

#FOAMed

# Mostly Paediatrics

College of Emergency Medicine  
Spring CPD Event March 2014 - Day 2

*The unofficial report*

## Day 2 topics include:

- HIV in the ED
- Paediatric major trauma imaging
- Atrial Fibrillation
- Paediatric CNS tumours (and how not to miss them in the ED)
- Paediatric Acute Severe Asthma
- Urological emergencies



*Sharing the learning...*

Compiled from the lecture notes  
made on the day by our intrepid reporters:

Another #FOAMed production  
by

**MOUNTAIN**  
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# Introduction - Report of Day 2

## Paeds, urology & a couple of medical topics

Following the enthusiastic reception of our previous conference reports ([EMS Expo 2013](#) and [Retrieval 2014](#)) we realised that sharing our key learning points from conferences was something we'd like to do more of, especially in these days of restricted study leave budgets.

So, we decided to do it again at the College of Emergency Medicine Spring CPD Event that took place in Cardiff (UK) in March 2014. Our report of Day One can be found by [clicking here](#), and this is our report of Day Two. This report is *completely unofficial* - from our CPD portfolio to yours, and nothing more.

It takes many hours to turn conference notes into this magazine-style report so please forgive us whilst we tackle them one conference day at a time - *we do this in our own time!* Once all three days have been done, we will produce an amalgamated version that will go onto our Scribd website - [www.scribd.com/BangorED](http://www.scribd.com/BangorED)

We must make an important disclaimer. Whilst we tried to make our notes as accurate as possible, this whole publication is based upon *notes made during the lectures* with all the attendant distractions and possibility of mis-recording the words of individual speakers.

Whilst we have cross-checked data where possible, and included links to some studies cited during lecture, we can accept no responsibility for any errors or omissions we have made (or that the speakers made and we may have inadvertently propagated).

**You should never change your clinical practice based solely on a report like this, but, we hope it will provide you with a springboard for learning & discussion.**

*Alison & Helen  
(your intrepid reporters)  
& Linda (editor/designer)*



**Twitter:**  
**#CEMCard14**



There was some Twitter activity running throughout the conference - although not compared to some American conferences. Something to work on next time!

Reflection  
for your  
CPD

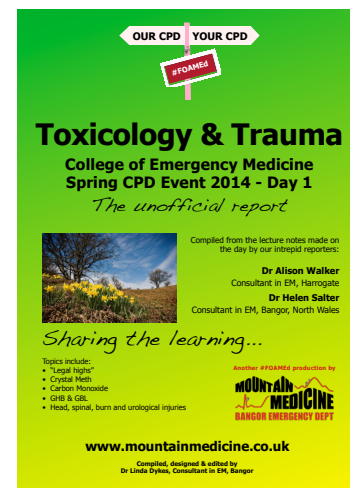
We've flagged up further reading (and some topics for reflection) in these snazzy green boxes, and included links to relevant papers, abstracts and websites.

This is a mixture of material that **we** have looked up and found, and also material/papers/reports mentioned by the speakers in their presentations .

# Contents - Day 2

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**Have you seen our report of Day 1 of this event?**



Our previous conference reports - include Day One of the Spring CPD Event (this is Day Two) can be found in our [Conference Report Collection](#) on scribd.com. This is where our Day Three report will go, too, when we get round to doing it!

**Fab jobs in a fab rural ED!  
Take a look at Page 19!**

## Please help us support Tusk Trust!

We created this report because we're passionate about FOAMED, and wanted to share what we'd learned. But, if you enjoy it and find it useful, could you consider making a donation to the Tusk Trust?

This wonderful charity is dedicated to protecting rhino and elephant populations endangered by the greed for rhino horn and ivory - but also education and supporting communities in Africa. If everyone who reads this report donates even £1/\$1, we could easily raise several thousand pounds for the Tusk Trust.

[Please visit our Just Giving page by clicking HERE to donate](#)





# Update on HIV medicine in the ED - Simon Bell

Reported by Alison Walker & Helen Salter

**Dr Simon Bell, EM consultant in Poole, challenged us to always consider HIV infection.**

**If we don't, we are missing opportunities to make the diagnosis and start treatment, which not only improves outcomes for our index patients - but also prevents further transmission.**

A lady in her 70s arrives in the ED with change in bowel habit, pleuritic chest pain and sats of 89-90% on 2 litres/O2. She's been on steroids for a year for ?PMR, and noted to have had mild thrombocytopenia over this time. She had an OGD several years ago which showed "oesophageal candida treated with Losec..."

The ED diagnosis on this visit was "?PE with hypoxia" - with a typical differential diagnosis list which probably have included pneumonia or malignancy as well as PE. Her CXR was classic for PCP, but was thought to be heart failure. 2 weeks later the patient tested positive for HIV, was on HDU on CPAP, then started on antiretrovirals. It transpired she had had unprotected sex in Sub-Saharan Africa five years' prior to her arriving in the ED.

## Epidemiology & a quick revision

HIV diagnoses have gone up since 1985 (since treatment was available) with major increases after 2001. 100,000 people are HIV positive in UK, with 20-30% unaware they have it. More than 50% of cases present late, which is associated with increased mortality and a poorer response to treatment. High prevalence areas are defined by greater than 2 cases/1000 population – *do you know if this applies to your ED?* HIV rates exceeding 2 per 1000 are widespread in London, but not exclusively confined to large UK inner-cities.

Anti-retroviral treatment is ideally commenced when the CD4 count is 350-500. Early treatment is now regarded as best practice, but more than 50% of patients who are diagnosed late already have a CD4 count of under 350. AIDS is diagnosed if CD4 less than 100, or if the patient has an "AIDS defining illness".

