

PICU

Current Awareness Newsletter

March 2017



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Training Calendar 2017

| | |
|---------------------|--------------------------------|
| <u>March</u> | (1pm - 2pm) |
| 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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Journal Tables of Contents

The most recent issues of key journals. Click on the hyperlinked titles (+ Ctrl) to for contents tables. If you would like any of the papers in full text then get in touch: library@uhbristol.nhs.uk

[Critical Care](#) (2017 - 21 (1))

Role of Vasopressin and Terlipressin in Refractory Shock Compared to Conventional Therapy in the Neonatal and Pediatric Population

A Systematic Review, Meta-analysis, and Trial Sequential Analysis

Reem Masarwa; Gideon Paret; Amichai Perlman; Shimon Reif; Bruria Hirsh Raccach; Ilan Matok

[Critical Care Medicine](#) (April 2017 - Volume 45 - Issue 4)

[Meta-Analysis of Therapeutic Hypothermia for Traumatic Brain Injury in Adult and Pediatric Patients*](#)

Crompton, Ellie M.; Lubomirova, Irina; Cotlarciuc, Ioana; Han, Thang S.; Sharma, Sapna D.; Sharma, Pankaj

[Delirium in Critically Ill Children: An International Point Prevalence Study*](#)

Traube, Chani; Silver, Gabrielle; Reeder, Ron W.; Doyle, Hannah; Hegel, Emily; Wolfe, Heather A.; Schneller, Christopher; Chung, Melissa G.; Dervan, Leslie A.; DiGennaro, Jane L.; Buttram, Sandra D. W.; Kudchadkar, Sapna R.; Madden, Kate; Hartman, Mary E.; deAlmeida, Mary L.; Walson, Karen; Ista, Erwin; Baarslag, Manuel A; Salonia, Rosanne; Beca, John; Long, Debbie; Kawai, Yu; Cheifetz, Ira M.; Gelvez, Javier; Truemper, Edward J.; Smith, Rebecca L.; Peters, Megan E.; O'Meara, AM Iqbal; Murphy, Sarah; Bokhary, Abdulmohsen; Greenwald, Bruce M.; Bell, Michael J.

[Pediatric Delirium: A Worldwide PICU Problem*](#)

Schieveld, Jan N. M.; Strik, Jacqueline J. M. H.

[Nutritional Assessment Must be Prioritized for Critically Ill Children in the PICU](#)

Bechard, Lori J.; Mehta, Nilesh M.

[Racial and Ethnic Variation in Pediatric Cardiac Extracorporeal Life Support Survival](#)

Chan, Titus; Di Gennaro, Jane; Farris, Reid W. D.; Radman, Monique; McMullan, David Michael

[European Journal of Pediatrics](#). (Volume 176 Number 4 2017)

Independent risk factors for recurrence of apparent life-threatening events in infants

Riyo Ueda, Osamu Nomura, Takanobu Maekawa, Hirokazu Sakai, Satoshi Nakagawa & Akira Ishiguro

[JAMA Pediatrics](#) (February 13, 2017)

[Development and Internal Validation of a Clinical Risk Score for Treating Children With Mild Head Trauma and Intracranial Injury](#)

Jacob K. Greenberg; Yan Yan; Christopher R. Carpenter; Angela Lumba-Brown; Martin S. Keller; Jose A. Pineda; Ross C. Brownson⁶; David D. Limbrick

[Pediatric Anesthesia](#) (Volume 27, Issue 3 Pages 221 - 331, March 2017)

[The use of methadone to facilitate opioid weaning in pediatric critical care patients: a systematic review of the literature and meta-analysis \(pages 228–239\)](#)

Leslie A. Dervan, Beryl Yaghamai, Robert Scott Watson and Fredric M. Wolf

Version of Record online: 20 JAN 2017 | DOI: 10.1111/pan.13056

[Natural history of nonimmune-mediated thrombocytopenia and acute kidney injury in pediatric open-heart surgery \(pages 305–313\)](#)

