.1056/NEJMp1700196

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T.B. Kinane and Others | N Engl J Med 2017;376:562-574

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[A Fully Magnetically Levitated Circulatory Pump for Advanced Heart Failure](#)

M.R. Mehra and Others | N Engl J Med 2017;376:440-450 | Published Online November 16, 2016

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Current Awareness Database Articles

1. Sources of Circuit Thrombosis in Pediatric Extracorporeal Membrane Oxygenation.

Author(s): Hastings, Susan M; Ku, David N; Wagoner, Scott; Maher, Kevin O; Deshpande, Shriprasad

Source: ASAIO journal (American Society for Artificial Internal Organs : 1992); ; vol. 63 (no. 1); p. 86-92

Publication Type(s): Journal Article

Abstract: Extracorporeal membrane oxygenation (ECMO) for cardiopulmonary support of critically ill patients is used frequently in the pediatric population. ECMO is burdened by complications, including thrombosis and hemorrhage. Here we demonstrate the focused location of clots, their histologic composition, and the relationship of in situ thrombus to local hemodynamics in ECMO circuits. Pediatric ECMO circuits from Children's Healthcare of Atlanta, Emory University (Atlanta, GA) were obtained after removal from extracorporeal support over a 2.5 year period (n = 50). All clots and material deposited within the circuit were recorded. Location of clot was compared with local hemodynamics. Most clots were adherent to the junctions made by the tubing and connectors, as opposed to being randomly disturbed throughout the circuit tubing (p << 0.05). Loose, nonadherent clots were also found at the entry side of oxygenators. The clots colocated directly with zones of low shear rate. Histology revealed a fibrinous composition, consistent with coagulation potentiated by low shear. Centrifugal pump circuits (n = 16) had more clots than roller pump (n = 34) circuits (p << 0.05). In addition, all centrifugal pumps had clots that formed at the top of the pump shaft. The ECMO circuits from our single-center study demonstrate the concentrated location of fibrin clots at low shear zones created by tubing-connector junctions. Type of pump also influences the frequency of clot formation. Since the mechanism of the majority of ECMO circuit thrombosis is low shear and fibrin driven, optimization of hemodynamics and anticoagulation regimen may reduce clot formation and bleeding.

Database: Medline

2. Analysis of Unplanned Intensive Care Unit Admissions in Postoperative Pediatric Patients.

Author(s): Landry, Elizabeth K; Gabriel, Rodney A; Beutler, Sascha; Dutton, Richard P; Urman, Richard D

Source: Journal of intensive care medicine; Mar 2017; vol. 32 (no. 3); p. 204-211

Publication Date: Mar 2017

Publication Type(s): Journal Article

Abstract: Currently, there are only a few retrospective, single-institution studies that have addressed the prevalence and risk factors associated with unplanned admissions to the pediatric intensive care unit (ICU) after surgery. Based on the limited amount of studies, it appears that airway and respiratory complications put a child at increased risk for unplanned ICU admission. A more extensive and diverse analysis of unplanned postoperative admissions to the ICU is needed to address risk factors that have yet to be revealed by the current literature. To establish a rate of unplanned postoperative ICU admissions in pediatric patients using a large, multi-institution data set and to further characterize the associated risk factors. Data from the National Anesthesia Clinical Outcomes Registry were analyzed. We recorded the overall risk of unplanned postoperative ICU admission in patients younger than 18 years and performed univariate and multivariate logistic regression analysis to identify the associated patient, surgical, and anesthetic-related characteristics. Of the 324 818 cases analyzed, 211 reported an unexpected ICU admission. There was an increased likelihood of unplanned postoperative ICU in infants (age <1 year) and children who were classified as American Society of Anesthesiologists physical status classification of III or IV. Likewise, longer case duration and cases requiring general anesthesia were also associated with unplanned ICU

admissions. This study establishes a rate of unplanned ICU admission following surgery in the heterogeneous pediatric population. This is the first study to utilize such a large data set encompassing a wide range of practice environments to identify risk factors leading to unplanned postoperative ICU admissions. Our study revealed that patient, surgical, and anesthetic complexity each contributed to an increased number of unplanned ICU admissions in the pediatric population.

