Best HSR Impact Projects - Abstracts

Title: Maximising value of healthcare – a systems approach

Presenter: Dr Ian Scott, MBBS, FRACP, MHA, MEd, Director of Internal Medicine and Clinical Epidemiology, Associate Professor of Medicine, Princess Alexandra Hospital

Abstract: Considerable attention is being paid to reducing inappropriate use of acute hospital beds, mitigating demand for acute care, and improving quality of care and patient outcomes.

The author has been a lead clinician and investigator for several major reform programs that have attracted national and international interest. These include:

- Improving access to emergency care within hospital practice – large scale tertiary hospital reform program which raised NEAT 4-hour compliance rates from 32% to 62% over 9 months ($P < 0.001$) in association with reduced in-hospital mortality (from 2.3% to 1.7%; $P = 0.04$). Many of these reforms have been implemented in other hospitals and have been presented to several health service conferences.

- Lead clinician in collaboration producing systematic review of evidence for 4-hour rule targets indicating all targets were arbitrary. Subsequent investigation of datasets from 59 Australian hospitals which found that adjusted in-hospital mortality for emergency admissions falls as 4-hour NEAT compliance rates rise to a nadir of 83%, with no further increase thereafter. This was an international first in presenting an evidence-based target of around 80% which Queensland Health adopted, with other jurisdictions considering similar moves, and researchers in the UK and New Zealand aiming to replicate in their jurisdictions.

- Design and implementation of an integrated end of life care (EoL) program which incorporates advanced care planning (ACP) for patients with limited prognosis and which involves all hospitals, RACFs and general practices in Metro South (MS) Hospital and Health Service (HHS). More than 2600 patients have completed ACP in the last 2 years, and our methodology has been adopted by another 12 HHS and several other primary health networks. This work has been recognised by Queensland Health Minister at recent COAG meeting.

- Publication of a sentinel paper in Australian Health Review in 2015 which articulated 10 clinician-led strategies for maximising value in healthcare, with particular focus on hospital care, which featured prominently in a Productivity Commission report later that year and presented to health departments, professional colleges and the Australian Medical Association. Research has investigated cognitive biases in clinician decision-making that

predispose to low value care (accepted for publication in MJA) that has informed Queensland Clinical Senate, the Royal Australasian College of Physicians EVOLVE program and the NPS Medicine Wise Choosing Wisely campaign.

- Inappropriate polypharmacy is a major cause of avoidable hospitalisations and I established the Australian Deprescribing Network in 2014 and was lead author of a sentinel article on the deprescribing process in JAMA Internal Medicine in 2015, which has been cited 104 times and adopted by various guideline groups in Australia, UK and New Zealand.

- Emergency care of patients with suspected or definite acute coronary syndromes is a leading cause of ED presentations. As lead methodologist, I co-authored the recently released 2016 National Heart Foundation/Cardiac Society of Australia and New Zealand Guidelines for Acute Coronary Syndromes which comprise the first Australian guidelines satisfying all Institute of Medicine standards.

Acknowledgements: Key collaborators: Prof Adam Elshaug, Prof Elizabeth Reymond, Assoc Professor Michelle Foster, Prof David Le Couteur, Prof Sarah Hilmer, Prof Derek Chew, Associate Professor Ruth Hubbard, Dr Clair Sullivan, Ms Kristen Anderson, Mr Chris Freeman.

Title: Potentially preventable hospitalisations: a "zombie" indicator?

Presenter: Professor Louisa Jorm, Foundation Director of the Centre for Big Data Research in Health at UNSW

Abstract: The Assessing Preventable Hospitalisation InDicators (APHID) Study used linked data for >260,000 Australians and advanced statistical techniques to investigate "potentially preventable hospitalisations", which are used internationally as an indicator of the accessibility and quality of primary care. Our findings challenged the conventional wisdom about the use and interpretation of this key health performance indicator. Through engagement with policymakers at all levels, APHID has driven the evidence-based use of measures of preventable hospitalisation in Australia. Its findings also have important implications for how to evaluate the outcomes of current initiatives in primary care, such as the "Health Care Home" trial.

Acknowledgements: The APHID investigator team comprised Louisa Jorm, Alastair Leyland, Fiona Blyth, Robert Elliot, Kirsty Douglas, Sally Redman, Marjon van der Pol, Michael Falster, Bich Tran, Neville Board, Danielle Butler, Douglas Lincoln, Sanja Lujic, Damilola Olajide, Deborah Randall, Kim Sutherland and Diane Watson. The APHID study was funded by a National Health and Medical Research Council Partnership Project Grant (#1036858) and by partner agencies the Australian Commission on Safety and Quality in Health Care, the Agency for Clinical Innovation and the NSW Bureau of Health Information. The

APHID study used data from the 45 and Up Study, which is managed by the Sax Institute in collaboration with major partner Cancer Council New South Wales and partners the National Heart Foundation (NSW Division); NSW Health; Beyondblue: the national depression initiative; Ageing, Disability and Home Care, NSW Department of Human Services; and Uniting Care Ageing. We thank the many thousands of people participating in the 45 and Up Study. We thank the NSW Ministry of Health, Medicare Australia and the NSW Register of Births, Deaths and Marriages for allowing access to the data, and the Centre for Health Record Linkage for conducting the probabilistic linkage of records.

