Outcome after reduced chemotherapy for intermediate-risk neuroblastoma

Abstract
BACKGROUND: The survival rate among patients with intermediate-risk neuroblastoma who receive dose-intensive chemotherapy is excellent, but the survival rate among patients who receive reduced doses of chemotherapy for shorter periods of time is not known.
METHODS: We conducted a prospective, phase 3, nonrandomized trial to determine whether a 3-year estimated overall survival of more than 90% could be maintained with reductions in the duration of therapy and drug doses, using a tumour biology-based therapy assignment. Eligible patients had newly diagnosed, intermediate-risk neuroblastoma without MYCN amplification; these patients included infants (<365 days of age) who had stage 3 or 4 disease, children (≥365 days of age) who had stage 3 tumors with favourable histopathological features, and infants who had stage 4S disease with a diploid DNA index or unfavourable histopathological features. Patients who had disease with favourable histopathological features and hyperdiploidy were assigned to four cycles of chemotherapy, and those with an incomplete response or either unfavourable feature were assigned to eight cycles.
RESULTS: Between 1997 and 2005, a total of 479 eligible patients were enrolled in this trial (270 patients with stage 3 disease, 178 with stage 4 disease, and 31 with stage 4S disease). A total of 323 patients had tumours with favourable biologic features, and 141 had tumours with unfavourable biologic features. Ploidy, but not histopathological features, was significantly predictive of the outcome. Severe adverse events without disease progression occurred in 10 patients (2.1%), including secondary leukemia (in 3 patients), death from infection (in 3 patients), and death at surgery (in 4 patients). The 3-year estimate (±SE) of overall survival for the entire group was 96±1%, with an overall survival rate of 98±1% among patients who had tumours with favourable biologic features and 93±2% among patients who had tumours with unfavourable biologic features.
CONCLUSIONS: A very high rate of survival among patients with intermediate-risk neuroblastoma was achieved with a biologically based treatment assignment involving a substantially reduced duration of chemotherapy and reduced doses of chemotherapeutic agents as compared with the regimens used in earlier trials. These data provide support for further reduction in chemotherapy with more refined risk stratification. (Funded by the National Cancer Institute; ClinicalTrials.gov number, NCT00003093.)
PMID: 20879880

A recurrence of a hydrop lethal skeletal dysplasia showing similarity to Desbuquois dysplasia and a proposed new sign: the Upsilon sign
Baynam G, Kiraly-Borri C, Goldblatt J, Dickinson JE, Jevon GP, Overkov A.

Abstract
We report on a recurrence of a lethal skeletal dysplasia with features similar to Desbuquois dysplasia (DD) to expand the phenotypic spectrum of DD-like conditions, to increase awareness of DD-like phenotypes in the differential diagnosis of prenatal onset skeletal dysplasias, and to suggest a new sign, the Upsilon sign, to aid
in the differential diagnosis of skeletal dysplasias with an extra ossification centre distal to second metacarpal.

PMD: 20358610

Immediate and longer term immunogenicity of a single dose of the combined haemophilus influenzae type B neisseria meningitides serogroup C tetanus toxoid conjugate vaccine in Hib-primed toddlers aged 12 to 18 months
Pediatric Infectious Disease Journal. 2010 Nov 9 [Epub ahead of print]

Abstract
Hib-primed but MenC-naive toddlers (N = 433) were randomized to receive 1 dose of Hib-MenC-TT or separate Hib-TT and MenC-CRM197 vaccines. One month later, noninferiority was demonstrated for serum bactericidal anti-MenC antibodies (rSBA) and Hib antipolyribosylribitol phosphate (PRP) antibodies; >99% in both groups had rSBA titer ≥8 or anti-PRP concentration ≥0.15 µg/mL. After 12 months, rSBA titer ≥8 persisted in 86.7% and 76.4%, and anti-PRP concentration ≥0.15 µg/mL persisted in 98.8% and 100% of children, respectively.

PMD: 21068692

Rehabilitation in brain tumour patients
Burgess K.

Best Guess method: a further external validation study and comparison with other methods
Casey J, Borland M.

Abstract
OBJECTIVE: Validation of the 'Best Guess' weight estimation method on a geographically divergent external sample of children, plus comparison with APLS and Broselow weight estimation methods.
METHODS: Prospective cross-sectional analytical study at Princess Margaret Hospital Emergency Department. A convenience sample of children aged 0-14 years recruited from May to June 2008. Age, sex, ethnicity, height and actual weight obtained. Agreement between the methods is reported as a comparative mean and distribution of the percentage error, plus the proportion of instances where the error exceeded 20% of the measured weight.
RESULTS: A total of 1235 children were included. The 'Best Guess' method was the most accurate, particularly in children aged 1-4 years (mean percentage error +1.6%). In other age groups it overestimated weight, with mean percentage errors ranging from 3.41% to 6.25%. Across all age groups the Broselow method was most precise, with tendency to underestimate weight across age groups with mean percentage errors ranging from -5.28% to -7.24%. The APLS method was least accurate and precise, with mean percentage errors ranging from -12.61% to -17.36%. Net weight underestimation errors exceeding 20% were associated with increased mean body mass index.
CONCLUSION: The Best Guess weight estimation method is accurate, especially in children aged 1-4 years. It moderately overestimates weight in other ages. The Broselow method was more precise, whereas the APLS method was the least accurate and precise of all. The ease of use of the Broselow method argues for greater use in the ED and prehospital setting.
PMD: 20152005
Botulinum toxin to control an incapacitating tic in a child with a clavicular fracture
Chen Y, Thalayasingam P.
Anaesthesia and Intensive Care. 2010 Nov;38(6):1106-8

Abstract
We present the case of an 11-year-old boy who suffered from an undefined tic disorder and incidentally sustained a traumatic fracture of the clavicle. The fracture healing course was complicated by the tic activity, and the frequency and intensity of the tics were worsened by the presence of clavicular pain. He underwent surgery and his management required the collaboration of orthopaedic surgeons, the Acute Pain Service, neurologists for tic management and rehabilitation physicians who performed the intramuscular injections of botulinum toxin. We recommend a multidisciplinary and multimodal approach to managing patients suffering from tic disorders and highlight the consideration of intramuscular injections of botulinum toxin, which were successful for this patient.

PMID: 21226446

Associations between Helicobacter pylori infection, co-morbid infections, gastrointestinal symptoms, and circulating cytokines in African children
Cherian S, Burgner DP, Cook AG, Sanfilippo FM, Forbes DA.

Abstract
BACKGROUND: Refugee children have complex medical needs and often have multiple infections. The relationship between infection, gastrointestinal symptoms, and systemic inflammation is poorly understood. We investigated these parameters in refugee children with a high prevalence of Helicobacter pylori, helminth, and malaria infection.

MATERIALS AND METHODS: African refugee children were recruited at resettlement health screening. Data were collected on demographics, gastrointestinal symptoms, co-morbid infection, and serum for peripheral cytokine levels. Helicobacter pylori infection was diagnosed by a fecal-based immunoassay.

RESULTS: Data from 163 children were analyzed, of which 84.0% were positive for H. pylori. Infected children were significantly older (9.2 years +/- 3.7 vs 7.1 years +/- 3.9, p = .01). Half the cohort (84/163, 51.5%) described gastrointestinal symptoms but these were not strongly associated with co-morbid infections. Helicobacter pylori-infected children had significantly lower circulating log-interleukin-8 (IL-8) (odds ratio 0.61, 95% confidence interval (CI) 0.40, 0.94, p = .025). Helminth infections were common (75/163, 46%) and associated with elevated log-IL-5 (beta: 0.42, 95% CI 0.077, 0.76). Children with malaria (15/163, 9.2%) had elevated log-tumor necrosis factor-alpha (TNFalpha) and log-IL-10 (beta: 0.67, 95% CI 0.34, 1.0 and beta: 1.3, 95% CI 0.67, 1.9, respectively). IL-10 : IL-12 ratios were increased in H. pylori-infected children with malaria or helminth infections. Symptoms were generally not associated with levels of circulating peripheral cytokines irrespective of co-morbid infection diagnosis.

CONCLUSIONS: There is a high prevalence of asymptomatic H. pylori infection in recently resettled African refugee children. Gastrointestinal symptoms were not predictive of H. pylori or of helminth infections. Serum cytokines, particularly IL-5, IL-10, and TNFalpha, were significantly elevated in children with malaria and helminth infections but not in those with H. pylori infection.

PMID: 20402811

Primary prophylaxis of venous thromboembolism in children
Cole CH.

Abstract
Venous thromboembolism (VTE) is rare in children and young adolescents, and occurs predominantly in those with congenital heart disease in whom guidelines exist for VTE prophylaxis. For other paediatric patients, the rarity of the event makes writing an evidence-based clinical practice guideline difficult because each of the known risk factors contributes only a small increase in risk. Thrombophilia screening is controversial because few results assist with prediction of likely thrombosis and may not alter recommendations for prophylaxis. Recent publications highlight the importance of non-pharmacological prevention of VTE in children and
adolescents undergoing surgery and the importance of liaison among surgeon, anaesthetist and haematologist. This annotation was written with the aim of collating current evidence for VTE prophylaxis and emphasising the need for further research in vulnerable subgroups. PMID: 20163530

**Muscle injuries of the lower leg**

Counsel P, Breidahl W.

Abstract
Muscle injuries of the lower leg are a common cause for time off from sports, and may also be a cause of disability in nonathletes who have a running or “pushing off” injury as part of their activities of daily living. Most injuries can be managed without imaging, but in selected cases advanced imaging techniques can demonstrate the exact site and extent of the injury and potentially modify rehabilitation and return to sports. In experienced hands ultrasonography can identify the location of muscle injuries as well as aid in hematoma aspiration. It is useful for excluding differential diagnoses such as deep vein thrombosis or Baker’s cyst and may be superior for investigating certain conditions such as muscle hernia. Magnetic resonance imaging is more sensitive for injury to deeper muscles and dual injuries and is generally the modality of choice in elite athletes.
PMID: 20486025

**Response**

Custovic A, Simpson A, Bardin PG, Le Souëf P.
Respirology. 2010 Dec 23 [Epub ahead of print]

PMID: 21182568

**Updated meta-analysis of probiotics for preventing necrotizing enterocolitis in preterm neonates**

Deshpande G, Rao S, Patole S, Bulsara M.

Abstract
OBJECTIVE: Systematic reviews of randomized, controlled trials (RCTs) indicate lower mortality and necrotizing enterocolitis (NEC) and shorter time to full feeds after probiotic supplementation in preterm (<34 weeks’ gestation) very low birth weight (VLBW; birth weight <1500 g) neonates. The objective of this study was to update our 2007 systematic review of RCTs of probiotic supplementation for preventing NEC in preterm VLBW neonates.
METHODS: We searched in March 2009 the Cochrane Central register; Medline, Embase, and Cinahl databases; and proceedings of the Pediatric Academic Society meetings and gastroenterology conferences. Cochrane Neonatal Review Group search strategy was followed. Selection criteria were RCTs of any enteral probiotic supplementation that started within first 10 days and continued for > or =7 days in preterm VLBW neonates and reported on stage 2 NEC or higher (Modified Bell Staging).
RESULTS: A total of 11 (N = 2176), including 4 new (n = 783), trials were eligible for inclusion in the meta-analysis by using a fixed-effects model. The risk for NEC and death was significantly lower. Risk for sepsis did not differ significantly. No significant adverse effects were reported. Trial sequential analysis showed 30% reduction in the incidence of NEC (alpha = .05 and .01; power: 80%).
CONCLUSIONS: The results confirm the significant benefits of probiotic supplements in reducing death and disease in preterm neonates. The dramatic effect sizes, tight confidence intervals, extremely low P values, and overall evidence indicate that additional placebo-controlled trials are unnecessary if a suitable probiotic product is available.
PMID: 20403939
Childhood cardiac function after severe maternal red cell isoimmunization.