Shannon Tew, Manuel L. Fontes, Nathaniel H. Greene, Miklos D. Kertai, George Ofori-Amanfo, Robert D. B. Jaquiss, Andrew J. Lodge, Warwick A. Ames, Hercilia Mayumi Homi, Kelly A. Machovec and Edmund H. Jooste

[Congenital diaphragmatic hernia: outcomes of neonates treated at Mayo Clinic with and without extracorporeal membrane oxygenation \(pages 314–321\)](#)

Katarina Bojanić, Jason M. Woodbury, Alexandre N. Cavalcante, Ruža Grizelj, Garth F. Asay, Christopher E. Colby, William A. Carey, Gregory J. Schears, Toby N. Weingarten, Darrell R. Schroeder and Juraj Sprung

[Implementation of NAP4 emergency airway management recommendations in a quaternary-level pediatric hospital](#)

Elliot Long, Domenic Cincotta, Joanne Grindlay, Anastasia Pellicano, Michael Clifford, Stefan Sabato and On behalf of the Paediatric Research in Emergency Departments International Collaborative (PREDICT)

Version of Record online: 28 FEB 2017 | DOI: 10.1111/pan.13128

[Magnesium sulfate in pediatric anesthesia: the Super Adjuvant](#)

Ramón Eizaga Rebollar, María V. García Palacios, Javier Morales Guerrero and Luis M. Torres
Version of Record online: 28 FEB 2017 | DOI: 10.1111/pan.13129

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[Comorbidities and Complications of Spinal Fusion for Scoliosis](#)

Jay G. Berry, Michael Glotzbecker, Jonathan Rodean, Izabela Leahy, Matt Hall, and Lynne Ferrari

[Respiratory Morbidity in Infants Born With a Congenital Lung Malformation](#)

Celine Delestrain, Naziha Khen-Dunlop, Alice Hadchouel, Pierrick Cros, Héloïse Ducoin, Michael Fayon, Isabelle Gibert ini, André Labbé, Géraldine Labouret, Marie-Noëlle Lebras, Guillaume Lezmi, Fouad Madhi, Guillaume Thouvenin, Caroline Thumerelle, and Christophe Delacourt

[Pulmonary Hypertension Therapy and a Systematic Review of Efficacy and Safety of PDE-5 Inhibitors](#)

Chinwe Unegbu, Corina Noje, John D. Coulson, Jodi B. Segal, and Lewis Romer

[Pediatric Critical Care Medicine](#) (March 2017 - Volume 18 - Issue 3)

[Suspected Cerebral Edema in Diabetic Ketoacidosis: Is There Still a Role for Head CT in Treatment Decisions?*](#)

Soto-Rivera, Carmen L.; Asaro, Lisa A.; Agus, Michael S. D.; DeCoursey, Danielle D.

[Perioperative Near-Infrared Spectroscopy Monitoring in Neonates With Congenital Heart Disease: Relationship of Cerebral Tissue Oxygenation Index Variability With Neurodevelopmental Outcome](#)

Spaeder, Michael C.; Klugman, Darren; Skurow-Todd, Kami; Glass, Penny; Jonas, Richard A.; Donofrio, Mary T.

[Impact of Viral Respiratory Pathogens on Outcomes After Pediatric Cardiac Surgery](#)

Moynihan, Katie; Barlow, Andrew; Alphonso, Nelson; Anderson, Ben; Johnson, Janelle; Nourse, Clare; Schlebusch, Sanmarié; Karl, Tom R.; Schlapbach, Luregn J.

[Central Venous to Arterial CO₂ Difference After Cardiac Surgery in Infants and Neonates*](#)

Rhodes, Leslie A.; Erwin, W. Clinton; Borasino, Santiago; Cleveland, David C.; Alten, Jeffrey A.

