University Hospitals Bristol **NHS**
NHS Foundation Trust

PICU

Evidence Update

August 2017

Library and Information Service
library@uhbristol.nhs.uk

Teaching and Learning

Training Calendar 2017

August (12.00-13.00)

Fri 4th — Critical Appraisal
Wed 9th — Literature Searching
Tue 15th — Interpreting Statistics
Thu 24th — Critical Appraisal

September (13.00-14.00)

Fri 1st — Literature Searching
Mon 4th — Critical Appraisal
Tue 12th — Interpreting Statistics
Wed 20th — Literature Searching
Thu 28th — Critical Appraisal

Your Outreach Librarian – Helen Pullen

Whatever your information needs, the library is here to help. Just email us at
library@uhbristol.nhs.uk

Outreach: Your Outreach Librarian can help facilitate evidence-based practice for all in the team, as well as assisting with academic study and research. We also offer one-to-one or small group training in **literature searching, critical appraisal and medical statistics**. Get in touch: library@uhbristol.nhs.uk

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

KnowledgeShare

What is KnowledgeShare?

Provides regular, targeted, personalised evidence updates to staff, based on their specific professional interests. Subject-specific bulletins can also be produced.

Targeted evidence updates

These are individualised, based on a staff member's interest in particular conditions or lifestyle factors, age groups, settings of care, interventions and management topics.

Collaboration and knowledge sharing

As more library and knowledge services join KnowledgeShare it becomes more powerful for sharing evidence and generating communities of practice.

Register here

Or contact the Library for further information

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

Pediatric Anesthesia

Position and relative size of the vertebral artery according to age: Implications for internal jugular vein access
Chul-Woo Jung, Gulomjon Jalilov, In-Kyung Song, Eun-Hee Kim, Hee-Soo Kim, Jin-Tae Kim and Ji-Hyun Lee
Version of Record online: 24 JUL 2017 | DOI: 10.1111/pan.13209

Anatomic variations of neck vessels and the course of pediatric internal jugular veins
Kai-Ming Yuan, En-Ci Liu, Ping Li, Wang-Ning Shangguan, Jun Li and Qing-Quan Lian
Version of Record online: 24 JUL 2017 | DOI: 10.1111/pan.13211

Transthoracic intracardiac catheters in pediatric cardiac patients: A single-center experience
Kristoffer Beham, Hitendu Dave, Janet Kelly, Bernhard Frey, Maja I. Hug and Barbara Brotschi
Version of Record online: 14 JUL 2017 | DOI: 10.1111/pan.13204

European Journal of Pediatrics. **Volume 176 Number 8**

Arterial versus venous lactate: a measure of sepsis in children
Sahan Asela Samaraweera, Berwyck Gibbons, Anami Gour & Philip Sedgwick

BMJ Quality Improvement Reports

Reducing the number of unnecessary liver function tests requested on the Paediatric Intensive Care Unit.
Sinitsky L. 2017;6(1):doi.org/10.1136/bmjquality.u214071.w5561.
[Between January and October 2014, Great Ormond Street Hospital Paediatric Intensive Care Unit (PICU) was spending an average £23,392 on blood tests per month. The project's primary aim was to reduce unnecessary LFTs requests. The secondary aim was to reduce other unnecessary blood test requests. In the 8-month period following implementation, there was a significant sustained reduction in both LFTs and other blood tests which equated to a saving in excess of £36,000.]
Freely available online

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

1. A literature review exploring role transitions in caring for a child requiring long-term ventilationIn recent years, the UK and other high-income countries have seen an increase in the use of long-term ventilation (LTV) in paediatric intensive care (Neupane et al 2015). Children who need LTV often stay in hospital for 28 days or more.

Author(s): Goss, Emily

Source: Nursing children and young people; Jun 2017; vol. 29 (no. 5); p. 16

Publication Date: Jun 2017

Publication Type(s): Journal Article Review

PubMedID: 28604209

Abstract: Government policies advocate that children should be cared for at home (Noyes et al 2006), although medically stable LTV children often stay in hospital months longer than is necessary (NHS England 2015). Research shows that parents of these children develop a dual role as parents and nurses, which leads to role conflict and ambiguity (Hewitt-Taylor 2011).

