

colloquium

THE 13TH ANNUAL UPDATE IN
PAEDIATRIC EMERGENCIES

PROGRAM & ABSTRACTS

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Abstracts



All lectures, workshops and the Welcome Reception at Macquarie Centre, Peppers, Little Hastings St, Noosa.

Friday April 12

- 08 Registration
- 09 Paediatric Stroke - Ian Andrews
- 10 The agitated adolescent - Gary Williams
- 11 Break
- 11:45 Status epilepticus - Franz Babl

- 18 Welcome Reception, 6-8 pm, pre-conference terrace, Peppers Resort

Saturday April 13

- 08 Registration
- 09 The infant with noisy breathing - Marlene Soma
- 10 #MeToo - practice in the new world - Marie-Clare Elder
- 11 Break
- 11:45 High flow oxygen: panacea or placebo? - Craig Walker

- 14 Workshop: Difficult airways - Phil Black (supported by KarlStorz and Glidescope)

Sunday April 14

- 08 Registration
- 09 More spice than sugar: metabolic mayhem - Rob Millar
- 10 The unwell neonate - Meredith Ward
- 11 Break
- 11:45 An epidemic of empyema - Andrew Numa
- 13 Meeting close

Attendance certificates will be issued shortly after the conference.

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Paediatric Stroke

Ian Andrews

At the risk of discussing stroke with emergency clinicians, who likely see many adults with stroke, this talk will discuss the progress in paediatric stroke. After many years of inactivity for paediatric stroke, children are now eligible for the same acute treatments applied to adults. The rationale for such treatment depends upon data from adult trials, which have focussed upon rapid diagnosis and early intervention to reperfuse the brain (time is brain!). Unfortunately, specific childhood data is very limited. The main challenges with diagnosis of paediatric stroke relate to the rarity of the diagnosis, the lack of suspicion among clinicians, and the difficulty in obtaining timely diagnostic neuroimaging. Timely, confident diagnosis, however, is required in order to offer thrombolysis eg tPA, and endovascular clot retrieval (thrombectomy). Discussion will focus upon timely imaging (MRI plus MRA v CT plus CTA), specific stroke syndromes (malignant middle cerebral artery infarction and basilar artery occlusion) and a few thoughts on cortical spreading depression/depolarisation as a potential future therapeutic target.

The agitated adolescent

Gary Williams

Status epilepticus

Franz Babi

Convulsive status epilepticus (CSE) is the most common life-threatening childhood neurological emergency. While there is global practice in CSE to use benzodiazepines followed by phenytoin (or fosphenytoin) there is no high quality evidence to support this after first line benzodiazepines. Phenytoin, in addition, is associated with considerable side effects. There is, however, evidence that the longer seizures last the more brain damage they can cause and the harder they are to stop. Among a number of newer anti-convulsants, levetiracetam, stands out as a possible candidate for use in CSE: it has a broad spectrum as an anti-convulsant, it is already widely used in children and it can be administered rapidly IV with a very favourable adverse events profile.

This talk will set out the background of CSE in children including the definitions used for CSE. I will then present the results of the first randomised trial comparing phenytoin and levetiracetam in paediatric CSE. This study, the ConSEPT trial was conducted in 13 emergency departments in Australia and New Zealand and compared 20 mg/kg intravenous phenytoin versus 40 mg/kg intravenous levetiracetam in children who had failed two doses of benzodiazepines. Seizure cessation

was similar with 60% stopping with phenytoin and 50% with levetiracetam. Other outcomes, such as length of stay, were similar. A further 2 major international studies are under way or have recently been completed comparing the same drugs - levetiracetam and phenytoin - or levetiracetam, phenytoin and valproate. I will discuss how these findings could be interpreted and incorporated into daily practice.

The infant with noisy breathing

Marlene Soma

Learning objectives: To understand the clinical assessment and work up of an infant with noisy breathing, and to have a systematic approach to the differential diagnosis.

Many infants are brought to the emergency department for assessment of noisy breathing. The difficulty for the clinician assessing them is that a range of conditions can present with airway noise, some of which are benign and self-limiting but others can be more serious. The potential level of the airway obstruction may not always be apparent from the bedside examination. In this overview, the relevant clinical history and examination is explored, highlighting which scenarios require urgent ENT referral. The normal anatomy of the upper airway is demonstrated from an endoscopic view along with examples of pathology for comparison. The timing of symptom onset can guide the differential diagnosis and the definitive management for some of the common pathologies is explained.

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1. Clinical practice: an approach to stridor in infants and children. Boudewyns A, Claes J, Van de Heyning P. Eur J Pediatr 2010 Feb;169(2):135-41.
2. Noisy breathing in children: history and presentation hold many clues to the cause. Pryor MP. Postgrad Med 1997 Feb; 101(2):103-12.
3. Common causes of congenital stridor in infants. Clark CM, Kugler K, Carr MM. JAAPA 2018 Nov;31(11):36-40.

