



Making data speak:

**Acute Coronary Syndrome data
to inform benchmarking,
practice improvement and
decision support**

Presented by

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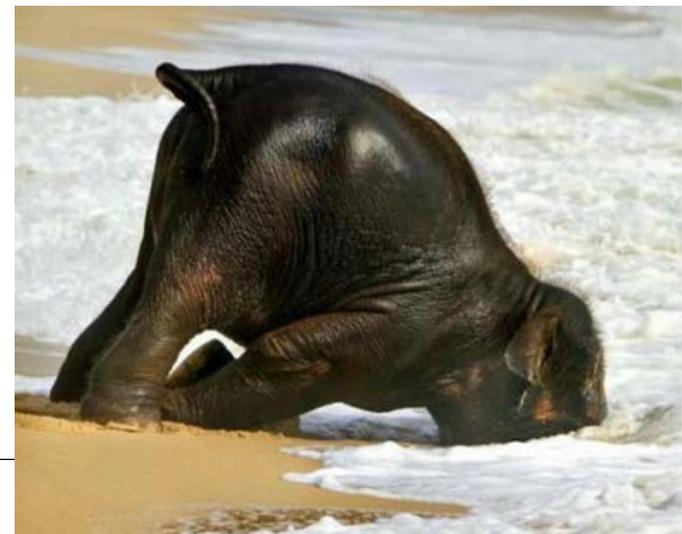
University of Sydney



**The Future We Were Promised:
How partnerships in digital
health are transforming care**

What is the history of data use for ACS?

- Longstanding ACS data collection /minimum data sets
 - **time is myocardium** - every 20 minutes saved leads to a 1% reduction in mortality from AMI !!
 - eg benchmarks for door to needle time, door to balloon time
- These data have informed evidence based care pathways
 - Long standing availability of chest pain pathways (Ferry et al 2004)
 - Safety alert from NSW Health (2009)
 - widespread failure of chest pain pathway implementation →
 - missed or delayed ACS diagnosis
 - poor outcomes and death.
 - NSW State chest pain pathway developed & mandated by NSW Health (2011)
 - audits revealed use as low as 10%



Known, continuing variance in care processes

- ACS registries* in Australia and New Zealand demonstrate
 - incomplete implementation of evidence-based recommendations
 - variance in care that correlates with variance in clinical outcomes
 - **routine data-collection in hospitals is poor**
 - **quality indicators/clinical outcomes are rarely returned to clinicians.**

* GRACE, ACACIA, CSANZ Audit group, CONCORDANCE
(Chew et al, 2013)

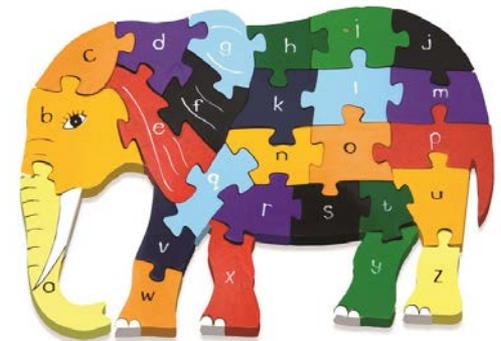


Collecting data on evidence-based, clinical process indicators (CPIs)

- useful in understanding both care variance and associated outcomes.
 - Australian hospitals, mean CPI adherence rate - 68.3%
- hospitals with a less variance have
 - reduced in-hospital adverse events
 - higher survival at hospital discharge
 - fewer readmissions (Aliprandi-Costa et al 2017)

(7444 ACS patients from 39 Australian hospitals, Aliprandi-Costa et al 2017)

» risk adjusted outcomes of higher CPI adherence



What could be different?

What if data collection & extraction were easy? (automatic)



What if data generated near real time reporting to clinicians?

What if it could be returned in a format useful for quality improvement?

What if it could feed into a truly interactive decision support tool?

One cardiologist & a seemingly insurmountable problem...



Interdisciplinary partnerships – the long game



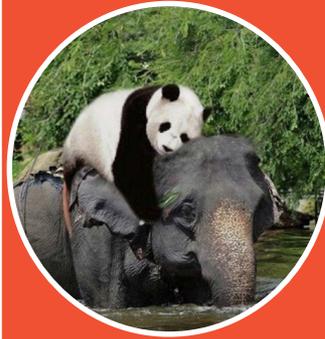
Problem identification



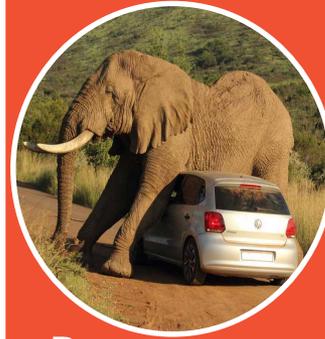
Share your ideas concerns



Formalise a think tank



Seek broad expertise



Be prepared to
1) wait for opportunity
2) adjust scale of your project



Extensive interdisciplinary collaboration



**Partnership
NSW Health**
Marianne Gale
Michelle Cretikos

**External
domain
expertise**
MKM Health

**Cardiology
clinical
expertise (SHP)**
David Brieger
Janice Gullick
Clara Chow
Gemma Figtree
Rebecca Kozor

**Data /
informatics
experts**
Tim Shaw
Aldo Saavedra
Seven Guney

**External
funders**
ACI
Cardiac
Network

**Other clinical
leaders with
data expertise**
Jonathan Morris
Felicity Gallimore
Angus Ritchie
Charmaine Tam

Sydney Health Partners

Digital Health Information Network

Phase 1(walk before you can run!)



- to extract data from Northern Sydney LHD to demonstrate:
 - i) that integration of data is possible
 - ii) that new insights into variation in care and outcomes can be obtained
 - iii) that a near real time model of reporting outcomes can be developed.
- To explore additional strategies to ensure data are of sufficient quality and user acceptability to allow feedback driven practice improvement?



References

- Brieger D, et al. The relationship between the proportion of admitted high risk ACS patients and hospital delivery of evidence based care. *Int J Cardiol.* 2016;222:86-92.
- Juergens CP, et al. English as a second language and outcomes of patients presenting with acute coronary syndromes: results from the CONCORDANCE registry. *Med J Aust.* 2016;204(6):239.
- Chew DP, et al. Invasive management and late clinical outcomes in contemporary Australian management of acute coronary syndromes: observations from the ACACIA registry. *Med J Aust* 2008; 188: 691-697.
- Aliprandi-Costa B, et al. Management and outcomes of patients with acute coronary syndromes in Australia and New Zealand, 2000–2007. *Med J Aust* 2011; 195: 116-121.
- Ellis C, et al. Acute coronary syndrome patients in New Zealand receive less invasive management when admitted to hospitals without invasive facilities. *N Z Med J* 2004; 117: U954.
- Ellis C, et al. Patients admitted with an acute coronary syndrome (ACS) in New Zealand in 2007: results of a second comprehensive nationwide audit and a comparison with the first audit from 2002. *NZ Med J* 2010; 123: 25-43.
- Ranasinghe I, et al. Comparative effectiveness of population interventions to improve access to reperfusion for ST-segment-elevation myocardial infarction in Australia. *Circ Cardiovasc Qual Outcomes* 2012; 5: 429-436.
- Clark RA, Coffee N, Turner D, et al. Application of geographic modeling techniques to quantify spatial access to health services before and after an acute cardiac event: the Cardiac Accessibility and Remoteness Index for Australia (ARIA) project. *Circulation* 2012; 125: 2006-2014.