



Inside this issue:

- Deputy-Premier at Autumn Symposium |
- Important Dates |
- Sepsis — Research into Practice | 2
- Research Workshop | 4
- Queensland Emergency Physicians on film | 4



See the new [checklist](#) available on our portal developed to help grant applicants.

Important Dates



21 July 2010
Staff Specialist and Trainee Grant Applications due.

2 September 2010
Queensland Emergency Medicine Research Forum - at Ballymore, Herston, 10:30am–5pm . The programme is still being developed. Details to follow.

Queensland Deputy-Premier Congratulates Emergency Physicians at the Autumn Symposium



Pictured from left to right: Catrina Codd, QEMRF; Dr Darren Powrie, Princess Alexandra Hospital; Dr Stephen Priestley, Nambour Hospital; Dr Julia Bruce-Thomson, The Townsville Hospital; Deputy-Premier the Hon Paul Lucas MP; Dr Adele Field, The Townsville Hospital; Dr David Rosengren, Chair of QEMRF Board; and, Dr Peter Pereira, Cairns Base Hospital.

The Deputy-Premier and Minister for Health in Queensland, the Hon Paul Lucas MP, was present at the recent Queensland Emergency Medicine Research Foundation (QEMRF) awards ceremony held as part of the Autumn Symposium on Friday 21 May.

The Deputy-Premier praised the work and dedication of Emergency Medicine Physicians in Queensland hospitals and expressed his support of the research that was being undertaken as having great interest to the government, the health system and the public.

Research projects being awarded by QEMRF in Emergency Medicine may benefit the \$9.2 billion Queensland Tourism Industry in providing innovative treatment options across a range of emergency situations.

Many of the projects being awarded grants by QEMRF in North Queensland focus on injuries experienced by tourists and locals alike, such as decompression illness, jellyfish stings and aeromedical retrieval of remote and rural patients.

Chair of the QEMRF Board, Dr David Rosengren, said “in researching improved treatment options, these projects could result in changes to global medical protocols and make Queensland an even safer and more attractive destination for tourists.”
“Emergency Medicine research reaches out beyond hospital corridors and has direct benefits for the Queensland health system, the Queensland economy and ultimately for patients.”

“Continued investment in Emergency Medicine research also has long term benefits for Queensland – recognised best practice on the international stage, greater financial returns, improved patient outcomes and an international reputation of high standing.”

~ Figure from *Tourism Facts and Figures Information Sheet Updated 23 April 2010 from Tourism Queensland.*

Our Vision

Queensland will be regarded as a world leader in Emergency Medicine research and will be the location of choice for the brightest minds in Emergency Medicine

Putting Research into Practice: I just can't get sepsis out of my mind



After the ACEM Autumn Symposium in Brisbane on 21 and 22 May 2010, there was one presentation that I couldn't get out of my mind. It was the presentation by Dr Julian Williams on Sepsis presented within the context of the world of super heroes. In a follow-up interview, Catrina Codd and Dr Julian Williams discuss the take home messages and what can be done to improve the outcome of sepsis patients right now.

Catrina: In the ideal world, what does the Superhero Sepsis team look like?

Julian: I think there is a double meaning to the "sepsis team". The sexy part is the team that leaps on the desperately unwell septic shock patient. In this way the sepsis team is analogous to the trauma team, where a team of doctors and nurses assemble and work together to do a bunch of critical things in a timely fashion. However sepsis differs from trauma in that the critically unwell trauma patient needs to be somewhere else – the patient with septic shock needs prompt recognition and aggressive, team delivered care with multiple components and goals – all delivered by us. Our data suggest that the septic shock patients that go to ICU stay in ED for 6-8 hours anyway, so we should use this time to be responsible for delivering the care that these patients need. Just like trauma again, many believe that the early hours of resuscitation in septic shock are golden – this is our time.

So the **Sepsis Shock Team** is assembled. There's stacks of things to do: central lines, arterial lines, IDC, nasogastric tube, maybe intubation as well. Early antibiotics are crucial, so someone must be allocated to draw up and deliver them ASAP. And just like in trauma where there is the blood doctor and team to look after the blood products and fluids, similarly in septic shock, there should be a team member standing there squeezing in fluids and recording them - that's their primary and sole responsibility. All this activity needs co-ordination and leadership.

However on the broader front is the **Sepsis Surveillance Team**. Severe trauma gets delivered to us on a plate - it's

labelled as such at the door (and usually before), but sepsis can just be lurking anywhere. So the bigger team refers to the part that we all have to play in surveillance, from the ambulance officer to the triage nurse, to the senior doctor that prowls the floor, the nurse that's marshalling the acute corridor, to the nurse at the bedside and the resident, we all have to be very, very aware that we are all part of the surveillance network, the sepsis surveillance team. The Sepsis team in its bigger format.