Database: Medline

3. Parents' experience of a follow-up meeting after a child's death in the Paediatric Intensive Care Unit.

Author(s): Brink, Helle L; Thomsen, Anja K; Laerkner, Eva

Source: Intensive & critical care nursing; Feb 2017; vol. 38 ; p. 31-39

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract: 'To identify parents' experience of a follow up meeting and to explore whether the conversation was adequate to meet the needs of parents for a follow-up after their child's death in the Paediatric Intensive Care Unit (PICU). Qualitative method utilising semi-structured interviews with six pairs of parents 2-12 weeks after the follow-up conversation. The interviews were held in the parents' homes at their request. Data were analysed using a qualitative, descriptive approach and thematic analysis. Four main themes emerged: (i) the way back to the PICU; (ii) framework; (iii) relations and (iv) closure. The parents expressed nervousness before the meeting, but were all pleased to have participated in these follow-up meetings. The parents found it meaningful that the follow-up meeting was interdisciplinary, since the parents could have answers to their questions both about treatment and care. It was important that the staff involved in the follow-up meeting were those who had been present through the hospitalisation and at the time of the child's death. Parents experienced the follow-up meeting as being a closure of the course in the PICU, regardless the length of the hospitalisation. Copyright © 2016 Elsevier Ltd. All rights reserved.

Database: Medline

4. Factors influencing plasma transfusion practices in paediatric intensive care units around the world.

Author(s): Karam, O; Demaret, P; Duhamel, A; Shefler, A; Spinella, P C; Tucci, M; Leteurtre, S; Stanworth, S J; PlasmaTV investigators

Source: Vox sanguinis; Feb 2017

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract: BACKGROUND AND OBJECTIVES Plasma transfusions are a frequent treatment worldwide, but many studies have reported a wide variation in the indications to transfuse. Recently, an international paediatric study also showed wide variation in frequency in the use of plasma transfusions: 25% of the centres transfused plasma to >5% of their patients, whereas another 25% transfused plasma to <1% of their patients. The objective of this study was to explore the factors associated with different plasma transfusion practices in these centres. MATERIALS AND METHODS Online survey sent to the local investigators of the 101 participating centres, in February 2016. Four areas were explored: beliefs regarding plasma transfusion, patients' case-mix in each unit, unit's characteristics, and local blood product transfusion policies and processes. RESULTS The response rate was 82% (83/101). 43% of the respondents believed that plasma transfusions can arrest bleeding, whereas 27% believe that plasma transfusion can prevent bleeding. Centres with the highest plasma transfusion rate were more likely to think that hypovolaemia and mildly abnormal coagulation tests are appropriate indications for plasma transfusions ($P = 0.02$ and $P = 0.04$, respectively). Case-mix, centre characteristics or local transfusion services were not identified as

significant relevant factors. **CONCLUSION** Factors influencing plasma transfusion practices reflect beliefs about indications and the efficacy of transfusion in the prevention and management of bleeding as well as effects on coagulation tests. Educational and other initiatives to target these beliefs should be the focus of research.

Database: Medline

7. Value of postmortem studies in deceased neonatal and pediatric intensive care unit patients.

Author(s): Widmann, Raphael; Caduff, Rosmarie; Giudici, Luca; Zhong, Qing; Vogetseder, Alexander; Arlettaz, Romaine; Frey, Bernhard; Moch, Holger; Bode, Peter K

Source: Virchows Archiv : an international journal of pathology; Feb 2017; vol. 470 (no. 2); p. 217-223

