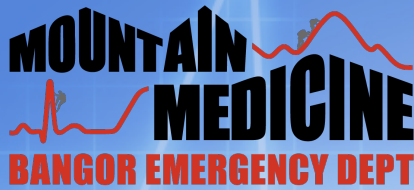


Another #FOAMed production by



## PART 2: Clinical topics

# A taster of the 2014 EMS WORLD EXPO

A totally unofficial report by  
Alison Woodyatt (Paramedic, Welsh Ambulance)  
& Dr Linda Dykes (Consultant in EM, Wales, UK)

Nov 11-13 2014  
NASHVILLE



Photo courtesy EMS World

**PLUS speaker's report  
by Rommie Duckworth**

- Update on surgical airways
- Strangulation in domestic violence
- Obstetric emergencies for EMS
- Body piercings: implications for EMS
- Agitated patients & Suicide intervention for EMS
- Extrication: field trauma care at MVCs
- Farm trauma

# Part 2 - Clinical Topics

## Introduction



Welcome to Part 2 of our report of the 2014 EMS World Expo, which took place in Nashville, USA, on 9th-13th November.

This is now the fifth conference we have covered

in this way - you can find reports from 2013 EMS Expo, 2014 CEM Spring CPD event, Retrieval 2014 and the 2014 CEM Conference in our Conference Report collection at Scribd website - [www.scribd.com/BangorED](http://www.scribd.com/BangorED).

We only had two intrepid reporters out in Nashville, and EMS World is a 3000+ delegate multi-stream conference, so this report brings you only a taster in the form of the talks we personally attended. One of us is a paramedic and one an Emergency Physician, so we hope we have included material of interest to both EMS and hospital Emergency Medicine clinicians.

In addition, EMS World Expo speaker Rommie Duckworth has kindly also contributed, by sharing with you what he considers to be the main “take home” points from his Nashville presentations.

It does take many hours to turn hastily-scribbled notes into this magazine-style format (you’ll need to forgive us the mixture of US and UK spellings

Part 1 of this report - topics for educators, managers and service planners - [is also available](#)

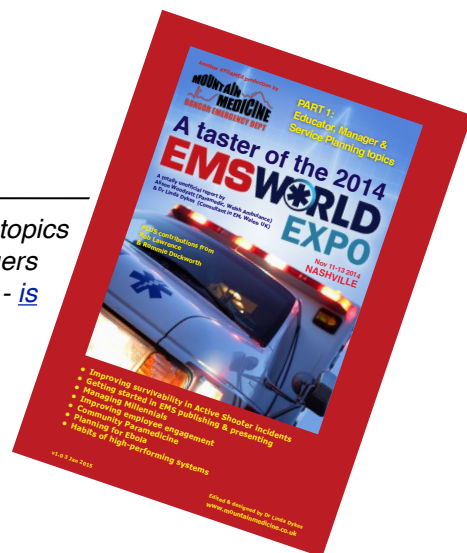
in different articles!) and it’s all done in our own free time, so please forgive us that this report hasn’t appeared until two months after the conference.

We must make an important disclaimer. Whilst we try to make our reports 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.**

*Linda Dykes  
& Alison Woodyatt*



### Twitter: #EMSWorldExpo



There wasn’t as much Twitter activity as last year - some prolific tweet-reporters were absent or busy speaking! But there was still some active reporting of plenty of talks.

If you haven’t yet [entered the world of Twitter](#), make #EMSWorldExpo one of your first search terms!

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.



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## CHARITY APPEAL

### Please help us support

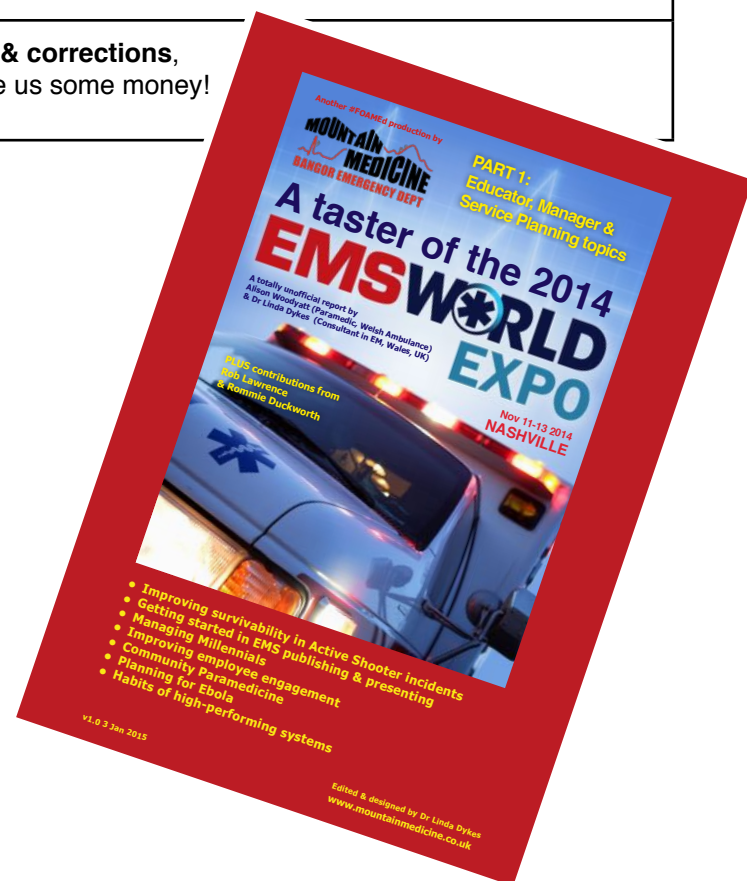
## The Tusk Trust

We created this report because we're passionate about FOAMed.

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 poaching.



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



Part 1 of this report - topics for educators, managers and service planners - [is also available](#)



# Strangulation & domestic violence

- Daniel Batsie EMT-P

Reported by Linda Dykes

**This talk was a gem. It was just a short half-hour slot on the stage on the Trade Exhibition floor (actually the setting for some super talks at this conference) but the speaker was engaging, the topic important... and it will certainly change my practice.**

The talk opened with a video clip of an actual assault involving strangulation, caught on CCTV: like the videos in the [this news clip](#), the victim loses consciousness very quickly, but recovers equally quickly. Sometimes, this is via a brief myoclonic seizure, and on recovery, altered mental status, transient confusion and even euphoria may be present, following the brief hypoxic brain injury.

## If you don't ask, you won't find it

This was scary: "At least 25% of domestic violence injuries involve strangulation" - we assume US data - but only 39% of strangling victims report to the police and only 3% seek medical attention.

In general, Daniel advised, victims won't offer you the information they have been strangled... in fact in some cases they may not even recognise themselves what has happened. In order to elicit the history you need to specifically ask "did he put his hands round your neck and squeeze?".

Sometimes, strangulation is used repeatedly in an abusive relationship as a big power/control issue... it's a very intimate way of assaulting someone and very controlling. Some women are subjected to it several times a week, and this can have long term adverse consequences - see pink box (right).

*"35% of strangulation victims have no visible injuries"*

## Dangers to life

Strangulation is a significant risk factor for subsequent homicide, and 10% of violent deaths in the US are directly caused by strangulation (again, [US data](#), and we wonder what the comparative statistics are in UK where violent deaths from gunshot wounds are so much less common)

## Has she been strangled?

Look for *signs of LOC* (incontinence, unexplained injury, gaps in time/history line) and look carefully for "*silent signs*" (you won't find these on primary survey) - ligature or bruising marks on neck, coughing or vomiting (may mimic asthma), voice change, petechial haemorrhage (occur after 20-30 seconds of jugular occlusion) - don't forget to look behind the ears - and difficult or painful swallowing (can last for months).

The pressure/force required in strangulation isn't that high - it takes 22lb to open a coke can, 30lb to close the trachea, 4.4lb to close the jugular veins and 11lb to close the carotids.

## Later complications

Blood vessel damage, bleeding, airway oedema, pulmonary oedema, aspiration pneumonia (may not be till 2 days later) and miscarriage can all occur - but may not.

## Be a good witness

Make sure your documentation is objective, accurate & comprehensive - it may be required in court.

## Long term effects

Cumulative brain cell loss in repeated strangulation events can lead to Parkinsons-like disorders, seizures disorders and later strokes.

If you have never seen any news items about the "Choking Game" - the dangerous teenage craze from a couple of years back - you may not have realised how quickly someone blacks out from pressure round the neck (and how suddenly they recover after!) unless you once forgot not to check the carotid pulse on both sides at the same time! Take a look at this [astounding news clip](#) which incorporates a selection of videos.

Reflection  
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# Body piercings & tattoos: EMS implications

- Scott DeBoer

Reported by Alison Woodyatt

This was the most “show-biz” of lectures, opening with with rock/pop music playing, including Barbie Girl!

The aim of the lecture was to educate the audience as to the different sites and types of piercings likely to be seen on our patients as well as - less obviously - problems which may arise from patients with tattoos. We were given a brief history lesson and discovered that piercings aren't new (despite what the youngsters of today may think!) and the practice dates back to ancient times. 51% of the American population have piercings (in the UK, whilst about half of all women have had some kind of piercing, only 10% have a body piercing), so is it important we know more on the subject of what and where can be pierced, tattooed or implanted...

## What is getting pierced?

Well, we all know that it isn't just ear lobes! However, ears remain the most common piercing site.