Dickinson JE, Sharpe J, Warner TM, Nathan EA, D'Orsogna L.

Abstract
OBJECTIVE: To estimate the long-term effects of anemia on the fetal heart by echocardiography of children who received intrauterine blood transfusions for red cell isoimmunization.

METHODS: Surviving children who received intrauterine transfusions during the period from 1992 to 2003 were identified. Children matched for age and sex were chosen for the control group to create a 1:1 case-control study design. A clinical interview, physical examination, and echocardiography assessment (corrected for body surface area) were performed.

RESULTS: Twenty-five children were recruited for the case group and matched to 25 healthy children for the control group. Children in the case group had received a median of four intrauterine transfusion procedures (range 1-7), with a median gestation at initial intrauterine transfusion of 28 weeks (range 22-34 weeks). Hydrops was present in 32%. Median initial hemoglobin was 76 g/L (range 25-133 g/L). Median gestation at delivery was 36 weeks (range 29-38 weeks). The median age of children in the case group was 10.1 years (range 3.6-15.8 years) and of those in the control group was 10.5 years (range 3.8-16.4 years; P=.122). There was no difference in body surface area, baseline heart rate, systolic blood pressure, or diastolic blood pressure between children in the case group and those in the control group. Echocardiography demonstrated three main differences: children in the case group had 9% less left atrial area (95% confidence interval [CI] 2-16% less; P=.02), 10% less ventricular mass (95% CI 1-19% less; P=.039), and an average 11 ms less mitral valve atrial duration (95% CI 3-19 ms less; P=.009) than did those in the control group. These results did not alter when adjusted for isoimmunization severity.

CONCLUSION: Fetal anemia secondary to red cell isoimmunization is associated with a reduction in left ventricular mass and left atrial area in childhood, although resting ventricular function is maintained. We speculate this may be secondary to the prenatal effects of anemia on cardiomyocyte proliferation and differentiation.

LEVEL OF EVIDENCE: III.
PMID: 20859148

Value of serology in predicting Pseudomonas aeruginosa infection in young children with cystic fibrosis


Abstract
BACKGROUND: Early detection of Pseudomonas aeruginosa is essential for successful eradication. The accuracy of serum antibodies against specific and multiple P aeruginosa antigens at predicting lower airway infection in young children with cystic fibrosis (CF) was investigated.

METHODS: A commercial P aeruginosa multiple antigen (MAg) ELISA and an in-house exotoxin A (ExoA) ELISA were compared in two populations: a discovery population of 76 children (0.1-7.1 years) undergoing annual bronchoalveolar lavage (BAL)-based microbiological surveillance and a test population of 55 children (0.1-5.6 years) participating in the Australasian CF Bronchoalveolar Lavage Trial.

RESULTS: In the discovery population, P aeruginosa was cultured from BAL fluid (≥10(5) colony-forming units (cfu)/ml) in 15/76 (19.7%) children (median age 1.88 years). Positive MAg and ExoA serological results were found in 38 (50.0%) and 30 (39.5%) children, respectively. Positive (PPV) and negative (NPV) predictive values for serology at diagnosing P aeruginosa infection (≥10(5) cfu/ml) were 0.14 and 0.99 respectively (MAg assay) and 0.11 and 0.98 (ExoA assay). In the test population, P aeruginosa was cultured from BAL fluid (≥10(5) cfu/ml) in 16/55 (29.1%) children (median age 1.86 years) and from oropharyngeal swabs in 32/36 (88.9%). Positive MAg and ExoA serology was detected in 19 (34.5%) and 33 (60.0%) children, respectively. The PPV and NPV of serology were 0.26 and 0.94 respectively (MAg assay) and 0.19 and 0.98 (ExoA assay) and were marginally higher for oropharyngeal cultures.

CONCLUSIONS: Measuring serum antibody responses against P aeruginosa is of limited value for detecting early P aeruginosa infection in young children with CF.
PMID: 20889526
Lycra® arm splints improve movement fluency in children with cerebral palsy.

Elliott C, Reid S, Hamer P, Alderson J, Elliott B.
Gait & Posture. 2010 Dec 3 [Epub ahead of print]

Abstract
AIMS: To determine changes in upper limb movement substructures that denote fluency of movement in children with cerebral palsy (CP) following lycra® splint wear. Secondarily, to explore the efficacy of lycra® splints for those with spastic and dystonic hypertonia.

DESIGN: Randomised clinical trial whereby participants were randomised to parallel groups with waiting list control.

METHOD: Sixteen children (mean age 11.5 years SD=2.2) with hypertonic upper limb involvement (13 hemiplegia, 4 quadriplegia) were recruited. Children were randomly allocated either to a control group or to wear the lycra® splint for a period of three months. Three-dimensional (3D) upper limb kinematics was used to assess four functional tasks at baseline, on initial lycra® splint application, three months after lycra® splint wear, and immediately after splint removal. Movement substructures of the motion of the wrist joint center were analysed.

RESULTS: A significant difference was observed between baseline and three months of lycra® splint wear in the movement substructures; movement time, percentage of time and distance in primary movement, jerk index, normalised jerk and percentage of jerk in primary and secondary movements. The magnitude of changes in normalised jerk and the percentage of jerk in the primary movement from baseline to three months was greatest in children with dystonic hypertonia.

CONCLUSIONS: The results indicate that lycra® arm splinting induced significant changes in movement substructures and motor performance in children with CP. This research demonstrates that fluency of movement can be quantified and is amenable to change with intervention.

PMID: 21131201

Fentanyl does not reduce the incidence of laryngospasm in children anesthetized with sevoflurane

Erb TO, von Ungern-Sternberg BS, Keller K, Rosner GL, Craig D, Frei FJ.
Anesthesiology. 2010 May 26 [Epub ahead of print]

Abstract
BACKGROUND: The modifying effects of fentanyl on protective airway reflexes have not been characterized in children. The aim of this study was to assess the impact of increasing doses of fentanyl on laryngeal reflex responses in children anesthetized with sevoflurane. The authors hypothesized that the incidence of laryngospasm evoked by laryngeal stimulation is reduced with increasing doses of fentanyl.

METHODS: Sixty-three children, aged 2-6 yr, scheduled for elective surgery, were anesthetized with sevoflurane (1 minimum alveolar concentration). By using an established technique, laryngeal and respiratory responses were elicited by spraying distilled water on the laryngeal mucosa: (1) before the administration of fentanyl, (2) after the administration of 1.5 mug/kg fentanyl, and (3) after the administration of a second dose of 1.5 mug/kg fentanyl. In 10 children, serving as a time control, three successive laryngeal stimulations were performed without the administration of fentanyl. The responses were assessed by a blinded reviewer.

RESULTS: The study was completed in 60 patients. The incidence of laryngospasm was not reduced when up to two successive doses of 1.5 mug/kg fentanyl were administered. The incidence of laryngospasm lasting for more than 10 s was 26% before receiving fentanyl, 31% after receiving 1.5 mug/kg fentanyl, and 18% after receiving a second dose of 1.5 mug/kg fentanyl (P = 0.36 and 0.78, respectively). This response was similar to that observed in the time control group (P = 0.21).

CONCLUSION: Two successive doses of 1.5 mug/kg fentanyl did not effectively prevent laryngospasm in children, aged 2-6 yr, anesthetized with sevoflurane.

PMID: 20508496
Twenty-five years of treatment for childhood acute lymphoblastic leukaemia in Western Australia: how do we compare?
Forward H, Zheng GC, Cole CH.

Abstract
OBJECTIVES: To compare survival among the subgroup of children with acute lymphoblastic leukaemia (ALL) who were treated at Princess Margaret Hospital for Children (PMH) in Perth, Western Australia, over 25 years under 15 consecutive protocols of the Children’s Cancer Group (CCG) with survival for the entire cohort of children in multiple centres treated under CCG protocols in that period; and to highlight the benefits of membership of a large cooperative research group conducting multicentre randomised controlled trials.
MAIN OUTCOME MEASURES: 4-year event-free survival; and 10-year overall survival.
RESULTS: Four-year event-free survival for the entire PMH cohort increased from 66% (SE, 6%) for 1983-1987 to 88% (SE, 6%) for 2002-2005, while overall survival over the same period improved from 78% (SE, 5%) to 94% (SE, 4%). Comparisons of outcomes of children treated at PMH with those of the entire CCG cohort, protocol by protocol, revealed similar outcomes.
CONCLUSION: Outcomes of children treated at PMH over the 25-year period are equivalent to those of the larger CCG cohort.
PMID: 21077814

Improving transfusion practice: ongoing education and audit at two tertiary speciality hospitals in Western Australia.
Gallagher-Swann M, Ingleby B, Cole C, Barr A.
Transfusion Medicine. 2010 Oct 12 [Epub ahead of print]

Abstract
BACKGROUND: Institutions undertaking transfusion have a responsibility to ensure safe and appropriate practice. The hospital transfusion committee (HTC) plays a major role in monitoring all aspects of transfusion. Dedicated staff with the responsibility of undertaking transfusion education and audit have been employed at many hospitals. The question is ‘Do these positions improve practice?’ Study design and methods: In 2005, a transfusion coordinator was employed by the King Edward Memorial Hospital (KEMH) and Princess Margaret Hospital (PMH) in Perth, Western Australia. After an initial audit to collect baseline data on transfusion documentation and compliance with national guidelines, a series of interventions was undertaken. In addition, the transfusion protocols were rewritten and published electronically. Further audits were undertaken in 2006, 2007 and 2009. Results: Sequential audits show measured improvements in transfusion documentation. Baseline, hourly and completion observations are now correctly recorded in >94% of records at KEMH and >96% of records at PMH. Compliance with recording of 15 min observations has shown a 23% magnitude increase at KEMH and 36% at PMH. Compliance with recording of consent has increased by 20% at KEMH and 31% at PMH. Promotion of positive patient identification, when collecting specimens and administering blood, has been undertaken. Conclusion: The initiatives implemented by the transfusion coordinator and endorsed by the HTCs have improved the standard of transfusion documentation and practice at both institutions.
PMID: 21039980

Lung function testing in preschool-aged children with cystic fibrosis in the clinical setting
Gangell CL, Hall GL, Stick SM, Sly PD; AREST CF.
Pediatric Pulmonology. 2010 45(5):419-33

Abstract
In cystic fibrosis (CF) lung function testing is a means of monitoring progression of lung disease. The preschool years have often been referred to as the “silent years” due to the previous lack suitable measures of lung function testing in this age group. This review outlines the various techniques of lung function testing in preschool children with CF in the clinical setting. This includes measures requiring tidal breathing
including the forced oscillation technique, the interrupter technique, plethysmography, and multiple breath washout, as well as spirometry that requires respiratory manoeuvres. We describe the feasibility and variability of different lung function methods used in preschoolers and report measurements made during tidal breathing have greater feasibility, although greater variability compared to spirometry. We also report associations with lung function and markers of CF lung disease. In the preschool age group measurements made during tidal breathing may be more appropriate in the clinic setting than those that require a higher degree of cooperation and specific respiratory manoeuvres.

PMID: 20425849

Reduced air leakage by adjusting the cuff pressure in pediatric laryngeal mask airways during spontaneous ventilation


Abstract
BACKGROUND: Optimal inflation of the laryngeal mask airway (LMA) cuff should allow ventilation with low leakage volumes and minimal airway morbidity. Manufacturer's recommendations vary, and clinical endpoints have been shown to be associated with cuff hyperinflation and increased leak around the LMA. However, measurement of the intra-cuff pressure of the LMA is not routine in most pediatric institutions, and the optimal intra-cuff pressure in the LMA has not been determined in clinical studies.

