Austin Hospital Emergency Department

Research Report 2013

Compiled by

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FOREWORD

Welcome to the Austin Hospital Emergency Department’s 2013 Research Report. Once again, we have had a very successful and productive year. The increasing interest in research and contribution of a number of units within the department continues. In particular, our Toxicology Unit, led by Dr Shaun Greene, remains very active in publication and presentation of research initiatives. Our Quality Unit, led by Dr Michael Yeoh, has also undertaken a number of valuable research audits. Notably, Dr Victor Lee, from our Education Unit, is developing a project to evaluate clinical training initiatives, specifically workplace evaluations. It is also encouraging to see that our Pharmacy, Care-coordination and Physiotherapy staff are becoming increasingly involved in research.

2013 HIGHLIGHTS

Collaborations
Perhaps 2013 could best be described as ‘Year of the Collaboration’. At the international level, we took advantage of our successful ‘Code Grey’ study and have developed two international collaborations that further investigate drug use in the sedation of acutely agitated patients. The first is with a number of Hospitals and Universities in Hong Kong. This collaboration is exploring the local management of acute agitation in the Hong Kong setting and has been awarded funding to support a clinical trial entitled ‘Intramuscular olanzapine versus haloperidol or midazolam for the management of acute agitation in the emergency department – a multicentre, randomised, clinical trial’. The second international collaboration is with a research group in Qatar. We have recently been shortlisted for funding to support another trial entitled ‘A randomized double-blind controlled trial of intravenous olanzapine plus midazolam, haloperidol plus midazolam, and olanzapine alone in acute agitation in the emergency department setting in Qatar’. These two new sedation trials, the SOOTHE trial that we are heading here in Melbourne, and our two successful earlier sedation trials will consolidate our position as the world leading research group in this area. We have also had the opportunity to contribute to several projects of the Research Committee of the International Federation of Emergency Medicine. Finally, Dr Ivy Cheng, an emergency physician who works at both the Austin and the Sunnybrook Hospital in Toronto (Canada), is working on a project that will compare the factors associated with prolonged ED stay at both centres.

At the national level, the Austin led a collaboration of nine Australian EDs that undertook the TARGET Pain study in 2013. This project built upon our ED’s earlier pain management research and aimed to explore the impact of a novel clinical intervention on patient satisfaction. Data collection is now complete and the preliminary results are extremely encouraging and offer promise for the best practice management of pain in EDs world-wide. We also took a leading role in projects of the Australasian College for Emergency Medicine (ACEM) Clinical Trials Group that aimed to determine the research priorities for emergency medicine within Australasia.

Locally, the Austin is the lead site for the SOOTHE study (‘Intravenous midazolam-droperidol (combination), droperidol (only) or olanzapine (only) for the acutely agitated patient: A multi-centre, randomised, double-blind, controlled, clinical trial). This builds upon our earlier sedation work and will be supported by funding from the
ACEM Morson-Taylor Research Award. In 2013, our ED also developed and led two collaborations that explored Complementary and Alternative Medicine use by children and the administration of off-label medications to children in the ED. These collaborations included the Austin, Royal Children’s, Sunshine, Dandenong and Casey Hospitals, and the Monash Medical Centre. It is pleasing to report that these paediatric projects allowed two advanced paediatric trainees to fulfil their research training requirements. The success of these projects will substantially support our application for inclusion within the national PREDICT paediatric research group.

The Choking Resuscitation trial
In 2013, we published the results of a respiratory resuscitation trial (Lippmann J, Taylor DMcD, Slocombe R, McDonald CF, Walker T, Nolan G. Lateral versus anterior thoracic thrusts in the generation of airway pressure in anaesthetised pigs. *Resuscitation* 2013; 84: 515-519). In this project, we collaborated with the Diver Alert Network, the Austin Health Respiratory Medicine Department, the Metropolitan Ambulance Victoria and the University of Melbourne. In 2012, the project won the Best Paper by a Fellow at the ACEM Annual Scientific Meeting and was runner up in the Best Respiratory Poster section at Austin Research Week. In 2013, it won the ACEM Edward Brentnall Award for the most significant Public Health or Disaster Medicine publication and the Best Paper at the Australian Pre-hospital Emergency Health Research Forum (Paramedics Australasia Conference, Canberra).