Luckily, they rarely affect pre-hospital clinical practice and the only earlobe piercing which may pose a problem is a “scaffold” ear piercing, where layers of bars criss-cross the opening of the external auditory meatus, which would require removing one at a time should you need to examine the ear.

A trend in some today is that of **ear stretching**: the ear lobe is gradually stretched by larger and larger “stretchers” being inserted until the desired size of hole is achieved. Trauma to the ear is possible from earrings tearing out of the ear, resulting in some blood loss and pain, but not deemed as life threatening.

**Facial piercings** are not a problem in life-threatening situations (in fact, the vast majority of piercings in other sites do not pose a threat either) but it is important that medical staff are aware that it may be ‘normal’ for the patient to have certain body parts inserted with foreign objects!

## Facial piercings you may encounter

### Eyebrows

Look closely for them, the bars can be flesh coloured and are sometimes missed when the visible part of the piercing - i.e. the ball/stud at the end - has fallen off.

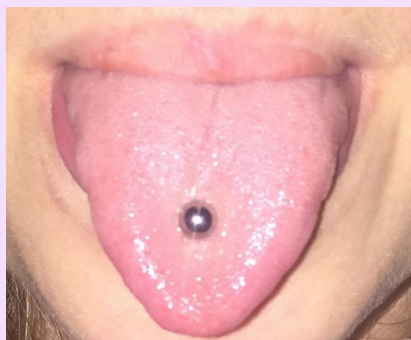
### Noses

Nasal piercing does not pose a problem either. Naso-pharyngeal airways *can* be inserted, because the part of the piercing inside the nostril is small (or in some cases flat).

### Oral piercings

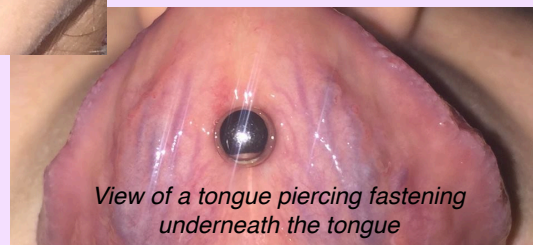
#### 1. Vertical and horizontal tongue bars

Bars are inserted through the tongue and secured at either end. Despite there occasionally being some swelling after a piercing, there does not seem to be too much concern for oedema or occlusion of airways from the tongue swelling in adults, however pediatrics are more at risk (underage piercings do occur).



emergency, therefore the importance of a patent airway far overrules attempting to remove a tongue piercing in an emergency situation.

There have been only two recorded incidents of the tongue bleeding during intubation in an



View of a tongue piercing fastening underneath the tongue

#### 2. Uvula piercings

Becoming more popular (in the USA context - anyone know whether they exist in the UK yet?). If you are suctioning an oropharynx, and see a little ring on the uvula and can't understand why it won't move, it may be pierced through the uvula. The advice given was to “try and work around it”!

# Body piercings & tattoos: EMS implications - Scott DeBoer

## Aspiration risk?

Accidental aspiration of jewellery is an issue in both oral and nasal piercings, hence it is important to look for possible piercing sites of different sizes and location in patients presenting with signs of aspiration. Aspiration may occur when attempting to remove a piercing from a patient if the piercing is dropped and inhaled. Piercings are often small and fiddly: if the patient can't remove the piercing themselves, it is best left in place.

## Nipple piercings

These are not such a concern in the emergency setting, and it is believed that defibrillators can be used as normal, and that the piercing can stay in situ, as long as the defib pads are not placed directly over the piercing.

Breast feeding is still possible if a nipple has been pierced, but it goes without saying that the piercing must be removed before a baby feeds! Trauma from the piercing being ripped out is possible and painful.

## Belly button/naval piercings

"Pregnancy piercings" are a new trend - there are now belly bars on the market which get larger as the baby bump grows. Caesarean sections are possible with a belly-bar in situ, as is full term pregnancy.

## Intimate piercings - Female

There is no need to remove these piercings even when catheterizing or examining a patient. It is possible to give birth with a vaginal piercing in situ.

## Intimate piercings - Male

Complications can arise when piercing the penis because it is a "Big ole blood balloon, waiting for a big old 14 gauge to pop it" (My favorite quote of the day!). Male catheterization can be difficult with a penis piercing in situ, and it may be necessary to remove it.

## Suspension piercings

If Tongue splitting sounded a bit bizarre to our British sensibility, hanging suspended by hooks inserted through the skin sounded a frankly bizarre recreational activity! Ripping of the skin happens occasionally, but bleeding and infection are rare. "Suspension shock" has been recorded.

## And what about tattoos?

More of an issue for hospital clinicians, but there are case reports of **tattoo ink heating up in MRI scanners** (probably the metallic constituents in some older, DIY tattoos) - prophylactic application of cold packs during scanning may be required. Also, some anaesthetists are reluctant to insert spinal/epidural needles through tattoos over the spine, from fear of introducing ink into the spinal canal. If any readers know more about this, please let us know!



Photo by kind permission of Erik Sprague (thelizardman.com)

**Tongue splitting** is not a common technique, though it has become famous due to the Lizard Man (pictured above). The tongue is split from the centre to the tip to mimic the appearance of a forked reptile tongue.

The Lizard man also has **implants** (his are teflon) to form his reptilian-look eyebrows.

Reflection  
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CPD

It's probably never really crossed your mind, but if you have a sudden fascination in knowing what body parts the English people are getting pierced - and how frequently complications are - the answer is [here](#).

The several varieties of penis piercing are illustrated and explained in [this BJMP paper](#), although gentlemen readers may wish to sit down before opening that link!

Many British doctors will no doubt recall the [BMJ article in December 1999](#) about body piercings (institutional access required to view) because it was in the same Christmas BMJ edition as the famous study [imaging Dutch acrobats having sexual intercourse inside an MRI scanner](#).

If you've never read that paper, you really must - the junior doctors' messes around Britain were agog at the time!

# De-escalation of the agitated patient:

## Four Key Concepts - David Page

Reported by Alison Woodyatt

David Page (see also page 17/18) had previously worked in an intervention centre where he was trained to speak with and help psychiatric patients who felt they were no longer able to cope, or were demonstrating abnormal behaviors. Nevertheless, he felt that his knowledge on this subject was not appropriate for EMS “on the road” situations, and so sought out additional training: *“We do not receive enough training on this topic, so I had to seek my own training”*. This was a thought-provoking lecture that aimed to highlight issues, and possible interventions, when encountering a patient having a mental health “crisis”

### Key Concept 1: Identify the potential for violent behaviour

- As you approach your patient take note of what they are wearing: could they be concealing weapons? This does not always have to be guns, but in the USA, guns are more readily available. There are even some schools that have uniform policies enforcing shirts are tucked in etc so that weapons aren't so easily concealed.
- Despite gun culture not being such an issue in the UK, we can consider other weapons including guns, knives or any object which may pose as a threat.
- All EMS calls involve an element of altered emotional behaviour.... consider ALL calls to have an element of crisis, especially anxiety

### Key Concept 2: What is the cause of this patient's current crisis?

- Always, first consider **organic (medical) causes** for altered/aggressive behaviour of our patient: there may be clues to medical causes for abnormal behaviour in the patient's vital signs/ obs.
- Conditions to be particularly aware of are: acidosis, epilepsy, infection, overdose, uraemia (AEIOU).
- **Trauma** is a consideration too: is there evidence of significant mechanism of injury, or visual clues to injury, or history indicators such as reduced GCS at any time, differing pupil sizes etc?
- **Chemically-induced behaviour**: Has the patient taken drugs of any kind which may affect their behaviour? Clinical observations may support this suspicion.
- Does the patient have a **history of psychosis or schizophrenia**? However, don't get fixated on the precise mental health “cause”. Once medical factors have been ruled out, the focus of your management remains on the intervention. Psychiatric patients are often modest people, with ‘normal’ observations, gradual onset of symptoms, have clear speech, are awake and alert.

### A reminder: “Positive” & “Negative” symptoms

#### Positive symptoms

- Delusions
- Hallucinations
- Agitation
- Paranoia
- Rocking – staring

#### Negative symptoms

- Withdrawal
- Lack of personal hygiene
- Flat affect
- Depression

Forgotten about some of this stuff? try [this link](#) for a readable, brief reminder about positive and negative symptoms of psychosis.

There's a CE-activity module on violent patients on the [EMS World website](#).

US readers may be interested to see an (open-access) [UK ambulance service policy](#) on violence & aggression from a world with few guns and a very different approach to restraint by paramedics and EMTs.

Reflection  
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# De-escalation of the agitated patient: David Page

## Key Concept 3:

### How to approach a patient in crisis

- As with ALL pre-hospital calls, scene safety for ourselves is paramount. When attending a psychiatric patient in crisis discuss as a crew or with other agencies before approaching:
  - ★ Is it safe to approach?
  - ★ Do I have means of egress?
  - ★ Do we have a plan?
  - ★ Does everyone know our plan?
  - ★ One person should be in charge: do not have too many people talking.
- Safe positioning: be aware that the patient can be pre-violent at any time, especially if they are staring or their body goes tense... step back.
- Be aware of your own body language: how you communicate is paramount:
  - ★ Think carefully about the words you use and your tone of voice.
  - ★ Your approach must be non-threatening
  - ★ Don't over-do eye contact
  - ★ Respect their personal space and accept that you may not be able to make physical contact (which may make taking observations impossible to rule out medical causes)
- Empathy can't be taught, but practitioners who aren't naturally empathetic can learn to be conscientious.
- Know yourself: you will know if you are going to cope with a patient in crisis. Accept that, and tell yourself "I alone have responsibility to create a rapport with this patient in crisis".

