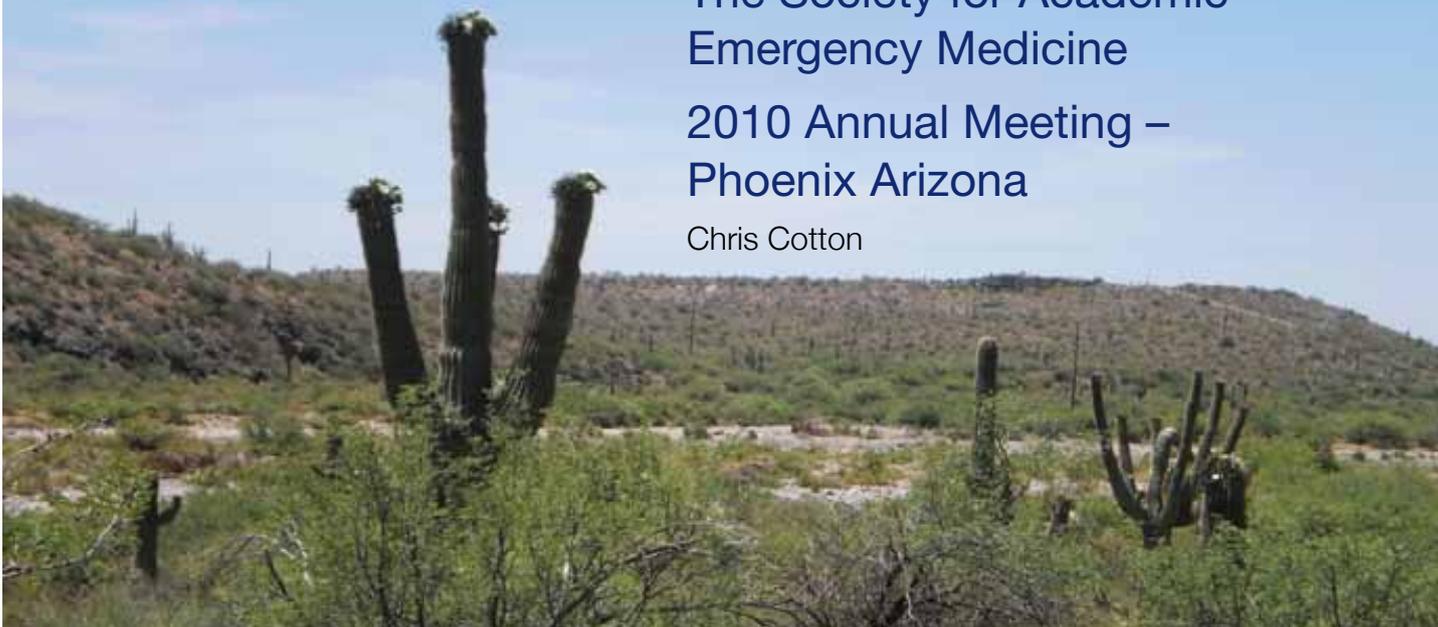


Arizona scenery



The Society for Academic Emergency Medicine 2010 Annual Meeting – Phoenix Arizona

Chris Cotton

In part two of my Rod Kershaw Scholarship report I am submitting summary notes I made during the Society for Academic Emergency Medicine (SAEM) 2010 Annual Meeting I attended in at the JW Marriott resort in Phoenix, Arizona from 3-6 June 2010.

The first thing you note when you arrive in Phoenix during their summer is the heat. The hot, dry heat is similar to South Australia's climate during summer, and apart from the peculiarity of measuring temperature in degrees Fahrenheit, Phoenix's day time maximum temperature rarely dipped below 100 degrees and often hit 110. Shopping malls sport high spray bars that mist water over shoppers below to keep them cool.

The SAEM annual meeting is the largest forum for the presentation of original research in emergency medicine, and one of two large-scale emergency medicine conferences hosted in the USA by the society annually; this one being the more research focussed of the two.