International Conference for Emergency Medicine (ICEM)
This conference will be held in Hong Kong in June of 2014 and it is notable that our ED will be heavily involved. The results of at least 10 projects, that the Austin has either led or contributed to, will be presented.
RESEARCH STAFF NEWS

It was with sadness that we farewelled Meagan Ward from the department in late 2013. Meagan had served as a valuable and enthusiastic assistant in our Research and Quality Units since 2011. We wish her well with her new position in the Quality Unit of the Mercy Hospital.

We would like to congratulate Dr Yit Leang for successfully fulfilling the research component (Regulation 4.10) of his advanced ACEM Fellowship training. Yit presented the results of his research project ‘Reported ingested dose of paracetamol as a predictor of risk following paracetamol overdose’ at the ACEM Annual Scientific Meeting in Adelaide, November, 2013.

We would also like to congratulate Dr Reetika Dhir whose project entitled ‘The use of Complementary and Alternative Medicines among Paediatric Emergency Department Patients’ successfully fulfilled the research requirement of her advanced paediatric fellowship training.

In 2013, the University of Melbourne commenced its Scholarly Selective program. This program requires the university’s medical students to undertaken a substantial research project over a 12 month period. In July, we welcomed four Scholarly Selective students to our department: Xien Liversedge, Justin Evans, Sophia Ling and Bonnia Liu. Each student developed his/her research protocol during the second half of 2013 and will commence data collection in February 2014. Their projects, respectively, are:

- ‘The association between provision of ‘adequate analgesia’ to emergency department paediatric patients and parent satisfaction’
- ‘The effect of vapocoolant spray on skin sterility prior to intravenous cannulation’
- ‘Identifying the special psychological needs of elderly patients in the emergency department’
- ‘The nature and outcome of chemical exposure in the workplace reported to the Victorian Poisons Information Centre’

Finally, I would like to congratulate all staff who have had successful research endeavours during 2013 and thank those who assisted and facilitated this good work. We can look forward to a successful and stimulating 2014 and beyond.
MAJOR ONGOING AND PLANNED ACTIVITIES

‘IV midazolam-droperidol (combination), droperidol (only) or olanzapine (only) for the acutely agitated patient: a multi-centre, randomised, double-blind, controlled trial’ (The SOOTHE Trial)
The Austin ED will lead this trial and will collaborate with the Royal Melbourne and St Vincent’s EDs. It is the third of our collaboration’s trials in the management of the acutely agitated ED patient. This patient group is difficult to examine in clinical trials. We are fortunate in Victoria to have a State Legislation and Research Ethics framework that allows patient consent to be waived. Consent issues have stifled research in this important area in many other parts of the world.

‘Intramuscular olanzapine versus haloperidol or midazolam for the management of acute agitation in the emergency department – a multicentre randomised clinical trial.
This is the third of our sedation trials and will be run in Hong Kong by Dr Esther Chan. Esther is well known to many of us and was one of our ED pharmacists for several years. Esther undertook the Code Grey study as part of her PhD studies. She is now employed as an Assistant Professor at the University of Hong Kong.

‘Accuracy of Cone Beam CT for scaphoid trauma compared to plain X-Ray and MRI’
Austin Health has recently acquired a ‘cone beam’ CT scanning machine. This allows for focussed CT scanning of limited areas of the body, thus avoiding substantial radiation exposure. We are collaborating with the Radiology Department to determine the value of the cone bean CT in the diagnosis of scaphoid fractures. We expect it to be both highly sensitive and specific and will, therefore, obviate the need for up to 2 weeks in plaster for those patients with occult fractures.