## Golden rules from this lecture

- Do unto others as you'd like done to you!
- Remember every encounter with a patient in crisis is unique.
- Use your adrenaline, but don't be ruled by it!
- Flexibility equals strength, rigidity equals weakness.

## Key Concept 4:

### Helping a psychiatric patient

- There are many styles of crisis intervention; we discussed non-contact approaches as well as physical approaches such as restraints.
- Ask the patient what caused them to call for help: this may open a verbal dialogue with the patient, who may or may not be willing to share with you why they have asked for help at this time.
- Avoid de-personalisation and abstraction of the situation and do not have pre-assumptions as this will put the patient on edge.
- Baby steps: be aware that those in crisis may find every day tasks impossible, so be patient, one step at a time. Do not rush the patient into making decisions, remember: "The gentle art of persuasion is Verbal Judo"
- If the patient is compliant, confirm that their actions have been helpful - this may have required an element of negotiation, but ultimately it may result in a calmer transfer and admission to the Emergency Department or specific facility.
- If the situation should become volatile, it may be necessary to call for assistance from the police. Unlike in the UK, paramedics in the USA are allowed to restrain patients and they carry restraint straps on their vehicles - however restraint must be avoided if possible and the patient must never be restrained in the prone position as this can result in death.
- Typically, in the US, the police convey mental health patients, but the speaker asked that medics consider conveying to the Emergency Department whenever they can safely do so, because police unnecessarily conveying can have such a negative impact on the patient.

# Surgical Airways Update - Darren Braude

Reported by Linda Dykes

US EMS-airway guru Darren Braude (who's both a paramedic and an Emergency Physician) came up with some useful take-home message for his talks on surgical airways.

## Why aren't we doing them any more?

Only 22% of US EM residents completing their training now have actually ever *done* a surgical airway, and in US helimed data, from 5000 patients only 35 (0.7%) had required a surgical airway, 33 of which were performed successfully.

But why has there been this massive decline in the use of surgical airway? Dr Braude maintained it is due to two main drivers. The first - the popularisation of supraglottic devices - is the obvious one. The second? It is no longer considered acceptable to practice procedures on the newly-dead.

**But if you need to do it, do it early!**

Any patient who needs an emergent cric in the field is already having a really bad day: their best chance if for your do do it early, quickly & correctly.

## Complications: the reality

Surgical crics in the field are nasty, messy and difficult, as two American flight nurses unfortunately experienced [in a case in 2008](#).

Darren stressed that we must stop thinking of bleeding as a "complication" of this procedure - we we accept it as inevitable, we will be psychologically in a better place to crack on and secure that airway. Nevertheless, complication rates are high - 14% in-hospital and 54.5% pre-hospital in a [5-year series of 50 crics from one institution](#).

This is a low-volume, high-risk procedure with a host of potential complications, which is a "perfect storm" situation for experiencing difficulty.

## Indications for a surgical airway

Do a surgical airway if the patient will die without an airway AND there are no other reasonable options:

- Optimal BVM fails (cannot intubate cannot ventilate)
- Nasal intrubation fails or contraindicated
- Oral intubation fails or contraindicated
- Alternative airway fails
- Alternative airway inappropriate (e.g. peri-glottic pathology)

## Ready, steady, GO: the psychology of it...

We must stop thinking of surgical airway as a "back-up" - doing so results in delays of up to 3 minutes, which patients in this situation may not have.

There are two components of delays in embarking upon surgical airways - firstly, the decision to do it (which is why you must regard it as a primary airway technique) and secondly, fetching & preparing the kit.

*“Do not regard bleeding as a complication of a surgical airway. They will bleed.”*

## What's your CricCon Level?

The concept of "CricCon" level was introduced - the original 5-level alert:

## CricCon

### Cricothyrotomy Alert Posture

5	Discuss/Feel/See Kit
4	Mark/Kit Bedside
3	Inject/Prep/Open & Set Kit/Scalpel in Hand
2	Make skin cut/Find Membrane
1	Perform Cric

And the revised CricCon2:

## CricCon2

### Simplified Cricothyrotomy Alert Posture

All	Discuss/Feel/See Kit
Risky	Mark/Kit Bedside
Crashing	Inject/Prep/Open & Set Kit/Scalpel in Hand

# Surgical Airways Update - Darren Braude

## The different techniques

Dr Braude showed a selection of videos of surgical airways being performed, including some incredible vintage footage of some being done on what appeared to be awake volunteers!

The **Rapid 4-step technique** is choreographed so that the right hand ends up inserting the tube. It starts with a *horizontal* incision. Click [here](#) for a video.

The **traditional technique** uses a *vertical* incision which “theoretically minimises bleeding”, but also requires a dilator and tracheal hook.

The **Bougie-assisted cric** - cut/finger/bougie - is faster and uses a 6.0mm ETT (occasionally 5.5) and is now recommended in the US Difficult Airway Course. Click [here](#) for a video.

Airway maestro Richard Levitan (of [www.airwaycam.com](http://www.airwaycam.com)) has invented the “**Cric-Key**” and “**Cric-Knife**” - a double-sided knife that has a tracheal hook that slides down the blade rather like a venflon. That uses a *horizontal* incision.

There are also various **seldinger techniques** (e.g. Cook Medical’s Melker device - see video in the [surgical airways section of airwaycam.com](#)) and **blind techniques** like the Portex mini-trach, Quick-Trach, Nu-Trake and others.

The speaker then presented a range of papers addressing the issue of whether any technique was superior to another - concluding that the [best trade-off between success & complications](#) was in surgical technique, rather than any of the gadgets.

Of particular interest to UK readers, the [2011 NAP4 report](#) is particularly damning of emergency cannula/needle cricothyroidotomy (which many people would find less intimidating than a full surgical airway) citing a failure rate of about 60% - in sharp contrast to emergency surgical airways which were almost universally successful”.

Even the ever-measured authors of NAP4 at the Royal College of Anaesthetists even say “... *the possibility that it is intrinsically inferior to a surgical technique should ... be considered*”.

Dr Braude concluded his talk by pointing out that **awake cricothyrotomy** is possible, though you do need to use lots of lidocaine with epinephrine.



This slide, shown at the lecture, is of the “double set-up” - with full preparation for both orotracheal intubation and a surgical airway. The “quadruple set-up” consists of normal orotracheal preparations, surgical airway prepped, BVM and supraglottic devices all at the ready.

## The #1 pressing question: Horizontal or vertical incision?

The answer? Either.

Dr Braude suggested using a horizontal incision if you **can** see the cricothyroid membrane and a vertical incision if you **can't** and need to dissect... bearing in mind that once you put knife to skin, you **will** be working by feel as it **will** bleed.

Reflection  
for your  
CPD

There are a wealth of fantastic airway resources on the internet - many #FOAMed enthusiasts are in the critical care/PHEM/EM/anaesthetic world.

Remember though - **you need to choose your method and stick to it.**

For wider emergency airway reading, make sure you browse the collection of Dr Braude’s articles, collated on the [Emergency Medicine News website](#).

[EMCrit](#) has an excellent resource collection on surgical airways, including a [reminder of the relevant anatomy](#) by Andy Neill.

[Airwaycam.com](#) has a mass of resources including an excellent video library, and Life In The Fast Lane’s “[Own the Airway](#)” section reminds us about doing the basics well.

Finally, are [Difficult Airway Course](#) is available in several different variants in the USA (anaesthetist, EM, EMS) whilst in the UK, the [Difficult Airway Society](#) has links to a wide range of courses, including some for EMS staff.



# Nearly as good as being there: The UK College of Emergency Medicine Annual Scientific Conference 2014.

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BANGOR EMERGENCY DEPT

**CEM 2014  
Conference  
DAY ONE**  
Tuesday 9th September



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Edited & designed by Dr Linda Dykes

v 1.0 - 13th Oct 2014

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**CEM 2014  
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DAY 2 & 3**  
10th & 11th September



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Edited & designed by Dr Linda Dykes

v 1.0 - 22nd Nov 2014

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Approaching CCT, or fed up with life in the rat race and want a move? Take a look at our unofficial website - [www.mountainmedicine.co.uk](http://www.mountainmedicine.co.uk) - and see whether you like the sound of our team. If you like to work hard and play hard, in a relaxed and friendly department (egos are left at the door here), get in touch. Even better, from 2015 there is the opportunity of PHEM sessions. And getting paid to fly over the magnificent scenery of Snowdonia National Park as part of your day job is, let's face it, simply awesome.

# Prehospital response to Delivery Emergencies

-Teri Campbell

Reported by Linda Dykes



**This fantastic - and hilarious - presentation was magnificently delivered by Chicago Flight Nurse Teri Campbell, who has significant midwifery experience and has delivered thousands of babies. Unless anyone *apart* from Teri has left midwifery to move into EMS, it is a truth universally acknowledged that obstetric emergencies terrify EMS staff the world over...**

*UK readers: please note that some of the content of this talk is substantially different from JRCALC and/or exceeds the scope of typical scope of UK paramedic practice*

## Imminent delivery: when's it coming?

If your patients says "the baby is coming", then the baby *is* coming! Other clues are her getting an urge to bear down, or a feeling of wanting to poop (and if she *does* poop a bit, *don't tell her*, just smile nicely and put a new pad there!), a bloody "show" (i.e. bloody mucus) or the baby crowning.