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract:Worldwide, various autopsy studies have shown a decrease in the diagnostic error rate over the last years. The cause of this positive development is mainly due to the improvement of modern medicine. However, intensive care unit patients are thought to have a higher risk for diagnostic errors, which is documented in several studies in the adult population. In contrast, there is only limited information about diagnostic errors in pediatrics, particularly in pediatric and neonatal intensive care units. The aims of this study were to analyze the spectrum of childhood death, determine the prevalence and distribution of autopsy-confirmed diagnostic errors, and describe patient characteristics that might have influenced the discordance between antemortem and postmortem findings. We analyzed 143 autopsy reports from 2004 to 2013 and correlated these with clinical reports. The overall autopsy rate during this interval was 20.3%. The leading causes of death were congenital malformations (28%), diseases closely associated with perinatal disorders (25%), disorders of the cardiovascular system (18%), and infections (15%). Additional findings were obtained in 23% of the autopsies. Major diagnostic errors were found in 6%, the lowest reported value in a developed country as yet. Most cases (75%) showed complete concordance between clinical diagnoses and postmortem findings, in line with improvements in diagnostic and therapeutic processes over the last decades. In conclusion, autopsy of neonates, infants, and children represents an important tool for monitoring the quality of pediatric and neonatal medical care.

Database: Medline

8. Evaluation of Early Corticosteroid Therapy in Management of Pediatric Septic Shock in Pediatric Intensive Care Patients: A Randomized Clinical Study.

Author(s): El-Nawawy, Ahmed; Khater, Doaa; Omar, Heba; Wali, Yasser

Source: The Pediatric infectious disease journal; Feb 2017; vol. 36 (no. 2); p. 155-159

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract:Septic shock is a major healthcare problem. Adrenal insufficiency (AI) in children with septic shock is a recognized complication, yet is controversial regarding its management and effect on mortality. According to the current guidelines, children with risk factors for AI should receive a stress dose of steroids in step 3 of treatment. This study aimed to evaluate and compare early corticosteroid therapy with the traditional use of steroids among pediatric septic shock patients. This prospective randomized interventional clinical study included 3 groups of patients (32 each) and was conducted in Alexandria University pediatric intensive care unit. By protocol, the first group received steroids in step 3 of the treatment according to the current international guidelines (group A), and the second group was managed as group A and was tested for AI by adrenal stimulation test using intramuscular adrenocorticotrophic hormone (cosyntropin) (group B). The third group received steroids at the start of fluid therapy (group C). A fourth group (group D) was created by adding

patients from groups A and B who needed corticosteroids in the third stage of therapy according to the international protocol in 1 group. All patients were evaluated for basal serum cortisol and plasma adrenocorticotrophic hormone concentrations. The data showed a statistically significant shorter shock reversal time among patients receiving corticosteroids at the start of treatment compared with those who received it at the third step of treatment ($P = 0.046$); however, mortality was not statistically different among the groups. In addition, there was no superinfection in cases receiving early steroid therapy. Early use of corticosteroid in patients with septic shock might shorten the shock reversal time without increase in mortality or superinfection.

Database: Medline

10. Impact of acute kidney injury on long-term mortality and progression to chronic kidney disease among critically ill children.

Author(s): Al-Otaibi, Najlaa G; Zeinelabdin, Maryam; Shalaby, Mohamed A; Khathlan, Norah; Mashat, Ghadi D; Zahrani, Amal A; NoorSaeed, Sundus Mw; Shalabi, Nora M; Alhasan, Khalid A; Sharief, Sara N; Albanna, Amr S; Kari, Jameela A

Source: Saudi medical journal; Feb 2017; vol. 38 (no. 2); p. 138-142

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract:OBJECTIVES To determine the 2-year outcome of acute kidney injury (AKI) following admission to pediatric critical care units (PICU). Methods: A retrospective cohort study was conducted between January 2012 and December 2013. We followed 131 children admitted to PICU, King Abdulaziz University Hospital, Jeddah, Kingdom of Saudi Arabia with a diagnosis of AKI, based on pRIFLE (pediatric risk, injury, failure, loss, and end-stage renal disease), for 2 years. During the study period, 46 children died and 38 of survivors completed the follow-up. Factors affecting long-term progression to chronic kidney disease were also evaluated. Results: The 2-year mortality was more than 40%. The main determinant of the 2-year mortality was the pediatric risk of mortality (PRISM) score, which increased the risk of mortality by 6% per each one score (adjusted odds ratio, 1.06; 95% confidence interval: 1.00-1.11). By the end of the 2 years, 33% of survivors had reduction in the glomerular filtration rate and proteinuria, and 73% were hypertensive. Patients with more severe renal impairment at admission, based on the pRIFLE criteria, had higher mortality rate. This association, however, was not independent since it was influenced by baseline disease severity (PRISM score). Conclusion: Large proportion of patients admitted to PICU with AKI either died during the first 2 months of follow-up or developed long-term complications. The severity of AKI, however, was not an independent risk factor for mortality.