Title: Development and implementation of the EDACS Chest Pain Protocol

Presenter: Dr. Dylan Flaws, Royal Brisbane and Women's Hospital

Abstract: The EDACS Accelerated Diagnostic Protocol builds on the important work from the ASPECT and ADAPT studies, and was developed in 2014. It helps clinicians work out which chest pain presentations are unlikely to be suffering a major cardiac event, and allows almost half of chest pain presentations to return home several hours sooner. This is good for the patient, and allows the next patient, who may be suffering a serious illness to be seen that much sooner. Since it was first published, the EDACS protocol has been rolled out across New Zealand, is used in select hospitals in Australia, and is gathering international attention. It was validated in Vancouver, the results of which were published this year, and is currently being considered for use in the United States.

Acknowledgements: Co-investigators - Assoc. Prof. Louise Cullen, Dr. William Parsonage (will be present for another project), Dr. Jaimi Greenslade, Chris Frampton. International Validation - Dr. Frank Scheuermeyer, Dr. Jim Christenson, Barb Boychuk, Dr. Erik Hess, Dr. Steve Smith, Fred Apple. Funding - UQRS PhD Scholarship - during development of rule; AusHSI PhD Scholarship - funded travel & expenses during international validation.

Title: Using information on hospital-acquired diagnoses to improve hospital care

Presenter: Adj Associate Prof Terri Jackson

Abstract: Over the last decade, policy makers have turned the microscope on the quality and safety of hospital care. This presentation summarizes a program of applied health services research in collaboration with National and State agencies to understand how routine data can be used in clinical oversight and funding. This work has informed Australian policy development, including:

- National agreements to use pricing signals to motivate quality improvement, and to collect additional data elements in the hospital minimum dataset to identify condition-onset for hospital acquired diagnoses,
- Demonstrations of alternative ways of using activity-based pricing mechanisms to improve quality and safety of hospital care,
- Estimates of State-specific and national incremental costs of harmful hospital-acquired diagnoses,
- Development of data algorithms to group hospital-acquired diagnoses for use in quality improvement (CHADx and CHADx+), and to identify coding errors in condition onset flagging,
- Reporting of CHADx rates in the annual Australian Hospital Statistics
- Testing the use of routine data to report nationally-mandated sentinel events,
- Applied studies with clinical colleagues of the risks and outcomes of hospital-acquired diagnoses in various patient subpopulations, including elective surgical patients, cancer patients, cardiac surgery patients, inpatients older than 65, spinal injury patients, patients with pre-existing diabetes and kidney failure, and neonates,
- Studies to investigate methods of using data on multiple emergency department presentations to predict delayed or missed diagnoses, using linked data to identify readmissions attributable to a hospital-acquired diagnosis in a previous admission, and data mining techniques to measure the extent to which hospital-acquired diagnoses are associated with the patient's reason for admission.

The paper will also present unpublished outcomes of a current project with the Victorian Department of Health to develop a suite of ontologies for use in monitoring comparative rates of hospital-acquired diagnoses across health services, and use of these tools with clinician bodies to motivate and prioritise quality improvement in the State.

Acknowledgements: This work has involved a rich mix of practitioners and researchers, but with no coherent or stable funding to maintain a designated team. Contributors from State and Federal agencies include: Dr Dan Borovnicar, Steve Gillett, Dr Amanda Ling, Stuart Swain, Jenny Hargreaves, Pat Henry, Jennie Shepheard, Alison McMillan, and Dr John Wakefield. Contributors from academia include: Dr David Rowell, Jude Michel, Dr Hong Son Nghiem, Dr Peter Brooks, Dr Katrina Hauck, Dr Scott Klarenbach, Dr Babak Bohlouli, Dr Diana Cheng, Kathryn Baxter, and many clinician and student co-investigators. Dr Peter McNair, Dr Christine Jorm and Prof Stephen Duckett have been key collaborators who bridge the research/ practice divide.

Title: The Statewide Accelerated Chest pain Risk Evaluation (ACRE) Project

Presenter: Prof William Parsonage, Senior Staff Cardiologist, Royal Brisbane & Women's Hospital, Clinical Director, Australian Centre for Health Service Innovation (AusHSI), Queensland University of Technology

Abstract: The Accelerated Chest pain Risk Evaluation (ACRE) Project is a structured program of clinical redesign which has rapidly translated research into clinical practice. The project aimed to improve the assessment patients presenting to emergency departments (EDs) with chest pain and to evaluate the health service outcomes of the change in practice. The project was based on high-quality clinical evidence from locally-derived, widely cited research published in 2012 (The ADAPT trial).

ADAPT identified that 20% of ED patients presenting with possible cardiac chest pain could have their care safely accelerated based upon an accelerated diagnostic protocol (ADP). Translation of research into practice is challenging and frequently takes over 15 years. We aimed to deliver measurable health service outcomes in less than 5 years.