*"If called to a grand multip in labour, apply diesel!"*

## Getting you & your vehicle ready

If you haven't yet set off to hospital, if possible, load the mum *backwards* into the ambulance to give her a bit of privacy. Allocate your most experienced crew member to patient care whilst the other drives, although you should pull over if the patient is actually delivering.

As for kit, get out your resus

kit "to ward off evil spirits" (we loved that phrase) and your delivery pack, although Teri reckoned that "most OB kits are useless, except the two cord clamps and bulb syringe". If you have time, don't forget to protect yourself - get your gloves on, and if you can, a facemask with a shield or other eye protection. So, once you're ready, and the baby is delivering, it's showtime....

*"Have your resus stuff ready, to ward off the evil spirits..."*

## Delivery I: normal OA presentation

First, try to slow down breathing (you and your patient!). As the head crowns, use one hand to support the baby's head and the other to support the perineum.

Once the head is out, check the umbilical cord isn't wrapped round the neck (30% are). If it is, and it's too tight to slip over the head, clamp and cut it. If there are multiple loops of cord round the neck, cut and clamp whichever loop is the most accessible - it doesn't matter which it is.

If the baby is born still inside the amniotic sac - "en caul" (from the Latin "caput galeatum", meaning "helmeted head") then watch out for it popping - it will spray everywhere. Keep your mouth closed - as Teri pointed out, "you don't want to find out for yourselves that amniotic fluid is salty..."!

Once the head is delivered, hold it with your hands over baby's ears. The baby will turn whichever way it wants to do face one if mum's thigh. Once you know which way it's turning, you can gently pull down on the head to help the anterior shoulder pop out, and then gentle traction up to help the posterior shoulder deliver - this is easier if mum's hips are raised.

Once delivered, keep the baby at the level of the perineum (to allow the placenta time to pump a bit more blood into the baby) whilst you suction (using the bulb syringe) the baby's mouth before the nose ("one hole before two holes") and dry the baby, then pop the baby onto mum's abdomen or chest. If you have cord clamps, use them now, but don't worry if you haven't - the cord blood vessels will spasm closed after a few minutes.

# Prehospital response to Delivery Emergencies - Teri Campbell

## Precipitous delivery

Rapid deliveries are commoner in older grand multips and women with medical problems. They may present with vaginal bleeding, spontaneous pushing, labial separation and anal dilatation ("rosebud") [*we suspect the paramedic may also have anal dilatation at this point - Ed*] and damage control is required as the baby may deliver so quickly that it can get a bruised face and respiratory issues.

*So, what about the really scary stuff? Most of the audience had delivered kids on the road, but as the talk progressed and Teri moved onto Really Scary Stuff, more and more notes were taken and more and more photos were taken of her slides....*

## Prolapsed cord

This is uncommon except in breech presentations (only seen in 0.4% of vertex presentations). The problem is that "kinking of the hose" can reduce blood supply to the baby before it is delivered, and/or the cord can go into spasm if it emerges into the outside world before it should.

If you find a cord emerging, do not try to stuff the cord back up through the cervix. Instead, get mum to pull her knees up to her chest ("she'll hate you") as it's the weight of the head that pushes the baby down. Then you need to do your "Statue of Liberty" thing and push the presenting part back up to keep the baby's weight off the cord. Give terbutaline if it's in your protocols, and phone ahead to the hospital!

## Shoulder dystocia

*From the scary to the terrifying, next was shoulder dystocia, seen when the shoulder diameter is wider than the head, usually in babies weighing over 4000g and notorious for being seen in the babies of mums with IDDM.*

The first sign of impending trouble may be "turtling", with the head appearing with each contraction then popping back in. If the head delivers and the shoulders won't follow, you need to spring into action. You need to know your own service's protocols for this emergency.

Photo: Jules Thurston



Shoulder dystocia is more common in babies weighing over 4kg. This whopper - a shade under 5kg - was delivered by emergency caesarian section.

## Teri's Shoulder Dystocia Action Plan

**Action 1:** Pull mum's knees up as far as possible - the "McRoberts position". Mum will say she can't do it - make her - this manoeuvre opens up the internal pelvic diameter and sorts out the dystocia in >50% of cases.

**Action 2:** Apply suprapubic pressure over the bladder (*not* the fundus) using the CPR hand position. Use an initial pressure for 30-60 seconds, then a rocking motion a bit like CPR. You're trying to rock the shoulders.

**Action 3:** Episiotomy, 2-inches, medio-lateral. This won't help the dystocia *per se* (the block is bony), but it will enable you to get your hands in and break the baby's clavicles: hook a finger under a clavicle and snap it. If that doesn't work, break the other one. It doesn't matter which you break first.

**Action 4:** Push the baby back up into the uterus and rapidly transport to hospital for a caesarian. This is called the Zavenelli manoeuvre and is a last resort.

## Important Note

- Look up and LEARN your own service's protocols for a delivery emergencies.
- Teri's personal Action Plans (shared here) will not necessarily agree with your service's protocols/guidelines.



# Prehospital response to Delivery Emergencies - Teri Campbell

## Breech delivery

3-4% of deliveries are [breech presentations](#), rising to one-third in pregnancies delivering before 28 weeks gestation and also common in multiple pregnancies.

10% of breech babies are “complete” (flexed legs) and 65-85% - it depends on what book you read - are “frank” (legs extended - rather cute because babies born this way like to lie with their legs up even after delivery!). Incomplete “footling” breech presentations form the remainder - about 25% - and these have a nearly 1-in-5 chance of being associated with a prolapsed cord.

There are risks to mum and baby with breech deliveries, which is why they are often delivered by elective caesarian section. Sadly this is not a luxury afforded to you in EMS when presented with a labouring woman and you discover the presenting part is a foot or a bottom (best case scenario for a breech) - and as Teri said, “do be careful not to accidentally PR a breech baby”!

This section of the lecture was complicated - there are several phases to a breech delivery - the gist being that delivering the bottom half of the baby should be fairly easy, the scary bit comes with the head. The fetal chin is usually posterior (i.e. down), and delivering the head involves flexing the fetal head, delivering the “subocciput” first, and then lifting the baby up to deliver the mouth, nose and rest of the head. There’s a video of both a birthing model and a real delivery on [this link](#).

## Uterine rupture

The incidence of uterine rupture is 0.3-1.7%. Of these, 9% are due to a ruptured uterine scar from a previous caesarian section with other causes being trauma, uterine hyperstimulation (which can be due to cocaine use) or over-distension.

Diagnosis for EMS personnel may be a problem: the classic signs (sudden tearing pain & vaginal bleeding) are unreliable. You won’t be monitoring the fetal heart, so you won’t get the clues in the CTG that delivery room staff would, and “easy to feel fetal parts” is really a post mortem sign.

The clues of uterine rupture in the EMS world are more likely of maternal tachycardia, hypotension, & shock. Estimated blood loss is 2-litres plus, and the patient needs to get to an OR.

## Post partum haemorrhage

- The uterus has a blood supply of 800ml/minute, but nature supplies a way of shutting this down after delivery: nipple stimulation, so get baby onto the breast (“if the mom is unconscious, get her partner to do nipple stimulation”).
- Also, try uterine massage (“rubbing up a contraction”) and if you have them, Syntometrine or misoprostol.

## What if there’s meconium?

- May be due to the baby being physiologically stressed/distressed - or it may just have pooped.
- Suction with a bulb syringe, but there is no need to intubate and perform deep suction unless the baby is unresponsive.

If you’d like to learn more about shoulder dystocia, try the [RCOG guidelines](#). And a piece of trivia for you: the babies of heroin users have remarkably mature lungs - although you may need to give narcan to the baby!

Reflection  
for your  
CPD

## Cervical stitches/circlage

This wasn’t part of Teri’s talk, but whilst you’re thinking about scary obstetric stuff, the opportunity to tell you about them is too good to miss! A “cervical stitch” is a band of strong nylon tape that is placed around the cervix in the hope of preventing miscarriage. They’re removed in hospital about 36/40 - community midwives can’t take them out.

### Going into labour with the stitch in situ is dangerous for mum & baby.

If the baby forces it’s way out anyway, the suture can seriously damage the cervix (which would cause torrential bleeding) & there’s even potential for a tear extending into the uterus and the baby being extruded unto the abdominal cavity.

Should you find yourself with a patient in this situation - drive. Or fly. **Do whatever you need to do to get mum to hospital without delay.**

*Information kindly supplied by Dr Christine Clark, Consultant Obstetrician, Ysbyty Gwynedd, North Wales*

# Have you read the Bog Blog?

## Designed for the back of the toilet door...



### EMS Lavatory Learning *CPD whilst having a wee!*

#### No. 1 - July 2014

Welcome to the first "Lavatory Learning". We've collected some "things we didn't know last month" on one-page, designed for the back of the loo door.

This is intended as a WAST community production - please send us something you've learned this month that you'd like to share.

#### Paediatric vomiting - what does it really mean?

This is a much-shortened version of Dr Natalie May's post on "emesemantics and vomiting in kids" at the fabulous St Emlyn's Blog - [www.stemlynblog.org](http://www.stemlynblog.org) - and is used with Natalie's kind permission. Thank you!