This conference included didactic presentations, original research in several formats, and innovations in emergency medicine education exhibits. Whilst there were many satellite awards,



Some of the literally hundreds of posters on display at SAEM, Phoenix Arizona

business meetings, pre-conference workshops and grant presentations occurring throughout the conference, my focus was on areas relevant to the pre-hospital field.

I accidentally slept in and regrettably missed the much talked-about 0600hrs 5 kilometres "fun run", of which I was rumoured to be the favourite to win (or perhaps that was in my dreams!).

There were more than 600 abstracts presented over the three days of the conference, and probably a quarter was relevant to pre-hospital medicine. It was pleasing to see some EMS systems represented during the conference sessions including Tucson, Arizona where a lot of work on compression-only CPR had its genesis.

Key findings from the sessions I attended and made notes from include:

General EMS Issues

Electronic versus manual data processing in Out Of Hospital Cardiac Arrest (OOHCA)

- Current standard for data processing of PCR's is manual processing.
- Electronic takes less than one minute per record versus 81 minutes for manual processing (e.g., for entering in to Resuscitation Outcomes Consortium Epistry)

Consent for enrolling patients in trials after the event

- Take home message is to go electronic for PCR's, but to be sure you have good data to collect
- Use of delayed telephone call back for informed consent for observational research is ethical and acceptable
- Complex and detailed consent forms are less likely to be approved by family or caregiver
- Most people will read such a consent form for less than two minutes only



- Poorly educated and paediatric population less likely to give consent
- Informed consent per phone after discharge worked well, but it was mainly the older population that this worked best for

Cardiac and resuscitation

- Simvastatin may be helpful in treating MI (rat study)
- Infrared spectrometry during CPR may be a good measure of tissue perfusion (swine)
- IV Cartinine increases survival in verapamil toxicity (murine)
- Regular training sessions in a high fidelity simulation improve success at ETI, timeliness, etc...
- Some US EMS systems taking photos of ECG's and sending to hospitals to warn catheter labs of AMI
- Ventricular Fibrillation still the most commonly observed initial arrest rhythm (59%) in asphyxia arrest, then steadily declines into other non-shockable rhythms
- For those who had Atrial Flutter in the ED, DCCS worked 91% of time. 17% took > 150J to convert. Interestingly 68% spontaneously reverted. DCCS is still considered the best therapy if you are going to treat them
- Point Of Care testing helps guide treatment algorithms
- King LMA very popular in USA, easier to insert than ETT and marginally quicker to place. ETCO2 reliable via this route, and can decompress stomach by placing catheter through lumen in to stomach. Becoming preferred way for securing airway by more and more US EMS agencies.

Trauma Care

- ST02 becoming big pre-hospital. Value <75 indicate shock and likelihood of bad outcome, and may be an indicator for what level of care to take patient to, and may prompt a treatment algorithm. Robust, and a new light weight version just being released on to market. More reliable than lactate measurement



Paramedic from Tuscon Arizona presenting a poster at SAEM conference, Phoneix Arizona

- Mild (controlled) hypothermia in setting of large scald burns increases survival (rats)
- HBOC's still no improvement in survivability
- Tibial IO more reliable than humeral for being patent at hospital. Being used over many sites in USA and replacing IV access for seriously ill or cardiac arrest patients. Mean time to insertion < one minute
- One type of haemostatic bandage when compared to another (new one) – no difference in survival
- Hypothermia in trauma still bad, VERY bad. Triad of uncontrolled hypothermia, coagulopathy and acidosis is very bad. The total condition (ie the triad) is worse than the sum of all parts. This is specifically true for penetrating truncal trauma.
- Permissive hypotension is now standard of care in US military in battle theatres. Keep temp > 36 deg C, and BD > -5 and lactate nil, urine output > 50ml/hour
- 96% of battle casualties who die on the battlefield do so immediately or within five minutes of primary blast or injury. The remainder usually die from non-compressible truncal haemorrhage, then tension pneumothorax and then airway