Catrina: What are the key things the **Sepsis Surveillance Team** are looking out for?

Julian: **HYPOTENSION** - that is the number one. Hypotension, but also any feature that suggests that the patient is under-perfused such as confusion or oliguria, in someone who has an obvious infection. Low blood pressure is the best objective sign of real badness.

BP<90mmHg is the number under which we have concerns

The important point is that the nurse and junior doctor at the bedside need to know that if their patient has infection, then any of the above factors may indicate hypoperfusion and failing organs. Damage which continues until appreciated and addressed.

Catrina: What about fever?

Julian: **Fever:** Handy if it's present – obviously makes infection likely. Very important to recognise that hypotension in the absence of a fever could still be septic shock, and the clock's ticking away. Of all the physiological variables that we measure **hypotension** is the one that we should worry about.

Catrina: What is the evidence?

Julian: Our data confirms that even a transient blood pressure under 90mmHg in a patient presenting with infection - just one - is associated with more than 2 times the risk of mortality. This confirmed the findings from Marchick et al 2009. **It only needs to happen once - just one episode of hypotension should be ringing alarm bells, it is clinically significant and meaningful.** Kumar's 2006 paper hammered home the fact that **persistent hypotension** (despite a fluid challenge), is really bad news, with mortality increasing by the hour if treatment is not provided immediately.

Catrina: What are the big issues with managing Sepsis?

Julian: **Awareness and Empowerment**, for the nurse or junior doctor to bring even a single hypotensive episode to the attention of the senior clinician immediately, and for the clinician to act on it. The first component of treating sepsis is **early recognition and it is a whole of Emergency Department issue. We are all in the team.**

Most patients with severe infection don't look that bad, they are just quietly unwell. **Looks can be deceiving** – gross visual cues are not there – there's no blood dripping out, no smashed up limbs. But their microcirculation is quietly failing. They can have a BP under 90mmHg and still be talking but

the microcirculation can be quietly failing.

Catrina: How can Emergency Departments improve their performance in managing sepsis?

Julian: Make sure it's everyone's business. Have a **TEAM APPROACH**, with everybody empowered and on the surveillance team. Have protocols in place to manage both identification and treatment of this condition.

Catrina: You have now collected data on over 6000 sepsis patients. What has been the most surprising finding?

Julian: That time to antibiotics in our septic shock patients is more than 2 hours. How does that happen? It comes back to the little lady down the end of the long corridor in the ED who is quietly confused, who isn't quite herself, and has a low grade temp. The BP is dutifully documented at 80 systolic repeatedly but it's OK – she's still talking. **She's not OK.** Patients like this lady have the same in-hospital mortality as the smashed up motor-cyclist in the trauma room with the trauma team, grunting and sweating in their lead coats.

Catrina: If you could set goals what would you set as a benchmark for improvement?

Julian: **KPI: Time to effective antibiotics in septic shock UNDER 1 hour.**

Catrina: What are the big issues with people giving the wrong antibiotics?

Julian: It's pointless giving an antibiotic if it's not the right one.

Catrina: What are you doing to manage that in the department you work in?

Julian: Part of the initiative that we will soon be implementing here is to introduce our "antibiotic order set" for septic shock, to be given as quickly as possible for patients with:

- Probable infection
- SBP<90 despite fluid bolus 1000ml (20-30 ml/kg) stat.

Antibiotic "order set" for Septic Shock: Royal Brisbane and Women's Hospital Emergency Department

- **Piperacillin/Tazobactam**
- **Gentamicin**
- **Vancomycin** if potential deep soft tissue infection, line source, or MRSA
- **Azithromycin** if potential lower respiratory tract infection (LRTI) source



This is a **process issue**. This is one of the ways we can cut down the problem of delay in administration of antibiotics. Something we can take out of the mix. If you break down the reasons why there could be a delay to antibiotics in septic shock, the steps involved are recognition, acting on it, deciding what antibiotics you want to give and finding the antibiotics - you can take those last two steps out of it immediately with a clear order set.

Catrina: What about prevention?

Julian: Vaccinations play a key role in reducing the incidence of a range of nasty infections. This is especially important for children and those that are immunocompromised, especially those people with one less spleen.

Catrina: Why did you become so interested in Sepsis?

Julian: It was the Rivers paper (2001) which highlighted two issues 1) that this is a time dependent ED problem. This is our business, and it's up to us to maximise the outcomes here, and 2) thinking "Hey ... 46.5% of Rivers control arm patients died – is this really what happens here? Is his intervention relevant to us? Are these results externally applicable? Juliet and I started looking for some answers back in 2007.

Catrina: Where is examining Sepsis going in the future?