#MeToo: practice in the new world

Marie-Clare Elder

Marie-Clare is a legal practitioner who has specialised in health, medical negligence and personal injury litigation in Australia and the United Kingdom for the last 15 years. A former clinical nurse specialist in intensive care, she also brings to the role a wealth of healthcare knowledge and first-hand healthcare experience. In the United Kingdom, Marie-Clare acted as General Counsel for a large NHS Trust where she frequently represented the Trust at inquests and Court of Protection hearings. She worked closely with the risk department and assisted with serious incident investigations and sat on the Trust's Ethics Committee. In her role at MIGA Marie-Clare heads up MIGA's Legal Department in Sydney and is responsible for the provision of general legal advice and the management of litigated claims, coronial inquests, disciplinary and employment matters. Marie-Clare and her team support,

guide and work with our clients to assist them through what is commonly unfamiliar legal territory and at times emotionally difficult and trying circumstances. In 2018 Marie-Clare lectured at the University of Oxford and was appointed to the Board of The Banksia Project, a charity facilitating early intervention for the prevention of mental illness.

In this session, Marie-Clare will discuss the impact of bullying, harassment and impaired performance in the modern healthcare workplace.

High flow oxygen: panacea or placebo?

Craig Walker

More spice than sugar: metabolic mayhem

Rob Millar

Metabolic conditions are an infrequent cause for presentation to the paediatric ED and have non-specific features, so a high degree of suspicion is required. As an example of one of the most common metabolic disorders, a cohort of children adapt to relatively short periods of reduced caloric intake by generating large quantities of ketone bodies. Acute ketosis can be an important physiological mechanism to prevent irreversible neurological damage from hypoglycaemia during starvation, and represents a significant metabolic stress. However when excessive, the gastrointestinal symptoms of starvation ketosis such as nausea and pain may create a vicious cycle that delays spontaneous resolution. A broader understanding of this process under the banner of 'accelerated starvation of childhood' is helpful for clinicians managing acute illness in children. Screening for ketosis using a bedside capillary test may be valuable, even if glucose levels are normal. Identification and appropriate management of ketosis may alleviate the distressing gastrointestinal symptoms associated with many minor illnesses, and potentially prevent hypoglycaemia in some children.

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The unwell neonate

Meredith Ward

An epidemic of empyema

Andrew Numa

Empyema has long been recognised as a complication of pneumonia with significant associated morbidity and, in the pre-antibiotic era, mortality. Hippocrates recognised the severity of this illness stating “If empyema is the result of peripneumonia or pleurisy and is accompanied by a feeling of heaviness and complaints about the stomach, the patient usually dies on the 21st day; but if the patient survives after this day, he will finally recover”¹. Hippocrates described both conservative and surgical management of empyema including incision, drainage, irrigation (with wine) and placement of indwelling drain tubes made of tin. There were few advances over the following two thousand years. Underwater sealed drainage systems were first described in 1931². Thoracoscopic techniques emerged in 1991³.

The widespread availability of antibiotics in the latter half of the 20th century rendered empyema, particularly those cases related to pneumococcal infections, a relatively rare disorder and the development of conjugate pneumococcal vaccines in the first decade of the 21st century was expected to further reduce the prevalence of this disease. However, vaccination has possibly had the unintended effect of increasing the prevalence of non-vaccine strains of pneumococci which are more likely cause both necrotising pneumonia and empyema^{4,5}. The admission rate for uncomplicated pneumonia to SCH intensive care increased by 60% following the introduction of Prevenar 13 in 2011 (from 24.2 to 38.6 cases per annum). However, in the same period admissions to the ICU for empyema increased 7 fold, from 2.2 to 16 cases per annum. Similar observations have been made in other centres, although the temporal relationship with the introduction of vaccination is not always in perfect alignment. A number of studies report increasing rates of empyema predating vaccination by at least several years⁶. Other possible causes of increased incidence of complicated pneumonias include more virulent pneumococcal bacteria generating increased cytokine loads⁷.

Antibiotics are the cornerstone of management of empyema. Other therapeutic interventions, including thoracentesis with or without fibrinolytics and video-assisted thoracoscopic surgery (VATS) all have their advocates but little evidence to support superior outcomes.^{8,9} While both VATS¹⁰ and fibrinolytics¹¹ may be associated with slightly shorter duration of hospitalisation, the benefits are modest and must be balanced against potential morbidity. The increasing incidence of necrotising pneumonia predisposes to the formation of bronchopleural fistulae, which are associated with prolonged hospitalisation and significant morbidity. Surgical intervention should be reserved for patients with significant respiratory or haemodynamic compromise.

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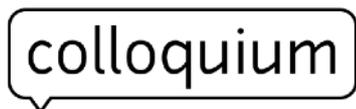
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