[The Severity of Hypoxic-Ischemic Encephalopathy Correlates With Multiple Organ Dysfunction in the Hypothermia Era](#)

Alsina, Miguel; Martín-Ancel, Ana; Alarcon-Allen, Ana; Arca, Gemma; Gayá, Francisco; García-Alix, Alfredo

[Volume-Targeted Ventilation in the Neonate: Benchmarking Ventilators on an Active Lung Model](#)

Krieger, Tobias J.; Wald, Martin

[Electrographic Seizures in Children and Neonates Undergoing Extracorporeal Membrane Oxygenation](#)

Lin, Jaiin-Jim; Banwell, Brenda L.; Berg, Robert A.; Dlugos, Dennis J.; Ichord, Rebecca N.; Kilbaugh, Todd J.; Kirsch, Roxanne E.; Kirschen, Matthew P.; Licht, Daniel J.; Massey, Shavonne L.; Naim, Maryam Y.; Rintoul, Natalie E.; Topjian, Alexis A.; Abend, Nicholas S.

[Doppler Ultrasonography of the Central Retinal Vessels in Children With Brain Death*](#)

Riggs, Becky J.; Cohen, Joanna S.; Shivakumar, Bhavana; Trimboli-Heidler, Carmelina; Patregnani, Jason T.; Miller, Marijean M.; Spaeder, Michael C.; Dean, Nathan P.

[Early Fluid Overload Prolongs Mechanical Ventilation in Children With Viral-Lower Respiratory Tract Disease*](#)

Ingelse, Sarah A.; Wiegers, Hanke M. G.; Calis, Job C.; van Woensel, Job B.; Bem, Reinout A.

[Readmission and Late Mortality After Critical Illness in Childhood*](#)

Hartman, Mary E.; Saeed, Mohammed J.; Bennett, Tellen; Typpo, Katri; Matos, Renee; Olsen, Margaret A.

[Long-Term Function After Pediatric Critical Illness: Results From the Survivor Outcomes Study*](#)

Pinto, Neethi P.; Rhinesmith, Elizabeth W.; Kim, Tae Yeon; Ladner, Peter H.; Pollack, Murray M.

[PaO₂/FIO₂ Ratio Derived From the SpO₂/FIO₂ Ratio to Improve Mortality Prediction Using the Pediatric Index of Mortality-3 Score in Transported Intensive Care Admissions*](#)

Ray, Samiran; Rogers, Libby; Pagel, Christina; Raman, Sainath; Peters, Mark J.; Ramnarayan, Padmanabhan

[Epidemiology of Pediatric Critical Illness in a Population-Based Birth Cohort in Olmsted County, MN](#)

Crow, Sheri S.; Undavalli, Chaitanya; Warner, David O.; Katusic, Slavica K.; Kandel, Pujan;

[Primary Outcome Measures in Pediatric Septic Shock Trials: A Systematic Review*](#)

Menon, Kusum; McNally, James Dayre; Zimmerman, Jerry J.; Agus, Michael S. D.; O'Hearn, Katie; Watson, R. Scott; Wong, Hector R.; Duffett, Mark; Wypij, David; Choong, Karen

Murphy, Sinead L.; Schroeder, Darrell R.; Watson, R. Scott

Current Awareness Database Articles

Below is a selection of articles recently added to the healthcare databases. If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch: library@uhbristol.nhs.uk

4. Diagnostic Values and Limitations of (1,3)- β -D-Glucans and Galactomannan Assays for Invasive Fungal Infection in Patients Admitted to Pediatric Intensive Care Unit.

