

G86(P) PAEDIATRIC ADVANCED TRAUMA SKILLS (PATS): A NEW ADVANCED TRAUMA COURSE FOR MULTIDISCIPLINARY STAFF

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Background Major paediatric trauma is rare and therefore exposure to it is often sporadic and infrequent. Since the designation of major trauma centres (MTC), doctors in these centres are likely to see more paediatric trauma. Advances in paediatric trauma management and are not taught in the more traditional courses such as APLS, ATLS and ETC.

This course has been designed for those with an interest in paediatric trauma based in either MTCs or major trauma units (MTU). There are no other similar courses at present in England.

Method We initially designed a 1-day high fidelity simulation course. Following 8 courses, it became clear there was a need to cover advanced trauma skills. PATS was subsequently developed as a 2-day course covering essential advanced skills. It is run with senior multidisciplinary faculty from emergency medicine, pre-hospital care, paediatric emergency medicine, surgeons, anaesthetists and paediatric intensive care. This high-fidelity simulation course incorporates technical and non-technical skills. The candidates completed anonymous pre- and post-questionnaires.

Results Of the 10 candidates who have attended the 2 courses, many had requested at the start of the course for more experience with complex trauma scenarios, procedures and leading the team. Despite 70% of the candidates having been involved in other trauma training courses and feeling confident in managing an injured child prior to this course, 90% found the course positively challenging and 100% reported that this course had met their expectations.

All candidates had identified human factors as their main learning, in particular communication and team leadership. Other key themes identified were an increased confidence with specific procedures and management protocols. Practicing more procedures during scenarios was requested. Candidates had commented on the benefits of having a mixed seniority of the candidate group (senior trainees and consultants) and the faculty.

Discussion The feedback has been overwhelmingly positive. Evaluation demonstrated the importance of this course for multi-grade and multidisciplinary staff seeing paediatric trauma. Future courses will invite staff from all disciplines exposed to paediatric trauma and will address the request for more practical procedures.

G87(P) PROVIDING SAFER RESUSCITATIONS IN SMALL HOSPITALS AND CLINICAL SITES WITH INFREQUENT RESUSCITATIONS

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Aim The aim of our project is to provide safe resuscitations in a small district general hospital (DGH) as measured by the clinical incidents, patient outcomes and staff feedback.

Method Regular multi-disciplinary scenario based resuscitation training sessions were provided, at the point of care. These training cycles focused on the needs of the local team of a small DGH. Regular feedback was obtained from participants. Clinical incidents were analysed for a year before and after the point in time when training was initiated

Results The first Plan-Do-Study-Act (PDSA) cycle of training was delivered along the standard resuscitation training provided in UK Life Support courses. It was immediately obvious that the training required to be more focused towards local needs, which were more extensive compared to that provided in life supportive courses. 3 subsequent PDSA cycles focused on individual and team needs in a multi-disciplinary team such as drills for infusions, setting and using ventilator, airway skills and providing leadership while working in a resident shift. Analysis of the reported clinical incidents, anonymised staff feedback, reflection from resuscitations, personal stories and opinions of the team members - all formed the basis of a series of the next 4 PDSA cycles of resuscitation training. Many of these incorporated simulations of locally performed resuscitation scenarios such as trauma, burns and status epilepticus. The last 4 PDSA cycles were focused on the current needs of a new team, to develop resilience and challenge through human factors and team strategies and tools to enhance performance and patient Safety (TEAM STEPPS). We have at present achieved a steady state.

The staff feedback of these training sessions has been very positive. The clinical incidents of medium and high risk have been reduced by half, while overall incident reporting rate has increased by 1.7 times, promoting an open culture and risk anticipation.

Conclusion Regular multi-disciplinary training focused on the local team and task needs seems to provide safer resuscitations in a small DGH, with a low frequency of resuscitations. This approach might be of use at any clinical site having a potential risk of infrequent paediatric resuscitations.

G88(P) WHICH INTRAVENOUS BRONCHODILATOR? IS LACK OF CLEAR GUIDANCE INCREASING VARIATION IN PRACTICE?

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Aim At present there is not sufficient evidence to suggest the optimal choice, or order, of intravenous bronchodilator in the management of life threatening wheeze or asthma in children. As a result, recent BTS guidelines are unable to give clear advice. This has led to variation at a national and also led to confusion within many departments. We set out to review variations within a group of children aged >1 year of age admitted from a busy Paediatric Emergency Department (PED) to a co-located Paediatric HDU.

Methods All admissions from PED to Paediatric HDU with wheeze or an acute exacerbation of asthma requiring intravenous bronchodilators over a 7 month period running from April to November 2014 were identified by review of electronic records. Those <1 year of age were excluded from analysis.

Each patient's electronic and paper notes were reviewed to identify choice and order of intravenous bronchodilator alongside need for ventilatory support as a marker of severity.

