ANNUAL RESEARCH SYMPOSIUM
25 AUGUST 2014
The Members of the Ballarat Health Services Research Governance Committee wish to welcome all delegates to the 2014 Ballarat Health Services Research Symposium.

The aim of the Research Symposium is to provide a forum for the presentation and discussion of research conducted within Ballarat Health Services and the Grampians region and to showcase research endeavours that have particular relevance for the BHS community.

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**Acknowledgement:** The Ballarat Health Services Research Governance Committee would like to acknowledge the support of Pfizer Oncology for their hospitality and printing of the Research Symposium Book of Proceedings.

For further information on this Research Symposium or the BHS Research & Ethics Service, please contact Dr Susan Shea, Conference Convenor researchethics@bhs.org.au
**BHS Annual Research Symposium 2014**

*Monday 25th August 2014 – ERC Lecture Theatre  2pm to 5:30pm*

1.45pm  **REGISTRATION**

2pm  **OPENING**

**LAUNCH**  BHS Research Champions Program

**OPENING ADDRESS**

Associate Professor Robert MacFadyen, Director Internal Medicine Service BHS

Cost Effectiveness and Cost Utility Research in Tax Funded Healthcare

**ABSTRACT PRESENTATIONS**

- **Ms Sabiena van Es**, Dr Damian Talbot; Dr Jaycen Cruickshank BHS Department of Emergency Medicine - *Clinical Practice Guideline Adherence Regarding Scaphoid Imaging in the Emergency Department*

- Dr Lisa Clinkock, Ms Dawn Whittall, Dr Val Goodwin, **Ms Tara Haneveld**, Ms Jennifer Farrer Grampians Region: Australian Catholic University, Federation University, Monash University - *Innovations in Clinical Placement Education: Increasing student nurse capacity in regional Victoria.*

- **Dr Michael Shaw**, Dr Tony Keeble, Dr Balvinder Kaur Department of Anaesthesia and Pain Management BHS - *Assessment of Non-invasive Forearm Blood Pressure Monitoring in Patients with a Body Mass Index of 35 or more Undergoing Surgery*

- Mrs Keren Day, **Ms Denise Fitzpatrick**, Ms Jade Oders, Dr Wendy Penney BHS Governance and Risk Management Unit, Grampians Regional Palliative Care Team, Federation University - *Developing an End-of-Life Framework*

- **Dr Binara Jayasinghe**, A/Prof Robert J MacFadyen Internal Medicine Service BHS - *Verified Patient Diagnosis following Potential Ischaemic Neurological Symptom (PINS) Presentation Through a Regional ED – Pilot Observation*

- Dr B MacDonald, **Dr Libia Machado**, Dr Balvinda Kaur. Department of Anaesthesia and Pain Management BHS - *A two year Retrospective Audit of Remifentanil Use in Labour at Ballarat Base Hospital.*

- **Mr David Mitchell**, Orthopaedic Surgeon, Dr James Tan, - *Is it Possible to Drive Before Two Weeks After Joint Replacement and Local Infiltation Analgesia?*

4pm  **REFRESHMENTS AND NETWORKING**

**4:15pm  KEYNOTE ADDRESSES**

Dr Geoffrey Chong, Oncologist BHS

*Data-driven Management of GIST and Pancreatic Neuroendocrine Tumours*

Dr Yen Tran, Oncologist BHS

*The Changing Landscape of Prostate Cancer Management*
Abstracts

Ballarat Health Services
Research Symposium 2014
Clinical Practice Guideline adherence regarding Scaphoid Imaging in the Emergency Department

Author
Ms Sabiena van Es, Dr Damian Talbot, Dr Jaycen Cruickshank
Department of Emergency Medicine Ballarat Health Services

Background
Clinical diagnosis of scaphoid fractures is important and challenging. There are long-lasting complications if a fracture is missed and 7-36% of fractures are not seen on initial radiographs. Across the world, a shift can be appreciated from delayed repeat radiographs to early advanced imaging modalities for assessment of a clinically suspected scaphoid fractures. Clinical application of early advanced imaging has been shown to reduce the number of days unaffected patients are immobilised and reduce cost of overall treatment.

Objectives
This retrospective audit investigates the adherence to a locally clinic developed Clinical Practice Guideline, advocating the use of early Computerised Tomography or immobilisation and referral to fracture for delayed radiographs.

