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Books can be searched for using SWIMS our online catalogue at www.swims.nhs.uk. Books and journals that are not available on site or electronically may be requested from other locations. Please email requests to: library@uhbristol.nhs.uk
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June 2016, Volume 17, Issue 6

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Parent Satisfaction With Communication Is Associated With Physician’s Patient-Centered Communication Patterns During Family Conferences*
October, Tessie W.; Hinds, Pamela S.; Wang, Jichuan; Dizon, Zoelle B.; Cheng, Yao I.; Roter, Debra L.

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Outcomes Following Single and Recurrent In-Hospital Cardiac Arrests in Children With Heart Disease: A Report From American Heart Association’s Get With the Guidelines Registry–Resuscitation
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Marion Grimaud, Pascale de Lonlay, Laurent Dupic

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Current Opinion in Pediatrics
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CG155 Updated Psychosis and schizophrenia in children and young people: recognition and management

Latest relevant Systematic Reviews from the Cochrane Library

Fasting for haemostasis in children with gastrointestinal bleeding

NHS Behind the Headlines

Review calls for global action to tackle antibiotic resistance crisis

Friday May 20 2016

"Superbugs will kill someone every three seconds by 2050 unless the world acts now," BBC News reports. A review commissioned by the UK government says wide-ranging action is required at a global level to prevent a post-antibiotic future...

Diluted apple juice 'as good as' rehydration drinks for children

Wednesday May 4 2016

"Scientists have revealed which fruit can stop toddlers crying due to stomach pains," says the Daily Mirror, missing the point of the study it reports on. The study looked at the use of diluted apple juice to prevent dehydration...
New activity in Uptodate

Diluted apple juice for hydration in young children with mild gastroenteritis (May 2016)

Commercial oral rehydration solutions (ORS) are recommended for rehydration of children with gastroenteritis. More readily available household beverages, such as fruit juice, tea, sports drinks, and soft drinks, have not been recommended due to concerns that their lower sodium concentration and higher osmolarity (table 1) could induce osmotic diarrhea, leading to hyponatremia. However, a randomized trial in children 6 to 60 months of age with mild gastroenteritis and no clinical signs of dehydration demonstrated that hydration with half-strength apple juice resulted in fewer episodes of treatment failure than ORS (17 versus 25 percent) [1]. Treatment failure was defined as any of the following events occurring within seven days of enrollment: intravenous rehydration, hospitalization, subsequent unscheduled physician encounter, protracted symptoms, crossover to the other fluid, ≥3 percent weight loss, or signs of significant dehydration on a follow-up visit. Based on these findings, diluted apple juice followed by a permissive approach to fluid consumption is a reasonable alternative to ORS for hydration in young children with mild gastroenteritis and no clinical signs of dehydration. (See "Oral rehydration therapy", section on 'Common household beverages and fluids'.)

Quick Exercise

Relative Risk

The relative risk is the ratio of probability of an event (a specified outcome) occurring in one group (i.e. those exposed to a particular intervention) compared to those in another group (i.e. those not exposed – a control group).

The relative risk can be interpreted using the following chart. First, you must determine whether the event (the outcome measure) is adverse or beneficial.

<table>
<thead>
<tr>
<th>Relative Risk</th>
<th>Adverse outcome (e.g. death)</th>
<th>Beneficial outcome (e.g. recovery of limb function)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>Intervention better than control</td>
<td>Intervention worse than control</td>
</tr>
<tr>
<td>1</td>
<td>Intervention no better or worse than control</td>
<td>Intervention no better or worse than control</td>
</tr>
<tr>
<td>&gt;1</td>
<td>Intervention worse than control</td>
<td>Intervention better than control</td>
</tr>
</tbody>
</table>

Have a go at interpreting the relative risks for these three studies using the chart above. Is the intervention better or worse than the control?
<table>
<thead>
<tr>
<th>Intervention</th>
<th>Population</th>
<th>Outcome measure (think: adverse or beneficial?)</th>
<th>Relative Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study 1</strong></td>
<td>Drug X</td>
<td>Adults at risk of a heart attack</td>
<td>Heart attack</td>
</tr>
<tr>
<td><strong>Study 2</strong></td>
<td>Therapy programme Y</td>
<td>Smokers</td>
<td>Smoking cessation</td>
</tr>
<tr>
<td><strong>Study 3</strong></td>
<td>Probiotic Z</td>
<td>Children on antibiotics</td>
<td>Diarrhoea</td>
</tr>
</tbody>
</table>