METHODS: This was a prospective audit in 100 pediatric patients undergoing elective general anaesthesia breathing spontaneously via LMA (size 1.5-3). Cuff pressure within the LMA was adjusted using a calibrated pressure gauge to three different values (60, 40, and 20 cmH2O) within the manufacturers' recommended LMA cuff pressure range (< or = 60 cmH2O). Three corresponding inspiratory and expiratory tidal volumes were recorded, and the differences were calculated as the 'leak volume'.

RESULTS: Compared with 20 and 60 cmH2O intra-cuff pressure, measured leakage volumes were the lowest at cuff inflation pressures of 40 cmH2O [median (range) 0.42 (0.09-1.00) ml x kg(-1)] in most patients (83%), while 17% of children demonstrated minimally smaller leakages at 20 cmH2O [0.51 (0.11-1.79) ml x kg(-1)]. Maximum leakage values occurred with cuff pressures of 60 cmH2O in all groups [0.65 (0.18-1.27) ml x kg(-1)] and were not associated with the smallest value of air leakage in any patient.

CONCLUSION: Using cuff manometry, an intra-cuff pressure of 40 cmH2O was associated with reduced leak around the LMA while higher (60 cmH2O) and lower (20 cmH2O) cuff pressures resulted in higher leak volumes during spontaneous ventilation. In spontaneously breathing children, reducing the intra-cuff pressure of pediatric-sized LMAs even below the manufacturers' recommendations allows ventilation with minimized leakage around the LMA cuff.

PMID: 20470334


Abstract
Summary. Factor replacement with BIOSTATE(®), a factor VIII (FVIII)/von Willebrand factor concentrate, forms the mainstay of treatment for children with von Willebrand disorder (VWD) in Australia and New Zealand. However, published data on the clinical efficacy and safety of BIOSTATE in the VWD paediatric population are limited. We retrospectively assessed the efficacy and safety of BIOSTATE in 43 children with VWD who received treatment for surgery, non-surgical bleeds or continuous prophylaxis at eight paediatric haemophilia centres in Australia and New Zealand. Data were collected on patient demographics, disease history, treatment history, dosage, administration, adverse reactions, concomitant medications and excessive bleeding events. BIOSTATE provided excellent/good haemostatic efficacy in 90% of surgical procedures (n = 42) with a mean daily FVIII dose of 47 IU FVIII:C kg(-1) and a median treatment duration of 3 days. Excellent/good haemostatic efficacy was achieved in 94% of non-surgical bleeding events (n = 72) with a mean FVIII dose of 45 IU FVIII:C kg(-1) day(-1) and a median treatment duration of 1 day. There were no bleeding events attributable to lack of efficacy. One case of nausea, possibly related to BIOSTATE
administration, was reported. These results suggest that BIOSTATE is safe and effective for the treatment and prophylaxis of bleeding in children with VWD.
PMD: 21118340

Gender bias in children receiving growth hormone treatment
Hughes IP, Choong CS, Cotterill A, Harris M, Davies PS.
Journal of Clinical Endocrinology & Metabolism. 2010 Jan 15 [Epub ahead of print]

Abstract
BACKGROUND: About twice as many boys than girls are treated with GH. Ascertainment bias is a possible explanation. Hypotheses: For ascertainment bias, the gender least frequently treated should be relatively shorter, and in an unbiased population sample, equal numbers of boys and girls should be eligible for GH treatment. Subjects and Setting: In 2007 a total of 1485 Australian children received GH (OZGROW database). Heights were also obtained from two recent unbiased surveys consisting of 3956 and 4794 Australian children. METHODS: Numbers of boys and girls treated with GH were determined for each treatment indication. Height SD scores (SDS) at first presentation for GH-treated boys and girls were assessed. Frequency of boys and girls from two unbiased populations with height SDS less than -2.326 were recorded. OUTCOMES: Outcomes included gender frequencies and height SDSs. Hypotheses were formed before interrogation of preexisting databases. Results: More boys than girls received GH (P = 3.68 x 10-20). By indication: biochemical GH deficiency (P = 0.001), cranial irradiation (P = 0.002), slow growing (P = 2.09 x 10-16), and chronic renal failure (P = 0.061). Approximately equal numbers of girls and boys were treated for hypoglycemia (P = 0.543). Slow-growing girls were relatively shorter than boys for ages spanning 4.50-8.49 yr (P = 3.80 x 10-4), but boys were relatively shorter in the 6.00- to 17.99-month age group (P = 0.011). Biochemical boys were relatively shorter than girls (P = 0.023). In the two unbiased surveys, boys outnumbered girls 11 to six and 16 to eight for height SDS less than -2.326. CONCLUSIONS: There is a gender bias in this GH-treated population. Ascertainment bias does not appear to be the major cause.
PMD: 20080858

Dilated and echogenic fetal bowel and postnatal outcomes: a surgical perspective. Case series and literature review
Jackson CR, Orford J, Minutillo C, Dickinson JE.

Abstract
INTRODUCTION: Foetal dilated or echogenic bowel have been described as markers for a variety of conditions including bowel obstruction, chromosomal and infectious disorders and cystic fibrosis. We aim to describe possible surgical interventions and outcomes.
METHODS: A 5-year review was performed of the clinical course of infants with antenatally diagnosed isolated echogenic bowel and/or dilated bowel or intraabdominal echogenic foci presenting at Princess Margaret Hospital for Children, Perth, Western Australia.
RESULTS: Abnormal antenatal findings were present in 35 foetuses. Twelve babies underwent surgery for intestinal atresia, meconium ileus and duplication cysts. Postoperative courses and outcomes were good.
CONCLUSIONS: Echogenic bowel on antenatal ultrasound is a non-specific marker for a variety of disorders. Although associated with higher rates of foetal loss, the majority of neonates are normal at delivery. Bowel dilatation with or without echogenicity is often predictive of bowel obstruction requiring surgery. Surgical outcomes are, however, very good. Echogenic foci elsewhere in the abdomen have little postnatal significance.
PMD: 20175047
Not the right perspective...
Jana, S
The Quarterly. 2010 43(4)

A critique of Don't take me to your leader by Tony Delamothe, BMJ 2010; 340:c2675

Early dietary exposures and feeding practices: role in pathogenesis and prevention of allergic disease?
Jennings S, Prescott SL.
Postgraduate Medical Journal. 2010 86(1012):94-9

Abstract
Immune dysregulation has become a hallmark of the modern era. This has led to an epidemic of disease states that result from failed immune surveillance and inappropriate or maladaptive immune responses to self-antigens (autoimmunity) and environmental antigens (allergy). Although environmental change is clearly implicated, the specific causes are still unconfirmed. Any hope to reverse such immune dysfunction must be based on a clearer understanding of the causal pathways and the environmental factors that may be driving the concerning surge in disease rates. This review explores the role of modern dietary changes that, through their known documented immune effects, may play a role in either promoting or preventing disease. Food allergen avoidance has been largely unsuccessful, and most expert bodies no longer recommend delayed complementary feeding or the avoidance of any specific allergic foods, unless symptoms develop and allergy is confirmed. Rather, focus has shifted to other factors that may influence the ability to develop immune tolerance. There is now evidence that specific nutrients, such as folate, have the capacity to promote an allergic phenotype by epigenetically altering gene expression during early development. A number of other dietary factors including n-3 polyunsaturated fatty acids, oligosaccharides, probiotics, vitamin D, retinoic acid and other antioxidants may also clearly influence immune function and immune development. This review summarises the current evidence, recommendations and future directions in the context of allergy, with the aim of highlighting the need to further investigate the role of diet and nutrition in disease pathogenesis and prevention.
PMID: 20145058

Endoscopic and histologic findings in pediatric inflammatory bowel disease
Jevon, GP, Ravikumara, M.
Gastroenterology & Hepatology. 2010 6(3):174-80

Abstract
Inflammatory bowel disease (IBD) is an increasingly important cause of gastrointestinal pathology in children. Approximately 25% of IBDs present before the patient is 20 years of age. Accurate diagnosis and differentiation between Crohn’s disease (CD) and ulcerative colitis (UC) is important in planning treatment strategies, particularly in children. Endoscopy, which allows direct visualization of gastrointestinal mucosa and biopsy of multiple sites, is an integral part of this diagnostic process. Although no endoscopic lesion is pathognomonic of IBD, certain features are highly suggestive of either CD or UC. In this article, we review and attempt to correlate endoscopic and histologic findings in IBD that have particular emphasis on the pediatric population.

Compression of the common carotid artery following clavicle fracture in a twelve-year-old
Keating M, Von Ungern-Sternberg BS.

Abstract
Posterior dislocation of the clavicle in the sternoclavicular joint is rare, but can result in severe complications caused by secondary damage to the adjacent structures on relocation. We present a case of a 12-year-old boy who sustained a dislocated clavicle while playing football. Against the initial request to
perform immediate relocation, we opted for further computed tomography evaluation of the dislocation, which demonstrated compression of the left common carotid artery by the clavicle. Since there was no cardiothoracic standby available in our hospital on that day, the patient was transferred to the nearest centre with cardiothoracic facilities where the relocation of the clavicle was performed uneventfully. However; to avoid the potential for major complications, the risk of secondary damage to the central vessels must be kept in mind in this type of injury and adequate precautions must be in place.

PMID: 20715745

Vaccine effectiveness against laboratory-confirmed influenza in healthy young children: a case-control study
Kelly H, Jacoby P, Dixon GA, Carcione D, Williams S, Moore HC, Smith DW, Keil AD, Van Buynder P, Richmond PC; the WAIVE Study Team
Pediatric Infectious Disease Journal. 2011 Feb;30(2):107-111

Abstract
BACKGROUND: The Western Australian Influenza Vaccine Effectiveness study commenced in 2008 to evaluate a new program to provide free influenza vaccine to all children aged 6 to 59 months. We aimed to assess the protective effect of inactivated influenza vaccination in these children.
METHODS: We conducted a prospective case-control study in general practices and a hospital emergency department, testing all eligible patients for influenza and a range of other common respiratory viruses. Influenza vaccine effectiveness (VE) against laboratory-confirmed influenza was estimated with cases defined as children with an influenza-like illness who tested positive and controls as those with an influenza-like illness who tested negative for influenza virus. We calculated VE using the adjusted odds ratio from multivariate logistic regression. As a surrogate marker for adequate specimen collection, we explored the difference in VE point estimates defining controls as children in whom another respiratory virus was detected.
RESULTS: A total of 75 children were enrolled from general practices and 214 through the emergency department, with 12 (27%) and 36 (17%), respectively, having laboratory-confirmed influenza. Using all the influenza-negative controls, the adjusted VE was 58% (95% confidence interval, 9-81). When controls were limited to those with another virus present, the adjusted VE was 68% (95% confidence interval, 26-86).
CONCLUSIONS: VE estimates were higher when controls included only those children with another respiratory virus detected. Testing for other common respiratory viruses enables the control group to be restricted to those for whom an adequate sample is likely.
PMID: 21079528

Decreased fibronectin production significantly contributes to dysregulated repair of asthmatic epithelium
Kicic A, Hallstrand TS, Sutanto EN, Stevens PT, Kobor MS, Taplin C, Paré PD, Beyer RP, Stick SM, Knight DA.