## Whose job is it to offer HIV testing?

HIV is treatable, and offers of HIV testing should be available in a wider range of settings – it's routine in UK obstetric practice now, which helps to account for more women being diagnosed earlier than men. Consent can be from any Health Care Professional...

**“HIV hasn't gone away: it is presenting to our Emergency Departments *every day*”**

including the ED team. There's nothing special about HIV testing any more - it's "just another test" now (or should be!).

There's a strong argument to offer *routine* screening HIV testing in those areas where HIV prevalence exceeds 2 per 1000 (the DoH promotes this view, and tests only cost £10 each). Unfortunately, in their 2012 Guidelines on HIV testing in the ED, CEM didn't agree, and said it should only be done in the ED if the result will affect the immediate outcome.

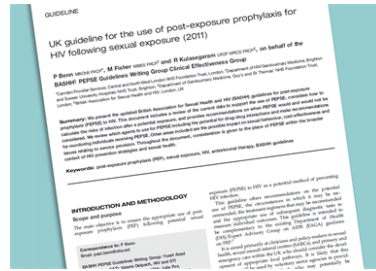
In Portsmouth, HIV testing is routine test for certain conditions in their ED guidelines. They do about 3 a week, and arrange GUM clinic follow-up for patients with positive results. If patients are not on positive list, they are recalled to ED. Patients are given a card with information about the GU clinic.



# Update on HIV medicine in the ED - Simon Bell

## Who gets PEP?

Are you clear when to give Post-Exposure Prophylaxis for HIV?  
UK guidelines for PEP were issued in 2011.



HIV: “We are missing the diagnosis and the opportunity to *stop other people getting infected.*”

PEP needs to be started within 72 hours if the exposure risk is more than 1:1000, and do encourage HIV testing as this affects future treatment. *[this is one of the reasons why most hospitals have a protocol of GUM follow-up within 72 hours if PEP is started in the ED - Ed]* and the speaker said that he would still use PEP if the patient was particularly worried.

The risk of HIV transmission varies greatly – even in known HIV exposure, a needlestick injury carries a risk of only about 0.3% of viral infection to the recipient. It's worth making sure you are familiar with the risk tables in the 2011 guidance so you can find the information you need efficiently when needed.

PEP: “don't let your patient die of *your ignorance*”

## Case examples

- Park keeper with random needle stick in the community. Risk is less than 1 in a million - no PEP
- Gay male couple, oral sex, HIV positive partner ejaculated into mouth. Risk 1:5000 - no PEP
- Heterosexual couple, female HIV positive with torn condom. Male partner requesting PEP. Risk is 1:1200, therefore give PEP
- Anal Sex with male of unknown HIV status. Risk is 1:300: PEP is recommended.



## HIV testing based on Clinical Indicator Diseases

To achieve earlier diagnosis, these 2008 National Guidelines (link below) recommended to offer HIV testing in patients presenting with conditions which are “clinical indicator diseases” for HIV infection.

This is an extensive list of more than 50 conditions including pyrexia of unknown origin, lymphadenopathy of unknown cause, and TB... as well as more common conditions such as bacterial pneumonia.

Reflection  
for your  
CPD

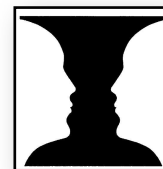
You can find the 2008 [UK National Guidelines on HIV testing here](#), the [CEM Guidelines here](#) and the [2013 report on HIV in the United Kingdom here](#)

The Health Protection Agency's take on HIV testing is found [here](#) - which also contains an interesting 2012 analysis of where in the UK has an HIV prevalence exceeding 2 in 1000 (most of London, with other areas of particularly high prevalence listed as Brighton/Hove, Salford, Manchester, Blackpool and Luton).

# Atrial Fibrillation - Dr Cliff Mann

## The Connoisseurs' Dysrhythmia

Reported by Helen Salter & Alison Walker



*Cliff Mann - the CEM President - presented an elegant summary of the treatment of Atrial Fibrillation. Here are the key points:*

AF is not one entity but many: age, chronicity and co-morbidities are all key factors. AF is either fast or slow, cardiac or no cardiac effects, complex or simple.

### The many faces of AF

★3 key treatment decisions

★4 types of patient

### The Three treatment decisions

- Rhythm control
- Rate control
- Stroke risk

### The four types of patient

#### 1. The Young

- Acute onset & you should attempt to restore sinus rhythm
  - IV flecainide
  - IV propafenone
- If AF occurs for less than 5 hours/month there is *no* increased stroke risk (a relief for everyone who has a little flutter in the chest every now and then!)

#### 2. The Older

- Acute, chronic or intermittent symptoms
- Control rate with IV beta-blocker
- Digoxin is not a suitable drug for rate control in the active elderly: it only control the rate adequately at rest
- Calculate the stroke risk by using a score e.g. CHADS2 or CHA2DS2-VASc, and anticoagulate as indicated

#### 3. The Infirm

- Older patients with significant co-morbidities and/or acute illness
- Digoxin is suitable for rate control & positively inotropic when given acutely.