‘The Health of Scuba Divers who continue to dive with medical co-morbidities’
For many years, potential scuba divers were screened for medical co-morbidities that might impact upon their diving safety. Despite an absence of evidence, many divers were excluded from the sport as a result. More recently, the medical screening has moved from the traditional ‘yes/no, you can/cannot dive’ towards a personalised ‘quantification of risk’. As a result, there is now an increasing number of divers with a range of medical conditions. Many of these divers are members of the Diver Alert Network (DAN), an organisation that provides education and insurance for scuba divers. In collaboration with DAN, we have recently rolled out a suite of projects that aimed to evaluate the absolute risk of diving with medical co-morbidities. Data collection is now complete and analysis had begun.

‘Development and validation of screening tools for patients at risk of medicine-related problems at presentation and after discharge from the ED’
This project involves developing, testing and evaluating two screening tools for medication-related problems occurring before patients present to emergency departments, and for medication-related problems occurring in relation to care received in hospitals. This project will accurately identify medication-related problems, which will enable strategies to be readily implemented to prevent patient harm. We have recently submitted an NHMRC funding application and, if successful plan to begin data collection in mid-2014.
**ARTICLES PUBLISHED IN 2013 BY AUSTIN ED STAFF**

**Crane J**, Delany C. Physiotherapists in emergency departments: responsibilities, accountability and education. *Physiotherapy* 2013; 99: 95-100


**Chan EW, Taylor DMcD, Knott JC, Phillips GA, Castle DJ, Kong DCM.** Intravenous droperidol or olanzapine as adjuncts to midazolam for the acutely agitated patient: a multi-centre, randomised, double-blind, placebo-controlled clinical trial
*Annals Emerg Med* 2013; 61: 72-8

**McIntyre S, Taylor DMcD, Greene S.** Introduction of an N-acetylcysteine weight based dosing chart reduces prescription errors in the treatment of paracetamol poisoning


**ARTICLES ACCEPTED – In press**


- Resuscitation http://dx.doi.org/10.1016/j.resuscitation.2012.11.024
- Emerg Med Australas 2013; 25 (Suppl. 1), 14
- Austin Health Research Week 2012 – Abstract no. 403
- Proceedings of the 17th Congress of the Asian Pacific Society of Respirology, Hong Kong, December, 2012
- Australia and New Zealand Committee on Resuscitation: April 2013 Research updates, p11-12
- Proceedings of the Australian Pre-hospital Emergency Health Research Forum, Paramedics Australasia Conference, Canberra, Oct 2013

Taylor SE, Taylor DMcD, Jao K, Goh S. ‘A clinical intervention trial of nurse-initiated analgesia for paediatric patients in the emergency department.’
- Austin Health Research Week, October 2012 – Abstract no. 325
- Emerg Med Australas 2013; 25 (Suppl. 1), 14

Knott JC, Chan E, Taylor DMcD, Kong, D, Phillips G, Castle D. Factors associated with adverse events during sedation of highly agitated patients in the emergency department Emerg Med Australas 2013; 25 (Suppl. 1), 3

Ngui B, Taylor DMcD. 'Effects of obesity on patient experience in the emergency department'. MDLinx.com, 2013
http://www.mdlinx.com/emergency-medicine/news-article.cfm/4561308
CONFERENCE/SEMINAR ORAL PRESENTATIONS BY ED STAFF

**Greene SL.** Prescription Opioid Abuse Trends in the Asia-Pacific Region. (Keynote speaker) Asia Pacific Association Medical Toxicology, Dubai November 2013.

**Greene SL.** New Psychoactive Substances. ACEM Scientific Meeting Adelaide December 2013.

**Lee V.** What factors impact on Mini-CEX assessor judgements in the postgraduate setting? A Systematic Literature Review. AMEE conference 2013, Prague

**Vohra R, Wong A.** The Global Educational Toxicology Uniting Project (GETUP), North American Congress of Clinical Toxicology Conference 2013, Atlanta, USA.