**Find out more about relative risk in one of our Basic Statistics training sessions. For more details, email library@uhbristol.nhs.uk.**

**Current Awareness Database Articles**

If you require full articles please email: library@uhbristol.nhs.uk

**Title:** Nurse-led implementation of a ventilator-associated pneumonia care bundle in a children’s critical care unit.

**Citation:** Nursing children and young people, May 2016, vol. 28, no. 4, p. 23-27, 2046-2344 (May 9, 2016)

**Author(s):** Hill, Charlotte

**Abstract:** Ventilator-associated pneumonia (VAP) is the leading cause of death with hospital-acquired infections, and preventing it is one of the Saving Lives initiatives (Department of Health 2007). This article discusses the implementation of a purpose-designed VAP care bundle in a children’s intensive care unit and examines the unique role of nurses in the management of the change process. A nurse-led VAP education, implementation and surveillance programme was set up. Nurse education was paramount, as nursing staff acceptance and involvement was a key feature. A multi-method training strategy was implemented, providing staff with multiple training opportunities and introducing VAP project education as a routine part of staff induction. Bundle compliance was monitored regularly and graphs of the results produced quarterly; feedback proved to be useful in keeping staff informed and engaged in VAP reduction. Comparison of VAP incidence before and after introduction of the care bundle showed a reduction after its implementation. With a co-ordinated, multidisciplinary approach, VAP care bundles can result in significant and sustained reductions in VAP rates in the paediatric intensive care unit. Effective co-ordination and leadership is crucial to successful implementation of the VAP bundle, and nurses are well placed to undertake this role.
Title: PO02 - Clinical profile of children admitted to a paediatric intensive care unit due to acute clinical deterioration.

Citation: Nursing children and young people, May 2016, vol. 28, no. 4, p. 89-90, 2046-2344 (May 9, 2016)

Author(s): Jensen, Claus Sixtus, Aagaard, Hanne, Olesen, Hanne Veber, Kirkegaard, Hans

Abstract: Theme: Intensive care Background: There has been an increased number of critically ill patients admitted to paediatric departments. Only a few studies have described the various causes of unplanned admission to paediatric intensive care units (PICU) due to clinical deterioration. However, an understanding of the nature of illness is important to patient safety. This study described the frequency, clinical characteristics and outcomes of children who experience unplanned admission to a PICU due to clinical deterioration. A registry retrospective descriptive study describing and exploring life-threatening situations leading to unexpected transfers to PICU in hospitalised children. The study includes all paediatric departments in the Central Denmark Region. This study will provide knowledge to assist the research efforts to identify and improve the management of critical ill children in paediatric wards.

Title: Cause of Death of Infants and Children in the Intensive Care Unit: Parents' Recall vs Chart Review.


Author(s): Brooten, Dorothy, Youngblut, JoAnne M, Caicedo, Carmen, Seagrave, Lynn, Cantwell, G Patricia, Totapally, Balagangadhar

Abstract: More than 55 000 children die annually in the United States, most in neonatal and pediatric intensive care units. Because of the stress and emotional turmoil of the deaths, the children's parents have difficulty comprehending information. To compare parents' reports and hospital chart data on cause of death and examine agreement on cause of death according to parents' sex, race, participation in end-of-life decisions, and discussion with physicians; deceased child's age; unit of care (neonatal or pediatric); and hospital and intensive care unit lengths of stay. A descriptive, correlational design was used with a structured interview of parents 1 month after the death and review of hospital chart data. Parents whose children died in intensive care were recruited from 4 South Florida hospitals and from Florida Department of Health death records. Among 230 parents, 54% of mothers and 40% of fathers agreed with the chart cause of death. Agreement did not differ significantly for mothers or fathers by race/ethnicity, participation in end-of-life decisions, discussions with physicians, or mean length of hospital stay. Agreement was better for mothers when the stay in the intensive care unit was the shortest. Fathers' agreement with chart data was best when the deceased was an infant and death was in the pediatric intensive care unit. Death of a child is a time of high stress when parents' concentration, hearing, and information processing are diminished. Many parents have misconceptions about the cause of the death 1 month after the death. ©2016 American Association of Critical-Care Nurses.

