Paediatric Emergency Department
Current Awareness: July

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Key papers

Cohort study to test the predictability of the NHS Institute for Innovation and Improvement Paediatric Early Warning System

Citation: Archives of Disease in Childhood, 2016, vol./is. 101/6(552-555), 00039888

Author(s): Mason, B. W., Edwards, E. D., Oliver, A., Powell, C. V. E.

Aim: To test the predictability of the National Health Service Institute for Innovation and Improvement (NHSIIII) Paediatric Early Warning System (PEWS) score to identify children at risk of developing critical illness.

Methods: Cohort study of admissions to all paediatric wards at the University Hospital of Wales between December 2005 and November 2006. Outcome Measures were unscheduled paediatric high dependency unit (PHDU) admission, paediatric intensive care unit (PICU) admission and death.

Results: There were 9075 clinical observations from 1000 children. An NHSIIII PEWS score of 2 or more, which triggers review, has a sensitivity of 73.2%, specificity of 75.2%, positive predictive value (PPV) of 2.6%, negative predictive value of 99.7% and positive likelihood ratio of 3.0 for predicting PHDU admission, PICU admission or death. Six (37.5%) of the 16 children with an adverse outcome did not have an abnormal NHSIIII PEWS score.

Conclusions: The NHSIIII PEWS has a low PPV and its full implementation would result in a large number of false positive triggers. The issue with PEWS scores or triggers is neither their sensitivity nor children with high scores which require clinical interventions who are not ‘false positives’; but their low specificity and low PPV arising from the large number of children with low but raised scores.

Decline in Emergency Department Visits for Acute Gastroenteritis Among Children in 10 US States After Implementation of Rotavirus Vaccination, 2003 to 2013

Citation: The Pediatric infectious disease journal, Jul 2016, vol. 35, no. 7, p. 782-786

Author(s): Shah, Minesh P, Tate, Jacqueline E, Steiner, Claudia A, Parashar, Umesh D

Aim: Although the effect of Rotavirus vaccination on childhood hospitalizations for rotavirus has been well described, the effects of rotavirus vaccine on emergency department (ED) visits are less well documented.

Method: Using the State Emergency Department Databases for 10 US states, we compared the rates of gastroenteritis- and rotavirus-coded ED visits among children <5 years of age in prevaccine (2003 to 2006) with those in postvaccine (2008-2013) years; 2007 was excluded as a transition year.

Results: The prevaccine annual gastroenteritis-coded ED visit rate among children <5 years of age of 426 per 10,000 declined to 382 per 10,000 in postvaccine years, a 10.3% rate reduction overall. Compared with prevaccine years, annual ED visit rates for gastroenteritis decreased by 6.5% in 2008, 12.3% in 2010, 14.8% in 2011, 20.4% in 2012 and 10.1% in 2013; a small increase of 1.8% was seen in 2009. Declines were greater in children <2 years of age than in older children.

Conclusion: ED visits for gastroenteritis in US children have declined since the introduction of rotavirus vaccine.
C-Reactive Protein Level as Diagnostic Marker in Young Febrile Children Presenting in a General Practice Out-of-Hours Service [full text with OpenAthens login]

Citation: Journal of the American Board of Family Medicine, Jul 2016, vol. 29, no. 4, p. 460-468

Author(s): Kool, Marijke, Elshout, Gijs, Koes, Bart W, Bohnen, Arthur M, Berger, Marjolein Y

Aim: It is unclear how well a C-reactive protein (CRP) value predicts a serious infection (SI) in young febrile children in general practice.

Method: Prospective cohort study with 1-week follow-up included children, aged 3 months to 6 years, presenting with fever to a general practitioner out-of-hours service. We evaluate whether CRP level has predictive value for diagnosing a child at risk for an SI either at presentation or during follow-up. The index test was CRP ≤20 mg/L (rule out an SI) and >80 mg/L (rule in an SI). The reference standard was referral to a pediatric emergency department or diagnosis of an SI. The main outcome measure was CRP value.

Results: CRP level was available for 440 children. To rule out an SI, CRP ≤20 mg/L did not change the probability of having no SI (87.5%). CRP >80 mg/L increased the probability of having an SI from 11.4% (pretest probability) to 21.2% (posttest probability). In children without a diagnosis of SI at presentation, CRP could not predict an SI during follow-up.

Conclusion: In general practice CRP has little clinically relevant value in discriminating febrile children in need of medical care from those who are not.

Other papers

Randomized Trial of Intranasal Fentanyl Versus Intravenous Morphine for Abscess Incision and Drainage
Citation: Pediatric Emergency Care, July 12, 2016 [Epub ahead of print]
Author(s): Fenster et al.

Does Overestimation of Burn Size in Children Requiring Fluid Resuscitation Cause Any Harm?
Citation: Journal of Burn Care & Research, June 29, 2016 [Epub ahead of print]
Author(s): Sadideen et al.

A Prospective Randomized Controlled Trial of Nonpharmacological Pain Management During Intravenous Cannulation in a Pediatric Emergency Department
Citation: Pediatric emergency care, Jul 2016, vol. 32, no. 7, p. 444-451
Author(s): Miller, Kate et al.

Petechial rash in children: a clinical dilemma [full text]
Citation: Emergency nurse, May 2016, vol. 24, no. 2, p. 27
Author(s): Barnetson, Laura, Heaton, Paul Anthony, Palmer, Sarah, Paul, Siba Prosad

New NICE Guidance

Bronchiolitis in children Reference:QS122