Database: Medline

23. Systemic inflammatory response syndrome after pediatric congenital heart surgery: Incidence, risk factors, and clinical outcome.

Author(s): Boehne, Martin; Sasse, Michael; Karch, André; Dziuba, Friederike; Horke, Alexander; Kaussen, Torsten; Mikolajczyk, Rafael; Beerbaum, Philipp; Jack, Thomas

Source: Journal of cardiac surgery; Feb 2017; vol. 32 (no. 2); p. 116-125

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract:BACKGROUND Systemic inflammatory response syndrome (SIRS) is frequent after cardiac surgery, but data on its incidence and perioperative risk factors are scarce for children with congenital heart disease. METHODS SIRS incidence within 72 hours following cardiac surgery was evaluated in a secondary analysis of children enrolled to a treatment-free control group of a randomized controlled trial. Intraoperative parameters were investigated for their association with SIRS using multivariable fractional polynomial logistic regression models. Effects of SIRS on various

organ functions and length of stay were evaluated using time-varying Cox regression models. **RESULTS** In 116 children after cardiac surgery (median age [range]: 7.4 month [1 day-16.2 years]) SIRS occurred in n = 39/102 with and n = 1/14 without cardiopulmonary bypass (CPB). Duration of CPB (hazard ratio [HR]: 2.28 per hour; 95% confidence interval [CI] 1.17; 4.42) and amount of fresh frozen plasma (HR: 1.23 per 10 mL/kg; 95%CI 1.06; 1.42) were identified as predictors for SIRS; neonates seemed to be less susceptible for SIRS development (HR: 0.86; 95%CI 0.79; 0.95). SIRS was associated with organ dysfunction (HR: 2.69; 95%CI 1.41; 5.12) and extended stay in the pediatric intensive care unit (PICU) (median: 168 vs. 96 hours; p = 0.007). **CONCLUSIONS** SIRS is a frequent complication after pediatric congenital heart surgery; it affects nearly one third of children and prolongs PICU stay significantly. Duration of CPB and amount of fresh frozen plasma were identified as important risk factors. Neonates seem to be less susceptible to SIRS development.

Database: Medline

24. Association of a Clinical Practice Guideline With Blood Culture Use in Critically Ill Children.

Author(s): Woods-Hill, Charlotte Z; Fackler, James; Nelson McMillan, Kristen; Ascenzi, Judith; Martinez, Diego A; Toerper, Matthew F; Voskertchian, Annie; Colantuoni, Elizabeth; Klaus, Sybil Ann; Levin, Scott; Milstone, Aaron M