Full Text: Available from EBSCOhost in American Journal of Critical Care


Author(s): Guo, Long, Cui, Yong, Bobhate, Prashant, Kumar, Shine, Jain, Shreepal, Elgendi, Mohamed, Pharis, Scott, Ryerson, Lindsay, Adatia, Ian

Abstract: Measurement of oxygen consumption (V̇O₂) is difficult in children but is essential to calculate cardiac index and systemic vascular resistance. To compare measurements of V̇O₂ using respiratory mass spectrometry and the breath-by-breath method. V̇O₂ was measured simultaneously and continuously for 10 minutes by using respiratory mass spectrometry and the breath-by-breath method in children receiving mechanical ventilation via cuffed endotracheal tubes. Sixteen children (7 boys; median [range]: age, 1.5 [0.2-6] years; weight, 11.5 [2.8-23.5] kg; body surface area, 0.55 [0.18-0.98] m²) were studied. The correlation between measurements of V̇O₂ by the 2 methods was good (R = 0.924). Mean V̇O₂ measured by mass spectrometry was 63 (95% CI, 47-78) mL/min vs 65 (95% CI, 47-83) mL/min measured by the breath-by-breath method. The mean V̇O₂ difference between the 2 methods was 3 (95% CI, -9 to 5) mL/min and statistically insignificant. Bland-Altman analysis showed that the 95% limits of agreement were between -28 and +23. Cardiac index did not differ significantly when calculated using V̇O₂ measured with one method or the other (mean difference, 0.1; 95% CI, -0.2 to 0.3). Measurements of V̇O₂ did not differ between mass spectrometry and the breath-by-breath method. Use of the breath-by-breath method may facilitate calculation of cardiac index and systemic vascular resistance in critically ill children. ©2016 American Association of Critical-Care Nurses.

Full Text: Available from EBSCOhost in American Journal of Critical Care

Title: Nutritional support and the role of the stress response in critically ill children.

Citation: Current opinion in clinical nutrition and metabolic care, May 2016, vol. 19, no. 3, p. 226-233, 1473-6519 (May 2016)

Author(s): Joosten, Koen F M, Kerklaan, Dorian, Verbruggen, Sascha C A T

Abstract: Nutrition impacts outcome in critically ill children. Based on evolving neuro-endocrine, immunologic and metabolic alterations, three different phases can be proposed during the course of illness. The different phases each demand for tailored macronutrient intakes in critically ill children. Early enteral nutrition is associated with decreased morbidity and mortality, but several misconceptions concerning the provision of enteral nutrition prevent adequate intake. Parenteral nutrition in critically ill children is associated with potential disadvantages, as nosocomial infections, but evidence on the effect on clinical outcome is lacking. Nutrient restriction early during critical illness might be beneficial for short and long-term outcomes by decreasing the incidence of side-effects and possibly by amplifying the acute catabolic stress response and stimulating autophagy and muscle integrity. Higher caloric and protein intake via the enteral route are associated with higher 60-day survival, asking for a more aggressive feeding approach in subsequent phases. Understanding the stress response to critical illness and its phases is essential for nutritional recommendations in critically ill children. Although parenteral nutrient restriction during the acute phase might be
beneficial, inclining requirements ask for a more aggressive approach during the stable and recovery phase to enable recovery, growth and catch-up growth.

Title: Pulmonary hypertension in the intensive care unit. Expert consensus statement on the diagnosis and treatment of paediatric pulmonary hypertension. The European Paediatric Pulmonary Vascular Disease Network, endorsed by ISHLT and DGPK.

Citation: Heart (British Cardiac Society), May 2016, vol. 102 Suppl 2, p. ii57., 1468-201X (May 2016)

Author(s): Kaestner, Michael, Schranz, Dietmar, Warnecke, Gregor, Apitz, Christian, Hansmann, Georg, Miera, Oliver

