

Paediatric Emergency Department

Current Awareness Newsletter



March 2017

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Training Calendar 2017

All sessions are 1 hour

<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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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

Latest Evidence



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GENERAL PEDIATRIC EMERGENCY MEDICINE

Safety and efficacy of nonoperative treatment of pediatric appendicitis (March 2017)

In a meta-analysis of 10 studies that provided outcomes for over 400 children undergoing nonoperative treatment (antibiotics without immediate surgery) of early, uncomplicated appendicitis, initial treatment was effective in 97 percent of patients and was associated with no appendectomy at reported follow-up in 82 percent of patients [18]. Complications and total length of hospital stay appeared similar during follow-up for nonoperative treatment and appendectomy. Although appendectomy remains the treatment of choice for most children with early, uncomplicated appendicitis, nonoperative management is an alternative option in selected patients based upon caregiver preference. Additional studies are needed to determine which patients are least likely to fail nonoperative treatment. (See "[Acute appendicitis in children: Management](#)", section on 'Nonoperative management'.)

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) [19]. 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'.)

PEDIATRIC RESUSCITATION

Ultrasound to improve the success rate of lumbar puncture in young infants (February 2017)

Ultrasound has been proposed as a means to increase the success rate of lumbar puncture (LP) in infants. In a small, unblinded trial of 43 young infants undergoing LP in the emergency department, ultrasound-assisted LP was associated with a significantly higher rate of success compared with the landmark technique [27]. We suggest that when

equipment and properly trained providers are available, ultrasound guidance be used to identify the best site and safest depth for LP in young infants. (See "[Lumbar puncture: Indications, contraindications, technique, and complications in children](#)", section on '[Ultrasound guidance](#)'.)



[Capnography versus standard monitoring for emergency department procedural sedation and analgesia](#)

Brian F Wall, Kirk Magee, Samuel G Campbell, Peter J Zed

Online Publication Date: March 2017

Key Papers

Below are a selection of articles that were 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. **Is Tachycardia at Discharge From the Pediatric Emergency Department a Cause for Concern? A Nonconcurrent Cohort Study.**

[Wilson PM](#)¹, [Florin TA](#)², [Huang G](#)³, [Fenchel M](#)³, [Mittiga MR](#)².

Abstract

STUDY OBJECTIVE:

We evaluate the association between discharge tachycardia and (1) emergency department (ED) and urgent care revisit and (2) receipt of clinically important intervention at the revisit.

METHODS:

The study included a nonconcurrent cohort of children aged 0 to younger than 19 years, discharged from 2 pediatric EDs and 4 pediatric urgent care centers in 2013. The primary exposure was discharge tachycardia (last recorded pulse rate ≥ 99 th percentile for age). The main outcome was ED or urgent care revisit within 72 hours of discharge. Additional outcomes included interventions received and disposition at the revisit, prevalence of discharge tachycardia at the index visit, and associations of pain, fever, and medications with discharge tachycardia. Multivariable logistic regression determined relative risk ratios for revisit and receipt of clinically important intervention at the revisit.

RESULTS:

Of eligible visits, 126,774 were included, of which 10,470 patients (8.3%) had discharge tachycardia. Discharge tachycardia was associated with an increased risk of revisit (adjusted RR 1.3; 95% confidence interval 1.2 to 1.5), increased risk of tachycardia at the revisit (relative risk 3.1; 95% confidence interval 2.6 to 3.7), and of the receipt of certain clinically important interventions (supplemental oxygen, respiratory medications and admission, antibiotics and admission, and peripheral intravenous line placement and admission). However, there was no increased risk for the composite outcome of receipt of any clinically important intervention or admission on revisit.

CONCLUSION:

Discharge tachycardia is associated with an increased risk of revisit. It is likely that tachycardia at discharge is not a critical factor associated with impending physiologic deterioration.

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[Pediatrics](#). 2017 Mar;139(3). pii: e20162163. doi: 10.1542/peds.2016-2163.

2. Intravenous magnesium sulfate for bronchiolitis: A randomized trial.

[Alansari K](#)¹, [Sayyed R](#)², [Davidson BL](#)³, [Al Jawala S](#)², [Ghadier M](#)².

