Guest editorial

Paediatric emergencies in perspective

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Paediatric emergency medicine focuses on the short-term early management of acutely ill children of all ages and is well established as a sub-specialty of paediatrics in many countries, e.g. the USA and Canada, Australia and the UK.

The paediatric emergency specialist sees a wide range of acute problems and is responsible for the initial stabilisation of critically ill children and initial diagnostic work-up. Many problems are complex and demand wide paediatric expertise. The emergency department is responsible for initiating appropriate referral and co-ordinating care of the child, including involvement of the paediatric intensive care service. One of the challenges in emergency departments is the need for a leadership role and to co-ordinate care across primary, secondary and tertiary levels.

The mortality of children under 5 years in sub-Saharan Africa is extremely high.The United Nations Millennium Development Goal number 4 aims to reduce child mortality by two-thirds by 2015 from its level in 1990. WHO statistics reveal that the under-5 mortality shows a decreasing trend for Africa, but for South Africa the figure of 62 per 1 000 live births has not changed between 1990 and 2009. There are priorities in healthcare that highlight the need to address the broader issues of maternal health, nutrition, sanitation and housing. The fluctuating state of the global economy significantly affects local resources available for improvements. However, healthcare workers increasingly will need to look at protocol development and effective packages of care to achieve efficiencies that might fundamentally affect outcomes in the care of acutely ill children.

This edition of *CME* focuses on the diagnosis and management of paediatric emergencies that affect infants and children outside the neonatal period. The articles are aimed at non-paediatrician emergency physicians working in emergency centres who are faced with prioritising management in settings that do not always focus on children.

Using validated triage tools helps to identify very sick children who require urgent treatment on arrival.

The Emergency Triage Assessment and Treatment guidelines teach health workers to triage all sick children when they arrive at a health facility – those with emergency signs, or priority signs, or non-urgent cases – and to provide emergency treatment for life-threatening conditions.

Training in Advanced Paediatric Life Support (APLS) can further address the skills needed to recognise and effectively treat serious illness and improve outcomes. In children most cardiorespiratory arrests occur as a result of hypoxia due to respiratory disease, e.g. pneumonia and bronchiolitis.

Birth defects affect 6% of all live births. Some of these are identifiable chromosomal disorders and single gene defects, but many will be as yet unknown defects with new mutations. Many of these infants will present as acutely ill children and be seen in emergency units. The spectrum of presentations may vary widely; however, a significant number will present with acute encephalopathy and evidence of metabolic disease. Galactosaemia and glutaric aciduria are two of the most common inherited metabolic diseases in South Africa, affecting 1/14 000 live births each.

Acute encephalopathy presenting as seizures or coma may also be the result of an acute infectious condition (e.g. tuberculous meningitis), poisoning or trauma.

Acute poisoning syndromes are important to recognise and treat and are common in children under 2 years. Accidental ingestion of medications and agricultural toxins such as organophosphates require specific treatment protocols. Effective use of an evidence-based poisons database may be useful to guide the treating primary care physician.

Paediatric trauma is a major cause of morbidity and mortality, with an increasing trend seen due to urbanisation and road traffic accidents. Recent advances in the management of traumatic brain injury at Red Cross Hospital have shown that treating raised intracranial pressure is complex and requires a high degree of monitoring and technical skill. This is a problem that highlights the need for recognition and early referral to tertiary centres to improve outcomes.

'All that wheezes is not asthma' is an age-old dictum that remains relevant. The need to understand and recognise the wider differential diagnosis is extremely important, especially in young infants. Clues to the other diagnoses, e.g. cardiac conditions, intra- and extrathoracic airway obstruction, aspiration syndromes and cystic fibrosis, should be looked for and the child referred to the relevant specialist for definitive management.

Fluids are the hallmark of shock resuscitation in infants and children. Goal-orientated management guidelines for children recommend bolus intravenous fluid therapy as an important early intervention to achieve

volume expansion and reversal of shock in the first hour.

The recent publication of increased mortality after fluid bolus in African children with severe infection by the FEAST Trial Group (*NEJM*, June 2011) has challenged the practice of bolus resuscitation in resource-poor settings for children with shock who do not have hypotension. The questions raised point to the need for ongoing research in settings with limited monitoring, and in children with a high incidence of sepsis and malnutrition.

Mortality data have shown that lack of recognition and skills shortages are modifiable factors in determining in-hospital deaths of children.

It is our wish that this edition of *CME* will help readers to question practices and to sharpen skills in managing the common problems that children present with in the emergency department.