Abstract: Acute pulmonary hypertension (PH) complicates the course of several cardiovascular, pulmonary and other systemic diseases in children. An acute rise of RV afterload, either as exacerbating chronic PH of different aetiologies (eg, idiopathic pulmonary arterial hypertension (PAH), chronic lung or congenital heart disease), or pulmonary hypertensive crisis after corrective surgery for congenital heart disease, may lead to severe circulatory compromise. Only few clinical studies provide evidence on how to best treat children with acute severe PH and decompensated RV function, that is, acute RV failure. The specific treatment in the intensive care unit should be based on the underlying pathophysiology and not only be focused on so-called 'specific' or 'tailored' drug therapy to lower RV afterload. In addition therapeutic efforts should aim to optimise RV preload, and to achieve adequate myocardial perfusion, and cardiac output. Early recognition of patients at high risk and timely initiation of appropriate therapeutic measures may prevent the development of severe cardiac dysfunction and low cardiac output. In patients not responding adequately to pharmacotherapy, (1) novel surgical and interventional techniques, temporary mechanical circulatory support with extracorporeal membrane oxygenation, (2) pumpless lung assist devices (3) and/or lung or heart-lung transplantation should be timely considered. The invasive therapeutic measures can be applied in a bridge-to-recovery or bridge-to-lung transplant strategy. This consensus statement focuses on the management of acute severe PH in the paediatric intensive care unit and provides an according treatment algorithm for clinical practice.

Full Text: Available from Highwire Press in Heart

Title: Association between nutritional status and outcomes in critically-ill pediatric patients - a systematic review.

Citation: Jornal de pediatria, May 2016, vol. 92, no. 3, p. 223-229, 1678-4782 (2016 May-Jun)

Author(s): Costa, Caroline A D, Tonial, Cristian T, Garcia, Pedro Celiny R

Abstract: To systematically review the evidence about the impact of nutritional status in critically-ill pediatric patients on the following outcomes during hospitalization in pediatric intensive care units: length of hospital stay, need for mechanical ventilation, and mortality. The search was carried out in the following databases: Lilacs (Latin American and Caribbean Health Sciences), MEDLINE (National Library of Medicine United States) and Embase (Elsevier Database). No filters were selected. A total of seven relevant articles about the subject were included. The publication period was between 1982 and 2012. All articles assessed the nutritional status of patients on admission at pediatric intensive care units and correlated it to at least one assessed outcome. A methodological quality
questionnaire created by the authors was applied, which was based on some references and the researchers' experience. All included studies met the quality criteria, but only four met all the items. The studies included in this review suggest that nutritional depletion is associated with worse outcomes in pediatric intensive care units. However, studies are scarce and those existing show no methodological homogeneity, especially regarding nutritional status assessment and classification methods. Contemporary and well-designed studies are needed in order to properly assess the association between children's nutritional status and its impact on outcomes of these patients.

Title: Neurodevelopmental and Behavioral Outcomes in Children With Sepsis-Associated Encephalopathy Admitted to Pediatric Intensive Care Unit: A Prospective Case Control Study.

Citation: Journal of child neurology, May 2016, vol. 31, no. 6, p. 683-690, 1708-8283 (May 2016)

Author(s): Kaur, Jasmine, Singhi, Pratibha, Singhi, Sunit, Malhi, Prahbhjot, Saini, Arushi Gahlot

Abstract: The authors prospectively compared the neurodevelopmental and behavioral outcomes in 50 consecutive children with sepsis-associated encephalopathy admitted to intensive care unit with healthy controls. Children with sepsis-associated encephalopathy had significantly worse mean verbal IQ, full-scale IQ, General Development Score, and its physical, adaptive, social-emotional, cognitive, and communication subscales. Significant proportion of cases (52% vs 32% in controls) had low intelligence. Decline in school performance (44%), disobedience (28%), and stubbornness/irritable behavior (26%) were the most common behavior changes. Children with Glasgow Coma Scale score ≤10 and ≤8 had impairments in full-scale IQ even though overall Glasgow Coma Scale score did not show significant correlation with developmental outcomes. In conclusion, children with sepsis-associated encephalopathy have delayed neurodevelopment, low verbal IQ, decline in school performance and low intelligence at short-term follow-up. Irritability, shock and duration of sedation are associated with poor behavioral outcomes, especially scholastic performance. © The Author(s) 2015.

Title: Models of Care Delivery for Families of Critically Ill Children: An Integrative Review of International Literature.

