G382(P) MIND THE GAP! ELEVATED ANIONS SECONDARY TO PARACETAMOL AND SEPSIS

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Aim Metabolic acidosis is a common finding in children presenting with sepsis. Hypovolaemia and hypoxia are the common causes for this derangement but sometimes there are other culprits. We aim to highlight the significance of correlating the anion gap with the biochemical picture and, when there are discrepancies, look for alterative diagnoses. An unusual case of transient pyroglutamic aciduria, presenting during an episode of severe sepsis and paracetamol use, will be used to outline the importance of examining the anion gap.

Methods We illustrate the case of a 15 month old girl who presented with an 11 day history of diarrhoea and vomiting. She presented to the emergency department in a state of decreased consciousness. She was found to be hypotensive, hypoglycaemic and have a profound metabolic acidosis. She required mechanical ventilation and fluid resuscitation. Despite these interventions, she continued to have a profound metabolic acidosis with a very high anion gap (30.5). The levels of lactate and ketones were insufficient to explain the clinical picture.

Results Metabolic investigations for the child were instigated. Whilst a majority of these were normal, examination of the patient's organic acid profile revealed large peaks of pyroglutamic acid (5-oxoproline) and paracetamol. Termination of paracetamol use, administration of N-acetylcysteine to replenish the glutathione stores and haemofiltration caused resolution of the patient's acidaemia. Subsequent testing of the infants urine revealed no further evidence of pyroglutamate.

Conclusions Pyroglutamic aciduria (5-oxoprolinuria) is usually reported in children in the context of inherited errors of metabolism. The transient form that we describe here, whilst reported in the adult population, has rarely been described in children. Various pharmaceutical interventions, most commonly paracetamol, in combination with severe sepsis have been linked with this transient phenomenon. When the lactate and ketone levels don't correlate with the anion gap, it is important to pursue further diagnostic testing as illustrated by this case. In addition, scrutiny of the child's medication may give a clue to the diagnosis.

G383(P) TAKING A CHILD HOME TO DIE: THE CHALLENGES OF DISCHARGING A PATIENT HOME FOR PALLIATIVE CARE FROM THE PAEDIATRIC INTENSIVE CARE UNIT

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The nature of paediatric intensive care medicine is such that when the battle with a disease process cannot be won, focus needs to be placed on achieving a dignified death. If the situation permits, families will often opt for a peaceful passing away in familiar surroundings, at home or in a hospice. We focus on the common practical considerations that need to be addressed in order to facilitate the return home; as well the necessary planning to conform to legal requirements following a child's expected death outside the hospital setting.

We look into what medications might be needed for symptom control and what the challenges of prescribing these in the community might be. We shall also look into the importance of assessing the home environment and social support in advance, as well as what the logistics of transporting the patient out of hospital are. Furthermore we touch upon who needs to be involved in the on-going medical care of the child, as well as possible contingency plans, should the child survive at home.

Finally we shall explore what the role of the intensive care physician is in facilitating what is required by law; including confirmation of death, discussions with the coroner, and transport to the mortuary. Good, advance planning enables clinicians to minimise the invasion of the family's privacy during these delicate moments, and helps make a child's death as dignified as possible.

G384(P) A QUALITY IMPROVEMENT (QI) PROJECT TO INCREASE THE NUMBER OF VENTILATED DAYS BETWEEN UNPLANNED EXTUBATIONS WITHIN PAEDIATRIC INTENSIVE CARE – USING REAL TIME STATISTICAL MONITORING

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Aims Unplanned extubation is an important quality issue. Quality surveillance showed that we were not achieving national targets for the number of ventilated days between unplanned extubations. A QI project was launched with the primary aim of increasing the number of ventilated days between unplanned extubations.

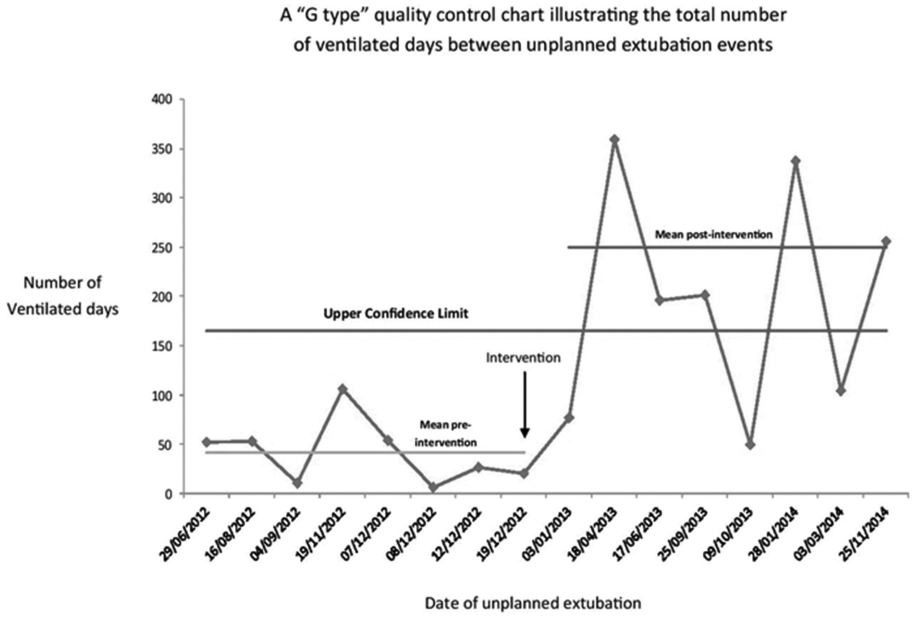
QI literature directed at unplanned extubations have used statistical methodology that detects significance at the end of a fixed time period. This does not allow continuous quality monitoring. "G type" charts are a type of statistical quality control chart that exhibit improved sensitivity over conventional statistical approaches when dealing with rare events.