#### 4. The Unusual

- Pre-excited atrial fibrillation in Wolf Parkinson White
- An irregular fast broad complex tachycardia
- DC cardioversion in compromised patient is treatment of choice
- Beta-blockers, adenosine and other drugs can kill in pre-excited AF!
- Refer promptly for ablation of aberrant pathway

### What's the difference?

Risk Factor	CHADS2 Max score = 6	CHA2DS2-VASc Max score = 9
Congestive HF	1	1
Hypertension	1	1
Diabetes	1	1
Vascular disease	1	1
Ages 65-74	n/a	1
Age 75 or more	1	2
Female sex	n/a	1
Previous stroke or TIA	2	2

### What's the annual stroke risk?

CHA2DS2-VASc score and adjusted stroke risk in %/year

0	0%
1	1.3%
2	2.2%
3	3.2%
4	4%
5	6.7%
6	9.8%
7	9.6%
8	6.7%
9	15.2%

CPD  
Activity

Visit [www.chadsvasc.org](http://www.chadsvasc.org) for a neat combined calculator that looks at stroke risk, versus bleeding risks with anti-coagulation. Check out the current [European Cardiology Society guidelines on AF](#) - and watch out for the [new NICE AF guidelines](#) due out 11 June 2014.

# Radiological Imaging in Paediatric Major Trauma - Chris Fitzsimmons

Reported by Alison Walker & Helen Salter

Let's be honest. Most of us whose general EDs receive Paediatric Major Trauma dread the "shall-we shan't-we" discussions about how much of an injured child to CT, especially when we are so accustomed to shoving injured adults through the scanner relatively liberally after something nasty has happened to them.

Chris's talk provided us with some structure to our deliberations - especially useful when speciality colleagues who are even less comfortable with these decisions start to get involved (and, at times, very nervous).

*"Paediatric trauma, like coffee, comes in two sizes: regular or XL"*



## When does the benefit of CT scanning in paediatric major trauma outweigh the risk of the radiation?

There is mounting evidence that exposure to medical radiation for children is a risk for developing tumours - "the 4th peak for trauma deaths may be long term cancers".

The CXR equivalents for other imaging is:

- AXR 3-8
- Isotope 250
- Background radiation 120
- CT head 175
- CT abdo/pelvis: up to 740
- Whole body: over 1100 (for 10-14 yr old)

The differences in radiation dose can be astonishing: a CT neck in a 4 year old increases radiation to the cervical spine 200-fold.

**So how do we decide which paediatric trauma patients need CT?**

"XL" trauma - things like falling from a 4th floor, or getting hit by a train - are the only paediatric cases severely injured enough to warrant an adult-style "pan scan" polytrauma CT.

"Regular" paediatric trauma - such as an isolated HI, or HI plus extremity, or abdominal trauma, are 7x more common than "XL" trauma.

We can and should be much more judicious about CT decisions in "regular" paediatric major trauma than in "XL" paediatric major trauma.

*"Young people who undergo CT scans are 24% more likely to develop cancer compared to those who do not..."*



# Radiological Imaging in Paediatric Major Trauma - Chris Fitzsimmons

## A cautionary tale

In 2009, 2 year old Jacoby Roth was taken to a Californian ED complaining of neck pain after falling off his bed the previous day. The C-spine CT - on adult settings - was inadvertently repeated 151 times, subjecting the child to the equivalent of 55,000 CXRs in one hour, radiation burns to the face and neck, and reportedly a certainty of developing cataracts and increased risk of cancer of the thyroid and eyes. Jacoby was mobile and running around the ED. You can read more in [this NY Times report](#).



## What helps us deciding what to scan?

What helps in deciding who to scan?

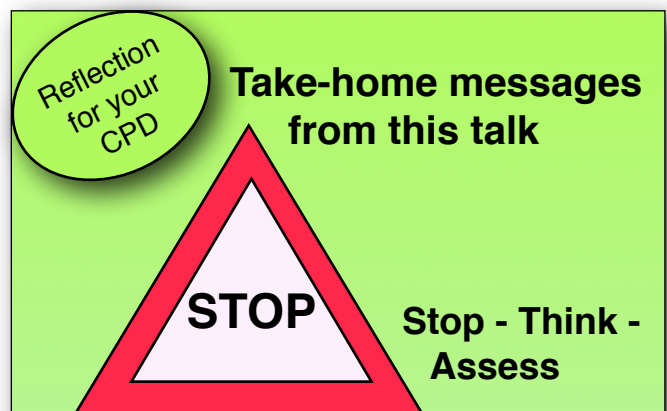
- **Not** “The Major Trauma Triage Tool (MTTT): it is good at what it does but it is not a tool for CT scanning decisions”
- **Not** the ISS (as that is retrospective)
- **Not** the [2012 RCR Standards of Practice & Guidance for trauma radiology in severely injured patients](#) - which are great for adults but only one sentence relevant to children!

TARN data describes typical injury patterns in children in [their 2012 report “Severe Injury In Children”](#) and so this **does** help us to know which injuries are likely:

- C-spine injury is uncommon
- Chest injury is rare (although penetrating chest trauma is unfortunately increasing)
- Pelvic injury is even rarer

But - drum roll - guidance is now available from the [British Society of Paediatric Radiology Trauma Imaging Group](#), which has specific guidance for imaging in paediatric major trauma. The take-home messages from these guidelines are:

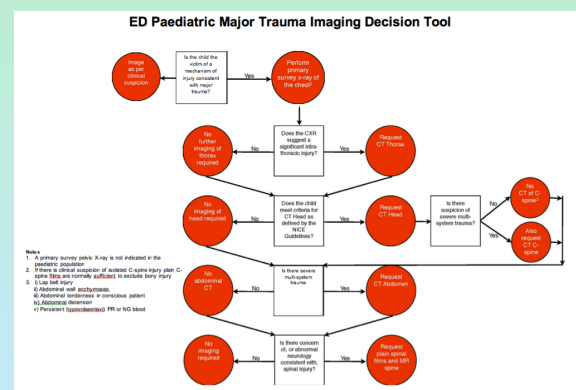
- Head/Cervical Spine - follow NICE
- Chest: CXR - CT only if significant CXR abnormality
- Abdominal CT - only if BSPR guideline threshold met (but be wary: handlebar injuries have a low threshold to CT)
- Pelvis: no routine imaging, and if imaging is required, use plain films
- Use new-generation CT scanners, dose-reducing protocols & alignment of beams



- As Low as Reasonably Achieved dose (ALARA)
- Use selective CT rather than whole-body CT
- Use plain films for neck, not CT
- Consider MOI and examination findings

Accept that a considered reflective approach will take longer but will reduce risk of unnecessarily irradiating the child - even if this is at the cost of not achieving the national standard of CT within 30 minutes of arrival at hospital.