Abstract
RATIONALE: Damage to airway epithelium is followed by deposition of extracellular matrix (ECM) and migration of adjacent epithelial cells. We have shown that epithelial cells from children with asthma fail to heal a wound in vitro.
OBJECTIVES: To determine whether dysregulated ECM production by the epithelium plays a role in aberrant repair in asthma. Methods: Airway epithelial cells (AEC) from children with asthma (n = 36), healthy atopic control subjects (n = 23), and healthy nonatopic control subjects (n = 53) were investigated by microarray, gene expression and silencing, transcript regulation analysis, and ability to close mechanical wounds.
MEASUREMENTS AND MAIN RESULTS: Time to repair a mechanical wound in vitro by AEC from healthy and atopic children was not significantly different and both were faster than AEC from children with asthma. Microarray analysis revealed differential expression of multiple gene sets associated with repair and remodeling in asthmatic AEC. Fibronectin (FN) was the only ECM component whose expression was significantly lower in asthmatic AEC. Expression differences were verified by quantitative polymerase chain reaction and ELISA, and reduced FN expression persisted in asthmatic cells over passage. Silencing of FN expression in nonasthmatic AEC inhibited wound repair, whereas addition of FN to asthmatic AEC restored reparative capacity. Asthmatic AEC failed to synthesize FN in response to wounding or cytokine/growth
factor stimulation. Exposure to 5'-deoxyazacytidine had no effect on FN expression and subsequent analysis of the FN promoter did not show evidence of DNA methylation.
CONCLUSIONS: These data show that the reduced capacity of asthmatic epithelial cells to secrete FN is an important contributor to the dysregulated AEC repair observed in these cells.
PMID: 20110557

Are you listening? The inaugural Australian Otitis Media (OMOZ) workshop--towards a better understanding of otitis media
Medical Journal of Australia. 2010 Nov 15;193(10):569-71
PMID: 21077811

Use of bisphosphonates for the treatment of osteonecrosis as a complication of therapy for childhood acute lymphoblastic leukaemia (ALL)
Pediatric Blood & Cancer. 2010 54(7):934-40
Abstract
BACKGROUND: Osteonecrosis is a well-recognised complication of current childhood acute lymphoblastic leukaemia (ALL) therapy. There are few studies on the medical management of osteonecrosis in this setting. We studied the therapeutic and radiological effects of oral and intravenous bisphosphonate use compared with standard care as treatment for osteonecrosis in this population.
METHOD: Patients who developed osteonecrosis as a complication of ALL therapy between 1994 and 2007 were treated at a single paediatric institution. Of 17 patients, 9 were commenced on bisphosphonates and 8 treated conservatively. Both groups were observed with time. Pain, analgesic requirement and musculoskeletal function were assessed monthly. Affected joints were radiologically imaged at set intervals. Each scan was graded using an ellipsoid method to give the total volume of osteonecrosis, by blinded radiologic examination.
RESULTS: Three of six patients treated with oral alendronate showed clinical improvement. The three patients that had no improvement were subsequently treated with intravenous pamidronate. All six patients treated with intravenous pamidronate showed clinical improvement. Seven of eight conservatively treated patients deteriorated clinically. All patients demonstrated reduction in the radiological burden of osteonecrosis with time. There was no difference in the rate of reduction between conservative and bisphosphonate arms.
CONCLUSION: Bisphosphonate use, in particular pamidronate, improved pain scores, analgesic requirement and musculoskeletal function in patients with osteonecrosis occurring as a complication of childhood ALL therapy. Objective radiologic benefit of bisphosphonate treatment could not be demonstrated. Risks, benefits and long-term outcome of bisphosphonate use in this population should be addressed in a larger prospective, randomised trial.
PMID: 20127847

Monitoring of intra-operative nociception: skin conductance and surgical stress index versus stress hormone plasma levels
Ledowski T, Pascoe E, Ang B, Schmarbeck T, Clarke MW, Fuller C, Kapoor V.
Abstract
'Surgical Stress Index' and the 'Number of Fluctuations in Skin Conductance.s**1, use different methods to analyse sympathetic tone and so provide an estimate of peri-operative analgesia. The aim of our study was to investigate the relationship between these methods and stress hormone plasma levels. In 20 patients scheduled for elective surgery, values of the two methods, mean arterial blood pressure, heart rate and blood samples (to measure plasma levels of adrenaline, noradrenaline, adrenocorticotrophic hormone and
cortisol) were obtained at five time points. Changes in Surgical Stress Index and the Number of Fluctuations in Skin Conductance only partially reflected changes in plasma noradrenaline levels. Surgical Stress Index, heart rate and blood pressure, but not the Number of Fluctuations in Skin Conductance, changed in response to changes in depth of analgesia by showing significant differences between before and after a bolus of fentanyl. However, the overall predictive ability of both methods was poor.

PMID: 20712804

Inherited multicentric osteolysis: case report of three siblings treated with bisphosphonate
Lee SJ, Whitewood C, Murray KJ.
Pediatric Rheumatology Online Journal. 2010 Apr 17;8:12.

Abstract

ABSTRACT: Inherited Multicentric Osteolysis (IMO) is an uncommon familial condition of idiopathic pathophysiology causing bone osteolysis and dysplasia. These patients present with common rheumatologic complaints of pain, dysfunction and disability, and are often initially misdiagnosed as a chronic rheumatic disease of childhood such as juvenile idiopathic arthritis. We report a case of three siblings diagnosed with IMO. Diagnosis was made during childhood, with each sibling having different manifestations and course of disease. One had a previous history of bilateral hip dysplasia. Two had osteolysis of the foot, distal tibia and femur (lower limb bones), whilst one had osteolysis of the rib and unusual clavicular fractures. Unusually, all siblings appear to experience decreased pain sensation compared to norms. All siblings were treated with bisphosphonates and experienced a rapid improvement in pain symptoms, decreased analgesic requirements. Two had bone mineral density testing performed and both had increases post-bisphosphonate. In all three, there was subjective evidence of stabilisation of bone disease. Testing for matrix metalloproteinase-2 (MMP2) gene was negative.

PMID: 20398402

Celiac disease and eosinophilic esophagitis: a true association
Leslie C, Mews C, Charles A, Ravikumara M.

Abstract

BACKGROUND AND AIM: Celiac disease (CD) and eosinophilic esophagitis (EE) are distinct disorders with specific clinico-pathological characteristics. Recent reports suggest an association between the 2. The aim of this study was to estimate the prevalence of EE among children diagnosed with CD in our institution in the last 8 years.
MATERIALS AND METHODS: Princess Margaret Hospital in Western Australia is the state's only pediatric referral centre and the Department of Anatomic Pathology handles almost all of the pediatric gastrointestinal biopsy specimens. All of the children who had histological confirmation of CD between January 2000 and November 2007 were identified. Among this cohort, those who had concurrent esophageal biopsies performed were obtained and those with histology consistent with EE identified. The slides of all of these cases were reviewed. Case notes of children with CD and EE were reviewed for demographic details, symptoms, endoscopic findings, and follow-up data.
RESULTS: Among the total of 250 children diagnosed with CD during the study period, 121 had concurrent esophageal biopsies. Ten children had histological findings consistent with EE, although only 7 had endoscopic findings suggestive of EE. Median eosinophil count in these esophageal biopsies was 52 per high power field (range 23-80). Four children had follow-up endoscopies and all 4 demonstrated recovery of duodenal mucosa but persistent esophageal eosinophilia on gluten-free diet. In 3 children resolution of EE occurred after specific treatment of EE.
CONCLUSIONS: The prevalence of EE in this cohort of children with CD is at least 4%. This is likely to be an underestimation because only 121 of 250 children had concurrent esophageal biopsies. Coexistent EE should be kept in mind in children undergoing endoscopy for suspected CD, and esophageal biopsies should be obtained, irrespective of whether esophageal mucosa appears normal or abnormal at endoscopy.

PMID: 19841598
Adrenaline autoinjectors: what you need to know
Loh, R, Vale, S.
Medicine Today. 2010; 11(9):81-84

Abstract
Both of the adrenaline autoinjectors available in Australia are now listed on the PBS. The devices have different administration techniques and patients should be trained how to correctly use the device that has been prescribed them.

Botulinum toxin assessment, intervention and after-care for lower limb spasticity in children with cerebral palsy: international consensus statement

Abstract
Botulinum neurotoxin type-A (BoNT-A) has been used in association with other interventions in the management of spasticity in children with cerebral palsy (CP) for almost two decades. This consensus statement is based on an extensive review of the literature by an invited international committee. The use of BoNT-A in the lower limbs of children with spasticity caused by CP is reported using the American Academy of Neurology Classification of Evidence for therapeutic intervention. Randomized clinical trials have been grouped into five areas of management, and the outcomes are presented as treatment recommendations. The assessment of children with CP and evaluation of outcomes following injection of BoNT-A are complex, and therefore, a range of measures and the involvement of a multidisciplinary team is recommended. The committee concludes that injection of BoNT-A in children with CP is generally safe although systemic adverse events may occur, especially in children with more physical limitations (GMFCS V). The recommended dose levels are intermediate between previous consensus statements. The committee further concludes that injection of BoNT-A is effective in the management of lower limb spasticity in children with CP, and when combined with physiotherapy and the use of orthoses, these interventions may improve gait and goal attainment.
PMID: 20633177

Improving epinephrine responses in hypoglycemia unawareness with real-time continuous glucose monitoring in adolescents with type 1 diabetes
Ly TT, Hewitt J, Davey RJ, Lim EM, Davis EA, Jones TW.
Diabetes Care. 2010 Oct 7 [Epub ahead of print]

Abstract
OBJECTIVE: To determine whether real-time continuous glucose monitoring (CGM), with preset alarms at specific glucose levels would prove a useful tool to achieve avoidance of hypoglycemia and improve the counterregulatory response to hypoglycemia in adolescents with type 1 diabetes with hypoglycemia unawareness.

METHODS: Adolescents with type 1 diabetes with hypoglycemia unawareness underwent hyperinsulinemic hypoglycemic clamp studies at baseline to determine their counterregulatory hormone responses to hypoglycemia. Subjects were then randomised to either standard therapy or real-time CGM for 4 weeks. The clamp study was then repeated.

RESULTS: The epinephrine response during hypoglycemia after the intervention was greater in the CGM group compared to standard therapy.

CONCLUSIONS: A greater epinephrine response during hypoglycemia suggests that real-time CGM is a useful clinical tool to improve hypoglycemia unawareness in adolescents with type 1 diabetes.
PMID: 20929999
Fevers and the rheumatologist

Manners PJ, Gutttinger R.

Abstract
Fevers in children are mainly due to infection, malignancy or inflammatory conditions. Rheumatologists have an important role in the care of inflammatory conditions, many of which are associated with fevers. Seven conditions, the hereditary recurrent fever syndromes, have been defined with the presenting symptom of recurring fever, and for which mutation of a single gene has been defined: Chronic infantile neurological articular syndrome (CINCA), Familial cold autoinflammatory syndrome (FACS), Familial Mediterranean fever (FMF), hyperimmunoglobulinemia D (HIDS), Muckle-Wells syndrome (MWS), Pyogenic sterile arthritis and Pyoderma gangrenosum (PAPA) and Tumour necrosis factor receptor-associated periodic syndrome (TRAPS). These conditions will be discussed in detail in regard to how they fit into the wider picture of pediatric rheumatological conditions, how the diagnoses may be established and the current recommended treatments for each condition.
PMID: 20953850

A national registry for juvenile dermatomyositis and other paediatric idiopathic inflammatory myopathies: 10 years’ experience; the Juvenile Dermatomyositis National (UK and Ireland) Cohort Biomarker Study and Repository for Idiopathic Inflammatory Myopathies

Rheumatology (Oxford). 2010 Sep 7 [Epub ahead of print]

Abstract
OBJECTIVES: The paediatric idiopathic inflammatory myopathies (IIMs) are a group of rare chronic inflammatory disorders of childhood, affecting muscle, skin and other organs. There is a severe lack of evidence base for current treatment protocols in juvenile myositis. The rarity of these conditions means that multicentre collaboration is vital to facilitate studies of pathogenesis, treatment and disease outcomes. We have established a national registry and repository for childhood IIM, which aims to improve knowledge, facilitate research and clinical trials, and ultimately to improve outcomes for these patients.
METHODS: A UK-wide network of centres and research group was established to contribute to the study. Standardized patient assessment, data collection forms and sample protocols were agreed. The Biobank includes collection of peripheral blood mononuclear cells, serum, genomic DNA and biopsy material. An independent steering committee was established to oversee the use of data/samples. Centre training was provided for patient assessment, data collection and entry.
RESULTS: Ten years after inception, the study has recruited 285 children, of which 258 have JDM or juvenile PM; 86% of the cases have contributed the biological samples. Serial sampling linked directly to the clinical database makes this a highly valuable resource. The study has been a platform for 20 sub-studies and attracted considerable funding support. Assessment of children with myositis in contributing centres has changed through participation in this study. Conclusions. This establishment of a multicentre registry and Biobank has facilitated research and contributed to progress in the management of a complex group of rare musculoskeletal conditions.
PMID: 20823094

Yanan Ngurra-ngu Walalja Halls Creek community families programme

Munns A.
Neonatal, Paediatric and Child Health Nursing. 2010 13(1):18-21

Abstract
Home-based parent support is an important strategy for assisting parents to develop their parenting confidence and capacity, across a range of physical and psychosocial environments. Social, biological, environmental and family influences during the early years have lifelong impacts on children. The introduction of an Indigenous, peer-led parent support programme in a remote, socially disadvantaged town in Western Australia has allowed the local community to develop culturally appropriate strategies to support
their own families. Their anecdotal evidence has demonstrated effective engagement with programme visitors with the families, using a partnership approach to promote behaviour and attitudinal changes to parenting.