These results were reviewed in the context of a local guideline suggesting salbutamol as the first line, magnesium sulphate as the second line and aminophylline as third line.

Results 37 cases of children requiring intravenous bronchodilator were identified. Of these 12 (32%) of children received a single intravenous bronchodilator, 15 (40%) received two bronchodilators and 10 (27%) received three different bronchodilators.

In contrast to the guideline, magnesium sulphate was the first choice in 35 (95%) of cases, with salbutamol chosen first in only 2 (5%) of cases. Aminophylline was only ever used after both magnesium and salbutamol had been commenced.

Of this group 5 (13.5%) received ventilatory support beyond simple oxygen delivery with 3 receiving Optiflow, 1 CPAP, 1 BiPAP and none requiring intubation.

Discussion Variation and uncertainty at national level is reflected in local practice. Use of magnesium sulphate is far higher than suggested by our local guidelines and appears to be driven by individual clinicians' experiences.

This study identifies the need for further work to develop an evidence based approach to managing the child with life threatening wheeze or asthma to limit variation and, it is hoped, improve outcomes.

G89(P) ACCIDENTAL INGESTION OF POTENTIALLY HARMFUL SUBSTANCES: ANALYSING PAEDIATRIC EMERGENCY DEPARTMENT PRESENTATIONS TO GUIDE HEALTH PROMOTION ADVICE AND TRIAGE

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Aims Accidental ingestion of a potentially harmful substance is a common complaint in paediatric A&E – in 2002, 31,500 children <15 years old attended hospital with suspected poisoning. Large UK based studies focus on fatal poisonings. However, most children do not require any treatment, and the literature currently lacks detail regarding the minor end of the spectrum.

Gathering data from a large inner city paediatric A&E, we studied every attendance with accidental ingestion – not only cases requiring intervention – to look for emerging trends to guide health promotion advice, and improve the pathway for these children from triage through to discharge.

Method Two years of electronic records were analysed. Search criteria included any presenting complaint or discharge diagnosis containing the term 'accidental ingestion' or 'accidental overdose'. Demographic data was established, along with details of the substance ingested, any treatment or admission required and any follow up arranged.

Results There were 169 presentations during 2012–2013. 12–23 month old children accounted for 29% of cases. There was no seasonal variation, and the gender divide was equal. In 90% of cases, the child was unsupervised when the ingestion occurred. Substances were divided by category – parent/carers medication (33% of cases); bathroom/kitchen product (21%); paracetamol containing products (11%); rodent/insect poison (8%), and own medication (5%). Most children (57%) were sent home with reassurance. 21% had 4 h of A&E observation, while

only 8% were admitted. 3% returned for repeat tests. Sixteen cases (9%) had a documented health visitor referral. Social services were notified about three cases.

Conclusion Although most events happened while the child was unsupervised, there were few health visitor referrals – a key strategy in preventing further incidents. Most substances ingested were medications or cleaning products. Children can sometimes still open 'child resistant' containers, so health promotion advice should focus on safer storage. All children waited to see a doctor, however the majority needed no treatment or observation. There may be scope for certain children to be discharged from nurse triage, streamlining their A&E pathway.

G90(P) N₂O LAUGHING MATTER

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Aims To investigate the risks posed to young people from the recreational use of nitrous oxide ("laughing gas").

Methods We highlight the case of a girl aged 15 who presented to a Children's Emergency Department with significant subcutaneous emphysema, pneumothorax and pneumomediastinum, following nitrous oxide inhalation at a festival the previous day. We reviewed the current literature in order to understand the scope of nitrous oxide use amongst the teenage population. We reviewed previous published case studies along with statistics from the International Centre for Drug Policy.¹

Results Pneumothorax and pneumomediastinum are recognised complications of illicit drug use. The underlying pathophysiology relates to barotrauma created by the inhalation technique.²

Inhalation of Nitrous Oxide has the added complication of pneumothorax expansion, due to its high blood-gas partition coefficient. Accordingly complications from the inhalation of nitrous oxide may be significantly worse than for users of other inhaled recreational drugs.

Recreational nitrous oxide use amongst the teenage population has risen exponentially over the past five years, with 7.6% of 16–24 year olds in England and Wales admitting to having tried nitrous oxide in 2013.³ Seventeen deaths in the UK were attributable to nitrous oxide between 2006–2012,¹ a figure which we would expect to rise given current surge in usage.

Conclusion Nitrous oxide inhalation poses a significant risk to the teenage population. Pneumothorax should be considered in any teenager presenting after inhaling gaseous or volatile agents, and recreational drug use should be considered and addressed in teenagers presenting with a pneumothorax of unknown aetiology.

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G91(P) SALICYLATE LEVELS IN PAEDIATRIC INTENTIONAL OVERDOSE – ARE WE OVER INVESTIGATING?

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