Download and use the [Paediatric Major Trauma Imaging Decision tool](#) from the BSPR working group:



# Remember when? - Derek Burke

## Paediatric EM: a 40-year perspective

Reported by Alison Walker & Helen Salter

*Derek gave a thought-provoking talk on developments in PEM over the past 40 years.*

Did you know there has been a 40% reduction in child mortality since 1980, mostly trauma death reductions from the "E"s: **E**ngineering, **E**nforcement, **E**ducation and, just possibly, from 'Ealth'? Some of the developments seem like they happened yesterday, but would you have remembered the year when these things happened...

**1974** Was when [the ISS](#) was developed by [Susan Baker](#). Used AIS scores, the top 3 conditions scores squared and added together. An AIS of 6 was deemed unsurvivable for any region.

**1974** The Glasgow Coma Scale (note not "score"! ) was published by Teasdale & Jennett which advocated using each of EVM as well as the overall score.

**1983** The first UK seatbelt legislation. This reduced injuries from ejection and windscreen injuries.



**1980s** IOs were re-introduced - although first described in 1922! - supported by a spate of papers in well regarded journals including the Lancet and Annals of EM.

**1988** The [BMJ published a paper analysing 1000 deaths from Trauma in England and Wales](#) (Anderson & Woodford et al): in 20-30% of cases there was a delay in diagnosis or treatment that contributed to death. The RCS working party on major trauma was running, and there was a pilot of a major trauma centre in Stoke.

**1988** ATLS was rolled out across the UK

**1988** Oakley et al developed a Paeds Resuscitation Chart - [see a copy here](#). [a more recent paper

[discusses the cognitive burden of different resuscitation aids](#), and today many of us just use tools like [Crashcall](#) - Ed]

**1990** Major trauma outcome study ([MTOS](#)) in USA: 5 year study, 80,000 patients, RTS and ISS used as quality assurance measures for the hospitals involved.

**1992** "MTOS UK" published [in the BMJ in late September](#).

Conclusion: major trauma management in the UK was unsatisfactory.

**1990** APLS was rolled out across the UK

**1991** First speed camera legislation was introduced, leading to a 28% reduction in RTCs at camera sites.

**1991** The "back to sleep" campaign reduced the number of infant deaths by two-thirds between 1989-1993. [The message went global, but I'm not clear whether the UK led or followed - Ed]



## Remember when? - Derek Burke

### Paediatric EM: a 40-year perspective

**1992** Haemophilus influenza vaccination, led to a big reduction in the number of cases.

**1992** Meningococcal C vaccine, reduced meningococcal meningitis and sepsis, reduced cases by over 90%

**2000** Victoria Climbié died, she had sustained/received 128 injuries over the previous 10 months



**2006** Child car seat legislation was introduced in the UK.



**2007** Baby P died. Lord Laming did this report too, he said there had been a failure to implement his previous recommendations. See box on the right for links to his two reports.

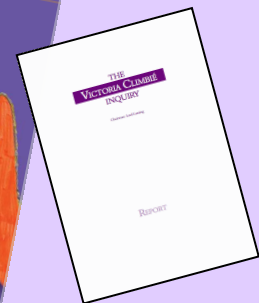
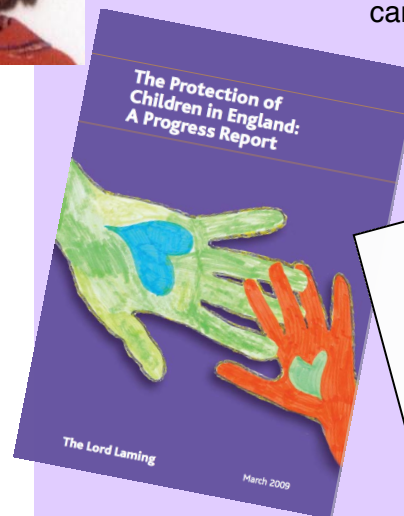
**2013** TARNLET produced the [2012 Paediatric Trauma Report](#)

### Victoria Climbié & Baby P

It is almost unbelievable that it's now 14 years since Victoria Climbié died, and 7 years since Baby P. Lord Laming



chaired both official enquiries: you can read the [Victoria Climbié report here](#), and his [2009 follow-up here](#).



**“Children under one are at the *highest risk of homicide*: 21 per million (the national average is 9.7 per million). All agencies need to work more closely together...”**

## Cases from the Resus Room - Gavin Lloyd

Gavin presented a “Resus Muesli” of cases, all of which are in the Resus Room section of the [EnlightenMe website](#) - 6 scenarios for everyone to try. They've all been reviewed by UK and Australian experts, and are designed for use as an educational support tool/cases for Middle Grade teaching.