Hydrocephalus in babies: a specific neonatal EEG pattern
Nagarajan L, Ghosh S, Palumbo L, Kohan R, Thonell S.
Child’s Nervous System. 2010 Nov 4 [Epub ahead of print]

PMID: 21052694

Neurodevelopmental outcomes in neonates with seizures: a numerical score of background electroencephalography to help prognosticate
Nagarajan L, Palumbo L, Ghosh S.

Abstract
There is a high incidence of mortality and neurodevelopmental sequelae in babies with neonatal seizures. The electroencephalography (EEG) background has been shown to be an excellent predictor of outcome by most studies, with a few suggesting limited value in prognostication. Previous studies suggest poor prognosis with severely abnormal backgrounds, but prediction was difficult with moderate abnormalities. The proposed numerical scoring system for the EEG background provides an objective method of evaluation with improved reproducibility, categorization, and prognostication. Our study showed that the numerical score of EEG background was a good predictor of outcome. Higher numerical scores reflecting greater abnormality of background EEG were associated with increasing incidence of mortality, neurodevelopmental impairment, cerebral palsy, vision and hearing impairment, and epilepsy. The numerical score also correlated with neuroimaging abnormalities. A numerical EEG score can help target interventional strategies for neonatal seizures.

PMID: 20223749

Urinary bladder auto augmentation using INTEGRA and SURGISIS: an experimental model
Parshotam KG, Barker A, Ahmed S, Jevon GP, Orford J.

Abstract
OBJECTIVE: We present our experience with an experimental urinary bladder auto augmentation model using SURGISIS and INTEGRA (collagen layer) in comparison with seromuscular enterocystoplasty. The aim of the study was to evaluate the change in compliance and elasticity of the urinary bladder. MATERIALS AND METHODS: Eighteen lambs were divided into three different groups. Auto augmentation was performed using the seromuscular layer of small bowel, SURGISIS or the collagen layer of INTEGRA. After 3 months of the initial procedure, the lambs were re-operated, the bladder compliance was measured and the urinary bladder was submitted for histological examination and assessment of elasticity. The lambs were euthanized. RESULTS: The postoperative period was uneventful in 17 lambs except for intestinal obstruction in one lamb from the seromuscular enterocystoplasty group. A statistically significant difference in compliance was observed with SURGISIS and the INTEGRA. Histologically, there was neovascularization in all the specimens from the SURGISIS and INTEGRA groups with the presence of fibrosis in the SURGISIS group. The INTEGRA group showed better elastic properties than the SURGISIS. CONCLUSIONS: Urinary bladder auto augmentation using the collagen layer of INTEGRA showed better functional and histological results when compared with SURGISIS and demucosalized enterocystoplasty in the present model.

PMID: 19885663
Editorial: Putting adolescent health at the heart of pediatrics
Payne D, Valentine J.
PMID: 20619418

Paternal experiences of their children’s diagnosis of Cystic Fibrosis following newborn screening diagnosis
Priddis L, Dunwoodie J, Balding E, Barrett A, Douglas T.
Neonatal, Paediatric and Child Health Nursing. 2010 13(2):4-10

Abstract
BACKGROUND: Fathers are a neglected group in parenting research, yet they have significant influence on family systems. This paper reports on the experiences of a group of fathers as they manage the impact on the family of the chronic medical challenge of Cystic Fibrosis (CF) in their child.
METHOD: Fifteen fathers of children diagnosed with CF under the newborn screening (NBS) procedures in Western Australia (WA) participated in semi-structured interviews. The transcribed interviews were analysed for common themes using qualitative content analysis, following established procedures for process and rigour.
RESULTS: Receipt of a diagnosis of CF for a child altered relationships within the family system. Fathers in this study mostly used internalised and pragmatic coping strategies to assist them to manage anxiety and to come to terms with their child’s diagnosis. These strategies allowed these fathers to shift their focus from the crisis of diagnosis to the functioning of their family.
CONCLUSION: Fathers play an important protective role in families, often so well that their own needs for support are overlooked. Clinical implications are discussed

Avoidance or exposure to foods in prevention and treatment of food allergy?
Prescott SL, Bouygue GR, Videky D, Fiocchi A.
Current Opinion in Allergy and Clinical Immunology. 2010 Jun;10(3):258-66

Abstract
PURPOSE OF REVIEW: To caution against premature proposals advocating change before epidemiological and clinical evidence warrants such a paradigm shift.
RECENT FINDINGS: Until 2007, all allergy societies advocated allergen avoidance for prevention and therapy in food allergy. Since then, new evidence has prompted careful re-evaluation of the literature. In primary prevention, delayed introduction of allergenic foods to prevent food allergy was removed from most recommendations. However, there is currently no evidence that allergenic foods ought to be introduced earlier than is recommended for complementary foods, at 4-6 months of age. Here we uphold the view against an emerging school of thought that early and deliberate exposure to allergenic foods may prevent or delay the onset food allergy. While notions of promoting early oral tolerance may have some merit in theory, in practice research remains inconclusive. Of recent development are treatment advances as regards established food allergy, using food allergens to induce tolerance in highly selected populations of allergic children. However, the investigators themselves strongly warn of significant risks and stress the need to optimize safety and understand longer-term implications before these trials can be applied to routine clinical practice. In this paper we endorse the current recommendation that children with confirmed food allergy should avoid foods implicated in immediate reactions.
SUMMARY: It is currently inappropriate and potentially dangerous to advocate deliberate exposure to foods involved in serious reactions against current recommendations and particularly so among food allergic children until more basic and clinical research become available.
PMID: 20431373
Allergic disease: understanding how in utero events set the scene
Prescott SL.

Abstract
Events and exposures in pregnancy can have critical effects on fetal development with lasting implications for subsequent health and disease susceptibility. There is growing interest in how modern environmental changes influence fetal immune development and contribute to the recent epidemic of allergy and other immune disorders. Rising rates of allergic disease in early infancy, together with pre-symptomatic differences in immune function at birth, suggest that antenatal events play a predisposing role in the development of disease. A number of environmental exposures in pregnancy can modify neonatal immune function including diet, microbial exposure and maternal smoking, and there is emerging evidence from animal models that these factors may have epigenetic effects on immune gene expression and disease susceptibility. Furthermore, functional genetic polymorphisms also alter individual vulnerability to the effects of these environmental exposures, highlighting the complexity of gene-environmental interactions in this period. All these observations underscore the need for ongoing research to understand the pathogenesis and rising incidence of disease in the hope of better strategies to reverse this.
PMID: 20587128

Characterization of the sheep Complement Factor B gene (CFB)
Qin J, Munyard K, Lee CY, Wetherall JD, Groth DM.
Veterinary Immunology and Immunopathology. 2010 Nov 19. [Epub ahead of print]

Abstract
The Complement Factor B gene (CFB) of the alternative complement pathway has been identified in the sheep Major Histocompatibility Complex (MHC) and its genomic sequence determined. CFB is located approximately 600bp upstream of the complement C2 gene, contains 18 exons, and manifests the domain signature characteristic of CFB protein. Thirteen single nucleotide polymorphisms were identified in merino sheep and interbreed variation was identified by comparison with International Sheep Genomics Consortium data. Two predicted non synonymous substitutions were observed and in-silico analysis indicates that these are likely to have a destabilising effect on the protein structure. Sheep and cattle CFB were compared and shown to contain a common nine nucleotide deletion in exon 18 relative to human CFB. Predicted CFB amino acid sequences for these two species contain 761 aa relative to 764 aa in the human orthologue. Sequencing of the cosmids and BAC clones used in this study permitted the relative positions of three adjacent loci to be determined and showed that the previously described microsatellite locus (BfMs) is located within SKIV2L.
PMID: 21163535

Current and future therapeutic options for persistent pulmonary hypertension in the newborn
Rao S, Bartle D, Patole S.

Abstract
Persistent pulmonary hypertension of the newborn (PPHN) is a potentially life-threatening condition that is characterized by supra-systemic pulmonary vascular resistance causing right-to-left shunting through the ductus arteriosus and/or foramen ovale, leading to a vicious cycle of hypoxemia, acidosis and further pulmonary vasoconstriction. Advances in neonatology including surfactant instillation, high-frequency ventilation, extracorporeal membrane oxygenation and, most importantly, inhaled nitric oxide (INO), have revolutionized the management of PPHN. However, given that INO does not improve oxygenation in a significant proportion (30-40%) of cases, there is an urgent need to consider other therapeutic options for PPHN. The issue is more important for developing nations with a higher PPHN-related health burden and limited resources. This article discusses the evidence about INO in term and preterm neonates in brief, and focuses mainly on the potential alternative drugs in the management of PPHN.
PMID: 20528642
One dose per day compared to multiple doses per day of gentamicin for treatment of suspected or proven sepsis in neonates

Cochrane Database of Systematic Reviews 2006, Issue 1. Art. No.: CD005091

Abstract
BACKGROUND: Animal studies and trials in older children and adults suggest that a one dose per day regimen of gentamicin is superior to a multiple doses per day regimen.
OBJECTIVES: To compare the efficacy and safety of one dose per day compared to multiple doses per day of gentamicin in suspected or proven sepsis in neonates.
Search strategy
Eligible studies were identified by searching MEDLINE (February 2010), EMBASE 1980 to 2009, Cochrane Central Register of Controlled Trials (CENTRAL, The Cochrane Library, Issue 1, 2010) and CINAHL (December 1982 to October 2009). Abstracts of the Society for Pediatric Research were searched from 1980 to 2009 inclusive.
SELECTION CRITERIA: All randomised or quasi randomised controlled trials comparing one dose per day ( 'once a day') compared to multiple doses per day ( 'multiple doses a day') of gentamicin to newborn infants < 28 days of life.
DATA COLLECTION: Data collection and analysis was performed according to the standards of the Cochrane Neonatal Review Group.
MAIN RESULTS: Eighteen studies were excluded and eleven studies (N = 574) included.
All infants in both 'once a day' as well as 'multiple doses a day' regimen showed adequate clearance of sepsis [typical RD 0.00 (95% CI - 0.19, 0.19); 3 trials; N = 36]. For the other primary outcome measures relating to gentamicin pharmacokinetics 'once a day' dosing of gentamicin was superior. 'Once a day' gentamicin regimen was associated with less failures to attain peak level of at least 5 μg/ml [Typical RR 0.22 (95% CI 0.11, 0.47); 9 trials; N = 422] and less failures to achieve trough levels of < 2 μg/ml [Typical RR 0.38 (95% CI 0.27, 0.55); 11 trials N = 503] compared to 'multiple doses a day' regimen.
Ototoxicity and nephrotoxicity were not noted with either of the treatment regimens.
AUTHORS’ CONCLUSION: There is insufficient evidence from the currently available RCTs to conclude whether 'once a day' or 'multiple doses a day' regimen of gentamicin is superior in treating proven neonatal sepsis. However data suggests that pharmacokinetic properties of 'once a day' gentamicin regimen are superior to 'multiple doses a day' regimen in that it achieves higher peak levels while avoiding toxic trough levels. There is no change in nephrotoxicity or auditory toxicity. Based on this assessment of pharmacokinetics, 'once a day regimen' may be superior in treating neonatal sepsis in neonates greater than 32 weeks gestation.