Citation: Journal of pediatric nursing, May 2016, vol. 31, no. 3, p. 330-341, 1532-8449 (2016 May-Jun)

Author(s): Curtis, Kate, Foster, Kim, Mitchell, Rebecca, Van, Connie

Abstract: Critical illness in children is a life changing event for the child, their parents, caregivers and wider family. There is a need to design and evaluate models of care that aim to implement family-centred care to support more positive outcomes for critically ill children and their families. Due to a gap in knowledge on the impact of such models, the present review was conducted. Primary research articles written in English that focused on children hospitalised for an acute, unexpected, sudden critical illness, such as that requiring an intensive care admission; and addressed the implementation of a model of care in a paediatric acute care hospital setting. Thirteen studies met the inclusion criteria. The models of care implemented were associated with positive changes such as reduced parental anxiety and improved communication between parents/caregivers and health professionals. However, no model provided intervention throughout each phase of care to (or post) hospital discharge. Models of care applying family-centred care principles targeting critically ill children and their families can create positive changes in care delivery for the family. However a
model which provides continuity across the span of care is required. There is need to describe how best to design, implement and sustain models of care for critically ill children and their families. The success of any intervention implementation will be dependent on the comprehensiveness of the strategy for implementation, the relevance to the context and setting, and engagement with key stakeholders. Copyright © 2016 The Authors. Published by Elsevier Inc. All rights reserved.

**Title:** Parents' Perceived Satisfaction of Care, Communication and Environment of the Pediatric Intensive Care Units at a Tertiary Children's Hospital.

**Citation:** Journal of pediatric nursing, May 2016, vol. 31, no. 3, p. e177., 1532-8449 (2016 May-Jun)

**Author(s):** Abuqamar, Maram, Arabiat, Diana H, Holmes, Sandra

**Abstract:** This study aims to identify parental perceptions on pediatric intensive care-related satisfaction within three domains: environment, child's care provided and communication. In addition, it aims to identify whether parent's socio-demographics and child's clinical variables predict parents' perceived satisfaction. In this study, a total of 123 parents whose child received care in the PICU of a tertiary children's hospital in Amman completed the Arabic version of the parents satisfaction survey (PSS). A cross-sectional, descriptive-correlational design was used to collect data. All data were collected between June and October of 2013. Central tendency measures and percentages of replies for each domain revealed that at least 7 items were rated poorly satisfied. More than half of the parents were not satisfied with the noise level of the PICU, the time nurses spent at the child's bedside, as well as the way the healthcare team prepare them for the child's admission. Almost 90% of the parents believed that the nurses ignored their child's needs by not listening to parents and by responding slowly to child's needs. Stepwise regression analysis showed that that the number of hospital admissions, health insurance and the severity of illness was the main predictor of parents' satisfaction. In conclusion, the availability of health care professionals, the support and the information they share with the child's parents are all significant to parent's satisfaction and hence to better quality of care. Targeting the domains of low satisfaction reported by the parents could increase parent's satisfaction and achieve quality improvement required for this population. Copyright © 2016 Elsevier Inc. All rights reserved.

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**Title:** A comparison of the performance of the Braden Q and the Glamorgan paediatric pressure ulcer risk assessment scales in general and intensive care paediatric and neonatal units.

**Citation:** Journal of tissue viability, May 2016, vol. 25, no. 2, p. 119-126, 0965-206X (May 2016)

**Author(s):** Willock, Jane, Habiballah, Laila, Long, Deborah, Palmer, Kelli, Anthony, Denis

**Abstract:** To compare the predictive ability of two risk assessment scales used in children. There are several risk assessment scales (RASs) employed in paediatric settings but most have been modified from adult scales such as the Braden Q whereas the Glamorgan was an example of a scale designed for children. Using incidence data from 513 paediatric hospital admissions, receiver operating characteristic (ROC) was employed to compare the two scales. The area under the curve (AUC) was the outcome of interest. The two scales were similar in this population in terms of area under the curve. Neonatal and paediatric intensive care were similar in terms of AUC for both scales but in general paediatric wards the Braden Q may be superior in predicting risk. Either scale could be used if the predictive ability was the outcome of interest. The scales appear to work well with neonatal, paediatric intensive care and general children’s wards. However the Glamorgan scale is probably
preferred by children's nurses as it is easy to use and designed for use in children. There is some suggestion that while the two scales are similar in intensive care, for general paediatrics the Braden Q may be the better scale.

Title: Relationship Between Beta Cell Dysfunction and Severity of Disease Among Critically Ill Children: A STROBE-Compliant Prospective Observational Study.