Author(s): Zheng, Fang; Zha, Hui; Yang, Dandan; Deng, Jun; Zhang, Zhiquan

Source: Mycopathologia; Apr 2017; vol. 182 (no. 3-4); p. 331-338

Publication Date: Apr 2017

Publication Type(s): Journal Article

Abstract:The relationship among (1,3)- β -D-glucans (BG), galactomannan (GM), and the risk of developing invasive fungal infections (IFI) has been observed in adult ICU and in children with hematological malignancies. Only scant data evaluated the value of BG/GM assays for diagnosis of IFI in patients with nonhematological diseases in pediatric intensive care unit (PICU). In this study, we assessed the diagnostic value of these markers for IFI in PICU. The records of 230 patients were retrospectively evaluated. Out of 117 patients (7 proven, 23 probable, and 87 cases without evidence of IFI) performed GM and BG assays. The results showed many factors were associated with false-positive test results. Patients who aged over 3 years had higher levels of GM and BG than younger infants. The levels of BG were higher in subjects with dairy, human blood products, antibiotics, and corticosteroids therapy than in cases without these treatments. Unlike BG assay, GM assay was less susceptible to above-mentioned factors except blood products. The levels of BG and GM in IFI cases were dramatically higher than in controls. The diagnostic performance of these assays showed that GM assay had better results when compared with BG assay. On the whole, negative predictive value in both GM and BG assays was dramatically higher than other diagnostic parameters. In conclusion, BG assay was highly susceptible to many factors, and GM assay could be useful for diagnosis of IFI for its high sensitivity, but the over benefit of this assay limited in its inadequate specificity. The comparative advantage of BG and BG assays lied in excluding IFI in non-hematological PICU patients.

Database: Medline

5. Dysbiosis in the intensive care unit: Microbiome science coming to the bedside.

Author(s): Kitsios, Georgios D; Morowitz, Michael J; Dickson, Robert P; Huffnagle, Gary B; McVerry, Bryan J; Morris, Alison

Source: Journal of critical care; Apr 2017; vol. 38 ; p. 84-91

Publication Date: Apr 2017

Publication Type(s): Journal Article Review

Abstract:Complex microbial communities within the human body, constituting the microbiome, have a broad impact on human health and disease. A growing body of research now examines the role of the microbiome in patients with critical illness, such as sepsis and acute respiratory failure. In this article, we provide an introduction to microbiome concepts and terminology and we systematically review the current evidence base of the critical-illness microbiome, including

51 studies in animal models and pediatric and adult critically ill patients. We further examine how this emerging scientific discipline may transform the way we manage infectious and inflammatory diseases in intensive care units. The evolving molecular, culture-independent techniques offer the ability to study microbial communities in unprecedented depth and detail, and in the short-term, may enable us to diagnose and treat infections in critical care more precisely and effectively. Longer term, these tools may also give us insights in the underlying pathophysiology of critical illness and reveal previously unsuspected targets for innovative, microbiome-targeted therapeutics. We finally propose a roadmap for future studies in the field for transforming critical care from its current isolated focus on the host to a more personalized paradigm addressing both human and microbial contributions to critical illness.

Database: Medline

6. Mortality, length of stay, bloodstream and respiratory viral infections in a pediatric intensive care unit.

Author(s): Hon, Kam Lun; Luk, Man Ping; Fung, Wing Ming; Li, Cho Ying; Yeung, Hiu Lee; Liu, Pui Kwun; Li, Shun; Tsang, Kathy Yin Ching; Li, Chi Kong; Chan, Paul Kay Sheung; Cheung, Kam Lau; Leung, Ting Fan; Koh, Pei Lin