However we will give a couple of Gavin's top tips here:

1. **Do** give IV antibiotics for all chest drains in trauma (NNT = 6)
2. **Don't** give IV PPI for acute upper Gi bleeds - there's no evidence they make any difference.

Reflection  
for your  
CPD

Visit the brilliant website [www.thennt.com](http://www.thennt.com) - we haven't had time for a detailed burrow into the material, but we bet there's some serious dogmalysis in there, go and take a look! A note for our non-EM readers - there's stuff in there for everyone!



# Tales of the unexpected in Paediatric “Minors” - Nicola McDonald

Reported by Alison Walker & Helen Salter

*This was a very thought provoking serious of cases and made me think how many cases we may be diagnosing late. One our reporters has a friend with a 3-year old who has an inoperable brain tumour that was missed by several health care professionals, including in an ED review.*



Each week, ten children in the UK are diagnosed with brain tumours and almost a third will have visited an Emergency Department before diagnosis. A key challenge in the Paediatric ED is identifying the few children with rare and serious pathology from the masses with simple self-limiting illness.

Nicola presented 3 cases of serious CNS pathology presenting via the paediatric “minors” area.

**“29% of children with brain tumours in one study *had been seen in an ED.*”**

## Learning points:

- Children with serious CNS tumours can attend the ED with apparently minor presentations including diarrhoea, vomiting, eye problems. Symptoms may fluctuate.
- Brain tumours are 2nd most common childhood cancer after leukaemia and the commonest cause of cancer death.
- 60% of brain tumour survivors are left with a disability, often diagnosis is delayed.
- Children usually start with one symptom, but they may have up to 6 symptoms by presentation.
- CNS tumours can mimic other diseases.
- There is a reluctance to consider the diagnosis and there are concerns about needing a GA to scan a younger child.
- Red flag symptoms: abnormal movements including balance and gait abnormalities, visual problems, vomiting, headaches, seizures.

## When to image

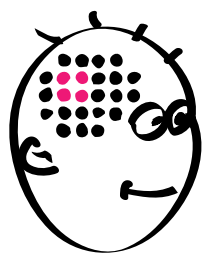
- Headache for more than 4 weeks (may manifest as altered behaviour or head holding)
- Persistent N&V for more than 2 weeks
- Behaviour change, especially lethargy
- Motor signs and symptoms
- Visual symptoms



The “Headsmart” campaign was launched in 2011.

[Headsmart](#) produces symptom cards for families (distributed through schools and a major retailer, Toys R Us) as well as resources for health professionals: their poster is on the next page. They also produce an [e-learning module](#).

Since “Headsmart” was launched the interval from symptoms to diagnosis has reduced in the UK.



# HEADSMART

be **brain tumour** aware

Brain tumours are rare, but they do happen.

Ten children and young people are diagnosed each week in the UK.

It takes longer for them to be diagnosed in the UK than in many other countries.

**Early diagnosis can improve the outcome.**

**Symptoms of brain tumours in children and young people vary, but they include:**

**Headaches**

**Vomiting**

**Poor balance**

**Difficulty walking**

**Abnormal eye movements**

**Deteriorating vision**

**Fits or seizures**

Be better informed about the symptoms

**[www.headsmart.org.uk](http://www.headsmart.org.uk)**

**[info@headsmart.org.uk](mailto:info@headsmart.org.uk)**

**Freephone 0808 800 0004** free from landlines and most mobiles

**Any child or young person with symptoms that are unusual for him or her, or are persistent or unexplained, should be seen by a GP. Please remember that any child or young person needing urgent medical help should be taken to the nearest emergency department. In an emergency dial 999.**

HeadSmart is funded and promoted by The Brain Tumour Charity and run in partnership with CBTRC and RCPCH



Headstart flyer for e-learning module - [click here](#) to do it!

Reflection  
for your  
CPD

This one's a bit obvious really - go ahead and **do** the [e-learning module](#)!



**HEADSMART**  
be brain tumour aware

## Free e-learning for health professionals

Specifically designed to help health professionals improve their knowledge of brain tumour presentation in children and young people and the links between brain structure and function.

### By the end of it you should:

- ❖ Know that the symptoms and signs caused by brain tumours are determined by the tumour location, the age of the child and the presence or absence of raised intracranial pressure.
- ❖ Know some of the common symptom and sign combinations that are caused by brain tumours in different locations.
- ❖ Understand the common ways in which brain tumours present and some of the diagnostic difficulties that occur in children.

### Modules include:

- ❖ Interactive case histories
- ❖ Neuro-anatomy quiz
- ❖ Questions to test learning

The whole package will take **just 2 hours** to complete and will help health professionals to be confident in using the HeadSmart website to select children that require reassurance or review or referral for scanning.

Simply go online to: [bit.ly/SRm9t9](http://bit.ly/SRm9t9)

**HeadSmart** is supported by the Royal College of GPs



**GP<sub>s</sub>** - The RCGP, in partnership with **HeadSmart**, has developed a parallel online course designed **specifically for GPs**, completion of which can be added to your CPD log. <http://elearning.rcgp.org.uk/course/info.php?id=99>

The **BRAIN  
TUMOUR  
CHARITY**

Children's  
Brain Tumour  
Research Centre

**RCPC<sup>H</sup>**  
Royal College of  
Paediatrics and Child Health  
*Leading the way in Children's Health*



# Acute Severe Asthma in Children - Colin Powell

Reported by Alison Walker & Helen Salter

## Types of asthma deaths in children

- Type 1: Longer history, poorly controlled, accounts for 2/3 deaths.
- Type 2: Sudden onset, little oedema or inflammation.
- Type 3: Possible anaphylaxis group who are being treated as asthma with sudden onset, mucus plugging as well as anaphylaxis. They have a short history in older children - often at night - who deteriorate and recover quickly. Other studies have shown anaphylaxis may have been missed in asthma cases with short onset.