Citation: Medicine, May 2016, vol. 95, no. 19, p. e3104., 1536-5964 (May 2016)

Author(s): Liu, Ping-Ping, Lu, Xiu-Lan, Xiao, Zheng-Hui, Qiu, Jun, Zhu, Yi-Min

Abstract: Although beta cell dysfunction has been proved to predict prognosis among humans and animals, its prediction on severity of disease remains unclear among children. The present study was aimed to examine the relationship between beta cell dysfunction and severity of disease among critically ill children. This prospective study included 1146 critically ill children, who were admitted to Pediatric Intensive Care Unit (PICU) of Hunan Children's Hospital from November 2011 to August 2013. Information on characteristics, laboratory tests, and prognostic outcomes was collected. Homeostasis model assessment (HOMA)-β, evaluating beta cell function, was used to divide all participants into 4 groups: HOMA-β = 100% (group I, n = 339), 80% ≤ HOMA-β < 100% (group II, n = 71), 40% ≤ HOMA-β < 80% (group III, n = 293), and HOMA-β < 40% (group IV, n = 443). Severity of disease was assessed using the worst Sequential Organ Failure Assessment (SOFA) score, Pediatric Risk of Mortality (PRISM) III score, incidence of organ damage, septic shock, multiple organ dysfunction syndrome (MODS), mechanical ventilation (MV) and mortality. Logistic regression analysis was used to evaluate the risk of developing poor outcomes among patients in different HOMA-β groups, with group I as the reference group. Among 1146 children, incidence of HOMA-β < 100% was 70.41%. C-peptide and insulin declined with the decrement of HOMA-β (P < 0.01). C-reactive protein and procalcitonin levels, rather than white blood cell, were significantly different among 4 groups (P < 0.01). In addition, the worst SOFA score and the worst PRISMIll score increased with declined HOMA-β. For example, the worst SOFA score in group I, II, III, and IV was 1.55 ± 1.85, 1.71 ± 1.93, 1.92 ± 1.63, and 2.18 ± 1.77, respectively. Furthermore, patients with declined HOMA-β had higher risk of developing septic shock, MODS, MV, and mortality, even after adjusting age, gender, myocardial injury, and lung injury. For instance, compared with group I, the multivariate-adjusted odds ratio (95% confidence interval) for developing septic shock was 2.17 (0.59, 8.02), 2.94 (2.18, 6.46), and 2.76 (1.18, 6.46) among patients in group II, III, and IV, respectively. Beta cell dysfunction reflected the severity of disease among critically ill children. Therefore, assessment of beta cell function is critically important to reduce incidence of adverse events in PICU.

Title: Sustainability of protocolized handover of pediatric cardiac surgery patients to the intensive care unit.

Citation: Paediatric anaesthesia, May 2016, vol. 26, no. 5, p. 488-494, 1460-9592 (May 2016)

Author(s): Chenault, Kristin, Moga, Michael-Alice, Shin, Minah, Petersen, Emily, Backer, Carl, De Oliveira, Gildasio S, Suresh, Santhanam

Abstract: Transfer of patient care among clinicians (handovers) is a common source of medical errors. While the immediate efficacy of these initiatives is well documented, sustainability of practice changes that results in better processes of care is largely understudied. The objective of the current investigation was to evaluate the sustainability of a protocolized handover process in
pediatric patients from the operating room after cardiac surgery to the intensive care unit. This was a prospective study with direct observation assessment of handover performance conducted in the cardiac ICU (CICU) of a free-stand, tertiary care children’s hospital in the United States. Patient transitions from the operating room to the CICU, including the verbal handoff, were directly observed by a single independent observer in all phases of the study. A checklist of key elements identified errors classified as: 1) technical, 2) information omissions, and 3) realized errors. Total number of errors was compared across the different times of the study (preintervention, postintervention, and the current sustainability phase). A total of 119 handovers were studied: 41 preintervention, 38 postintervention, and 40 in the current sustainability phase. The median [Interquartile range (IQR)] number of technical errors was significantly reduced in the sustainability phase compared to the preintervention and postintervention phase, 2 (1-3), 6 (5-7), and 2.5 (2-4), respectively P = 0.0001. Similarly, the median (IQR) number of verbal information omissions was also significantly reduced in the sustainability phase compared to the preintervention and postintervention phases, 1 (1-1), 4 (3-5) and 2 (1-3), respectively. We demonstrate sustainability of an improved handover process using a checklist in children being transferred to the intensive care unit after cardiac surgery. Standardized handover processes can be a sustainable strategy to improve patient safety after pediatric cardiac surgery. © 2016 John Wiley & Sons Ltd.

