



*Integrated Cardiovascular
Clinical Network SA*

A Statewide Virtual Hospital for Patients with Heart Disease

Combining Specialist Expertise with Innovative Information Technology

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Healthcare Systems Under Pressure, World Congress of Internal Medicine 2010,
Melbourne Convention Centre, 23 Mar 2010



Synopsis

- Healthcare System Under Pressure
 - the evidence
- The iCCnetSA service enhancement initiative
 - a solution in evolution
- Preliminary outcomes:
 - quantitative outcomes
- Ongoing Development
 - towards a virtual cardiac hospital



The Changing Practice Environment

- Increasing numbers of elderly
- More chronic disease
 - Obesity and diabetes
 - Cardiovascular risk factors and disease
- Workforce shortages
- Medical cost pressures
- Lack of systems based care (EBM, CQI)
- Increased demand for patient safety
- Increased demand for optimal and equitable outcomes – universal application of the medical evidence
- Rapidly evolving therapeutic possibilities
- New technology – diagnostic, information and communication



Geographic Variation in Coronary Heart Disease in Australia 1986-96

- ♥ “more deaths than expected from acute myocardial infarction resulted in mortality rates from CHD up to 30% higher in men and 21% higher in women living outside of capital city statistical divisions”.


Excess Deaths From CHD in Rural SA

- Average over 10 years of 43 excess deaths per year in SA rural areas compared with capital city rates.
- MVA deaths in SA
 - 1997 136
 - 1998 161
- Equivalent to **25-30% of the road toll**
- Prima facie preventable

SA Rural Health Services

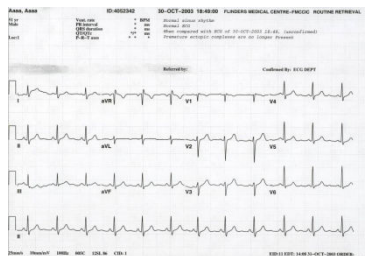
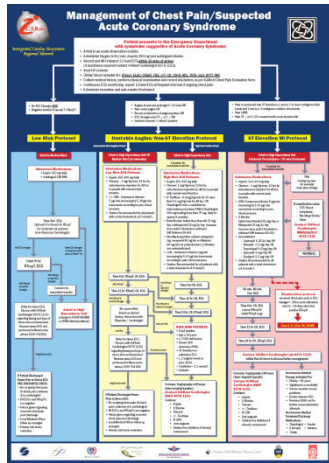


- 980,000 square km
- 450,000 population
- 66 hospitals - acute care
- ~ 420 Doctors
- > 3000 Nurses
- Fragmentation
- Workforce – numbers, training and CME
- Clinical resources
- Lack of systems for evidence based care



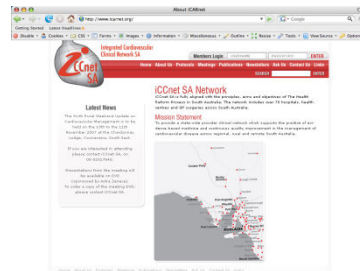
A Population Health and Systems
Based Approach to Improving
Cardiovascular Disease Management
and Outcomes in SA

Enablers of the Network: Clinical Resources



- Integrated, Evidence-based Clinical Pathways
 - Diagnosis and Risk stratification
 - Treatment
 - Triage
- Point of Care Pathology
- ECG interpretation and clinical advice
- Expensive drug supply
- Staff Training and CME
- Local Consulting services

Enablers of the Network: Clinical Systems



- Communication systems
 - Redundant paging/SMS service
 - Fax – mobile, efax
 - Phone – 3G PDA
- Triaging systems
 - Integrated transport systems
- Web site
 - www.iccnetsa.org.au
- Data-bases

Integrating Service Provision



RFDS Base, Pt Augusta

- Rural hospitals
- Rural doctors, nurses and allied health
- Rural specialists
- Pathology service
- Pharmaceutical supply
- Tertiary specialists and cardiology services
- Ambulance service
- Aeromedical and Medical Retrieval services
- Medical ICT services
- Medical administration and clinical governance



Network Implementation Timelines

- Project commenced Sept 2000
- Pilot network established April 2001
- Full regional network completed Sept 2003
- Commitment to statewide Network June 2004
- Statewide Network completed 2008



Outcomes Analysis

- Case note review within a large regional hospital (intervention hospital) – pre (2002) and post (2004) network implementation
- Comparison between 3 similar regional hospitals – one intervention and 2 control – pre and post network implementation (ISAAC data)
- Comparison between the intervention region and a control metropolitan region (population level time series analysis, ISAAC data)