Methods A Root cause analysis showed us that most unplanned extubations were secondary to the endotracheal tube (ETT) slipping through loose tapes in lightly sedated patients. A series of interventions (Table 1) were implemented. Following intervention implementation we performed continuous monitoring using a "g-type" chart (Figure 1).

Abstract G384(P) Table 1 Intervention

ETT fixation	• After the first full wrap on the ETT continue spiralling the tape up by two further revolutions. • Introduction of a standard operating procedure (SOP).
Sedation/ Feeding	• Routine cessation of feeds between 6 am and the ward round to ensure starvation coincides with stopping sedation for planned extubations. • A review of our sedation guideline.
Training	• Regular training sessions on the SOP for ETT fixation.

Results The mean number of ventilated days between unplanned extubations increased from 1 per 40.8 days to 1 per 250 days. G-chart 1 clearly illustrates that the mean number of ventilated



Abstract G384(P) Figure 1

days between unplanned extubations increased above the upper confidence limit following intervention implementation.

Conclusion We have shown an intervention that can significantly increase the number of ventilated days between an unplanned extubation. "G type" charts can be used to monitor the real time effects of an intervention. The surveillance advantage of these charts is that they take immediate advantage of each adverse event rather than waiting until the end of a pre-defined time period to identify root causes and thus enables continuous quality improvement.

G385(P) A TWELVE MONTH REVIEW OF PAEDIATRIC INTENSIVE CARE IN MYANMAR TO GUIDE SERVICE DEVELOPMENT

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Aims Reliable healthcare statistics are limited in Myanmar. This study aims to describe the typical patient journey through a Paediatric Intensive Care Unit (PICU) and provide vital information to guide future development.

Methods A retrospective review of the PICU admission records and patient medical notes was undertaken for all patients admitted to the PICU from 1st November 2011 until 31st October 2012. Patient information was anonymised and key data was extracted including basic demographics, history of presenting complaint, investigations, management and outcome on the PICU.

Results The PICU had 10 beds, 7 ventilators and 1 haemodialysis machine. There was a shortage of staff with only 1 doctor and 2 nurses at night. Routine investigations were available although microbiology culture was rarely performed.

407 patients were admitted with the majority being infants (range 0–16 years). The furthest distance travelled was 907 Km for a child with lead poisoning. Most patients were admitted for less than 5 days. The peak admission period was during the rainy season which corresponds to the peak incidence of dengue. 64 patients (17.5%) presented with dengue shock syndrome or dengue haemorrhagic fever.

The principle reasons for admission included status epilepticus (26.5%); pneumonia (20%); dengue (17.5%); multi-organ failure (14.2%); septicaemic shock (11.7%); and encephalitis (9.5%). Other important reasons for admission were meningitis; gastroenteritis; post-measles complications; diphtheria; snake bite; Beriberi (including Wernicke´s encephalopathy); tetanus; rabies; malaria; late haemorrhagic disease of the newborn; malnutrition; tuberculosis; HIV; and poisoning (organophosphates; traditional medicine). All patients with a viper bite died of complications including shock, acute renal failure and pulmonary haemorrhage. The majority of patients with diphtheria were managed with a tracheostomy. Overall mortality on the PICU was 34%.

Conclusions This study provides a unique insight into the local disease burden, resources available and challenges faced in providing paediatric intensive care. The relatively high incidence of vaccine preventable diseases is of particular concern. Key priorities include support for the development of nurse and doctor training; staff retention; evidence-based guidelines; data management including follow-up; referral pathways; access to routine investigations; and a reliable supply of essential medications and equipment.

G386(P) BRONCHIOLITIS: 10 YEAR EXPERIENCE OF INFANTS VENTILATED IN A REGIONAL PAEDIATRIC INTENSIVE CARE UNIT

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