Abstract

BACKGROUND:

To determine if intravenous magnesium, useful for severe pediatric asthma, reduces time to medical readiness for discharge in bronchiolitis patients when added to supportive care **METHODS:** We compared a single dose of 100 mg/kg intravenous magnesium sulfate versus placebo for acute bronchiolitis. Patients received bronchodilator therapy, nebulized hypertonic saline, and 5 days of dexamethasone if there was eczema and/or a family history of asthma. Time to medical readiness for discharge was the primary efficacy outcome. Bronchiolitis severity scores and need for infirmary or hospital admission and for clinic revisits within 2 wk were secondary outcomes. Cardiorespiratory instability onset was the safety outcome.

RESULTS:

162 previously healthy infants diagnosed with bronchiolitis aged 22 days to 17.6 months, median 3.7 months, were enrolled. About half had eczema and/or a family history of asthma. 86.4% had positive nasopharyngeal virus swabs. Geometric mean time until medical readiness for discharge was 24.1h (95% CI, 20.0-29.1) for the 78 magnesium patients and 25.3h (95% CI, 20.3-31.5) for the 82 placebo patients (ratio 0.95; 95% CI, 0.52-1.80, p=0.91). Mean bronchiolitis severity scores over time were similar for the two groups. The frequency of clinic visits in the subsequent 2 wk, 33.8% and 27.2%, respectively, was also similar. Fifteen (19.5%) magnesium versus 5 (6.2%) placebo patients were readmitted to infirmary or hospital within 2 wk (p= 0.016). No acute cardiorespiratory side effects were reported.

CONCLUSIONS:

Intravenous magnesium did not provide benefit for patients with acute bronchiolitis and may be harmful.

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KEYWORDS:

Bronchiolitis; Length of stay; Magnesium sulfate; Respiratory infections; Respiratory syncytial virus

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[10.1016/j.chest.2017.03.002](https://doi.org/10.1016/j.chest.2017.03.002)

[Curr Opin Pediatr.](#) 2017 Mar 16. doi: 10.1097/MOP.0000000000000481. [Epub ahead of print]

3. **Parameters affecting length of stay in a pediatric emergency department: a retrospective observational study.**

Author(s): Hofer, Kevin D; Saurenmann, Rotraud K

Source: European journal of pediatrics; Mar 2017

Publication Date: Mar 2017

Publication Type(s): Journal Article

Abstract: Prolonged emergency department (ED) length of stay (LOS) is used as a proxy for ED overcrowding and is associated with adverse outcomes of patients requiring therapy and reduced patient satisfaction. Our aim was to identify and quantify variables which affect ED-LOS. Patients admitted to the pediatric ED of a large regional Swiss hospital during a 1-year period were analyzed for LOS (in minutes). Predictor variables included patient-associated parameters (time of admission and discharge, ED occupancy, triage score, diagnosis, and demographic data) and external factors (weekday, time, and season). A total of 4885 visits were included in a multivariable logistic regression analysis. Median LOS was 124 min. The most important factors associated with prolonged LOS were physician referral (adjusted odds ratio [OR], 1.97; 95% confidence interval [CI], 1.47-2.62); morning admissions, especially before noon (OR, 1.92; 95% CI, 1.23-3.07); and gastrointestinal infections (OR, 1.38; 95% CI, 1.08-1.76). Upper airway infections (OR, 0.37; 95% CI, 0.27-0.49) and triage level 5 (OR, 0.18; 95% CI, 0.06-0.61) were inversely associated with ED-LOS. Together with ED occupancy, these factors did significantly contribute to log LOS in a stepwise backward multiple regression model ($p < 0.001$). **CONCLUSION** Several parameters are associated with prolonged ED-LOS. Notably, morning arrivals represent possible targets for strategies to reduce LOS. **What is Known:** • Prolonged length of stay (LOS) may affect care delivered to admitted patients in the emergency department (ED) and is well studied in the setting of adult

patients with high acuity conditions. • Little is known about parameters which impact LOS in European pediatric EDs. What is New: • Several predictors of prolonged LOS could be identified in a European pediatric setting. • Our results indicate that prolonged LOS is associated with modifiable factors like morning and summer admission, which have the potential to be addressed by modification in staffing, infrastructure, and higher attention to faster processing.