Source: Journal of critical care; Apr 2017; vol. 38 ; p. 57-61

Publication Date: Apr 2017

Publication Type(s): Journal Article

Abstract:OBJECTIVESWe investigated whether diagnostic categories and presence of infections were associated with increased mortality or length of stay (LOS) in patients admitted to a pediatric intensive care unit (PICU).METHODSA retrospective study of all PICU admissions between October 2002 and April 2016 was performed. Oncologic vs nononcologic, trauma/injuries vs nontraumatic, infectious (gram-positive, gram-negative, fungal bloodstream infections, common respiratory viruses) vs noninfectious diagnoses were evaluated for survival and LOS.RESULTSPediatric intensive care unit admissions (n = 2211) were associated with a mortality of 5.3%. Backward binary logistic regression showed that nonsurvival was associated with leukemia (odds ratio [OR], 4.81; 95% confidence interval [CI], 2.2-10.10; P < .0005), lymphoma (OR, 21.34; 95% CI, 3.89-117.16; P < .0005), carditis/myocarditis (OR, 7.91; 95% CI, 1.98-31.54; P = .003), encephalitis (OR, 6.93; 95% CI, 3.27-14.67; P < .0005), bloodstream infections with gram-positive organisms (OR, 5.32; 95% CI, 2.67-10.60; P < .0005), gram-negative organisms (OR, 8.23; 95% CI, 4.10-16.53; P < .0005), fungi (OR, 3.93; 95% CI, 1.07-14.42; P = .039), and pneumococcal disease (OR, 3.26; 95% CI, 1.21-8.75; P = .019). Stepwise linear regression revealed that LOS of survivors was associated with bloodstream gram-positive infection (B = 98.2; 95% CI, 75.7-120.7; P < .0005).CONCLUSIONSPatients with diagnoses of leukemia, lymphoma, cardiomyopathy/myocarditis, encephalitis, and comorbidity of bloodstream infections and pneumococcal disease were significantly at risk of PICU mortality. Length of stay of survivors was associated with bloodstream gram-positive infection. The highest odds for death were among patients with leukemia/lymphoma and bloodstream coinfection. As early diagnosis of these childhood malignancies is desirable but not always possible, adequate and early antimicrobial coverage for gram-positive and gram-negative bacteria might be the only feasible option to reduce PICU mortality in these patients. In Hong Kong, a subtropical Asian city, none of the common respiratory viruses were associated with increased mortality or LOS in PICU.

Database: Medline

7. Outcomes following electrographic seizures and electrographic status epilepticus in the pediatric and neonatal ICUs.

Author(s): Pinchefskey, Elana F; Hahn, Cecil D

Source: Current opinion in neurology; Apr 2017; vol. 30 (no. 2); p. 156-164

Publication Date: Apr 2017

Publication Type(s): Journal Article

Abstract: **PURPOSE OF REVIEW** Increasing recognition of electrographic seizures and electrographic status epilepticus in critically ill neonates and children has highlighted the importance of identifying their potential contributions to neurological outcomes to guide optimal management. **RECENT FINDINGS** Recent studies in children and neonates have found an independent association between increasing seizure burden and worse short-term and long-term outcomes, even after adjusting for other important contributors to outcome such as seizure cause and illness severity. The risk of worse neurological outcome has been shown to increase above a seizure burden threshold of 12-13 min/h, which is considerably lower than the conventional definition of status epilepticus of 30 min/h. Randomized controlled trials in neonates have demonstrated that electroencephalography-targeted therapy can successfully reduce seizure burden, but due to their small size these trials have not been able to demonstrate that more aggressive electroencephalography-targeted treatment of both subclinical and clinical seizures results in improved outcome. **SUMMARY** Despite mounting evidence for an independent association between increasing seizure burden and worse outcome, further study is needed to determine whether early seizure identification and aggressive antiseizure treatment can improve neurodevelopmental outcomes.

Database: Medline

8. Delirium in Critically Ill Children: An International Point Prevalence Study.

Author(s): Traube, Chani; Silver, Gabrielle; Reeder, Ron W; Doyle, Hannah; Hegel, Emily; Wolfe, Heather A; Schneller, Christopher; Chung, Melissa G; Dervan, Leslie A; DiGennaro, Jane L; Buttram, Sandra D W; Kudchadkar, Sapna R; Madden, Kate; Hartman, Mary E; deAlmeida, Mary L; Walson, Karen; Ista, Erwin; Baarslag, Manuel A; Salonia, Rosanne; Beca, John; Long, Debbie; Kawai, Yu; Cheifetz, Ira M; Gelvez, Javier; Truemper, Edward J; Smith, Rebecca L; Peters, Megan E; O'Meara, A M Iqbal; Murphy, Sarah; Bokhary, Abdulmohsen; Greenwald, Bruce M; Bell, Michael J