	"Bile"	"Projectile"	"Coffee Grounds"
<b>What parents mean</b>	Usually, yellow vomit, or any vomitus that isn't recognisable food - "it was just bile..." There's a lay perception that "bile" = "stomach contents".	Parents generally mean "vomit which comes out with any force, rather than just dribbling from the baby's mouth"	Brown vomit, or sometimes vomit with bits in
<b>What we mean</b>	Bile is the cooked-green-spinach coloured substance produced by the gallbladder. Or it can be avocado-coloured. But definitely deep green in colour.	Vomiting that is unusually forceful and the vomitus travels a significant distance (e.g. further than the child is tall).	Vomit which looks like the black or very dark brown granular substance you tip out of a cafetiere.
<b>What does it actually mean?</b>	In newborns and infants, bilious vomiting indicates intestinal obstruction. After the neonatal period, bilious vomiting may be due to volvulus or malrotation, but can be due to viral gastroenteritis.	Projectile vomiting can be a sign of congenital pyloric stenosis - seen in weeks 4-8 of life, presenting as a skinny hungry vomiting alert baby, often male. In older children, it's probably just normal vomiting.	It is blood that has been in the upper GI tract for long enough to have had contact with gastric secretions. True upper GI bleeding is rare in children - consider button battery ingestion if you see it.

#### Two Top Tips from the CoP CPD Day

##### 1. Airways

When sitting any airway - including OPAs and iGels - use a laryngoscope, especially in under-1s.

##### 2. Breech deliveries

When manoeuvring a breech-presenting baby, use your thumb/forefinger over the baby's pelvis: by grasping only "bony" parts you'll avoid pressing on the internal organs.

**FOAMed & Twitter**  
Not yet on Twitter? You're missing out on an excellent source of Free Open Access Medical Education ("FOAMed"). By "following" some of the leading Twitter names in Emergency Medicine & EMS you will very quickly hear of breaking news in research, get real-time reports from conferences & watch (or participate in) debates. Search for #FOAMed and #FOAMems to get started (and do follow @stemlyn - we first found the Paediatric vomiting information via a St Emlyn's tweet!).

An informal technical update produced by Powys & Monmouthshire WAST crews with a little help from Bangor (Ysbyty Gwynedd) Emergency Department - @mmbangor

#### What's a molar pregnancy?

Molar pregnancies - correctly termed "gestational trophoblastic disease" - are a group of disorders arising from a pregnancy that is genetically seriously abnormal.

A highly abnormal placenta develops, which can invade the uterine wall or even - very rarely - become malignant. Molar pregnancies are usually detected by early pregnancy scans these days and the molar tissue surgically removed (once upon a time this was called "evacuation of retained products of conception" but that term has fallen out of favour).

The main relevance to EMS practice is that if any molar tissue remains, these patients can present with very heavy PV bleeding.

Learned something you'd like to share? Help us compile the next issue by emailing your contribution to [Alison.Wooddyatt@wales.nhs.uk](mailto:Alison.Wooddyatt@wales.nhs.uk)

We produce a new "Bog Blog" as often as we have material to share: "something I didn't know last week" being the main criteria for inclusion.

Please [email us](#) your suggestions!



### EMS Lavatory Learning *CPD whilst having a wee!*

#### No. 2 - Nov/Dec 2014

Welcome to the 2nd "Lavatory Learning". We've collected some "things we didn't know last month" on one-page, designed for the back of the loo door.

This is intended as a WAST community production - please send us something you've learned this month that you'd like to share.

#### Better ventilation: the latest thinking...

The most effective hand position for BVM ventilation is now known - and it probably isn't what you learned in your operating department placements. Scott Snyder highlighted some changes during his talk at EMS Expo in Nashville in November.



The "Thenar eminence" technique has been shown to be the best for "novice" operators (Gerstein et al, 2013) - which probably includes anyone who isn't an anaesthetist.



Whilst thinking about airway management, the best position for any airway manipulation (BLS or ALS) is with the earlobe lined up with the sternal notch (see right). This can take a lot of "ramping" behind the neck and shoulder in an obese patient.

#### Top tips about IV analgesia

- Morphine**  
Morphine causes localised histamine release in some people - an itchy red line can appear along the vein it's injected into. It's not an "allergy".
- IV paracetamol**  
By now, you've probably discovered it's marvellous stuff. But you should only use it IV for treating moderate/severe pain: if it's just as an anti-pyretic, oral is a lot cheaper!  
JRCALC states 1g as the dose for all adults, but in-hospital, prescribers are reminded to reduce to 750mg the dose administered to patients under 50kg: so if you've given the full 1g to a very frail tiny person, be sure to specify this on handover.

#### FOAMed & Twitter

Not yet on Twitter? You're missing out on an excellent source of Free Open Access Medical Education ("FOAMed"). By "following" some of the leading Twitter names in Emergency Medicine & EMS you will very quickly hear of breaking news in research, get real-time reports from conferences & watch (or participate in) debates. Search for #FOAMed and #FOAMems to get started (and do follow @stemlyn - great site).

An informal technical update produced by Powys & Monmouthshire WAST crews with a little help from Bangor (Ysbyty Gwynedd) Emergency Department - @mmbangor

#### Has she been strangled?

Did you know at least 25% of domestic violence incidents involve strangulation (US data)? The problem is that neither you - nor the survivor/victim - may realise it. 35% have nothing to see on examination. Only 3% seek medical attention.

Strangulation takes only seconds and needn't involve very much pressure - it's due to great vessel occlusion, not hypoxia. The victim passes out in seconds and can recover remarkably quickly, albeit transiently confused and sometimes euphoric.

Look for clues in the history - incontinence, unexplained injury, gaps in the timeline - and on your secondary survey (e.g. petechiae in the face/check sclera and behind the ears) - because you won't find them on a primary survey. And ask. Specifically - "has anyone put their hands round your neck and squeezed?". They won't tell you otherwise.

Other "silent signs" include coughing/vomiting (may mimic asthma), voice change, and painful swallowing.

#### Peri-mortem Caesarian section

Being called to an obviously pregnant woman in cardiac arrest is always going to be distressing and, sadly, outcomes are dismal for both mothers and babies in this situation.

Peri-mortem caesarian section is indicated to help save the mother (by improving her venous return) if it can be performed within a few minutes of cardiac arrest. The baby is almost certain to be doomed, although Manchester and USA (New York) have both had a mum/baby pair survive.

If a mother fulfils criteria for ROLE at scene, there is absolutely no hope for the fetus.

Learned something you'd like to share? Help us compile the next issue: email contributions to [Alison.Wooddyatt@wales.nhs.uk](mailto:Alison.Wooddyatt@wales.nhs.uk)

You can view and download the EMS Lavatory Learner at our scribd.com site: [www.scribd.com/EMSLavatoryLearning](http://www.scribd.com/EMSLavatoryLearning)

# Farm Rescue & Farm Trauma - Tim Perry

Reported by Linda Dykes

**This talk won the award for the goriest slides - farmyard equipment can do very bad things to the human body! Really interesting stuff, although I did struggle at times with unfamiliar terminology in a Tennessee accent! This is another report lifted from my Twitter feed.**



Farming is the 3rd most hazardous occupation in the USA - and it isn't just adult farmers who get hurt. Farming is often a family business: 25% of farm casualties are under 15 years of age (did you know tractors have kiddy seat next to the driver - see above?!) and 27% over 65 years.

## Tractor & machinery hazards

- Tractor rollovers account for about 44% of farming fatalities (many old tractors are still in use that don't have rollover protection).
- You can roll a tractor end-over-end going up a very steep hill. Stabilise (in the UK, you'd have the fire service helping) and turn off the ignition and - on diesel tractors - shut off the fuel.
- Tractor rollovers: do you simulate? Who has the kit? Where's your help? Don't forget - always approach a rolled-over tractor from the up-hill side.

- Man under tractor? Rescue may involve hydraulic rescue tools, air bags, tractors or tow trucks.



*If someone is stuck underneath a tractor on soft ground, it may be safer to dig them out rather than trying to lift a huge tractor*

- Tractor PTO shafts - these are nasty and dangerous powered shafts that are fitted behind the tractor for attachment of powered machinery. They rotate at over 540rpm, and even with the safety-guard fitted, can be dangerous. See panel.
- Normal extrication kit *won't work on agricultural machinery*: you need to find someone who knows how to work the machinery. Do you know the phone number of

local farm machinery dealers to call for help? Or get the neighbouring farmers to help: they often borrow each others' kit.

- Augers (imagine giant, powered archimedes screws) are very dangerous if you get caught up in them!

- Combine harvesters are dangerous - they can run bystanders over, get people caught up in moving parts, cause fires (keep a charged fire hose & extinguisher ready for immediate use)

and even carbon monoxide poisoning.

- Patients entangled in a drive belt can be freed by cutting the belt.
- If clothing is caught in a shaft or pulley, it may be possible to manually reverse the shaft, or to cut the clothing free.
- Rescue may involve hydraulic rescue tools, air bags, tractors or tow trucks.



# Farm Rescue & Farm Trauma - Tim Perry

## Toxic hazards

- Manure pits emit toxic gases such as hydrogen sulphide, (which ends up as sulphuric acid in the lungs) and methane. Don't enter without breathing apparatus.
- Farms have nasty chemicals: there are 1700 cases/year of organophosphate poisoning in the USA & air ambulances in rural areas may carry pralidoxime!
- Other chemical hazards include anhydrous ammonia, gas/diesel/hydraulic, solvents/ weed killers & insecticides.