Source: JAMA pediatrics; Feb 2017; vol. 171 (no. 2); p. 157-164

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract:Importance Sepsis and septic shock are common and, at times, fatal in pediatrics. Blood cultures are often obtained when clinicians suspect sepsis, yet are low-yield with a false-positive rate up to 50%. Objectives To determine whether a novel, 2-part, clinical practice guideline could decrease the rates of total blood cultures and cultures collected from central venous catheters in critically ill children and to examine the effect of the guideline on patient outcomes. Design, Setting, and Participants A retrospective cohort study was performed to determine the effect of a new clinical practice guideline on blood culture practices in a 36-bed, combined medical/surgical pediatric intensive care unit of an urban, academic, tertiary care center from April 1, 2013, to March 31, 2015. All patients admitted to the pediatric intensive care unit with length of stay of 4 hours or more were evaluated (4560 patient visits: 2204 preintervention, 2356 postintervention visits). Interventions Two documents were developed: (1) fever/sepsis screening checklist and (2) blood culture decision algorithm. Clinicians consulted these documents when considering ordering blood cultures and for guidance about the culture source. Main Outcomes and Measures Primary outcome was the total number of blood cultures collected per 100 patient-days. Results Of the 2204 children evaluated before the intervention, 1215 were male (55.1%); median (interquartile range) age was 5 (1-13) years. Postintervention analysis included 2356 children; 1262 were male (53.6%) and median (interquartile range) age was 6 (1-13) years. A total of 1807 blood cultures were drawn before the intervention during 11 196 patient-days; 984 cultures were drawn after the intervention during 11 204 patient-days (incidence rate, 16.1 vs 8.8 cultures per 100 patient-days). There was a 46.0% reduction after the intervention in the blood culture collection rate (incidence rate ratio, 0.54; 95% CI, 0.50-0.59). After the intervention, there was an immediate 25.0% reduction in the rate of cultures per 100 patient-days (95% CI, 4.2%-39.7%; P = .02) and a sustained 6.6% (95% CI, 4.7%-8.4%; P < .001) monthly decrease in the rate of cultures per 100 patient-days. Significantly fewer cultures were collected from central venous catheters after vs before the intervention (389 [39.5%] vs 1321 [73.1%]; P < .001). Rates of episodes defined as suspected infection and suspected septic shock decreased significantly after the intervention, but patients meeting these criteria underwent cultures at unchanged frequencies before vs after the intervention (52.1% vs 47.0%, P = .09, compared with 56.7% vs 55.0%, P = .75). In-hospital mortality (45 [2.0] vs 37 [1.6]; P = .23) and hospital readmissions (107 [4.9] vs 103 [4.4]; P = .42) were unchanged after the intervention. Conclusions and Relevance A systematic approach to blood cultures decreased the total number of

cultures and central venous catheter cultures, without an increase in rates of mortality, readmission, or episodes of suspected infection and suspected septic shock.

Database: Medline

25. High flow nasal cannula (HFNC) versus nasal continuous positive airway pressure (nCPAP) for the initial respiratory management of acute viral bronchiolitis in young infants: a multicenter randomized controlled trial (TRAMONTANE study).

Author(s): Milési, Christophe; Essouri, Sandrine; Pouyau, Robin; Liet, Jean-Michel; Afanetti, Mickael; Portefaix, Aurélie; Baleine, Julien; Durand, Sabine; Combes, Clémentine; Douillard, Aymeric; Cambonie, Gilles; Groupe Francophone de Réanimation et d'Urgences Pédiatriques (GFRUP)

Source: Intensive care medicine; Feb 2017; vol. 43 (no. 2); p. 209-216

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract: **PURPOSE** Nasal continuous positive airway pressure (nCPAP) is currently the gold standard for respiratory support for moderate to severe acute viral bronchiolitis (AVB). Although oxygen delivery via high flow nasal cannula (HFNC) is increasingly used, evidence of its efficacy and safety is lacking in infants. **METHODS** A randomized controlled trial was performed in five pediatric intensive care units (PICUs) to compare 7 cmH₂O nCPAP with 2 L/kg/min oxygen therapy administered with HFNC in infants up to 6 months old with moderate to severe AVB. The primary endpoint was the percentage of failure within 24 h of randomization using prespecified criteria. To satisfy noninferiority, the failure rate of HFNC had to lie within 15% of the failure rate of nCPAP. Secondary outcomes included success rate after crossover, intubation rate, length of stay, and serious adverse events. **RESULTS** From November 2014 to March 2015, 142 infants were included and equally distributed into groups. The risk difference of -19% (95% CI -35 to -3%) did not allow the conclusion of HFNC noninferiority ($p = 0.707$). Superiority analysis suggested a relative risk of success 1.63 (95% CI 1.02-2.63) higher with nCPAP. The success rate with the alternative respiratory support, intubation rate, durations of noninvasive and invasive ventilation, skin lesions, and length of PICU stay were comparable between groups. No patient had air leak syndrome or died. **CONCLUSION** In young infants with moderate to severe AVB, initial management with HFNC did not have a failure rate similar to that of nCPAP. This clinical trial was recorded in the National Library of Medicine registry (NCT 02457013).