Source: Critical care medicine; Apr 2017; vol. 45 (no. 4); p. 584-590

Publication Date: Apr 2017

Publication Type(s): Journal Article

Available in full text at [Critical Care Medicine](#) - from Ovid

Abstract: **OBJECTIVE** To determine prevalence of delirium in critically ill children and explore associated risk factors. **DESIGN** Multi-institutional point prevalence study. **SETTING** Twenty-five pediatric critical care units in the United States, the Netherlands, New Zealand, Australia, and Saudi Arabia. **PATIENTS** All children admitted to the pediatric critical care units on designated study days (n = 994). **INTERVENTION** Children were screened for delirium using the Cornell Assessment of Pediatric Delirium by the bedside nurse. Demographic and treatment-related variables were collected. **MEASUREMENTS AND MAIN RESULTS** Primary study outcome measure was prevalence of delirium. In 159 children, a final determination of mental status could not be ascertained. Of the 835 remaining subjects, 25% screened positive for delirium, 13% were classified as comatose, and 62% were delirium-free and coma-free. Delirium prevalence rates varied significantly with reason for ICU admission, with highest delirium rates found in children

admitted with an infectious or inflammatory disorder. For children who were in the PICU for 6 or more days, delirium prevalence rate was 38%. In a multivariate model, risk factors independently associated with development of delirium included age less than 2 years, mechanical ventilation, benzodiazepines, narcotics, use of physical restraints, and exposure to vasopressors and antiepileptics. **CONCLUSIONS** Delirium is a prevalent complication of critical illness in children, with identifiable risk factors. Further multi-institutional, longitudinal studies are required to investigate effect of delirium on long-term outcomes and possible preventive and treatment measures. Universal delirium screening is practical and can be implemented in pediatric critical care units.

Database: Medline

9. Validation of ventilator-derived VCO₂ measurements to determine energy expenditure in ventilated critically ill children.

Author(s): Kerklaan, Dorian; Augustus, Marjolein E; Hulst, Jessie M; van Rosmalen, Joost; Verbruggen, Sascha C A T; Joosten, Koen F M

Source: Clinical nutrition (Edinburgh, Scotland); Apr 2017; vol. 36 (no. 2); p. 452-457

Publication Date: Apr 2017

Publication Type(s): Journal Article

Abstract: **BACKGROUND & AIMS** Indirect calorimetry (IC) is considered the gold standard to determine resting energy expenditure (REE) but its availability in PICUs worldwide is limited. Ventilator-derived VCO₂ could potentially improve the possibility of performing REE measurements. We investigated whether ventilator-derived VCO₂ values are comparable to IC-derived VCO₂ values and can clinically be used in clinical practice to determine REE. **METHODS** VCO₂-values were simultaneously collected in mechanically ventilated children from IC (Deltatrac®) and Servo-I® ventilator on a minute base over at least 10 min period of steady state. REE was calculated using the modified Weir formula (for IC) or $REE = 5.5 * VCO_2 (L/min) * 1440$ (for the Servo-I values) and compared with frequently used predictive equations by Schofield and the WHO to calculate REE. **RESULTS** Measurements were performed in 41 children; median age 2 years. The mean relative difference between VCO₂ measured by IC and Servo-I® was 15.6% (p = 0.002), and limits of agreement in the Bland-Altman analysis were wide. Comparable measurements, defined as a difference ≤10% between IC and Servo-I® VCO₂ values, were seen in 18 (44%) children, but this proportion was 70% in children ≥15 kg. In this group, REE could be accurately predicted using Servo-I® derived VCO₂ values and this method was superior to the use of predictive equations. The Servo-I® derived VCO₂ values were not sufficiently accurate for the large proportion of children weighing <15 kg. **CONCLUSIONS** In children ≥15 kg, VCO₂ measurements of the Servo-I® seem sufficiently accurate for use in clinical practice and may be used to determine energy expenditure in the future.