Impact of introducing binasal continuous positive airway pressure for acute respiratory distress in newborns during retrieval: Experience from Western Australia

Resnick S, Sokol J.

Abstract
AIM: We aimed to review the impact of introducing binasal continuous positive airway pressure (CPAP) for acute respiratory distress in newborns ≥32 weeks gestation during retrieval in Western Australia.
METHODS: Retrospective review of newborns ≥32 weeks gestation with acute respiratory distress, transported by the Western Australian Neonatal Transport Service between February 2002 and December 2004.
RESULTS: Respiratory management of 369 newborns was examined. CPAP use increased significantly during the study period from 33% in 2002 to 59% in 2004. Overall, endotracheal tube (ETT) ventilation was required in 108 (29%), nasal CPAP in 166 (45%) and cot oxygen in 95 (26%) patients. Twenty-two (13%) newborns in the CPAP group subsequently required ETT ventilation within 24 h: these babies had higher initial oxygen requirements than those successfully transported on CPAP alone. There was no significant morbidity or mortality in patients retrieved on CPAP.
CONCLUSION: CPAP was increasingly utilised as an alternative to ETT ventilation for the management of most cases of less severe acute respiratory distress in near-term neonates on retrieval. This review demonstrated that newborns requiring more than 45-50% oxygen at the time of retrieval were more likely to require intubation at a later time, and hence may benefit from intubation at the time of retrieval. A prospective randomised trial would assist in ascertaining the true benefit of CPAP during retrieval in the newborn period.
PMID: 20825610
Type 1 diabetes in children - emergency management
Siafarikas A, O'Connell S.
Australian Family Physician. 2010 May;39(5):290-3

Abstract
BACKGROUND: Fifteen to sixty-seven percent of patients with new onset type 1 diabetes mellitus (T1DM) present in diabetic ketoacidosis (DKA), of which approximately 79% initially see their general practitioner. Diabetic ketoacidosis is the most common cause of diabetes related deaths, mainly due to cerebral oedema that occurs in 0.4-3.1% of patients.
OBJECTIVE: The aim of this review is to provide information to improve the early recognition of DKA and to provide guidelines for the initial management of DKA in the nonspecialist setting.
DISCUSSION: Recognition of DKA can be improved by increasing the awareness for early clinical symptoms such as polyuria and polydipsia. It is important to include urinalysis and ‘fingerprick’ blood glucose and ketone measurements in the early assessment of patients with suspected T1DM and known T1DM, particularly if risk factors for DKA are present, to minimise serious complications and prevent fatal outcomes. Urgent referral to specialist centres for suspected new onset T1DM/DKA is required. Specific steps should be followed to ensure successful initial management of DKA in the nonspecialist setting before transfer.
PMID: 20485715

Aerosol inhalation from spacers and valved holding chambers requires few tidal breaths for children

Abstract
OBJECTIVE: The goal was to determine the number of breaths required to inhale salbutamol from different spacers/valved holding chambers (VHCs).
METHODS: Breathing patterns were recorded for 2- to 7-year-old children inhaling placebo from 4 different spacers/VHCs and were simulated by a flow generator. Drug delivery with different numbers of tidal breaths and with a single maximal breath was compared.
RESULTS: With tidal breathing, mean inhalation volumes were large, ranging from 384 mL to 445 mL. Mean values for drug delivery with an Aerocamber Plus (Trudell, London, Canada) were 40% (95% confidence interval [CI]: 34%-46%) and 41% (95% CI: 36%-47%) of the total dose with 2 and 9 tidal breaths, respectively. Mean drug delivery values with these breath numbers with a Funhaler (Visionmed, Perth, Australia) were 39% (95% CI: 34%-43%) and 38% (95% CI: 35%-42%), respectively. With a Volumatic (GlaxoSmithKline, Melbourne, Australia), mean drug delivery values with 2 and 9 tidal breaths were 37% (95% CI: 33%-41%) and 43% (95% CI: 40%-46%), respectively (P = .02); there was no significant difference in drug delivery with 3 versus 9 tidal breaths. With the modified soft drink bottle, drug delivery. Drug delivery was not improved with a single maximal breath with any device.
CONCLUSION: For young children, tidal breaths through a spacer/VHC were much larger than expected. Two tidal breaths were adequate for small-volume VHCs and a 500-mL modified soft drink bottle, and 3 tidal breaths were adequate for the larger Volumatic VHC.
PMID: 21078734

The transient value of classifying preschool wheeze into episodic viral wheeze and multiple trigger wheeze
Schultz A, Devadason SG, Savenije OE, Sly PD, Le Souëf PN, Brand PL.
Acta Paediatrica. 2010 99(1):56-60

Abstract
BACKGROUND: A recently proposed method for classifying preschool wheeze is to describe it as either episodic (viral) wheeze or multiple trigger wheeze. In research studies, phenotype is generally determined by retrospective questionnaire.
AIM: To determine whether recently proposed phenotypes of preschool wheeze are stable over time.
METHODS: In all, 132 two to six-year-old children with doctor diagnosed asthma on maintenance inhaled corticosteroids were classified as having episodic (viral) wheeze or multiple trigger wheeze at a screening visit and then followed up at three-monthly intervals for a year. At each follow-up visit, standardized
questionnaires were used to determine whether the subjects wheezed only with, or also in the absence of colds. Stability of the phenotypes was assessed at the end of the study.

RESULTS: Phenotype as determined by retrospective parental report at the start of the study was not predictive of phenotype during the study year. Phenotypic classification remained the same in 45.9% of children and altered in 54.1% of children.

CONCLUSION: When children with preschool wheeze are classified into episodic (viral) wheeze or multiple trigger wheeze based on retrospective questionnaire, the classification is likely to change significantly within a 1-year period.

PMID: 19764920

Validation of methodology for recording breathing and simulating drug delivery through spacers and valved holding chambers

Abstract
BACKGROUND: Output from spacers (or valved holding chambers) is sensitive to changes in breathing pattern. Different spacers have unique characteristics that may influence breathing. A method used for breathing simulation, where the simulated breathing can be recorded on subjects while they are using spacers, may allow for more accurate in vitro estimation of drug delivery in specific populations, using specific spacers.

METHODS: A flow chamber was used to record breathing while salbutamol was administered to two adult subjects through different spacers. Each subject performed a series of breathing patterns over a range of different inhalation volumes and flows. Salbutamol “inhaled” by subjects was captured on inspiratory filters and quantified by ultraviolet spectrophotometry. Recorded breathing patterns were simulated and ex vivo drug delivery was compared to in vitro drug delivery. Three equipment configurations were used to validate different aspects of the methodology.

Configuration 1: breathing recorded by pneumotachometer placed directly between a human subject and the spacer. Breathing simulation performed with an identical setup.

Configuration 2: spacer enclosed within a flow-chamber while breathing was recorded. Breathing simulation performed with an identical setup.

Configuration 3: spacer enclosed in flow chamber to record breathing, but not when simulating breathing. In each configuration, the ex vivo and in vitro (simulated) filter doses were compared.

RESULTS: Configuration 1: the median difference between ex vivo and in vitro filter doses was 0.4% (range: -12.2 to 6.9%). Configuration 2: the median difference was -2.3% (range: -9.0 to 5.0%). Configuration 3: the median difference was 1.7% (range: -11.5 to 3.9%).

CONCLUSION: Our results indicate that in vitro simulated drug delivery using this method of recording using a flow chamber, closely approximates ex vivo total drug delivery. This technique allows for recording of breathing on patients while they are using spacers, with minimum increase in dead space or resistance, and no physical alteration in the patient-device interface.

PMID: 20455768

The role of GSTP1 polymorphisms and tobacco smoke exposure in children with acute asthma
Schultz EN, Devadason SG, Khoo SK, Zhang G, Bizzintino JA, Martin AC, Goldblatt J, Laing IA, Le Souèf PN, Hayden CM.

Abstract
BACKGROUND: The glutathione S-transferase enzymes (GSTs) play an important role in the detoxification of environmental tobacco smoke (ETS), which contributes to airway inflammation, a key component of asthma. Genetic variation in GST genes may influence individuals’ ability to detoxify environmental pollutants.

OBJECTIVE: To examine the role of polymorphisms in GSTP1 (Ile105Val and Ala114Val), alone and in combination with ETS exposure, on atopy and asthma severity.

METHODS: GSTP1 Ile105Val and Ala114Val were genotyped and ETS exposure was assessed by parental questionnaire, which was validated by urinary cotinine measurements. Associations between ETS exposure, GSTP1 polymorphisms, and their interaction on atopy and asthma severity were investigated.

RESULTS: For the functional GSTP1 105 SNP, those with the Ile/Ile genotype had odds for atopy of 2.77 (p=0.054) when assessed by genotype alone, which increased to 9.02 (p=0.050) when ETS was included,
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relative to individuals with other genotypes. Likewise, compared to children with other GSTP1 114 genotypes, those with Ala/Ala genotype had a 5.47-fold (p=0.002) increased risk of atopy (p=0.020) when assessed by genotype alone, increasing to 9.17-fold when ETS was included. The 105 Ile/Ile individuals all had the AA (105 Ile/Ile and 114 Ala/Ala) haplotype group; therefore, the odds for atopy were the same. Individuals without any *C haplotype (105 Val and 114 Val allele) who were exposed to ETS had a 9.17-fold increased risk of atopy when compared with individuals with at least one *C haplotype and not exposed to ETS (p=0.020).

CONCLUSION: There were significant interactions between GSTP1 SNPs, atopy, and ETS exposure in this cohort.
PMID: 20858151

A research opportunity: “3D-ROSE”: virtual reality preparation for children having radiotherapy or imaging procedures
Shields L, Langton C.
Neonatal, Paediatric and Child Health Nursing. 2010 13(1):3-4

Breastfeeding and obesity at 21 years: a cohort study
Shields L, Mamun AA, O’Callaghan M, Williams GM, Najman JN.
Journal of Clinical Nursing. 2010 19 (11-12):1612-1617

Abstract
AIMS: To determine the influence of breastfeeding on overweight and obesity, as determined by body mass index in early adulthood. Background. Obesity is a contemporary epidemic and linked to increased risk of later cardiovascular disease and type 2 diabetes. The success of long-term treatment is modest. Protective factors, such as potentially, and breastfeeding, are few and very important. There are uncertainties as to whether breastfeeding has a protective effect, especially in adults, or whether it is a reflection of other markers of obesity that are more linked to cardiovascular disease and diabetes risk. Some studies suggest that breastfeeding is protective in later life for cardiovascular disease and atherosclerosis. Design. Epidemiological analysis of longitudinal data set.
METHODS: We collected data about breastfeeding duration, body mass index of children at 21 years and confounding variables from an ongoing longitudinal study of a singleton birth cohort of 7223 children in Brisbane. We assessed the duration of breastfeeding at six months and prevalence of overweight and obesity at 21 years by body mass index. Adjustment for potential confounders was by multivariable multinomial logistic regression. Results. Data were available for 2553 young adults. In neither the unadjusted or adjusted analysis was longer duration of breastfeeding associated with reduction in obesity at 21 years.
CONCLUSIONS: Findings of this investigation are consistent with breastfeeding not independently affecting body mass index in young adults.