Method
Two six month samples were selected from the hospital records. 77 patients in 2008 and 90 patients in 2012 met the inclusion criteria: a combination of recent injury to the wrist or hand, consistent with possible scaphoid injury, and anatomical snuffbox tenderness or scaphoid views on the initial radiograph. These 2 years were selected because 2008 was the year straight after introduction of the Clinical Practice Guideline, with reminders and educational program in place. 2012 is selected to evaluate the adherence over time.

Results
Five years after the introduction of a Clinical Practice Guideline, the compliance with the guideline was reduced from 89.6% to 84.4%, p=0.37 (ns). The use of early CT to investigate clinically suspected scaphoid fractures dropped from 67.2% in 2008 to 45.8% in 2012. This result was statistically significant (p=0.03) with a moderate effect (Phi 0.22).

Conclusion
Five years after the introduction of a Clinical Practice Guideline, the compliance with the guideline was reduced from 89.6% to 84.4%, p=0.37 (ns). The use of early CT to investigate clinically suspected scaphoid fractures dropped from 67.2% in 2008 to 45.8% in 2012. This result was statistically significant (p=0.03) with a moderate effect (Phi 0.22).

Implications for Practice and Ballarat Health Services
Incorporating evidence into practice is challenging. A review of education, guideline implementation & processes would be of value to improve and monitor the best practice for suspected scaphoid fractures.
Innovations in Clinical Placement Education: Increasing student nurse capacity in regional Victoria

Author
Dr Lisa Clinnick, Ms Dawn Whittall, Dr Val Goodwin, Dr Lyn Gleeson, Ms Tara Haneveld, Ms Jennifer Farrer
Grampians Region: Australian Catholic University, Federation University, Monash University

Background
Evidence shows that the supply of nurses in the Grampians region of Victoria is not keeping pace with demand. In response to this concern, Federation University (formerly University of Ballarat) and Australian Catholic University (ACU) sought to increase student enrolments in their respective undergraduate nursing programs. With this increase in student numbers, the demand for clinical placements also increased. As a result, a flexible learning model was introduced, which involved increasing the number of available placements in the regions. In addition, the length of clinical placements moved from the traditional block placements of three - four weeks to extended placements of twelve weeks or more. A systematic review identified little discussion of this form of placement, and the research arm of the project was developed to evaluate the implementation and effects of this new model within the region.

Objectives
The aim is to investigate the impact of the implementation of the flexible model on the clinical training capacity of services in the Grampians region.

Methods
The research used a qualitative retrospective design. There were three phases of data collection: qualitative data were gained in response to open-ended questions, and thematically analysed. Phase two data were obtained via focus groups conducted with the regional executive nurse group, with the final phase comprising a Delphi survey with key stakeholders to rank and prioritise themes.

Results
This presentation reports phase one of the data collection and analysis. Preliminary findings show benefits and limitations of the new model from the perspective of students.

Conclusions
The introduction of the flexible clinical learning model showed a significant shift in thinking and required a change in the processes, practices and culture of delivering clinical learning both from a university and health service perspective.

Implications for Practice and Ballarat Health Services
The results of this research will further inform the field of the impact of this model upon both staff and students within the region. It will also recommend ways of improving the placement model into the future.
Assessment of non-invasive forearm blood pressure monitoring in patients with a Body Mass Index (BMI) of 35 or more undergoing surgery

Authors  Dr Michael Shaw, Dr Tony Keeble, Dr Balvinder Kaur

Department of Anaesthesia Ballarat Health Services

Background/Objectives
Accurate measurement of arterial blood pressure in morbidly obese patients presents a challenge to the anaesthetist. Non-invasive (cuff) monitoring is often not feasible in morbidly obese patients. Invasive arterial lines provide an alternative, but have significant risks such as arterial wall damage, formation of thrombus, emboli and clots. Arterial cannulation in the morbidly obese patient is often technically challenging. Studies have shown that there is reliability between non-invasive and invasive blood pressure monitoring in obese patients, however no studies have compared the reliability of forearm versus invasive blood pressure monitoring.

Method
After local human ethics research committee approval, 51 patients aged 18 years or older, with a BMI of 35 or greater, undergoing elective surgery requiring invasive blood pressure monitoring were recruited. Intravenous access and arterial cannulation was performed, forearm cuff pressure monitoring applied. Monitoring of no greater than 5 minute intervals were performed during surgery and in the immediate post-operative period. Data was analyzed using the SCollect system.