Database: Medline

2. Epidemiology and clinical analysis of critical patients with child maltreatment admitted to the intensive care units.

Author(s): Lee, En-Pei; Hsia, Shao-Hsuan; Huang, Jing-Long; Lin, Jainn-Jim; Chan, Oi-Wa; Lin, Chia-Ying; Lin, Kuang-Lin; Chang, Yu-Ching; Chou, I-Jun; Lo, Fu-Song; Lee, Jung; Hsin, Yi-Chen; Chan, Pei-Chun; Hu, Mei-Hua; Chiu, Cheng-Hsun; Wu, Han-Ping

Source: Medicine; Jun 2017; vol. 96 (no. 23); p. e7107

Publication Date: Jun 2017

Publication Type(s): Journal Article Observational Study

PubMedID: 28591056

Abstract: Children with abuse who are admitted to the intensive care unit (ICU) may have high mortality and morbidity and commonly require critical care immediately. It is important to understand the epidemiology and clinical characteristics of these critical cases of child maltreatment.We retrospectively evaluated the data for 355 children with maltreatments admitted to the ICU between 2001 and 2015. Clinical factors were analyzed and compared between the abuse and the neglect groups, including age, gender, season of admission, identifying settings, injury severity score (ISS), etiologies, length of stay (LOS) in the ICU, clinical outcomes, and mortality. In addition, neurologic assessments were conducted with the Pediatric Cerebral Performance Category (PCPC) scale.The most common type of child maltreatments was neglect (n = 259), followed by physical abuse (n = 96). The mean age of the abuse group was less than that of the neglect group (P < .05). Infants accounted for the majority of the abuse group, and the most common etiology of abuse was injury of the central nervous system (CNS). In the neglect group, most were of the preschool age and the most common etiologies of abuse were injury of the CNS and musculoskeletal system (P < .001). The mortality rate in the ICU was 9.86%. The ISS was significantly associated with mortality in both the 2 groups (both P < .05),

whereas the LOS in the ICU and injuries of the CNS, musculoskeletal system, and respiratory system were all associated with mortality in the neglect group (all P < .05). The PCPC scale showed poor prognosis in the abuse group as compared to the neglect group (P < .01).In the ICU, children in the abuse group had younger age, higher ISS, and worse neurologic outcome than those in the neglect group. The ISS was a predictor for mortality in the abuse and neglect groups but the LOS in the ICUs, injuries of the CNS, musculoskeletal system, and respiratory system were indicators for mortality in the neglect group. Most importantly, identifying the epidemiological information may provide further strategies to reduce the harm, lower the medical costs, and improve clinical care quality and outcomes in children with abuse.

Database: Medline

3. Standard concentration infusions in paediatric intensive care: the clinical approach.

Author(s): Perkins, Joanne; Aguado-Lorenzo, Virginia; Arenas-Lopez, Sara

Source: The Journal of pharmacy and pharmacology; May 2017; vol. 69 (no. 5); p. 537-543

Publication Date: May 2017

Publication Type(s): Journal Article

PubMedID: 27524291

Abstract: The use of standard concentrations of intravenous infusions has been advocated by international organisations to increase intravenous medication safety in paediatric and neonatal critical care. However, there is no guidance on how to identify and implement these infusions leading to great interunit variability.OBJECTIVETo identify the most appropriate clinical concentrations required by our paediatric intensive care unit (PICU) population with regard to accuracy of delivery and overall fluid allowance.METHODSFirstly a matrix was used to balance the concentration, dose and infusion volume (weight range 1.5-50 kg). Results were further refined considering: patient fluid allowance based on fluid volume targets, infusion pump accuracy and challenging each infusion against clinical scenarios requiring administration of multiple drug infusions found in PICU. Consideration was given to the standard concentrations routinely used in adults, in order to assess whether alignment with paediatrics was possible for some of the concentrations proposed. Finally a risk assessment of the infusions was conducted using the NPSA 20 tool.KEY FINDINGSTwenty-five drugs identified as the most commonly used intravenous infusions in the unit. For the majority of the medicines, three weight bands of standard concentrations were necessary to cover the children's weight ranges and kept within predefined fluid requirements and accuracy of delivery.CONCLUSIONSThis work shows a patient focused systematic approach for defining and evaluating standardised concentrations in intensive care children.