RELEVANCE TO CLINICAL PRACTICE: Breastfeeding has a range of important benefits for infants, mothers and families, although duration of breastfeeding may not play a substantial role in preventing adult onset obesity.

Dame Maud McCarthy: Australia’s most distinguished nursing export?
Shields L, Shields R.

Abstract
Dame Maud McCarthy was born in Sydney and became one of the most influential and important nurses of the early 20th century, yet she is largely unknown in Australia. Made a Lady [Dame] of Grace of St John in 1919, and Dame Grand Cross of the Order of the British Empire in 1918, she is important enough to have her portrait hung in the National Portrait Gallery in London. In this paper, we describe Dame Maud’s early life and her work during the First World War.
Editorial: A new government in the UK: possible ramifications for children’s nursing
Shields L, Watson R, Thompson DR.

Editorial: Family-centred care - points to ponder
Shields L.

Questioning family-centred care
Shields L.

Abstract
AIMS: This article poses topics for discussion around family-centred care as a model of care delivery to children and families in health services.
Background: Family-centred care developed over three decades following awakening awareness that excluding parents during a child’s hospital admission was detrimental to the child’s mental health. Using resources from both past and current literature and existing research, I argue that it is time for a revision of practices and policies that espouse family-centred care as the optimum model of care in paediatrics. Once the historical development of family-centred care is discussed, current research shows a dearth of evidence about family-centred care, its use, implementation and applicability across cultures and nations.
METHODS: Five questions are discussed: is family-centred care relevant now? is it relevant only in Western countries?, what does it mean to implement family-centred care?, is family-centred care implemented effectively?, does it make a difference? Exemplars of good family-centred care practice are provided.
RESULTS: At this stage, it is difficult to know whether using family-centred care makes a difference to a child’s and family’s health outcomes, as there is no rigorous evidence to answer the question ‘does it work?’
CONCLUSIONS: Nurses must undertake studies so we can either support the successful implementation of family-centred care, or abandon it in the best interests of children, families and health services.
RELEVANCE TO CLINICAL PRACTICE: Practitioners must be aware that family-centred care is a wonderful ideal that is almost impossible to implement and so new ways of delivering care to children may be needed.

Parents as partners in patient care
Shields L.
Dignan-Stephens Oration 2010

Costs of meals and parking for parents of hospitalised children in an Australian paediatric hospital
Siffleet J, Munns A, Shields L.
Neonatal, Paediatric and Child Health Nursing. 2010 13(3):2-6

Abstract
Costs to parents of hospitalised children have been extensively explored, from financial costs to psychological, social and emotional costs. No matter what perspective is taken an admission to hospital of a child means added cost to any family’s budget. For those whose income is dependent on a low wage, or welfare, costs of such an event take up a larger proportion of an income than for families from well-to-do backgrounds. In this paper, we explore the potential impact on a family budget of costs of parking and meals incurred during a child’s admission to hospital.
To determine costs, a survey was conducted at food outlets to examine types and availability of meals, opening times, proximity to wards and the cost of average types of meals on offer at different facilities. Costs of parking were determined.
We took income figures for a family from the website of the Australian Bureau of Statistics (ABS). An estimate of the costs of food and parking to support one parent to remain with the child was at least 30% of
the average weekly family disposable income. For one-parent families, their income is significantly proportionally depleted by covering costs of food and parking for an accompanying parent. We recommend that parents be provided with meals whilst staying with their hospitalised child; that provision be made to allow families to eat together and that free parking be made available to all parents.

A treatment planning classification for oligodontia
Singer SL, Henry PJ, Lander ID.

Abstract
PURPOSE: The aim of this research was to provide a classification for patients with oligodontia that could act as an aid in treatment planning. MATERIALS AND METHODS: Panoramic radiograph records of 70 patients with oligodontia were used to categorize the extent of the disability and treatment modality. Patients were classified into types 1 through 3 depending on the number of missing primary and permanent teeth, as well as in relation to their prosthodontic requirements. The radiographs were then assessed independently on two separate occasions by three experienced clinicians to validate the classification.
RESULTS: There was a high level of intrarater consistency in allocating patients into the three different types with a Kappa (k) score of 0.77 for clinician 1, 0.87 for clinician 2, and 0.94 for clinician 3. There was also a strong interrater agreement (overall k score: 0.88). A k score greater then 0.6 is regarded as being good and greater than 0.8 as being very good.
CONCLUSIONS: Oligodontia is a heterogeneous condition. Patients with oligodontia can be classified as having three different types according to the extent of their disability and the complexity of their prosthodontic requirements. This classification is a reliable diagnostic tool based on the positive outcome of the inter and intrarater consistency.
PMID: 20305845

TLR2 mediates recognition of live Staphylococcus epidermidis and clearance of bacteremia

Abstract
BACKGROUND: Staphylococcus epidermidis (SE) is a nosocomial pathogen that causes catheter-associated bacteremia in the immunocompromised, including those at the extremes of age, motivating study of host clearance mechanisms. SE-derived soluble components engage TLR2; but additional signaling pathways have also been implicated, and TLR2 can play complex, at times detrimental, roles in host defense against other Staphylococcal spp. The role of TLR2 in responses of primary blood leukocytes to live SE and in clearance of SE bacteremia, the most common clinical manifestation of SE infection, is unknown.
METHODOLOGY/PRINCIPAL FINDINGS: We studied TLR2-mediated recognition of live clinical SE strain 1457 employing TLR2-transfected cells, neutralizing anti-TLR antibodies and TLR2-deficient mice. TLR2 mediated SE-induced cytokine production in human embryonic kidney cells, human whole blood and murine primary macrophages, in part via recognition of a soluble TLR2 agonist. After i.v. challenge with SE, early (1 h) cytokine/chemokine production and subsequent clearance of bacteremia (24-48 h) were markedly impaired in TLR2-deficient mice.
CONCLUSIONS/SIGNIFICANCE: TLR2 mediates recognition of live SE and clearance of SE bacteremia in vivo.
PMID: 20404927

Fatness, fitness, and increased cardiovascular risk in young children
Suriano K, Curran J, Byrne SM, Jones TW, Davis EA.

Abstract
OBJECTIVES: To investigate the relationships between cardiopulmonary fitness and adiposity among young children, and their influence on a comprehensive cardiovascular risk profile.
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STUDY DESIGN: The sample included 95 healthy weight, 54 overweight, and 31 obese children (n=180, 10.9+/-.21 years). All children had a medical assessment that included a physical examination and fasting investigations including glycated hemoglobin, total cholesterol, high-density lipoprotein, low-density lipoprotein, triglycerides, insulin and glucose levels. Body mass index and waist circumference z-scores were calculated. Children's fitness level was measured with the Queens College step test.

RESULTS: Although low fitness was independently associated with cardiovascular risk, multi-level analysis demonstrated that waist circumference z-score was the only significant predictor of cardiovascular risk factors including SBP (beta=3.29, P<.001), DBP (beta=1.88, P<.005), high-density lipoprotein (beta=-0.12, P<.001), and triglyceride levels (beta=-0.14, p<.001), fasting insulin (beta=2.83, P<.001), C-peptide (beta=0.11, P<.001), and HOMA-IR (beta=0.34, P<.001), with increasing waist circumference z-score associated with increasing cardiovascular risk. Within the healthy weight children, high fitness was associated with significantly reduced triglyceride levels, and lower fasting glucose, insulin and HOMA-IR.

CONCLUSIONS: Young children’s health may be influenced more by body fatness, and in particular, the distribution of body fat than by cardiorespiratory fitness. However, within the healthy weight children, high fitness was associated with a favorable metabolic profile, suggesting that cardiorespiratory fitness may exert a protective effect on metabolic risk in children whose risk is not confounded by fatness.

PMID: 20542285

Outcomes of preterm neonates with frontal horn cysts: a retrospective study
Journal of Child Neurology. 2010 May 6 [Epub ahead of print]

Abstract
Isolated paraventricular frontal horn cysts are sometimes encountered on cranial ultrasound examinations of preterm neonates. The etiology and clinical significance of these lesions are unclear. The authors aimed to identify antenatal/intrapartum risk factors associated with the occurrence of these cysts and to assess developmental outcomes of preterm neonates with isolated frontal horn cysts. A retrospective cohort study with matched control design was used. A total of 28 cases were matched for gestation with 56 controls. No antenatal/intrapartum factors were associated with these cysts. At corrected age of 1 year, there was no difference in the mean general quotient between cases and controls (97.75 +/- 17.28 vs 94.94 +/- 9.86; P = .410). In all, 1 case and no controls had a diagnosis of cerebral palsy and 1 case and 3 controls had general quotients less than 80. The authors conclude that isolated paraventricular frontal horn cysts are benign, with no effect on neurodevelopment.

PMID: 20448250

Differences in innate immune function between allergic and nonallergic children: New insights into immune ontogeny
Journal of Allergy & Clinical Immunology. 2010 Nov 17. [Epub ahead of print]

Abstract
BACKGROUND: Microbial products are of central interest in the modulation of allergic propensity.
OBJECTIVE: We sought to explore whether allergic children show differences in microbial Toll-like receptor (TLR)-mediated responses over their first 5 years of life.
METHODS: Mononuclear cells isolated from 35 allergic and 35 nonallergic children at birth and 1, 2, 5, and 5 years of age were stimulated with TLR2-TLR9 ligands to study innate immune function and with allergens or mitogens to assess adaptive T-cell responses. Cytokine production was measured by using Luminex multiplexing technology.
RESULTS: Nonallergic children show progressive and significant age-related increases in innate cytokine responses (IL-18, IL-6, TNF-α, and IL-10) to virtually all TLR ligands. This innate maturation corresponds with a parallel increase in adaptive T(H)1 (IFN-γ) responses to allergens and mitogens. In contrast, allergic children show exaggerated innate responses at birth (P < .01) but a relative decrease with age thereafter, so that by age 5 years, TLR responses are attenuated compared with those seen in nonallergic subjects (P < .05). This early hyperresponsiveness in allergic subjects fails to translate to a corresponding maturation of
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T(H)1 function, which remains attenuated relative to that seen in nonallergic subjects but is associated with a characteristic age-dependent increase in allergen-specific T(H)2 responses (P < .01).

CONCLUSION: Our findings suggest significant differences in the developmental trajectory of innate immune function in children with allergic disease that might contribute to the recognized differences in postnatal adaptive T-cell immunity.

PMID: 21093030

Do organizational quality improvement strategies improve pain management?

Twycross A, Dowden SJ.
Pediatric Pain Letter 2010 12:7-10
http://childpain.org/ppl/issues/v12n1_2010/v12n1_twycross.shtml

Incidence of sore throat in children following use of flexible laryngeal mask airways - impact of an introducer device

William A, Chambers NA, Erb TO, von Ungern-Sternberg BS.
Paediatric Anaesthesia 2010 Sep;20(9):839-43

Abstract
BACKGROUND: Insertion of a flexible laryngeal mask airway (FLMA) is more difficult and therefore might result in a higher risk for trauma to the upper airway. To facilitate the insertion of FLMA, the use of an introducer device (Portex Limited, Hythe, Kent, UK) was promoted. However, the impact of the use of this device on the occurrence of postoperative sore throat is unknown.

METHODS: Four hundred children (3-21 years) undergoing elective ambulatory surgery were consecutively included in this study. In 196 cases, the FLMA was inserted using an introducer device. The FLMA cuff was then inflated and the pressure adjusted to below 60 cmH(2)O (according to manufacturers guidelines) using a calibrated cuff manometer (Portex Limited). Three types of FLMA were available: FLMA classic, FLMA unique (both FLMA PacMed, Richmond, Victoria, Australia) and FLMA ProBreathe (Well Lead Medical Co Ltd., Hualong, Guanzhou, China). Prior to discharge, patients' pain was assessed using an age appropriate scale.