Results
50 subjects (35 female, 15 male), mean age 50.6 years, mean BMI of 44.9 were studied. 48/50 (96%) patients had successful arterial line placement, 1/50 had a failure of arterial line, 1/50 had a loss of data due to software malfunction. Differences between BP measurements of art lines vs cuff for systolic, diastolic and mean BP were normally distributed; mean differences of arterial vs cuff measurements for systolic BP 5.78+/-14.54mmHg, diastolic BP -1.14+/-8.06mmHg, mean BP 1.65+/-7.92mmHg. A paired T-test showed statistically significant differences between arterial line and cuff for all three measurements. Further testing showed that for diastolic and mean BP, there was agreement at 5.10mmHg(5, 10% of measurement levels), whilst for systolic measurement agreement was only at 10mmHg(10% of measurement levels).

Conclusions/Implications for Practice and Ballarat Health Services
There was good reliability between invasive blood pressure monitoring and non-invasive forearm measurements in 48 patients, with agreement in measurement for diastolic and mean BP for both devices across a 5.10mmHg (5,10%) level, which is clinically relevant. Larger studies are needed to validate the routine use of forearm blood pressure monitoring in morbidly obese patients.

Developing an End-of-Life Framework

Authors
Mrs Keren Day¹, Mrs Denise Fitzpatrick², Ms Jade Odgers³, Dr Wendy Penney⁴

1 Governance and Risk Management Unit, Ballarat Health Services
2 End-of-life Framework Project, Ballarat Health Services
3 Grampians Regional Palliative Care Team
4 Nursing, Midwifery, Paramedicine, Federation University

Background/Objectives
Background Acute hospitals provide end-of-life care to the majority of people who die in Australia. Decisions about whether it is appropriate to escalate life-sustaining measures in patients with chronic, life-limiting illness are often postponed until there is a sudden deterioration. It is then, that families and health care workers are often required to make medical decisions without knowing the patient’s preferences.

Method
Ethics approval has been granted and this enabled key stakeholder consultation using focus groups and semi-structured interviews. Analysis of these data will inform the intent and tone of the framework. Medical record and mortality review will inform the establishment of outcome measures.

A framework is being developed to integrate the end-of-life care elements of: Advance Care Planning, identifying patients at risk of deteriorating or dying, medical goals of care documentation, a Care of the Dying Management Plan and a range of supporting documents.

Results
This is a major change management program that is both challenging to health professionals yet is also highlighting that this framework will be of significant benefit to our patients.

Conclusions
This poster will provide details of key challenges and outcomes, specifically evaluation of Goals of Care planning and the Care of the Dying Management Plan along with recommendations for further research.

Implications for Practice and Ballarat Health Services
Ballarat Health Services is a regional health service providing acute, sub-acute, residential aged care and community-based services. It was recognised that while the health service had implemented a range of end-of-life care elements, this was patchy and did not provide an integrated systematic approach to delivering best-practice end-of-life care.
Verified Patient Diagnosis following Potential Ischaemic Neurological Symptom (PINS) presentation through a Regional ED – Pilot Observations

Authors
Dr Binara Jayasinghe1,2, A/Prof Robert J MacFadyen1

Division of Internal Medicine1 and Neurology2, Ballarat Health Services

Background/Objectives
Background: Transient potentially ischaemic neurological symptoms (PINS) need detailed assessment. Initial assessment may be compromised by lack of detailed history, neurological examination and use of appropriate imaging technologies.

Aims: To define the scope, effectiveness and point accuracy of such cases discharged from ED without neurology review. Findings are expected to guide us to improve the quality of outpatients’ stroke service at BHS.

Method
Neurology discharges were audited retrospectively over a three months interval extracting demographics, vascular risk factors and addressing documented assessments in all coded discharges. 30 day readmission rates were recorded

Results
From 12982 attendances at BHS ED during Jan-March 2014, 31(0.24%) patients were classed as PINS by ED staff. 19(61.3%) were discharged in total. Of these 12 (5 (42%) ♂; Age: 38-96yrs) were discharged without neurology review in ED. 9(75%) were referred for OP neurology follow up and three had no hospital follow up arranged. Requested review time period was not specified at ED discharge but 8(89%) patients were given triage of 1-2 weeks on basis of ED assessment. 1(11%) was lost to follow up. Patients were seen in neurology in 1-6 weeks (1(12.5%) within the triaged time). All patients had a CTB prior to discharge. Outpatient investigations organized by ED were; carotid USS 4 (33%) and TTE 3 (25%). The prevalence of any abnormality in these investigations was zero. None of the patients had a holter study, Ambulatory blood pressure measurement or MRIB organised by ED. After review an alternative neurological diagnosis was made in 5(62.5%) patients (Migraine 3; Transient global amnesia 1; Demyelination 1). Diagnosis of TIA was confirmed in only 3 (37.5%) cases.