Database: Medline

10. Fluid overload and kidney failure in children with severe sepsis and septic shock: A cohort study.

Author(s): Naveda Romero, Omar E; Naveda Meléndez, Andrea F

Source: Archivos argentinos de pediatria; Apr 2017; vol. 115 (no. 2); p. 118-124

Publication Date: Apr 2017

Publication Type(s): Journal Article

Abstract:INTRODUCTIONIn children with sepsis, fluid overload as a result of an aggressive fluid replacement or excessive fluid administration may result in kidney impairment and increased mortality.Objective. To determine the association between fluid overload and the rate of kidney failure in a group of children with severe sepsis and septic shock.POPULATION AND METHODSThis was a prospective cohort study conducted in the intensive care unit of Hospital Universitario de Pediatría "Dr. Agustín Zubillaga" (Barquisimeto, Lara State, Venezuela), between March 2013 and May 2016, in children with severe sepsis or septic shock.RESULTSOne hundred and forty-nine patients were included in the analysis. Sepsis predominated in 59.7% of cases; patients' average age was 6.4 ± 3.3 years old, their average weight was 17.8 ± 3.6 kg, 30.2% had fluid overload, and overall mortality was 25.5%. Kidney failure occurred in 16.1% of cases. A binary logistic regression model was used to identify fluid overload (odds ratio [OR]: 1.5; 95% confidence interval [CI]: 1.2-4.9, $p = 0.028$) and shock for more than 2 days (OR: 1.7; 95% CI: 1.3-6.3, $p = 0.039$) as independent predictors of kidney failure. In addition, a significant increase in the risk of mortality among children with kidney failure and fluid overload was observed as per the Kaplan-Meier method ($p = 0.019$).CONCLUSIONFluid overload and shock for more than 2 days increase the risk for kidney failure in critically ill children with severe sepsis and septic shock.

Database: Medline



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Health and Care Excellence

[Transition from children's to adults' services](#)

Quality standard [QS140] Published date: December 2016



[Vitamin A supplementation for preventing morbidity and mortality in children from six months to five years of age](#) March 2017

Aamer Imdad, Evan Mayo-Wilson, Kurt Herzer, Zulfiqar A Bhutta

[Prophylactic levosimendan for the prevention of low cardiac output syndrome and mortality in paediatric patients undergoing surgery for congenital heart disease](#) March 2017

Johanna Hummel, Gerta Rücker, Brigitte Stiller

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CARDIOLOGY

Restrictive postoperative transfusion strategy in infants and children with congenital heart disease (October 2016)

In a randomized trial of restrictive versus liberal postoperative transfusion strategies in 162 infants with congenital heart disease undergoing surgical repair or palliation, a restrictive transfusion strategy reduced the red cell transfusion rate, without increasing in-hospital mortality, need for extracorporeal membrane oxygenation (ECMO) support, or hospital length of stay [41]. The restrictive group was transfused for hemoglobin <7.0 g/dL for biventricular repairs or <9.0 g/dL for palliative procedures plus a clinical indication; the liberal group was transfused for hemoglobin <9.5 g/dL for biventricular

repairs or <12 g/dL for palliative procedures. Larger more definitive trials are needed before clear transfusion guidelines in this population can be made. (See ["Red blood cell transfusion in infants and children: Indications", section on 'Surgery'.](#))

Early initiation of heated humidified high-flow nasal cannula therapy in children with bronchiolitis (February 2017)

In an open randomized trial comparing heated humidified high-flow nasal cannula (HFNC) with standard low-flow oxygen therapy in 200 children with moderately severe bronchiolitis, early initiation of HFNC did not shorten the median duration of oxygen therapy (approximately 22 hours in both groups) [55]. However, HFNC was associated with avoidance of intensive care unit admission when it was used as a rescue therapy for clinical deterioration in children treated with standard therapy. No serious adverse effects occurred. These findings provide additional support for HFNC as a rescue therapy in children with bronchiolitis, although the efficacy of this approach remains unproven. (See ["Bronchiolitis in infants and children: Treatment, outcome, and prevention", section on 'HFNC and CPAP'.](#))



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