## Other hazards

- Grain silos are very dangerous: EMS providers working in areas with them need to know how to empty them very quickly. The speaker's slides said "cut 3 large triangular-shaped cuts at the bottom of the bin, at 120 degrees, for even, fast removal of contents" - but I think a diagram may have helped!

*“Farm incidents can be nasty for your crews - debrief them after an incident...”*

- Farm animals are also dangerous: bulls are huge, cows with calves can be aggressive, and pigs are pretty hefty

animals who can do a lot of damage if they attack a human.



Photo: Fiona Moore

## Reminders about organophosphate poisoning

### Symptoms & signs:

respiratory depression, bradycardia, sweating, diarrhoea, urination, meiosis, vomiting, lacrimation, salivation, weakness, seizures, headache, hypotension.

### Treatment:

- Airway control & ventilation
- Atropine 1-2mg IV, IM, ETT
- Pralidoxime ("2-PAM") 1-2g IV over 15-30 minutes
- Decontaminate with soap and water
- If intubated, may need furosemide and PEEP for pulmonary oedema
- **Succinylcholine (suxamethonium) is contraindicated in RSI**





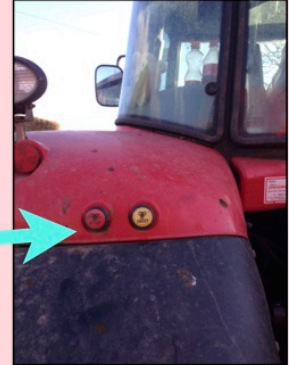
# Tractors:

## what you need to know about the Power Take Off\* (PTO)

PTOs are found at the back (plus sometimes the front as well) of tractors.

They are **powered shafts rotating at 540-1000 rpm** onto which heavy machinery is attached. They *should* be covered with a guard at all times (but often are not).

Even when a guard is in place, the seal between tractor & guard is not fully closed: farmers must resist the temptation to step over the PTO, and should also avoid wearing boots with laces that may get caught up.



**Safety Feature:**  
External switches for the PTO - there's an on as well as an off switch here



**Safety Feature:**  
End of PTO guard, showing the inevitable gap which can drag in loose clothing or shoelaces should someone step over the PTO.



**Safety Feature:**  
This is a PTO guard over the shaft that has split in two



This is the stump to which the PTO shaft attaches at the tractor end



**Right:**  
**Safety Feature:**  
another view of the PTO - full length of a guarded shaft

\* In the USA, the PTO is known as the "Power Train Outlet"

# Back from the edge:

Reported by Alison Woodyatt

## Suicide intervention skills for EMS - David Page

This hard-hitting lecture covered recommended suicide intervention techniques - highlighting the risks to both the patient and EMS staff in a volatile situation, and how our approach can dramatically affect the situation. David Page showed his passion for this subject, explaining that he had spent time in a crisis line call centre, gaining valuable knowledge. The lecture was informative and to the point, highlighting how important our professional conduct in these situations is imperative... but also realization that not all people want to be “saved”.

*Note to UK readers: as with several other talks reported here, the easy availability of firearms in the USA mean that risk assessments have to be weighted very differently.*

### The talk opened with some statistics about suicide in the USA:

- In America, there is reported to be a suicide every 17 minutes, with 60% of these involving guns.
- Suicide is the 8<sup>th</sup> leading cause of death in the USA and 2<sup>nd</sup> leading cause of death for ages 15-19 years.
- 30% of these are homosexual males.
- In the USA, Caucasian males represent 70% of suicides.
- The number one method of suicide in the USA for both men and women is to use firearms, seconded by hanging for men and poisons for women.

*[Obviously, some of this epidemiology will be different in the UK, where access to firearms is very restricted (6.2 weapons per 100 residents vs. 90 per 100 residents in the USA), and 39% of USA households now own at least one gun - up 5% from 2012 - Ed].*

### Suicidal thoughts: a universal experience?

A common myth is that the thought of suicide could be “implanted” into a person's brain.

This is not thought to be true, as it is believed that *everyone*, at some point in their life, will at some point contemplate suicide... not necessarily to the extreme of planning, but rather the thought of “what would happen if I were not here” or “who would care if I should kill myself”?

Those who are determined to commit suicide often want the psychological pain to stop, and they see no other alternative than to remove themselves from a situation.

### Self harming

A straw poll of the audience in this session suggested some lack of knowledge about self harming - assuming that delegates were not too shy to put their hands up!

Self-harming - so prevalent in the UK *[but we'd rather have this problem than dealing regularly with young people who have killed themselves with the family gun - Ed]* - can be thought to be “scar tissue built up against life”, and is a method used mostly by young, sexually assaulted women, as a way to release emotion.

These patients generally have no intent to kill themselves but can be mistaken for someone cutting their wrists in a true suicide attempt, hence the importance of asking the patient - “do you intend to kill yourself”?

### T'is the season to be jolly? Why suicide rates go up after Christmas

When really depressed, patients often don't have the energy to commit suicide - it is as they come out of the depression, and they look back and think “I don't want to go through that again” that they undertake the act of suicide. In the UK, New Year/Springtime bring with them a rise in suicide attempts, thought to be due to the “new year, new start” attitude of many at this time of year that a suicidal person cannot imagine.



# Back from the edge - David Page

## The patient who “cries wolf”

Patients who “cry wolf” about their suicidal plans must be taken seriously, even if their attempts do not appear “serious”. Those who frequently threaten suicide are still at risk and most will succeed in the end. The families of these “frequent threaters” will feel anxiety, relief, and exhaustion from trying to help - and guilt for feeling that relief when their loved one finally succeeds in ending their life.

## Suicide scenes

Delegates were shown photos of real suicide scenes of varying methods - often these will have been very gruesome sights for family/friends to find and clear up *[remember the context - 60% of US suicides by firearm - Ed]* at

*“EMS dispatchers in the USA receive suicide intervention training: there is a narrow time window in which to help a suicidal person & help can begin when the 911 call is first made”*

risk of triggering long-lasting effects in those witnessing such scenes.

Some delegates felt that the suicide scenes shown were rather “selfish” leaving awful scenes for the family. But it may not be selfish behaviour as much as that someone capable of completing suicide is simply “beyond thinking about anyone, including themselves”? A suicidal person may think of suicide as permanent fix to a temporary problem.

## Practical tips for EMS on scene

Our relationship starts with a suicidal patient as we walk through the door. During the lecture, we worked through a

scenario of a suicidal man wanting to jump out of the window of his high-rise apartment. The scenario raised many key points and multiple ethical dilemmas, and the scenario had an added twist: “what if this man had been convicted of

## Dos and Donts when on scene

- Communication must be slow because the patient's brain is often working overtime with ‘thoughts’; they are unable to process too many words without frustration.
- Ask as early as is appropriate; what is your method? Often they will tell you; this may be able to buy you time.
- Ask them: “What makes you so sad”? “What makes you frustrated”? “Did you intend to hurt yourself?”
- Don't try to intervene: doing so disempowers the patient, making them feel *more* useless and hence *more* volatile.
- Pick up on their body language. Consider saying that you are nervous, you could try doing a deal: “if I step back, will you?” which once again instills that they are still in control of the situation - all in an attempt not to disempower the patient.
- Do not discuss your own emotions or feelings, don't try to understand their situation, this may be seen as belittling the situation and destroying any trust obtained.
- Don't ever doubt their plan. Never say; “that won't kill you”.
- Understand that It can be frustrating when they don't want our help.

- This is not the time to test the skills of your paramedic student, if in doubt, do the talking yourself!
- Nothing we say will *cause* them to jump - they have decided that already - they *may* change their mind, but only if they want to.
- You are not going to be able to ‘fix’ them and the reality is you will not save them all.
- A suicidal person is willing to “commit murder on themselves”, we must then be aware that they would be ready to kill us!!
- Some suicidal patients have already “gotten beyond our help” - therefore the number one priority at all times *is your own safety*.
- We can temporarily relieve the situation, take the consenting patient to hospital and hope they accept treatment, but that human being will always have that option to decline help & people have the right to die.
- You do not have the power to stop someone killing themselves, but you can listen to them!

**And finally.... If alcohol has been consumed (bearing in mind the context that in the USA there's a good chance there's a gun in the house!) none of these rules apply - ring the police for assistance!**

# Extrication and EMS:

## Field trauma care at MVCs - Rommie Duckworth

First Hand: reported by the speaker

It can be easy for even experienced rescuers to become overly focused on “tools and tasks”, a form of tunnel vision that may result in perfectly executed extrication cuts, while leaving patient care to whatever way EMS personnel can work around the rescue team.

A comprehensive approach to extrication that can help responders avoid tunnel vision is to integrate EMS aspects using the following steps:

### 1. ARRIVAL: Approaching the scene

Although they may not relay it over the radio, every responder should perform a personal size-up to identify dangers on scene as well as the best way to integrate their roles in the extrication operation. There are many mnemonics or extrication size-up: one that is easy to use on virtual any scene if “CAN DO” (box, right)

### 2. ACCESS: Putting EMS Personnel in contact with the patient

It can be tempting to “jump in” right away, but the responder going inside the vehicle must make sure that the vehicle is secure by checking that the vehicle is shut off, brake on, wheel blocked, etc.