## What to treat with?

There is good evidence for steroids and inhaled beta agonists, but there is no evidence for anticholinergics in moderate asthma.

In critical exacerbations: use inhaled salbutamol, anticholinergics and steroids

“A study showed 17% of paediatric severe asthma cases were possibly anaphylaxis.  
*There is probably a role for S/C adrenaline in such cases...*”



## Salbutamol IV vs. Aminophylline IV vs. Magnesium: the evidence so far

### Aminophylline

[Yung in ACD, 1998](#)

RCT of aminophylline versus placebo in children 1-19 yrs old with acute severe asthma.

- FEV1 was significantly higher, duration of oxygen therapy less, and they were less likely to be intubated.
- However, vomiting was side effect in 2/3.

The BTS suggest using a lower dose to try to reduce vomiting.

### Salbutamol

[Browne et al Lancet 1997](#)

Very small study of 29 children

- Consider IV salbutamol but there is little evidence for the dose.
- Salbutamol causes metabolic acidosis as a side effect.

What about **aminophylline vs. salbutamol IV**? Cochrane review of bronchodilators in asthma found little evidence of direct comparisons - so we just don't know.

### Magnesium

Evidence from meta-analyses:

[Kelso in Pediatrics 2006](#) & Steve [Goodacre in EMJ 2007](#)

*IV Magnesium appears to be safe and effective in children [and Goodacre concluded that, "...the implications of our analysis are that intravenous magnesium sulphate should be standard treatment for children with acute severe asthma that has not responded to initial treatment..." - Ed]*

## Paediatric Asthma Treatment Guidelines

[British Thoracic Society/SIGN](#) - last updated 2012

[ICON International Consensus on paediatric asthma](#) - complete with an impressive whole page of authors/author affiliations!

However here is no evidence as yet supporting the use of *nebulised* magnesium in children.

## Acute Severe Asthma in Children - Colin Powell

### And now for some event for recent emerging evidence....

The **MAGNETIC** study ([Powell in the Lancet 2013](#))

Studied the effect of nebulised MgSO<sub>4</sub> in 2-16 year olds. Detected a difference in asthma severity score at one hour, but clinically it was not clear on the significance. Suggests using in the more severe end of spectrum and in short onset cases (<6 hours), where it probably *is* clinically significant. Magnesium has a lower incidence of side effects than other drugs.

The **3Mg** study, in the [Lancet in 2013](#)

This adult study found **no** role for nebulised Magnesium, IV use in severe asthma only.

Salbutamol IV v Aminophylline IV v MgSO<sub>4</sub> IV/ Neb – much-needed future research!

**FESTIVA**, a feasibility study, has gathered prospective observational multi-centre data to obtain a snapshot of current UK practice. The series included more than 3000 children from 24 different hospitals, and showed wide variation in practice between sites and a large number of dosing regimes for MgSO<sub>4</sub> and salbutamol.

The **EVITA** (Evaluation of Intravenous Therapy in Asthma) study is next, and aims to answer the question of which IV treatment is most effective in acute severe and life-threatening asthma in children. Visit the [CAARP website](#) for more information.



#### What to treat with?

**Time** is the forgotten treatment in acute asthma. Have the confidence to wait for first line treatments to work and maintain a calm environment.

## Charity appeal



This report hasn't cost you anything. But if you have enjoyed it and found it useful, please, please could you consider making a donation to the **Tusk Trust**, a wonderful charity dedicated to protecting rhino and elephant populations endangered by poaching and the greed for rhino horn and ivory?

If everyone who reads this report donates **even £1/\$1** we could raise several thousand pounds. And if we hadn't given hours of our own time to write this report, we could've raised funds for them some other way!

[Visit our Just Giving page by clicking here.](#)

# Urological Emergencies - Derek Hicks

*The talk covered a full range of urological emergencies with evidence-based references*

## Ureteric Colic

There is an increasing incidence of ureteric stones, and after suffering from one attack, 50% of patients have one recurrence, and 10% have multiple recurrences. The main risk is development of an infected obstructed kidney, the signs of which include pyrexia greater than 38C and signs of sepsis.

### What about tests?

- Urine dipstick is positive for blood in [93-95% of patients with stones](#).
- The WCC isn't necessarily helpful in differentiating straightforward renal colic from an obstructed kidney: a mildly raised WCC might well be expected due to the 'acute phase response' rather than due to infection & should be correlated with the patient's symptoms & signs.
- Creatinine levels are unlikely to be changed if the patient has a second functioning kidney.
- There is a risk of contrast nephropathy if the creatinine is over 150, and should not be given.
- CT is the imaging of choice, as it shows radiolucent stones and other pathologies in abdomen.
- Plain KUBs have poor sensitivity and specificity, so is are not justified before CT KUB
- US is helpful for stones over 5mm and can be used for follow up or if pregnant.

### What about management?

- The Cochrane Review in 2005 found PR Diclofenac most effective for analgesia. Pethidine has been confirmed as not helpful.
- Stones < 5mm, 68% pass spontaneously (increased to up to 97% with alpha blockers, e.g. Tamsulosin for 30 days, NNT=4).
- Stones 5-10mm 47% pass spontaneously

Special circumstances to consider in the ED include patients with a single kidney, or stag horn calculi with the risk of recurrent UTIs. Other abnormal anatomy (such as Medullary Sponge Kidney) *doesn't* affect ED management.