Please can we include hyperlinks to the following papers but no abstracts:

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

Author(s): Ueda, Riyo; Nomura, Osamu; Maekawa, Takanobu; Sakai, Hirokazu; Nakagawa, Satoshi; Ishiguro, Akira

Source: European journal of pediatrics; Apr 2017; vol. 176 (no. 4); p. 443-448

2. **Paediatric early warning systems for detecting and responding to clinical deterioration in children: a systematic review.**

Author(s): Lambert, Veronica; Matthews, Anne; MacDonell, Rachel; Fitzsimons, John

Source: BMJ open; Mar 2017; vol. 7 (no. 3); p. e014497

3. **Family-Based Crisis Intervention With Suicidal Adolescents: A Randomized Clinical Trial.**

[Wharff EA](#)¹, [Ginnis KB](#), [Ross AM](#), [White EM](#), [White MT](#), [Forbes PW](#).

[Pediatrics](#). 2017 Mar;139(3). pii: e20163200. doi: 10.1542/peds.2016-3200.

4. [Pediatr Emerg Care](#). 2017 Mar 2. doi: 10.1097/PEC.0000000000000983. [Epub ahead of print]

Factors Predicting Asthma in Children With Acute Bronchiolitis.

[Waseem M](#)¹, [Akobo SI](#), [Shaikh F](#), [DelaCruz A](#), [Henriquez W](#), [Leber M](#).

5. **Decreasing Prescribing Errors During Pediatric Emergencies: A Randomized Simulation Trial.**

[Larose G](#)¹, [Levy A](#)², [Bailey B](#)², [Cummins-McManus B](#)², [Lebel D](#)³, [Gravel J](#)².

[Ann Emerg Med](#). 2017 Feb 23. pii: S0196-0644(16)31550-5. doi: 10.1016/j.annemergmed.2016.12.010. [Epub ahead of print]

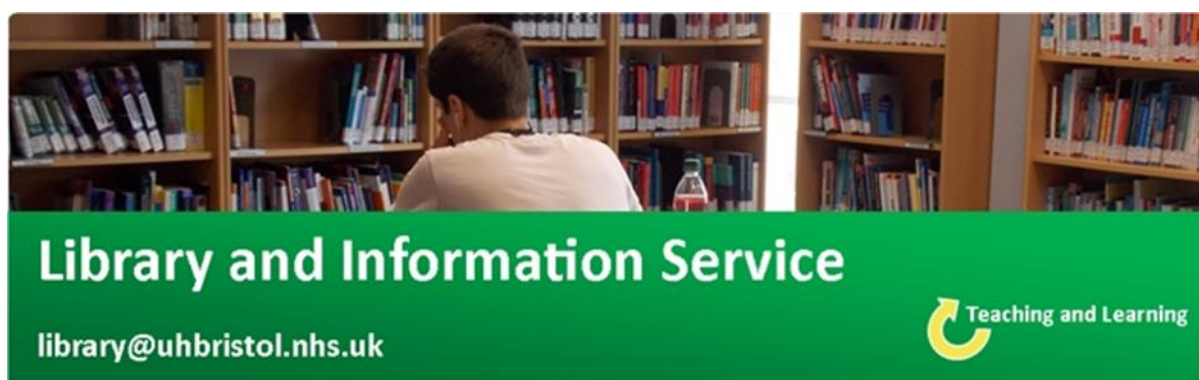
6. **Pediatric Resident Burnout and Attitudes Toward Patients.**

[Baer TE](#)^{1,2}, [Feraco AM](#)^{2,3,4}, [Tuysuzoglu Sagalowsky S](#)⁵, [Williams D](#)⁶, [Litman HJ](#)⁷, [Vinci RJ](#)⁸. [Chest](#). 2017 Mar 9. pii: S0012-3692(17)30361-6. doi: 10.1016/j.chest.2017.03.002. [Epub ahead of print]

7. **Pediatric spinal cord injury without radiographic abnormality in the era of advanced imaging.**

[Farrell CA](#)¹, [Hannon M](#), [Lee LK](#).

[Curr Opin Pediatr](#). 2017 Mar 16. doi: 10.1097/MOP.0000000000000481. [Epub ahead of print]



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