Once the vehicle is secure, the “Inside” EMS provider(s) will make initial contact with the patient or patients inside the vehicle,



Photo: Rom Duckworth

### Extrication size-up: CAN DO

- **Conditions:** what are the first things you see?
- **Actions:** What is the next thing you are going to do?
- **Needs:** What do you need to do it?
- **Dangers:** What hazards might stop you from doing it?
- **Orders:** What do you tell other people so that they may help you?

protect them from further injury, assesses their injuries, and identify and manage life-threatening injuries.

Immediate threats to life, such as **M**assive hemorrhage, **A**irway difficulties, **R**espiratory emergencies, **C**irculation problems, or significant **H**ypothermia (**MARCH**) will necessitate immediate patient removal while assessment findings such as patient paralysis, significant neck or back pain, severe angulation of an

extremity, impalement, significant crush injury, or the need for pain management or other medication administration will require a slow and careful removal.

One way the Inside EMS provider can quickly relay key information regarding the patient to outside rescuers and EMS providers is with **CAN** reports:

- **Conditions** identified
- **Actions** the Inside EMS provider is attempting
- what the Inside EMS provider will **Need** to accomplish these actions.



## Field trauma care at MVCs - Rommie Duckworth

### 3. ACTION: Initial Emergency Care

A responder's first priority must be to deal with the problems that are most threatening to a patient's life. These conditions can kill a patient quickly, but first responders can deal with virtually all of them in the first few moments of patient contact.

#### Massive Hemorrhage

Control massive bleeding with the "5 D's": *Detect* (find the source); *Direct pressure* (compress the bleeding site); *Devices* (tourniquets, clotting gauze, pressure bandages, and clamps); and *Don't Dilute* (obtain an IV, but don't water down the patient's blood).

#### Airway Difficulties

Management of airway emergencies during extrication should begin with basic life support (BLS) airways and suction before proceeding to devices such as supraglottic airways, endotracheal intubation, and cricothyrotomy, as needed.

#### Respiratory Emergencies

Life-threatening respiratory treatment may include ventilating with bag-valve mask (BVM) or automatic ventilator; dealing with a flail chest; sealing a sucking chest wound; and, for ALS providers, decompressing a tension pneumothorax.

#### Circulation Problems

Whereas management of massive hemorrhage focuses on first stopping bleeding, circulation focuses on keeping the blood perfusing the body.

Considerations include obtaining IV or IO vascular access, administering only enough fluid to maintain a minimum blood pressure without diluting the blood, co-ordinating careful movement of the patient so as not to dislodge any internal blood clots that have formed, and possible pain management or patient sedation to help rescuers remove the victim more quickly.

In some advanced systems this may also include administration of medications such as tranexamic acid and/or vasopressin to minimize internal bleeding.

#### Significant Hypothermia

The ability for a patient's blood to clot depends heavily on the patient's body temperature. In situations where the patient may become extremely cold, especially in prolonged extrications, efforts should be made to reduce patient heat loss and, if possible, provide heat to the patient through warmed IV fluids and warmed humidified oxygen.





## Field trauma care at MVCs - Rommie Duckworth

### 3. “-ATRICS”:

#### Special patients & situations

Another aspect of extrication that separates the good from the great is the ability to deal with “-Atrics,” - categories of patients requiring special considerations during extrication calls.

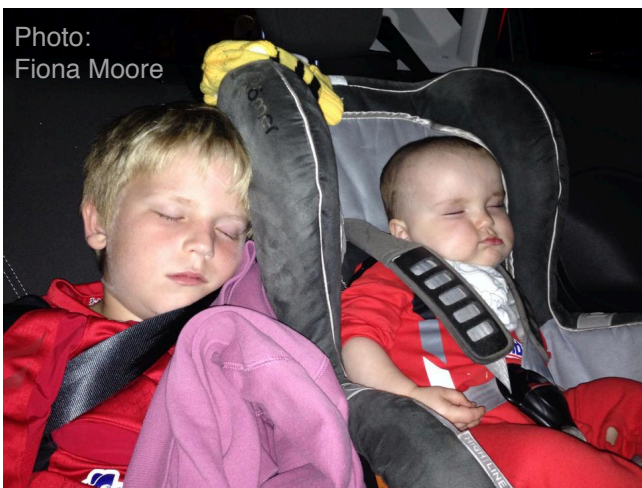
#### Pediatrics

Because of their body shape, pediatric patients, especially infants, tend to act as top-heavy projectiles during a collision and may be thrown inside the vehicle or ejected if not properly secured.



Pediatric patients tend to compensate very well for even life-threatening shock, initially appearing okay, but then quickly deteriorating. In addition, pediatric patients may require transport to a pediatric specialty facility or a pediatric trauma center if one is available.

Photo:  
Fiona Moore



#### Geriatrics

In addition to sustaining greater internal damage than younger patients, geriatric patients also tend to carry more co-morbidities (additional medical conditions) and multiple medications (especially blood thinners) that leave them less able to cope with the injuries they sustain.

#### Bariatrics

Although there is a documented “cushion effect” that occurs for some larger patients vs. very thin passengers, very large, morbidly obese patients tend to have a number of problems that don’t affect non-obese trauma victims.

In addition to greater difficulty in assessing very large patients, it can be much more difficult to manage the airways, ventilate, control bleeding, and obtain IV access.

#### Pregnant-atrics

Other factors that responders should keep in mind include that the uterus and placenta present a significant potential point of bleeding in an area that can be very difficult to assess.

Also, the compensatory mechanisms of the circulatory system that may protect the mother from shock do not generally protect the fetus so that while mom may be sustaining a viable blood pressure, the baby may not be receiving enough oxygen.

In later months direct traumatic injury to the uterus can bring on sudden, premature labor.

## Field trauma care at MVCs - Rommie Duckworth

### 4. AFTERWARDS:

#### Follow-up & preparation for the next call

After the last patient has been removed from the vehicle and is on the way to definitive care, a number of EMS aspects of extrication remain to be dealt with.

#### Pictures

While there is no doubt that video and photographs of real extrication incidents can contribute to responders' training and education, the guidelines for who should take them (and who should not) as well as how they are handled and who owns and has the right to distribute them (and who does not) should be well defined and clear to every responder.

Most often, the best policy is one that makes it clear to responders what rights the public has and what ethical, if not legal, obligations responders have to sometimes obstruct public views of incidents to protect the privacy and dignity of the patients involved without coming in direct conflict with the photographer.

#### Pain/Pathogens

Responder safety from physical and pathogen hazards should be evaluated after each incident: Are all of the responders safe? Were there any near misses? What could we have done to improve safety?

### Post Traumatic Stress Disorder

Some incidents, especially those involving large numbers of victims, young children, or fellow emergency responders can have a significant psychological and emotional impact on those who respond.

### Preview/Review

Departments should learn from every incident. Formal or informal after-action reviews are the times to evaluate not only what occurred but also how the response team(s) can improve each aspect of their response to better prepare for the next call.

### Practice

Review and self-reflection are the beginning, but great rescue teams put words into action by practicing and performing hands-on skills they have identified as those that will take them from good to great.

## Leading Emergency Medicine Conferences - reported for you. Free.

OUR CPD YOUR CPD

**Toxicology & Trauma**

College of Emergency Medicine  
Spring CPD Event 2014 - Day 1

*The unofficial report*

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

**Dr Alison Walker**  
Consultant in EM, Harrogate

**Dr Helen Salter**  
Consultant in EM, Bangor, North Wales

*Sharing the learning...*

Topics include:

- "Legal highs"
- Crystal Meth
- Carbon Monoxide
- GHB & GBL
- Head, spinal, burn and urological injuries

Another **STORMED** presentation

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Compiled, designed & edited by  
Dr Louise Dykes, Consultant in EM, Bangor

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OUR CPD YOUR CPD

**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

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

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OUR CPD YOUR CPD

**Sports Medicine, innovation & controversies**

College of Emergency Medicine  
Spring CPD Event March 2014 - Day 3

*The unofficial report*

Day 3 topics include:

- Concussion in sport
- Cardiac problems in athletes
- Ankle injuries: beyond Ottawa
- Diagnosing PE
- Training in trauma management
- A "field hospital" for city-centre drunks
- Your ED and your corner

Compiled from the lecture notes made on the day by our reporter:

**Dr Alison Walker**  
Consultant in Emergency Medicine, Harrogate

*Sharing the learning...*

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Catch up with the Bangor ED conference reports: **full coverage of all three days of the Cardiff CPD event - plus others - at our [Scribd Conference Collection](http://ScribdConferenceCollection) site.**



# Snowdonia's ER

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Photo: Joss Images



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

### Clinical Fellows - unique middle-grade posts, 6-12 months

Our acclaimed **Clinical Fellow** posts, primarily designed for post-ACCS trainees wanting a productive "year out" from formal training posts, were the first to offer **20% Pre-Hospital Emergency Medicine** in the job plan.

- The perfect "prep school" for PHEM sub-specialty training, we welcome PHEM beginners
- PHEM shifts are undertaken with Welsh Ambulance (ground assets & Helimed) plus experience of SAR
- 6 to 12 months posts available, flexible start dates between now & August 2016

**NEW for 2015/2016:** two new variants of our popular Clinical Fellow posts: **20% Medical Education/Simulation or Quality Improvement/Medical Management (QIMM)**.

Both options include relevant courses (e.g. PGCertMedEd) and unusual opportunities. For example, MedEd options include paramedic training, and QIMM posts provide insights into the very heart of NHS Wales, at regional & national level. Call us, or visit our website, to learn more.