Database: Medline

4. Pharmacological sedation management in the paediatric intensive care unit.

Author(s): Baarslag, Manuel A; Allegaert, Karel; Knibbe, Catherijne A J; van Dijk, Monique; Tibboel, Dick

Source: The Journal of pharmacy and pharmacology; May 2017; vol. 69 (no. 5); p. 498-513

Publication Date: May 2017

Publication Type(s): Journal Article Review

PubMedID: 27545822

Abstract:OBJECTIVEThis review addresses sedation management on paediatric intensive care units and possible gaps in the knowledge of optimal sedation strategies. We present an overview of the commonly used sedatives and their pharmacokinetic and pharmacodynamic considerations in children, as well as the ongoing studies in this field. Also, sedation guidelines and current sedation strategies and assessment methods are addressed.KEY FINDINGSThis review shows that evidence and pharmacokinetic data are scarce, but fortunately, there is an active research scene with promising new PK and PD data of sedatives in children using new study designs with application of advanced laboratory methods and modelling. The lack of evidence is increasingly being recognized by authorities and legislative offices such as the US Food and Drug Administration (FDA) and European Medicines Agency (EMA).CONCLUSIONThe population in question is very heterogeneous and this overview can aid clinicians and researchers in moving from practice-based sedation management towards more evidence- or model-based practice. Still, paediatric sedation management can be improved in other ways than pharmacology only, so future research should aim on sedation assessment and implementation strategies of protocolized sedation as well.

Database: Medline

5. Development and validation of a mortality risk model for pediatric sepsis.

Author(s): Chen, Mengshi; Lu, Xiulan; Hu, Li; Liu, Pingping; Zhao, Wenjiao; Yan, Haipeng; Tang, Liang; Zhu, Yimin; Xiao, Zhenghui; Chen, Lizhang; Tan, Hongzhuan

Abstract: Pediatric sepsis is a burdensome public health problem. Assessing the mortality risk of pediatric sepsis patients, offering effective treatment guidance, and improving prognosis to reduce mortality rates, are crucial.We extracted data derived from electronic medical records of pediatric sepsis patients that were collected during the first 24 hours after admission to the pediatric intensive care unit (PICU) of the Hunan Children's hospital from January 2012 to June 2014. A total of 788 children were randomly divided into a training (592, 75%) and validation group (196, 25%). The risk factors for mortality among these patients were identified by conducting multivariate logistic regression in the training group. Based on the established logistic regression equation, the logit probabilities for all patients (in both groups) were calculated to verify the model's internal and external validities.According to the training group, 6 variables (brain natriuretic peptide, albumin, total bilirubin, D-dimer, lactate levels, and mechanical ventilation in 24 hours) were included in the final logistic regression model. The areas under the curves of the model were 0.854 (0.826, 0.881) and 0.844 (0.816, 0.873) in the training and validation groups, respectively.The Mortality Risk Model for Pediatric Sepsis we established in this study showed acceptable accuracy to predict the mortality risk in pediatric sepsis patients.

Database: Medline

Latest Evidence

NICE National Institute for Health and Care Excellence

[Standards for Assessing, Measuring and Monitoring Vital Signs in Infants, Children and Young People](#) [PDF]

Source: [Royal College of Nursing - RCN](#) - 12 May 2017

...Foundation Trust Senior Lecturer, Children's Nursing, London South Bank University Gerri Sefton Advanced Nurse Practitioner PICU, Alder Hey Children's NHS Foundation Trust Lead for Paediatric Early Warning System Peter-Marc Fortune Consultant Paediatric...

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

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

...of the paediatric intensive care unit (PICU) retrieval team, or when only a very...that does not necessitate transfer to a PICU is required. This is acceptable, provided...available to prepare an infant or child for PICU transfer.32 3.15 There should be...

Cochrane Library

[Videolaryngoscopy versus direct laryngoscopy for tracheal intubation in children (excluding neonates)](#)

Ibtihal S Abdelgadir, Robert S Phillips, Davinder Singh, Michael P Moncreiff, Joanne L Lumsden

Online Publication Date: May 2017

UpToDate®

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

Tihis resource has been searched but I can find nothing relevant to add to this section

Exercise: Creating a Literature Search Strategy

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

1. **What would your PICO format be?**

Population/problem	
Intervention/indicator	
Comparator	
Outcome	

2. **What would your research question be?**

Taken from the Centre for Evidence-based Medicine

*Find out more about constructing an effective search strategy in one of our **Literature searching** training sessions.*
For more details, email library@uhbristol.nhs.uk.

PICO: P = obese patients; I = chitosan; C = placebo; O = decrease weight
Research question: In obese patients, does chitosan, compared to a placebo, decrease weight?

Library and Information Service

library@uhbristol.nhs.uk

Teaching and Learning

Library Opening Times

Staffed hours: 8am-5pm, Monday to Friday

Swipe-card access: 7am-11pm, seven days a week

Level 5, Education and Research Centre

University Hospitals Bristol

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Helen Pullen

library@uhbristol.nhs.uk