World renowned cryologist and hypothermia expert, Mike Darwin at his home in Ash Fork Arizona



SAEM conference session, Phoenix Arizona



obstruction. Treatment best to warm them up (or keep them warm), maintain tissue perfusion, prevent coagulopathy and keep them oxygenated/perfused. Be careful not to over-resuscitate, ie limited n/saline. Tourniquets essential in stopping severe bleeding effectively. STO2 helps them determine crash point, estimate central volume and when the “crash point” is likely to occur. Combined with POC testing can be a significant guide to therapy where scene or transport times are extended. The medic in battle can now set up a satellite link so MO’s can see patient directly and start blood agents remotely. HBOC’s still not working but currently investigating freeze dried plasma or platelets. If this is implemented correctly they estimate this will reduce mortality by 30%. They also are investigating Factor V11A to see if it may have a role (earlier trials disappointing in military setting) and they are also investigating hands free voice electronic documentation



Chris Cotton enjoying an SAEM evening function at the JW Marriott hotel, Phoenix Arizona

Stroke Care

- Extending the window for thrombolysis, the target is the ischaemic penumbra and oligemic tissue. If reperfused while not infarcted, demonstrated benefit occurs. The risk/benefit switches in about six hours. Treatments should optimise blood flow and should limit penumbral progression. Certain CVA patients have characteristics that might make them more receptive to reperfusion later than otherwise thought. The older the person is, the less likely TPA will be effective, and it increases the chance of haemorrhage. ECASS III (Lancet, 2008) has now shown that treatment benefit exists out to 4.5 hours. If a person falls outside this criteria (ie >80 YO), or the CVA is a really big one, or they are on anticoagulants they (AHA) have no recommendation to offer other than standard care measures at this stage. They could possibly go straight to a catheter lab. Their mean stroke score was 10, as opposed to 14 for NINDS. Risk benefit was seven percent and NNT was 14. The benefit of reperfusion is clearly time-dependent. 75% of people who have an ischaemic CVA present too late, don’t fit the protocol or their CVA’s are too big to treat.
- What constitutes a “minor” stroke? The feeling is it is clinician-based. One story here about a guy who only had some motor loss in one arm, and that was all. He said to his clinician “If I can’t use my arm properly, I can’t play golf, in which case I’d rather be dead”. He’d just bought a property with its own golf course. The take home message is “minor” is relative to the patient, and there may be some benefit in aggressively treating

them to improve outcome. Recent evidence suggests there can be a marked improvement with reperfusion strategies. Referred to as “Treating the Too Good To Treat” – TGTT. The OR for a good outcome is 2.0; twice as good as if not treated.

- The biggest strokes tend to be more haemorrhagic, but the risk of haemorrhage appeared to be less with patients suffering smaller, or milder strokes. Even treating stroke mimics is okay according to the presenter, because complication rate is very low. Intracranial haemorrhage rate has been zero so far. A subset of TGTT did really well, especially if treated early (ie within three hours). If not treated early, those with minor strokes often go on to do worse. Now being thought of as “unstable angina” of the brain.
- For elderly (ie > 80 yo), their strokes are often more severe and they have worse outcomes. If treated with TPA they do show increased mortality, but many have indicated they would prefer to give it a shot and take their chance, because the alternative (ie being debilitated) is worse than dying. If it works, it often improves them significantly.
- Keep an eye on temperature in stroke cases. Every degree Celsius rise in temperature doubles the chance of a poor outcome. Approximately 50% of large strokes have good outcome with revascularisation via the catheter lab.



Poster session at SAEM conference, Phoenix, Arizona



I couldn’t take my dual six-shooters in to the local restaurants



UFO parking spot, Sedona, Arizona