Database: Medline

27. Measurement of parent satisfaction in the paediatric intensive care unit - Translation, cultural adaptation and psychometric equivalence for the French-speaking version of the EMPATHIC-65 questionnaire.

Author(s): Grandjean, Chantal; Latour, Jos M; Cotting, Jacques; Fazan, Marie-Christine; Leteurtre, Stéphane; Ramelet, Anne-Sylvie

Source: Intensive & critical care nursing; Feb 2017; vol. 38 ; p. 40-45

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract: **INTRODUCTION** Within paediatric intensive care units (PICUs), only a few parent satisfaction instruments are validated and none are available for French-speaking parents. The aims of the study were to translate and culturally adapt the Dutch EMPATHIC-65 questionnaire into a French version and to test its psychometric equivalence. **METHODS** Two French-speaking PICUs in Switzerland and France participated. The questionnaire was translated using a standardised method and parents with PICU experience were interviewed to assess clarity of the translated version. Secondly, parents of children hospitalised for at least 24 hours and who were fluent in French, were invited to complete the French translated version of the EMPATHIC-65 questionnaire. Reliability and

validity measures were used to examine its psychometric equivalence. **RESULTS** The overall mean clarity agreement reached 90.2% by 17 French-speaking parents. Eight unclear items have subsequently been reworded. One hundred seventy-two parents completed the French version questionnaire. Reliability and convergent validity have been confirmed by an adequate internal consistency (0.59-0.89) and convergent validity (r_s 0.25-0.63, $p < 0.01$). **CONCLUSION** Psychometric equivalence of the French EMPATHIC-65 questionnaire highlights the appropriateness of relying on available valid instrument to expand the availability of health instrument measure in French.

Database: Medline

28. A European Society of Paediatric and Neonatal Intensive Care (ESPNIC) survey of European critical care management of young people.

Author(s): Tuckwell, R; Wood, D; Mansfield-Sturgess, S; Brierley, J

Source: European journal of pediatrics; Feb 2017; vol. 176 (no. 2); p. 155-161

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract: Adolescents have specific healthcare needs distinct from adults or younger children secondary to anatomical, physiological and socio-behavioural differences. Healthcare providers have been slow to address this, leading the UK Department of Health (2011) to publish 'You're Welcome' quality criteria for services for young people. (In the UK, the term young people is preferred to adolescent.) These generic criteria poorly fit the critical care environment, omitting key issues whilst insisting upon irrelevant standards. But as young people are infrequent patients for any individual unit, the research base to guide optimal management is poor and we could find no international or national guidance. Together with the hospital's young people's group, our intensive care team identified six areas important for critically ill young people, which are the 6Ps: privacy, permission, deep vein thrombosis (DVT) prophylaxis, personal life, puberty and practical issues. We then surveyed practice across Europe regarding these themes. Fifty-four hospitals from 16 countries participated, demonstrating disparate practice and widely differing policies to meet the requirements of critically ill young people. **CONCLUSION** There is little consistency of practice in some areas such as pregnancy testing, DVT prophylaxis or partner visiting, whereas in others, such as involving young people in healthcare decisions where possible, practice is consistently good. Further research should focus on the young people's experience of critical care to refine healthcare policy. **What is Known:** • Adolescents have distinct health and psychosocial needs that are often poorly catered for in contemporary healthcare settings, including critical care. • As adolescents are infrequent patients for any intensive care unit, there is a poor research base and essentially no guidance, regarding optimal care. **What is New:** • We developed a mnemonic with adolescents and ICU staff to improve healthcare delivery to young people in critical care, the 6Ps: privacy, permission, DVT prophylaxis, personal life, puberty and practical issues. • Delivery of the adolescents' critical care varies greatly both between and within countries; the 6Ps offers a method of standardising and improving this across different countries.