Full Text: Available from Ovid in Pediatric Anesthesia

Title: Implementation of a Ventilator-Associated Pneumonia Prevention Bundle in a Single PICU.


Author(s): De Cristofano, Analía, Peuchot, Verónica, Canepari, Andrea, Franco, Victoria, Perez, Augusto, Eulmesekian, Pablo

Abstract: Ventilator-associated pneumonia is considered the second most frequent infection in pediatric intensive care, and there is agreement on its association with higher morbidity and increased healthcare costs. The goal of this study was to apply a bundle for ventilator-associated pneumonia prevention as a process for quality improvement in the PICU of Hospital Italiano de Buenos Aires, Argentina, aiming to decrease baseline ventilator-associated pneumonia rate by 25% every 6 months over a period of 2 years. Quasi-experimental uninterrupted time series. PICU of Hospital Italiano de Buenos Aires, Argentina. All mechanical ventilated patients admitted to the unit. It consisted of the implementation of an evidence-based ventilator-associated pneumonia prevention bundle adapted to our unit and using the plan-do-study-act cycle as a strategy for quality improvement. The bundle consisted of four main components: head of the bed raised more than 30°, oral hygiene with chlorhexidine, a clean and dry ventilator circuit, and daily interruption of sedation. Ventilator-associated pneumonia prevention team meetings started in March 2012, and the ventilator-associated pneumonia bundle was implemented in November 2012 after it had been developed and made operational. Baseline ventilator-associated pneumonia rate for the 2 years before intervention was 6.3 episodes every 1,000 mechanical ventilation days. ventilator-associated pneumonia rate evolution by semester and during the 2 years was, respectively, 5.7, 3.2, 1.8, and 0.0 episodes every 1,000 mechanical ventilation days. Monthly ventilator-associated pneumonia rate time series summarized in a 51-point control chart showed the presence of special cause variability after intervention was implemented. The implementation over 2 years of a ventilator-associated pneumonia prevention bundle specifically adapted to our unit using quality improvement tools was
associated with a reduction in ventilator-associated pneumonia rate of 25% every 6 months and a nil rate in the last semester.

**Title:** Evaluation of Disseminated Intravascular Coagulation Scores in Critically Ill Pediatric Patients.

**Citation:** Pediatric critical care medicine: a journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies, May 2016, vol. 17, no. 5, p. e239., 1529-7535 (May 2016)

**Author(s):** Jhang, Won Kyoung, Ha, Eun Ju, Park, Seong Jong

**Abstract:** Disseminated intravascular coagulation is a complex systemic thrombohemorrhagic disorder, which may contribute to organ failure. We aimed to compare the detection rate of the disseminated intravascular coagulation, early in the course of ICU admission, of the two disseminated intravascular coagulation scoring systems defined by International Society on Thrombosis and Hemostasis and Japanese Association for Acute Medicine criteria and the prognostic value of disseminated intravascular coagulation scores in critically ill pediatric patients. Single-center retrospective observational study. PICU in a tertiary care children’s hospital. Pediatric patients admitted in the PICU between January 2013 and December 2014. None. A total of 191 patients were included. Among them, 15.7% and 29.8% of the patients were diagnosed with disseminated intravascular coagulation by International Society on Thrombosis and Hemostasis and Japanese Association for Acute Medicine criteria, respectively. The diagnostic concordance rate between the International Society on Thrombosis and Hemostasis and Japanese Association for Acute Medicine scoring systems was 52.6%. As the Pediatric Risk of Mortality III, the modified Sequential Organ Failure Assessment, and the Pediatric Multiple Organ Dysfunction Syndrome scores increased, the percentage of patients with disseminated intravascular coagulation increased stepwise. The disseminated intravascular coagulation scores correlated well with these severity scores. Overall, the 28-day mortality was 9.9%. There were significant differences in most variables consisting of the International Society on Thrombosis and Hemostasis and Japanese Association for Acute Medicine scoring systems between survivor and nonsurvivors. Patients detected to have disseminated intravascular coagulation by the International Society on Thrombosis and Hemostasis and Japanese Association for Acute Medicine scoring systems showed higher mortality than patients without disseminated intravascular coagulation. The areas under the receiver operating characteristic curve of the Japanese Association for Acute Medicine score and International Society on Thrombosis and Hemostasis score were 0.788 (95% CI, 0.675-0.900) and 0.716 (95% CI, 0.598-0.834), respectively. Both the International Society on Thrombosis and Hemostasis and the Japanese Association for Acute Medicine scoring systems are useful for detection of the disseminated intravascular coagulation in critically ill pediatric patients. These scores correlate well with other severity scores, including Pediatric Risk of Mortality III, modified Sequential Organ Failure Assessment, and Pediatric Multiple Organ Dysfunction Syndrome. Disseminated intravascular coagulation scores are also significantly associated with 28-day mortality, suggesting that these could be promising prognostic factors.