Conclusions
In a small open retrospective sample we found a high rate of referral/investigational burden for PINS labelled as a TIA. Review for all was urgent yet the neurological diagnosis incorrect in the majority of cases. Delays were inevitable but had little clinical impact.

Implications for practice and Ballarat Health Services
This work emphasizes the importance of auditing the referral system for clinical effectiveness not speed or turnover. Future work should target and improve the quantitative effectiveness of diagnostic pathways from regional ED services and make more effective use of neurology outpatient clinic time. Investigation patterns need monitoring.
A 2 year retrospective audit of Remifentanil Use in Labour at Ballarat Base Hospital.

Authors
Dr B MacDonald, Dr L Machado, Dr Balvinda Kaur

Department of Anaesthesia and Pain Management, Ballarat Health Services

Background
Remifentanil, a synthetic opioid, is used in patient controlled analgesia (PCA) during labour as an alternative to other forms of analgesia by reducing pain scores with high patient satisfaction rates (1, 2). There are concerns, however, of the side effects of sedation, respiratory depression and bradycardia on both the mother and child (3).

Objectives
We conducted a retrospective audit of remifentanil use in patient controlled analgesia during labour at Ballarat Health Services and looked specifically for maternal and neonatal respiratory events.

Method
After health information approval, data was collected from 104 patients via Obstetric BOSSnet database from a 2 year period.

Results
The mean age was 27.76 (range 15-40) body mass index (BMI) of 24.92 (range 17-42) and parity of 1.53 (range 1-5). Respiratory events (defined as oxygen saturation less than 93%) occurred in 20.19% (95%CI 12.47-27.9) of patients. 17.3% (95%CI 10.04-24.58) of mothers who desaturated were administered routine supplemental oxygen.

Foetal events (defined as either respiratory events at birth, decelerations of heart rate on cardiotocograph (CTG), bradycardia or reduced variability on CTG) occurred in 61.53% (95%CI 52.18-70.89) of babies with only 3.84% (95%CI 0.15-7.54) requiring oxygen supplementation at birth.

Conclusions
We found a reasonable number of respiratory events associated with the use of remifentanil during labour.

Implications for Practice and Ballarat Health Services
Data from this audit will be used to conduct a prospective study to examine specific parameters which will give us better answers on whether remifentanil PCA in our practice is safe and to guide modifications of current clinical practice guidelines.

Is it possible to drive before two weeks after joint replacement and local infiltration analgesia (LIA)?

Authors  Mr David Mitchell, Dr James Tan

Background/Objectives
Following joint replacement, we noticed patients driving themselves for appointments at day 4 post-operatively. In stark contrast, the Arthroplasty Society of Australia recommends 6 weeks abstinence from driving following total hip or knee arthroplasty. We postulate this dichotomy be attributed to Local Infiltration Analgesia. This study aims to determine when it is safe to return to driving post total knee or hip arthroplasty after Local Infiltration Analgesia.

Method
A prospective comparative study of patients admitted for unilateral primary total hip arthroplasty or total knee arthroplasty under one surgeon was performed at our institution. Brake response time was measured utilizing a custom-built driving simulator at the time points of preoperative, 4 and 11 days post-operatively.

Results
We demonstrated that patients undergoing right total knee arthroplasty had a statistically significant prolonged brake response time day 4 post-operatively (958ms vs 694ms preoperative baseline, p<0.01), which returned to baseline at day 11 post-operatively (715ms vs 694ms preoperative baseline, p>0.65). Patients undergoing total hip arthroplasty or left total knee arthroplasty had no statistical significant changes to the brake response time at any time points.

Conclusions
After total hip arthroplasty or left total knee arthroplasty, patients have adequate response times for driving 4 days postoperatively. However, patients undergoing right TKA should wait at least 11 days postoperatively before returning to driving.

Implications for Practice and Ballarat Health Services
Local Infiltration Analgesia indeed seems to deliver on its promise to allow patients return to normal life faster.