### Consultant in EM

**NEW**

now with PHEM option

We have a vacancy for a Consultant in EM (with the option of PHEM sessions in the new EMRTS Cymru service)

- Civilised 1-in-7 rota, 4-day week if full time. Or, work LTFT and enjoy the playground of Snowdonia even more!
- We have a track record of supporting new consultants in their first post

- Fantastic friendly department
- Plenty of major trauma (we are too far from our MTC to bypass from scene) and high-acuity medicine
- ENPs handle much of the Minor Injury stream, and we are co-located with our GP OOH service
- Plus the satisfaction & challenges of working 100 miles away from our tertiary referral centres

**Advertising late Jan/early Feb 2015 on NHS Jobs. To find out more (or for full Person Specification/Job Descriptions) visit [mountainmedicine.co.uk](http://mountainmedicine.co.uk), email [Linda.Dykes@wales.nhs.uk](mailto:Linda.Dykes@wales.nhs.uk) or [Rob.Perry@wales.nhs.uk](mailto:Rob.Perry@wales.nhs.uk) (ED Consultants), tweet us @mmbangor, or if all else fails, call our secretary on 01248 384003 and ask her to track one of us down!**

### Specialty doctor? Sessional work? ST4-6 interested in OOPT/OOPE?

Please contact us if interested in any of the above. We can offer OOPT in rural EM, OOPE in the Clinical Fellow posts, and well-supported middle grade posts for Specialty Doctors and sessional doctors. We also enjoy supporting returners to medicine.

### Where is Bangor?

Sandwiched between the outdoor playground of Snowdonia National Park and the beautiful 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.



# [www.mountainmedicine.co.uk](http://www.mountainmedicine.co.uk)



# Your conference reporting team



## Dr Linda Dykes

(@mmbangor) came up with the idea of reporting conferences like this, and compiles, edits, & designs the Bangor ED Conference reports, plus squirrelling out 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 & still does occasional GP (family practice) locums to keep her hand in!

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

Her research interest is Mountain Medicine (she maintains a database of all mountain casualties from Snowdonia brought to her hospital) & she particularly enjoys teaching medical students & paramedics.



## Alison Woodyatt

(@alisonwoodyatt) makes her conference reporting debut with this EMS World Expo 2014 report.

Ali trained as a paramedic at Worcester University/West Mids Ambulance, and now works for Welsh Ambulance Service Trust from beautiful Monmouth, close to

the English border.

Ali's particular area of clinical interest is domestic violence, and she is also developing a passion for service improvement and improving employee engagement.

## Plus our special "first hand" contributor:



## Rommie L. Duckworth, LP

(@romduck)

A career Fire Captain / Paramedic, EMS Coordinator and past volunteer chief officer, Rom is a dedicated emergency responder and award-winning educator with more than twenty-five years of experience working in career and volunteer fire departments,

public and private emergency services and hospital healthcare systems.

Rom is a frequent speaker at national conferences and a contributor to research, magazines, and textbooks on topics of operations, leadership, and emergency services education.

## Acknowledgements

We would like to thank the many friends & colleagues who also helped prepare this report: we have pestered people relentlessly to supply photos (special thanks to Fiona Moore!), proof-read (Alison Walker with the demon eyes!), help us with some unfamiliar US-terminology & in some cases, explain unfamiliar concepts.

Kayte Lloyd-Hughes kindly allowed us to poke around her farm for the photos about the dangerous bits on tractors, and Dr Christine Clark (Consultant in O&G, Ysbyty Gwynedd) supplied the information on cervical sutures/circlage in the obstetric emergencies lecture.

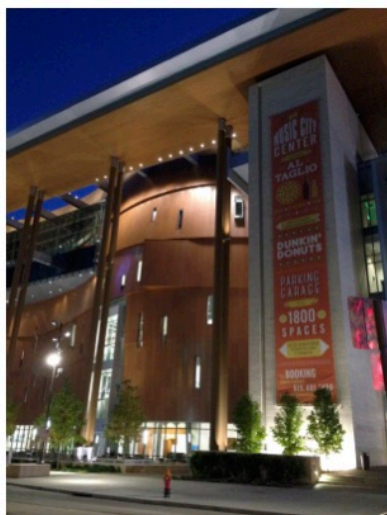
Finally, we must mentioned Rommie & Betsy Duckworth (right) who have been especially obliging, despite this project coinciding with them bringing home their first child - congratulations!





# Linda & Ali's Nashville Gallery

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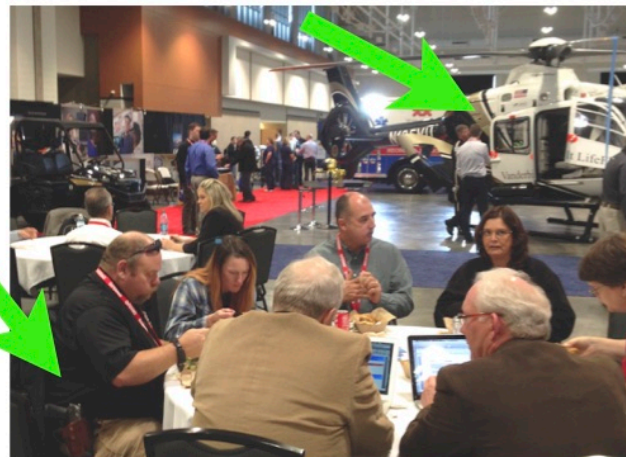


**Left** - the conference venue, Music City Center, Nashville

**Right** - How do we know we're in the USA? Is it the helicopter in the conference hall or the delegate carrying a gun?

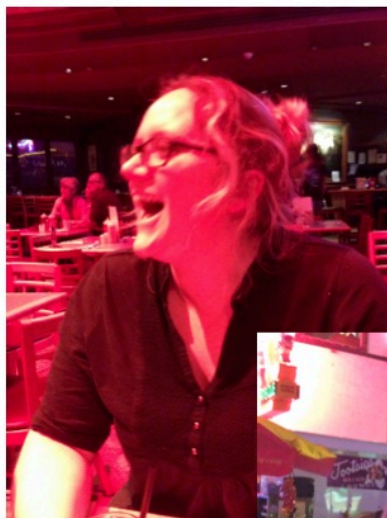


**Left** - The food - awesome (but we both put on weight!)



**Clockwise from above left:**

1. The Grand Ole Opry at the Ryman auditorium
2. Music in the street: open air concert (it was very cold!)
3. Country Music Hall of Fame
4. Being British, we find the American attitude to guns somewhere between disturbing & bizarre. But we do *love* the cowboy hats...
5. Ali Woodyatt pictured with Rommie Duckworth enjoying the open air concert!
6. It is possible some suitable-for-tourists moonshine was consumed in the famous Wild Horse Saloon!
7. Nashville street scene: beautiful autumn colours



**And finally: who let the Brits go near a cowboy hat shop after a beer or two?!**





# The last page...

## THE END

That's it folks - the end of our Part 2 (Clinical) report of the 2014 EMS World Expo. Please tell us what you thought of what we've produced: firstly, it's all good fodder for our appraisal/revalidation/CPD folders but much more importantly, 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.

We have tried to acknowledge sources of images, but if we have missed anything - we apologise. There are several tables & concept diagrams in this report that were shown by speakers on their slides and we have adapted to show clearly here: if you are aware these should be credited to someone other than the speaker, please alert us.

And if you are on Twitter or Facebook and enjoyed the report, please, please help to disseminate the link to it... this is an all-volunteer production, and many dozens of hours of our precious and very scarce free time have been donated by the reporting team and designer/editor to bring this to you... seeing the number of hits rack up makes it all worth it.

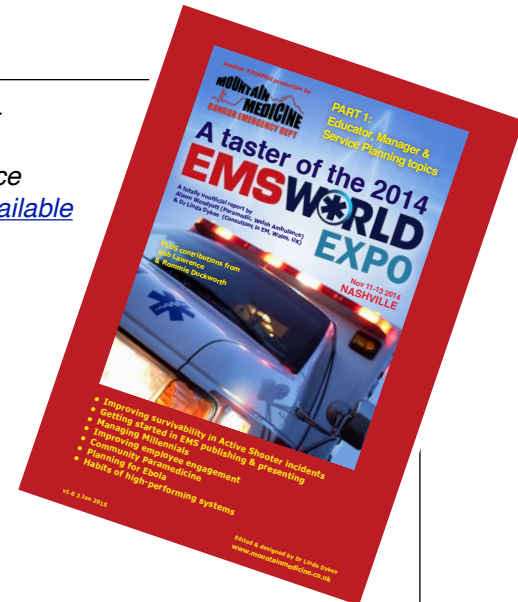
Part 1 of this report - topics for educators, managers and service planners - [is also available](#)

And finally, do bear in mind that the team who produced this are all healthcare workers, not professional journalists and designers!

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 make a donation to Tusk Trust!**  
We'd love to fundraise for them but these reports take so much time and energy we haven't any time available to raise money the conventional way. Go on, even if it's just £1/\$1... this report has saved you a fortune on the cost of attending the conference itself!



## Please help us fundraise for the Tusk Trust

This report hasn't cost you anything. If you have found it useful, please could you make 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? We have donated many hours of our time to preparing this report and this is a way of enabling us to fund-raise whilst helping you.

If everyone who reads this report donates even £1/\$1 we could raise a substantial amount of money.

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