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**Title:** Functional Outcomes and Physical Impairments in Pediatric Critical Care Survivors: A Scoping Review.

**Citation:** Pediatric critical care medicine: a journal of the Society of Critical Care Medicine and the World Federation of Pediatric Intensive and Critical Care Societies, May 2016, vol. 17, no. 5, p. e247., 1529-7535 (May 2016)
Author(s): Ong, Chengsi, Lee, Jan Hau, Leow, Melvin K S, Puthucheary, Zudin A

Abstract: Although more children are surviving critical illness, little is known about long-term physical impairment. This scoping review aims to critically appraise existing literature on functional outcome measurement tools, prevalence, and risk factors for physical impairments in pediatric critical care survivors. PubMed, Embase, and Cumulative Index to Nursing and Allied Health Literature, using a combination of MeSH terms and keywords (critical illness, intensive care, and functional outcomes/status). All human studies reporting functional outcomes in children 0-18 years old admitted to the PICU. Non-English language, adult and preterm infant studies were excluded. Three global assessment tools and eight multidimensional measures were used to measure functional outcome in pediatric survivors of critical illness. Rates of acquired functional impairment in a general pediatric intensive care cohort ranged from 10% to 36% at discharge and 10% to 13% after more than 2 years. Risk factors for acquired functional impairment include illness severity, the presence of organ dysfunction, length of ICU stay, and younger age. There is some evidence that physical impairment may be more severe and persistent than psychosocial components. Functional impairment may be persistent in pediatric survivors of critical care. Unfortunately, studies varied largely in measurement timing and tools used. The lack of differentiation between impairment in different functional domains limited the generalizability of data. Further studies using a combination of standardized measures at various time points of the disease process can help establish more comprehensive rates of physical impairment.

Title: Improving postoperative handover from anaesthetists to non-anaesthetists in a children's intensive care unit: the receiver's perception.

Citation: Singapore medical journal, May 2016, vol. 57, no. 5, p. 242-253, 0037-5675 (May 2016)

Author(s): Fabila, Teddy Suratos, Hee, Hwan Ing, Sultana, Rehena, Assam, Pryseley Nkouibert, Kiew, Anne, Chan, Yoke Hwee

Abstract: The efficiency of postoperative handover of paediatric patients to the children's intensive care unit (CICU) varies according to institutions, clinical setup and workflow. Reorganisation of handover flow based on findings from observational studies has been shown to improve the efficiency of information transfer. This study aimed to evaluate a new handover process based on recipients' perceptions, focusing on completeness and comprehensiveness of verbal communication, and the usability of a situation, background, assessment and recommendation (SBAR) form. This was a prospective interventional study conducted in the CICU of KK Women's and Children's Hospital, Singapore. It comprised four phases: (1) evaluation of the current handover process through an audit and opinion survey; (2) development of a new handover process based on the opinion survey and hospital personnel feedback; (3) implementation; and (4) evaluation of the new handover process. The new handover process was based on a PETS (pre-handover, equipment handover, timeout and sign out) protocol with a 'single traffic communication' flow and a new SBAR handover document. It included relevant patient information, and the options 'not applicable' and 'none', to increase compliance and reduce ambiguity. Significantly more recipients indicated that the new SBAR form was the most important handover tool and provided more useful information. Recipients' perceptions indicated improvement in information sufficiency and clarity; reduction of omission errors; and fewer inconsistencies in patient descriptions in the new process. Dual customisation of the handover process, PETS protocol and SBAR form is necessary to meet the workflow and information demands of the receiving team. Copyright: © Singapore Medical Association.
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