**Yeoh M.** ‘Critical appraisal of the literature’ ACEM Scientific Meeting Adelaide December 2013.

**Taylor D.** ‘Activities of the ACEM Clinical Trials Group’ (Invited speaker) ACEM, Annual Scientific Meeting, Adelaide, November 2013

**Taylor D.** ‘How to publish’ (Invited speaker) ACEM, Annual Scientific Meeting, Adelaide, November 2013

**Taylor D.** ‘The basics of study design in emergency medicine research’ (Invited speaker) ACEM, Annual Scientific Meeting, Adelaide, November 2013

**Taylor D.** ‘Complementary and Alternative Medicine use among paediatric emergency department patients’ (free paper). ACEM, Annual Scientific Meeting, Adelaide, November 2013

Finalist for the ‘Best Presentation by a Fellow’ award

**Taylor D.** ‘Non-Invasive Cardiac Output Monitoring in Emergency Resuscitation – The NICER trial’ (free paper). ACEM, Annual Scientific Meeting, Adelaide, November 2013

Finalist for the ‘Best Presentation by a Fellow’ award

**Taylor D.** ‘Medical Research Ethics – History and Practice’ (Invited speaker) Scotch College, Melbourne. Year 11 Psychology. August 2013
CONFERENCE/SEMINAR POSTER PRESENTATIONS BY ED STAFF

Taylor DMcD, Paul Joffe, Taylor SE, Alicia Jones, John Cheek, Simon Craig, Andis Graudins, Reetika Dhir, Franz Babl, David Krieser. ‘Paediatric Emergency Department patients administered a high rate of off-label drugs’
  • ACEM, Annual Scientific Meeting, Adelaide, November 2013
  • Austin Health Research Week, November 2013
  • Western Health Research Week, November 2013

Western Health Research Week, November 2013

Thom O, Cooney H, Taylor DMcD, Kasza J, Fraser J. ‘Non-Invasive Cardiac Output Monitoring in Emergency Resuscitation – The NICER trial’
ANZICS conference, Singapore, July 2013

7th Mediterranean Emergency Medicine Congress, Marseilles, France. September 2013

International Congress of Shoulder and Elbow Surgeons, Japan, April 2013
PRIZES

Taylor D
The 2013 Australasian College for Emergency Medicine Morson-Taylor Research Award for the most important proposed research project:
‘IV midazolam-droperidol (combination), droperidol (only) or olanzapine (only) for the acutely agitated patient: a multi-centre, randomised, double-blind, controlled trial’ (principal investigator)

Taylor D
The 2013 Edward Brentnall Award
Awarded for the most significant Public Health or Disaster Medicine publication by a Fellow of the Australasian College for Emergency Medicine:
Lippmann J, Taylor DMcD, Slocombe R, McDonald CF, Walker T, Nolan G.
‘Lateral versus anterior thoracic thrusts in the generation of airway pressure in anaesthetised pigs.’ Resuscitation 2013; 84: 515-519

Taylor D
Best Paper: Australian Pre-hospital Emergency Health Research Forum Paramedics Australasia Conference (Canberra, Oct 2013)
Lippmann J, Taylor DMcD, Slocombe R, McDonald CF, Walker T, Nolan G.
‘Lateral versus anterior thoracic thrusts in the generation of airway pressure in anaesthetised pigs.’

Taylor D
Finalist in the Best Paper by a Fellow of the Australasian College for Emergency Medicine (ACEM) - 2013 ACEM Annual Scientific Meeting (Adelaide)
• ‘Complementary and Alternative Medicine use among paediatric emergency department patients’
• ‘Non-Invasive Cardiac Output Monitoring in Emergency Resuscitation – The NICER trial’
ONGOING RESEARCH PROJECTS