## Haematuria

- If patients have visible/frank haematuria they need urological follow up (flexible cystoscopy) as 30% have malignancy.
- This applies even if it's a single episode or the patient is on warfarin.
- Blood at the start of the stream suggests prostatic / urethral origin.
- ED urine tests: document presence/absence of clots and visible haematuria & dip all urines.
- Indications for admission with haematuria include anaemia, clot retention, those on anti-coagulants, and in poor general health.

## Catheter Tips

- Ensure urine can drain freely
- Small clots are okay as long as they are passed easily.
- If catheterising for clots use a three-way catheter, and do **not** place a supra-pubic catheter acutely, as you may seed a tumour.

## Acute Scrotum

- The age peaks for testicular torsion are in infants under one year old, and in 12-18 year olds.
- Surgery for torsion needs to be within 4-6 hours.
- All unilateral testicular pain should be presumed to be torsion until decided otherwise by urology as they may not have classical symptoms.
- US has inadequate sensitivity and specificity to be used in the ED for possible torsion (but is useful in testicular trauma).

Check out the [European Association of Urologists' Guideline on Priapism](#) if the next page has you baffled...

Reflection  
for your  
CPD



# Urological Emergencies - Derek Hicks

## Other scrotal conditions

- For possible torsion of hydatid of Morgani: assume testicular torsion.
- Mumps orchitis: History is essential including vaccination history.
- Idiopathic scrotal oedema is a condition that presents in very young children <1yr. There is swelling, erythema & discomfort restricted to the scrotal skin which may extend onto the penile shaft/perineum. The testes/epididymis are separately palpable, clearly identifiable & non-tender. Urine dip will be negative – and most clinicians are too terrified of missing a torsion to make the diagnosis *[not really surprising given the fear instilled in us! - Ed]*
- Fournier's Gangrene: signs of sepsis, emergency ED management.

*“Priapism is an ischaemic emergency. Treat it with the same urgency you do ischaemic brains and hearts”*

## Priapism

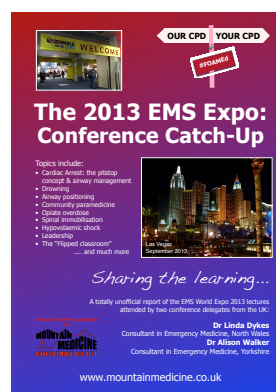
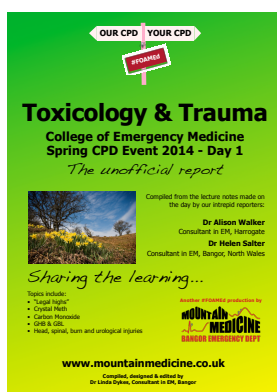
- **Often** associated with sickle cell disease: up to 89% of males with sickle cell disease have priapism at some time.
- Usually a late presentation and painful.
- Medication-related cases associated with Viagra (very uncommon/mythical) & Caverject (a little more common) plus many other prescribed drugs
- Recreational drugs (cocaine, herbal medicines) can also cause priapism

## Investigations

FBC, sickle cell screen, blood gas analysis of corporeal blood to differentiate low and high flow priapism

## Treatment

- Exercise diverts blood away from the affected area, so you really do “get them to run up and down a quiet stair well!”
- Can try a cold bath and therapeutic masturbation, “but this is painful”
- You (or more likely the urologist!) can also use penile aspiration from the corpora cavernosa at the 10 o' clock and 2 o' clock positions, using 18 or 16G cannula, and following a penile block.
- Urologists may also use intercavernosal phenylephrine injections (in resus, w/ monitoring).
- In *high* flow priapism – which may be related to prior trauma – urologists will **not** use aspiration as a treatment, as surgery will be required.
- If the priapism is due to spinal injury, leave it alone: it will resolve with time.



Our previous conference reports - include Day One of the Spring CPD Event (this is Day Two) can be found in our [Conference Report Collection](#) on [scribd.com](#)

Visit our main website: [www.mountainmedicine.co.uk](http://www.mountainmedicine.co.uk)

# An Integrated Healthcare system - Adam Cairns

"Better value for the patient, the taxpayer, and citizens"

Reported by Alison Walker

*As the NHS in Wales moves further apart politically from the direction taken by the NHS in England, have the Welsh got it right?*

*This was a talk given by Adam Cairns who was an Acute Trust CEO in England before moving to Wales. The talk was mostly aspirational as the plans he is putting in place are yet to take effect.*

## "Integration or Competition?"

There is now a live experiment going on now across the UK with the English system vs. the Welsh system. The new *Welsh United Health Board* programme is in three parts; looking back, thinking about the response, looking forward.

When the staff were asked, they said they thought the health board was about making money decisions and targets. Staff wanted more focus on patients, leadership, better teamwork & better working across systems. Staff wanted more on what was important to everyone... all thought there too much focus on money.

So the Health Board is beginning its transformation programme with: support for clinical leaders, time and money.

## Progress so far

They have improved ED performance mostly because the average number of beds used each day has fallen steeply, because medicine have reduced their average length of stay through quicker treatment and more effective discharges. There have also been fewer elective surgical cancellations.

There is *"no commissioning nonsense in the system"* [the recent NHS reforms do not apply in the devolved NHS in Wales] and *"all GP practices offer appointments after 5pm"*.

## The Safer Care Programme

Based on Institute for Healthcare Improvement work - [www.ihl.org](http://www.ihl.org) - the three key concepts being used to develop a more productive system concurrently with improving flow are:

- No needless harm.
- Evidence-based care.
- Timely care in the right setting

## The challenges to overcome

Adam said that they were, "... getting our house in order now, but we need to build a new house too..."