RESULTS: Thirteen children (3.3%) developed sore throat, two (0.5%) sore neck and three (0.75%) sore jaw. Of those that developed sore throat, seven had a FLMA inserted with an introducer, six without an introducer. Using a laryngeal mask airways (LMA) with a polyvinyl chloride (PVC), surface was associated with a higher risk for sore throat compared with an LMA with a silicone surface (P = 0.0002).

CONCLUSION: In this study with controlled low cuff pressures, the incidence of sore throat was low. The use of an introducer device did not affect the rate of sore throat.

PMID: 20716076

Research priorities for nursing care of infants, children and adolescents: a West Australian Delphi study

Wilson S, Ramelet AS, Zuiderduyn S.

Abstract
AIMS AND OBJECTIVES: This paper describes a study that aimed to identify research priorities for the care of infants, children and adolescents at the sole tertiary referral hospital for children in Western Australia. The secondary aim was to stimulate nurses to explore clinical problems that would require further inquiry.

BACKGROUND: Planning for research is an essential stage of research development; involving clinicians in this exercise is likely to foster research partnerships that are pertinent to clinical practice. Nursing research priorities for the paediatric population have not previously been reported in Australia.

DESIGN: Delphi study.

METHOD: Over 12 months in 2005-2006, a three-round questionnaire, using the Delphi technique, was sent to a randomly selected sample of registered nurses. This method was used to identify and prioritise nursing research topics relevant to the patient and the family. Content analysis was used to analyse Round I data and descriptive statistics for Round II and III data.

RESULTS: In Round I, 280 statements were identified and reduced to 37 research priorities. Analysis of data in subsequent rounds identified the top two priority research areas as (1) identification of strategies to reduce
medication incidents (Mean=6.47; SD 0.88) and (2) improvement in pain assessment and management (Mean=6; SD 1.38). Additional comments indicated few nurses access the scientific literature or use research findings because of a lack of time or electronic access.

CONCLUSIONS: Thirty-seven research priorities were identified. The identification of research priorities by nurses provided research direction for the health service and potentially other similar health institutions for children and adolescents in Australia and internationally.

RELEVANCE TO CLINICAL PRACTICE: The nurse participants showed concern about the safety of care and the well-being of children and their families. This study also enabled the identification of potential collaborative research and development of pain management improvement initiatives.

PMID: 20920018

Idiopathic sclerosing mesenteritis in paediatrics: Report of a successfully treated case and a review of literature
Viswanathan V, Murray KJ.
Pediatric Rheumatology Online Journal. 2010 Jan 21;8:5

Abstract
A 6 year old female with symptoms of small bowel obstruction underwent an exploratory laparotomy which revealed widespread evidence of inflammatory fibrotic adhesions involving the jejunal mesentery. In view of persistent growth failure, chronic anaemia, elevated acute phase reactants and imaging evidence of a diffuse progressive inflammatory process, the child was treated with corticosteroids and methotrexate with complete response. The literature on juvenile idiopathic sclerosing mesenteritis has been reviewed.

PMID: 20205836

Changes in lung volume during spells in children with Tetralogy of Fallot under general anesthesia
von Ungern-Sternberg BS, Habre W.
Pediatric Critical Care Medicine 2010 May 20 [Epub ahead of print]

Abstract
OBJECTIVE: To describe the changes in end-expiratory lung volume and ventilation inhomogeneities during spells in three children with Tetralogy of Fallot.

DESIGN: After approval of the institutional Ethics Committee was obtained, children were included in a study protocol that included the assessment of end-expiratory lung volume and ventilation inhomogeneity, using a sulfur hexafluoride multibreath washout technique at different times before and during the surgical repair of congenital heart disease. Additional parental consent was sought to publish this subseries.

SETTING: Operation theatre in a tertiary-care university hospital.

PATIENTS: We report the changes in end-expiratory lung volume and ventilation inhomogeneity in three children undergoing Tetralogy of Fallot repair who spelled before surgical incision. While starting the immediate treatment with phenylephrine and increasing Fio2 to 1.0, we were able to measure respiratory function. During the spell, end-expiratory lung volume decreased and ventilation inhomogeneities increased significantly and only recovered slowly even after return of SaO2 to prespell values.

CONCLUSIONS: These data show the deleterious effect of a spell on respiratory function, which may worsen hypoxemia. The loss in lung volume can have a deleterious additive effect in the presence of a spell, particularly because of the slow improvement after treatment.

PMID: 20495507

Fibreoptic assessment of paediatric sized laryngeal mask airways
von Ungern-Sternberg BS, Wallace CJ, Sticks S, Erb TO, Chambers NA.
Anaesthesia and Intensive Care. 2010 38(1):50-4

Abstract
Laryngeal mask airways (LMA) are commonly used in paediatric anaesthesia. A well-placed LMA should provide a direct view of the vocal cords facilitating bronchoscopy or fibreoptic intubation. The aim of this audit was to assess the bronchoscopic view of the glottis obtained through an LMA with regard to its size. We
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prospectively assessed the position of LMAs in relation to the glottic aperture in 350 children (zero to seven years) undergoing elective fibroptic examination of the upper and/or lower airways. Following induction of anaesthesia and positioning of the LMA, a fibroptic evaluation of the view of the glottis was performed (complete, partial or no visualisation). Chest movement on manual ventilation was judged as good in the majority of patients and adequate for the remainder. No overt signs of airway obstruction were noted in any patient. However, a complete view of the glottic aperture was present in only 50% of size 1 LMAs, 57.5% of size 1.5, 72.7% of size 2 and 77.8% of size 2.5. The epiglottis impinged on the LMA opening, partially obstructing the view of the glottis in 36.3% of size 1 LMAs, 31.5% of size 1.5, 21% of size 2 and 17.8% of size 2.5. In 13.7% of size 1 LMAs, 11% of size 1.5, 6.3% of size 2 and 4.4% of size 2.5, the epiglottis was completely downfolded, obstructing the view of the glottic aperture. The findings indicate that even if ventilation is judged as adequate, smaller paediatric LMAs are more commonly associated with suboptimal anatomical positioning with partial obstruction of the glottic aperture than larger LMAs, and therefore may require repositioning more often.

PMID: 20191777

Risk assessment for respiratory complications in paediatric anaesthesia: a prospective cohort study
von Ungern-Sternberg BS, Boda K, Chambers NA, Rebmann C, Johnson C, Sly PD, Habre W.
Lancet. 2010 Sep 4;376(9743):773-83

Comment in: Lancet. 2010 Sep 4;376(9743):745-6

Abstract
BACKGROUND: Perioperative respiratory adverse events in children are one of the major causes of morbidity and mortality during paediatric anaesthesia. We aimed to identify associations between family history, anaesthesia management, and occurrence of perioperative respiratory adverse events.

METHODS: We prospectively included all children who had general anaesthesia for surgical or medical interventions, elective or urgent procedures at Princess Margaret Hospital for Children, Perth, Australia, from Feb 1, 2007, to Jan 31, 2008. On the day of surgery, anaesthetists in charge of paediatric patients completed an adapted version of the International Study Group for Asthma and Allergies in Childhood questionnaire. We collected data on family medical history of asthma, atopy, allergy, upper respiratory tract infection, and passive smoking. Anaesthesia management and all perioperative respiratory adverse events were recorded.

FINDINGS: 9297 questionnaires were available for analysis. A positive respiratory history (nocturnal dry cough, wheezing during exercise, wheezing more than three times in the past 12 months, or a history of present or past eczema) was associated with an increased risk for bronchospasm (relative risk [RR] 8.46, 95% CI 6.18-11.59; p<0.0001), laryngospasm (4.13, 3.37-5.08; p<0.0001), and perioperative cough, desaturation, or airway obstruction (3.05, 2.76-3.37; p<0.0001). Upper respiratory tract infection was associated with an increased risk for perioperative respiratory adverse events only when symptoms were present (RR 2.05, 95% CI 1.82-2.31; p<0.0001) or less than 2 weeks before the procedure (2.34, 2.07-2.66; p<0.0001), whereas symptoms of upper respiratory tract infection 2-4 weeks before the procedure significantly lowered the incidence of perioperative respiratory adverse events (0.66, 0.53-0.81; p<0.0001). A history of at least two family members having asthma, atopy, or smoking increased the risk for perioperative respiratory adverse events (all p<0.0001). Risk was lower with intravenous induction compared with inhalational induction (all p<0.0001), inhalational compared with intravenous maintenance of anaesthesia (all p<0.0001), airway management by a specialist paediatric anaesthetist compared with a registrar (all p<0.0001), and use of face mask compared with tracheal intubation (all p<0.0001).

INTERPRETATION: Children at high risk for perioperative respiratory adverse events could be systematically identified at the preanaesthetic assessment and thus can benefit from a specifically targeted anaesthesia management.

FUNDING: Department of Anaesthesia, Princess Margaret Hospital for Children, Swiss Foundation for Grants in Biology and Medicine, and the Voluntary Academic Society Basel.

PMID: 20816545
Role of diet in the development of immune tolerance in the context of allergic disease

West CE, Videky DJ, Prescott SL.

Abstract

PURPOSE OF REVIEW: Diet is arguably one of the most significant environmental exposures during early development. Here, we explore the effects of key perinatal dietary exposures on immune development and susceptibility to allergic disease.

RECENT FINDINGS: Dietary changes are at the centre of the emerging epigenetic paradigms that underpin the rise in many modern diseases. There is growing evidence that exposures in pregnancy and the early postnatal period can modify gene expression and disease susceptibility. Specific nutrients, including antioxidants, oligosaccharides, polyunsaturated fatty acids, folate and other vitamins, have documented effects on immune function. Some have also been implicated in modified risk of allergic disease in observational studies. Intervention studies are largely limited to trials with polyunsaturated fatty acids and oligosaccharides, showing preliminary but yet unconfirmed benefits in allergy prevention. Avoidance of food allergens in pregnancy, lactation or infancy has provided no clear evidence in allergy prevention and is no longer recommended. Rather there is focus on their role in tolerance induction.

SUMMARY: Modern dietary changes are clearly implicated in the rising propensity for inflammatory immune responses. These dietary changes, which appear to be providing less tolerogenic conditions during early immune programming, may provide important avenues for preventing disease.

PMID: 20693903

Coronary artery dilatation in toxic shock-like syndrome: the Kawasaki Disease Shock Syndrome

Yim D, Ramsay J, Kothari D, Burgner D.
Pediatric Cardiology 2010 Aug 13 [Epub ahead of print]

Abstract

Kawasaki disease is a common systemic vasculitis of childhood that may result in life-threatening coronary artery abnormalities. Despite an overlap of clinical features with toxic shock syndrome, children with Kawasaki disease generally do not develop shock. We report two cases of older children who presented with a toxic shock-like illness, and were diagnosed with Kawasaki disease when coronary artery abnormalities were found on echocardiography, in keeping with the recently described 'Kawasaki disease shock syndrome'. Clinicians should consider Kawasaki disease in all children presenting with toxic shock and assess for coronary artery damage.

PMID: 20706709

Occlusion of a large pulmonary arteriovenous malformation in a paediatric patient using multiple vascular plugs

Yim D, D’Orsogna L.
Heart, Lung and Circulation. 2010 19(4):257-9

Abstract

Pulmonary arteriovenous malformations (PAVMs) are caused by an abnormal vascular communication between a pulmonary artery and vein. They are usually congenital in nature and are associated with considerable morbidity and mortality if left untreated. Transcatheter techniques are the favoured option for PAVM occlusion in children, and large lesions can have multiple feeder vessels that may not be appreciated until selective angiography is performed. We describe the successful occlusion of a large PAVM in a paediatric patient using multiple Amplatzer vascular plugs.

PMID: 20006547