- The TARGET Pain Study: A multi-centre, controlled, intervention trial
- IV midazolam-droperidol (combination), droperidol (only) or olanzapine (only) for the acutely agitated patient: a multi-centre, randomised, double-blind, controlled trial – the SOOTHE trial
- A Pilot, Randomised, Blinded, Safety and Biochemical and Physiological Efficacy Study of Terlipressin vs. Placebo in Hypotensive Sepsis
- Intramuscular olanzapine versus haloperidol or midazolam for the management of acute agitation in the emergency department – a multicentre randomised clinical trial.
- Towards improving safety and minimising risk: Development, validation and implementation of a medication-related problem risk screening tool for patients presenting to emergency departments.
- The ARISE Australasian Resuscitation in Sepsis Evaluation Trial
- Effectiveness of the Valsalva Manoeuvre for reversion of supra-ventricular tachycardia in the prehospital and emergency medicine settings
- The effect of vapocoolant spray on skin sterility prior to intravenous cannulation
- Vascular injuries in Australia and New Zealand
- The nature and outcome of chemical exposure in the workplace reported to the Victorian Poisons Information Centre
- Management of acute agitation in the Emergency Department: A survey of practice in Hong Kong
- The association between provision of 'adequate analgesia' to emergency department paediatric patients and parent satisfaction
- Identifying the special needs of psychological elderly patients in the emergency department
- Fluid bolus for ED hypotension audit
- Evaluation of the effect of a Medical Emergency Team (MET) call for emergency department patients
- Variables associated with receipt of analgesia and prolonged times to analgesia among Emergency Department patients
• Accuracy of QT Interval measurements on electronic ‘smart’ devices

• Accuracy of doctors’ measurement of ECG based conduction intervals reported to a Poison Information Centre following overdose with cardiotoxic drugs

• Reported Ingested Dose Of Paracetamol As a Predictor Of Risk Following Paracetamol Overdose.

• Continuous monitoring of incidents and adverse event in the ED

• The use of complementary and alternative medicines among paediatric emergency department patients

• Off label drug administration to paediatric ED patients – a multi-centre observational study

• Medical conditions among Australasian scuba divers

• Effectiveness of the management of supraventricular tachycardia in the prehospital setting: A retrospective case series

• Comparison of two postures for use in the Valsalva Manoeuvre: a repeated-measures clinical trial in healthy subjects

• The introduction of a chloride physiologic fluid environment in the ED, ICU and OTs and regular audit of the effect of this change

• Evaluation of nurse-initiated analgesia for paediatric patients in the Emergency Department, ethics project number

• The Retrospective Pneumothorax Project

• Management of Acute Agitation in the Emergency Department of Hamad Medical Corporation in Qatar – A Comparative Prospective Study

• Evaluation of the Shoulder and Subscapularis function post Latarjet Procedure
RESEARCH COLLABORATION PARTNERS

• Diver Alert Network (Asia-Pacific)
• Metropolitan Ambulance Victoria

• Austin Health departments
  o Pharmacy
  o General Medicine
  o Respiratory Medicine
  o Intensive Care
  o Microbiology
  o Radiology
  o Surgery
  o Victorian Poisons Information Centre

• Overseas Hospitals
  o St Thomas’s Hospital London
  o King’s College Hospital, London
  o Hamad General Hospital, Qatar

• Universities
  o University of Hong Kong
  o University of Melbourne
  o Monash University
  o La Trobe University

• Australian Hospitals
  o The Avenue Hospital
  o Royal Melbourne Hospital
  o St Vincent’s Hospital
  o Alfred Hospital
  o Monash Medical Centre
  o The Royal Children’s Hospital
  o Sunshine Hospital
  o Dandenong Hospital
  o Casey Hospital
  o Liverpool Hospital (NSW)
  o Prince of Wales Hospital (NSW)
  o The Gold Coast Hospital (QLD)
  o The Mater Hospital (QLD)
  o The Townsville Hospital (QLD)
  o Royal Brisbane and Women’s Hospital (QLD)
  o Princess Alexandra Hospital (QLD)
  o Prince Charles Hospital (QLD)
  o Royal Perth Hospital (WA)