Underpinning his vision is the concept of removing, not encouraging, competition within the NHS in Wales - *"Welsh health boards don't compete, they collaborate"* - and the building of new alliances, described as *"... an ecosystem for health care in South Wales"*.

## Building a vision

"What do you want the system to look like in 10 years?"

We have listened to these kinds of visioning discussions before, but they are so often limited by finances: *"High standards, IT technology, collaboration. Deliver the best care at or near home. More proactive work with previous inpatients, new solutions to keep them well, and support them in the community when they are unwell. Integrated IT platform across all systems."*

And what about the direction of travel in England? *"In the previous English system we needed to join systems up, but there were too many groups with an input, and the tariff is not designed for an integrated system... [whereas in Wales] we can move money and people around in the Welsh systems...."*

Adam emphasised the need to restore belief, appetite and will for change in staff and asks them, *"... are you going to help take this happen or stand back and spectate?"*



# Snowdonia's ER



## Bangor, North Wales: *where EM is still fun!*



### Fantastic jobs (some including PHEM!)

Our **Clinical Fellow** posts, designed for post-ACCS EM/anaesthetic trainees (or as OOPE later on in training) were the first to offer pre-hospital EM as part of the job plan (20%). We take PHEM beginners, and this is the only job of this type in the UK with exposure to Search & Rescue medicine. 6 to 12 months posts available, and we can offer deferred start dates. **We have just introduced two new variants of our popular Clinical Fellow posts: Medical Education/Simulation and Quality Improvement/Medical Management (QIMM)** - advertising imminently on NHS jobs!



For **Higher Specialist Trainees (ST4-6)** who have a yearning to try rural Emergency Medicine, we can offer **OOPT** placements using our "spare" educationally-approved registrar slot. So if you fancy a change from the city...



We have one **SHO-tier post** available August 2014-Feb 2015 (identical to our deanery-approved F2/GPS/ACCS posts) which has previously proved popular for those unsure what to do post-F2, or who are before/after a period of travel.

We also have a **Locum Consultant** vacancy from October 2014, and we may have a substantive post to follow... So please do get in touch via our website for a chat if rural EM appeals.



### Medical students

We love hosting students! Our medical student programme is well established, and our rural EM electives and SSCs are extremely popular.

Many of our students have returned to us as postgraduate trainees, at every level from F2 to ACCS, GPST and ST4-6.



### Where is Bangor?

Sandwiched between the outdoor playground of Snowdonia National Park and the beautiful beaches & coastline of Anglesey in North West Wales, this is the place to live and work if you like the outdoors, with everything from rock-climbing to kite-surfing on the doorstep.

We are one hour by road to Chester/M6, 3 hours from London by train, or a quick ferry ride to Dublin.



# The last page...

## Your conference report team

**Dr Alison Walker** graduated from Cambridge University in 1995 and developed an interest in EMS by 1996. She held an EMS research post in 2002-3, and was Medical Director of Yorkshire Ambulance (i.e. the whole EMS system of one of the UK's largest counties) 2005-2013.

Alison has been a Consultant (Attending) in Emergency Medicine with a special interest in EMS since 2004, and her special interests are research and Urgent/Emergency Care systems. She recently moved to take up a new post at Harrogate hospital.

This is her third conference report in partnership with the Bangor ED team.

**Dr Helen Salter** was our second intrepid reporter at Day 2 of the CEM CPD event.

She graduated from Leicester University in 1988. After an SHO post in A&E (as it was then) at Luton & Dunstable Hospital she developed an interest in EM and was lucky enough to do one of the first junior level rotations for Emergency Medicine at Mayday Hospital, Croydon. Registrar training in North East Thames followed, and then a Consultant Post in Essex.

She has recently relocated to North Wales and now works as an Emergency Medicine Consultant in Bangor.

She has interest in Paediatric Emergency Medicine, and is a PEM Trainer. This is her second experience of the Bangor ED Conference report team!

**Dr Linda Dykes** compiles, edits, and designs the Bangor ED Conference reports, and squirrels out the stuff for the magic green boxes.



Linda graduated from Newcastle Medical School in 1996. She trained in Emergency Medicine in the Northern & Mersey Deaneries, and in General Practice in Wales. She has been a Consultant in Emergency Medicine since 2005 in Bangor & does occasional GP (family practice) locums to keep her hand in!

Linda has recently been seconded to Welsh Ambulance Service Trust as an Honorary Assistant Medicine Director one day a week, bring her a small step closer to her ideal portfolio career combining EM plus the EMS/ primary care interface, and teaching.

Her research interest is Mountain Medicine & she particularly enjoys teaching medical students.

### Please help us fundraise for the Tusk Trust

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If everyone who reads this report donates even £1/\$1 we could raise several thousand pounds.

[You can visit our Just Giving page by clicking here.](#)



## THE END

Please tell us what you thought of this report: we also need to know if we have any corrections to make! if you have any feedback/suggestions please email [Linda.Dykes@wales.nhs.uk](mailto:Linda.Dykes@wales.nhs.uk) or contact us via Twitter to @mmbangor. And if you are on Twitter and enjoyed the report, do help disseminate the link to it!

Please feel free to share this document widely, in the spirit of #FOAMed, but it may not be used for commercial purposes without our express consent.

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**PS - Please, please make a donation to Tusk Trust!**

Visit our main website: [www.mountainmedicine.co.uk](http://www.mountainmedicine.co.uk)