A pilot study at a single site in Queensland was undertaken in 2013 followed by state-wide implementation in all eligible hospitals over a 2-year period from 2014 to 2016.

Pooled data from 12 months pre-implementation and up to 16 months post-implementation has demonstrated significantly decreased ED length of stay, hospital admission rates to inpatient units and total hospital length of stay. For all patients presenting with possible cardiac chest pain median total hospital LOS fell from 1210mins to 806mins (404mins 95% CI 370-437mins). Hospital admissions fell from 70.4% to 57.3% (-13.1% 95% CI 12.3 - 13.9%). From May 2014 to the end of April 2016 51,042 patients have presented to the ED's across the 18 sites with possible cardiac chest pain. Of these, 12,138 (24%) have been managed on the ADAPT-ADP.

This has resulted in substantial released capacity with economic impact evaluation suggesting savings of more than $7.5 million per year across the state.

Acknowledgements: The ACRE project was funded by Queensland Department of Health through a grant from the Health Innovation Fund. The ADAPT study was partly funded by the Queensland Emergency Medicine Research Foundation.

Title: Making impact working the nexus – one spotted bushfire, two inquiries, $50M policy

Presenter: Evelyne De Leeuw, Professor and Director, Centre for Health Equity Training, Research & Evaluation (CHETRE)

Abstract: In the summer of 2014 a bushfire spotted into the Hazelwood open cut coal mine in the Victoria region of Gippsland. The local government area of the LaTrobe Valley and in particular the town of Morwell were heavily affected by the ensuing Hazelwood mine fire that deposited smoke, dust and uncertainty on the region. In particular the health impacts of the disaster were felt to be significant. The response of 'the system' was thought to be poor. The Parliament of Victoria established an official inquiry into causes and responses, and upon publication of the first report felt a second inquiry was needed to establish evidence-based longer term constructive follow-up measures.

A paper was commissioned to compile this evidence and world best practice in population health promotion, community resilience, and entrepreneurship for health. This work was reviewed and benchmarked by affected stakeholders in the community and region, and found its way into the Inquiry Report integrally. The Report, in turn, was wholly adopted by the Victorian Parliament that allocated $50 million for implementation of the findings.

In this presentation I will explain how such impact is created when health services research builds on nexus theories that map the complexities of the interfaces between research, policy and practice.

Finalist for the HSRAANZ Impact Award but unable to present at the Symposium

Title: TOP 5: Improving the care of patients with dementia

Dr Karen Luxford, Director, Strategic Partnerships & Knowledge Exchange, Clinical Excellence Commission

Abstract: This research program personalised care for patients with dementia using the 'TOP 5' tips and strategies from carers in 17 public and 4 private hospitals over 2 years. Patients with dementia have poorer clinical outcomes, are more likely to experience adverse events and are more than twice as likely as other patients to die while in hospital. For these vulnerable patients, carers and family represent an important source for gaining personalised 'tips' to customise patient care and improve safety. Project evaluation demonstrates that TOP 5 is a low cost, communication strategy that improves patient safety, carer experience and clinician satisfaction whilst providing cost savings to health services.

Currently over 74,000 people diagnosed with dementia live in NSW. With an ageing population, increasing levels of dementia will lead to increasing pressures in the health care system. The TOP 5 program is an innovative approach with significant improved outcomes for patients, family, carers, staff and health services. 'TOP 5' tips shared by carers with staff are recorded on the bedside chart, actively used in care delivery and conveyed to staff at shift handover so that personal tips continue to be communicated and used by staff.

In the wards using TOP 5, the evaluation demonstrated a significant reduction in patient falls (overall 36.4% decrease in the first 6 months; 6.85 fewer falls/month in intervention/control comparison), a decrease in the use of anti-psychotic medications (decrease of 68% in average cost of antipsychotics per month at one site) and lower use of intensive staffing. Staff reported that TOP 5 decreased patient agitation and distress, use of restraint and family/carer complaints, whilst improving staff satisfaction and carer confidence in staff. Carers were highly satisfied with TOP 5 and stated that it has benefited their loved one (86%) and reported high levels of satisfaction (96%) with the way staff have been using TOP 5 tips to personalize care provision.

TOP 5 is a patient-centred approach with broader applicability for all patients to support 'getting to know' key issues/strategies/personal histories for the patient. Whilst the evaluation focussed on patients with dementia, the TOP 5 approach has now been used to personalise care for any patient with cognitive impairment and speech impediments. The ability of a communication-based strategy to improve safety for patients has significant implications for future approaches to customer-focussed, quality improvement in health care.

As a result of this research TOP 5 is now incorporated into policy strategies by Alzheimer's Australia, the NSW Ministerial Carers Advisory Council and the NSW Dementia Implementation Advisory Committee. TOP 5 is now included in the NSW Carers Strategy aligned with the NSW Health Carers (Recognition) Act.

A second research study (also funded by HCF Research Foundation) has recently been completed investigating application of TOP 5 to transfers of care between hospital, aged care, ambulance and community services.

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