Julian: Our macro circulation targets are not patient specific and they are very gross. It's the microcirculation that we've got to target.

Catrina: So microcirculation measures may be more sensitive?

Julian: There's two things. There's measuring it and there's doing something about it. There's a bunch of cute new toys around to help us look at and measure the microcirculation. Unfortunately we don't really have proven interventions that specifically target the microcirculation. Is there a role for activated protein C? Polymyxin B? Does albumin restore the microcirculation better than crystalloid in the first vital hours? It would be nice to help finding answers to some of these questions.

Catrina: Can other departments use the antibiotic order set that you department uses?

Julian: In order to arrive at our antibiotic order set we have looked at our institution specific microbes over a 12 month period. We've looked at our data and we've said OK - this is what's going to cover the likely offenders. Other institutions could do the same or they may assume that their bugs are much the same as ours.

There is a down side to having four powerful, broad spectrum antibiotics and advocating their use. We can't overuse them, because the more we use these antibiotics the less useful they will become. We have to be pretty certain that we're dealing with septic shock; we can't afford to muck about... bang, in goes the antibiotics. It's our responsibility to be as solid as we possibly can that the diagnosis is septic shock.

Catrina: What are the important take home messages?

Julian: In ED it's everyone's business to be always on the lookout for sepsis. When associated with refractory hypotension we need to act fast: jam in some antibiotics and restore perfusion. This is core business. Thanks Katrina.

References:

Marchick MR, Kline JA, Jones AE, (2009) The significance of non-sustained hypotension in emergency department patients with sepsis. *Intensive Care Med.* 35:1261-1264

Rivers, E, Nguyen B, Havstad, S et al. Early goal-directed therapy in the treatment of severe sepsis and septic shock, *NEJM*, 2001;345:1368-1377



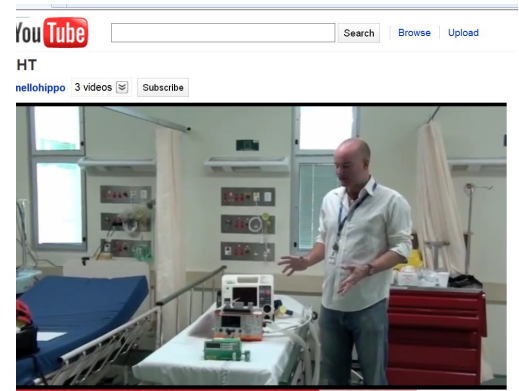
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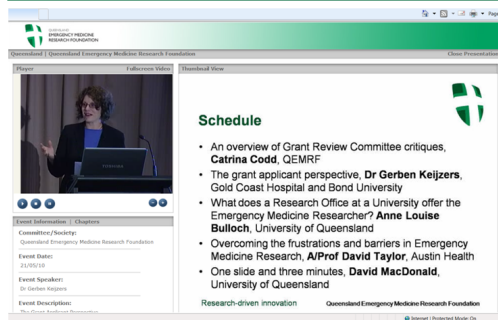
Queensland Emergency Physicians on Film

Dr David Rosengren and Dr Sean Rothwell appear in Tracking a killer – 60 minutes story. <http://video.au.msn.com/watch/video/tracking-a-killer/xgl2v0f>. Four Queensland Emergency Physicians researched hyponatraemia at Kokoda.

Log on to YouTube to find out about the Gympie and Caboolture Hospital Inter Hospital Transfer Project <http://www.youtube.com/watch?v=uqCxb0hOheU&feature=youtu.be&a>



Research Workshop Spills the Beans



QEMRF presented a Research Workshop at the Autumn Symposium spilling the beans on how to write a successful grant application.

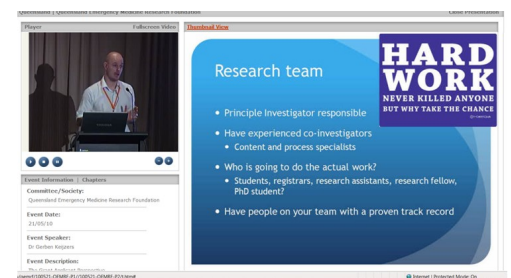
The information provided in the research workshop is useful for any grant applicant regardless of which body they are submitting their application to.

Feedback indicated that it was well received with enthusiastic potential applicants eagerly asking questions in anticipation of future successful grant applications.

The workshop provided a summary of feedback from expert reviewers on the strengths of successful applications. The session also highlighted the areas where applicants need to spend more time and focus when preparing an application.

Video footage with PowerPoints - freely available via www.mediavisionz.com.au/qemrf. The [PowerPoint slides](#) without video can be accessed at www.portal.qemrf.org.au.

Included in the session was an outline of how University Research Offices can assist applicants and collaborate on project applications.



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