Database: Medline

29. Postoperative Patient-Controlled Analgesia in the Pediatric Cardiac Intensive Care Unit.

Author(s): Epstein, Hanna M

Source: Critical care nurse; Feb 2017; vol. 37 (no. 1); p. 55-61

Publication Date: Feb 2017

Publication Type(s): Journal Article

Available in full text at [Critical Care Nurse](#) - from EBSCOhost

Abstract: **BACKGROUND** High rates of uncontrolled pain in critically ill patients remain common. Patient-controlled analgesia is more effective than traditional intravenous as-needed dosing

regimens for managing postoperative pain in older children and adults. **OBJECTIVE** To determine whether pain-related clinical outcomes in patients from age 10 years to adult following cardiac surgery are improved by using patient-controlled analgesia as a pain management strategy. **METHODS** Using the plan-do-study-act method of quality improvement, a process was instituted to have both staff and patients' families support the use of patient-controlled analgesia postoperatively as opposed to traditional pain control with as-needed analgesics. Use of as-needed medications and pain scores were retrospectively compared from before to after initiation of patient-controlled analgesia. **RESULTS** The cumulative mean pain score from the time of extubation through the following 24 hours decreased from 4.14 (on a scale from 0 to 10) when strictly as-needed medications were used to 2.8 with patient-controlled analgesia. Further, the mean amount of opioid consumed decreased from 14.98 mg of morphine and 22.27 mg of oxycodone to 13.58 mg of morphine and 3.33 mg of oxycodone after implementation of patient-controlled analgesia. **CONCLUSIONS** Standardized use of patient-controlled analgesia for postoperative pain management in patients 10 years of age through adulthood is efficient and effective, as evidenced by less medication being consumed by patients and lower mean pain scores.

Database: Medline

30. Audit of Endotracheal Tube Suction in a Pediatric Intensive Care Unit.

Author(s): Davies, Kylie; Bulsara, Max K; Ramelet, Anne-Sylvie; Monterosso, Leanne

Source: Clinical nursing research; Feb 2017; vol. 26 (no. 1); p. 68-81

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract:We report outcomes of a clinical audit examining criteria used in clinical practice to rationalize endotracheal tube (ETT) suction, and the extent these matched criteria in the Endotracheal Suction Assessment Tool(ESAT)©. A retrospective audit of patient notes (N = 292) and analyses of criteria documented by pediatric intensive care nurses to rationalize ETT suction were undertaken. The median number of documented respiratory and ventilation status criteria per ETT suction event that matched the ESAT© criteria was 2 [Interquartile Range (IQR) 1-6]. All criteria listed within the ESAT© were documented within the reviewed notes. A direct link was established between criteria used for current clinical practice of ETT suction and the ESAT©. The ESAT©, therefore, reflects documented clinical decision making and could be used as both a clinical and educational guide for inexperienced pediatric critical care nurses. Modification to the ESAT © requires "preparation for extubation" to be added.

Database: Medline

31. Ethical Considerations for Care of the Child Undergoing Extracorporeal Membrane Oxygenation.

Author(s): Carter, Martha A

Source: AORN journal; Feb 2017; vol. 105 (no. 2); p. 148-158

Publication Date: Feb 2017

Publication Type(s): Journal Article

Abstract:Extracorporeal membrane oxygenation (ECMO) is a complex, highly technical surgical procedure that can offer hope for children born with congenital heart defects. The procedure may only briefly prolong a life, has limited potential for decreasing mortality, and may lead to serious complications, however. Perioperative nurses play an important role in caring for the child who requires ECMO. They are involved in assessing the child, implementing the plan of care, and facilitating communication between the child's family members and the health care team. Thus, perioperative nurses have a responsibility to consider the broad range of ethical issues associated with the procedure. By examining the ethical concepts of beneficence, nonmaleficence, autonomy,

justice, and moral distress, the perioperative nurse can better understand the dilemmas that can affect the care and outcome of the critically ill child who requires ECMO.

Database: Medline



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