Outcomes Analysis

	Pre-iCARnet	Post-iCARnet	P value
No of Patients	397	212	
Males	237 (60%)	138 (54%)	
Average Age (yr)	63	65	
No. Admissions	495	255	
Readmissions	60 (15%)	33 (13%)	0.58
ACS readmissions	16 (4.0%)	3 (1.4%)	
Time to Angio (days)	6.3 (n=34)	2.5 (n=13)	0.0002

Table: Clinical Audit – Pre and Post Intervention in a Regional Hospital

Outcomes Analysis

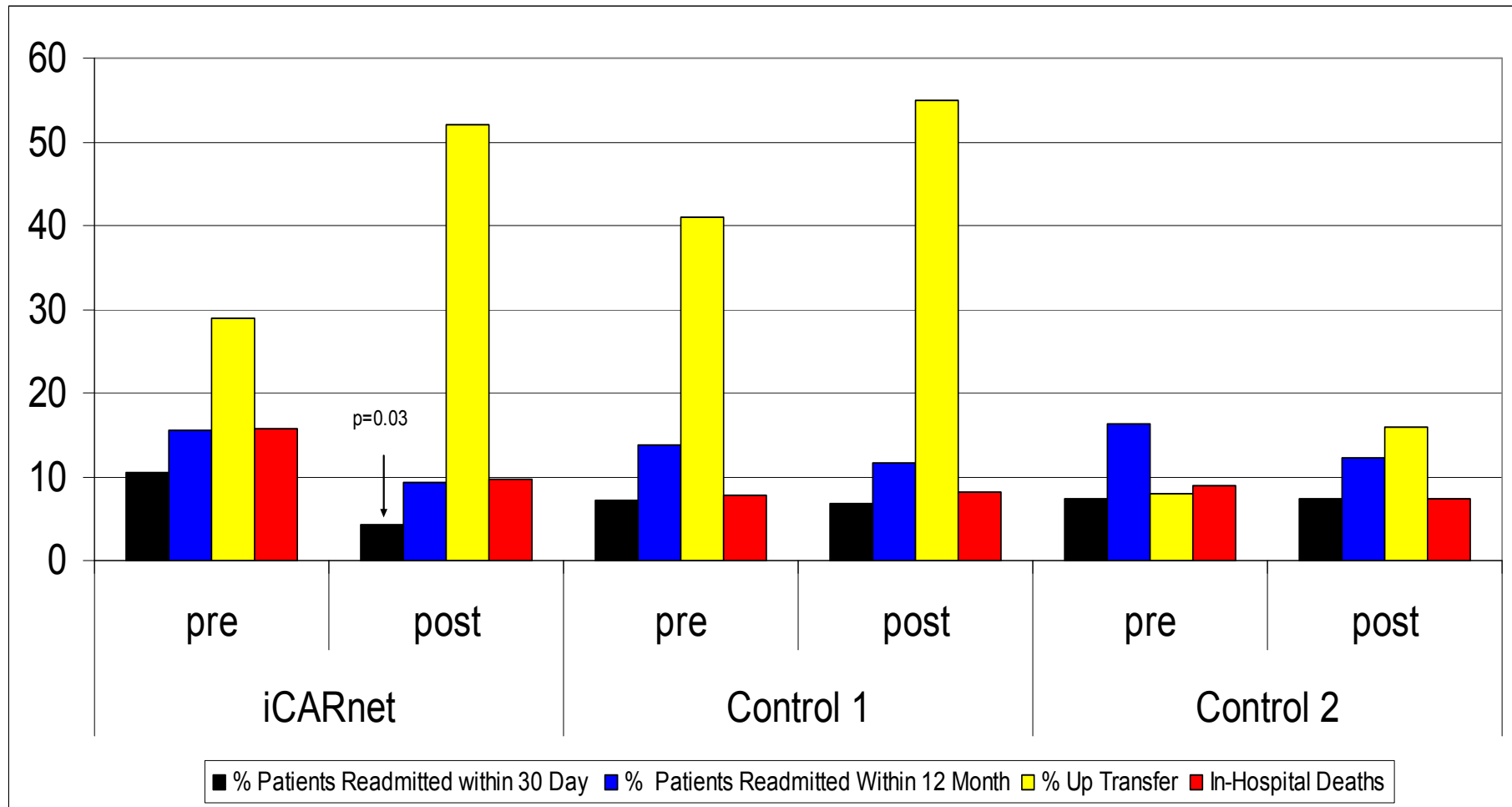
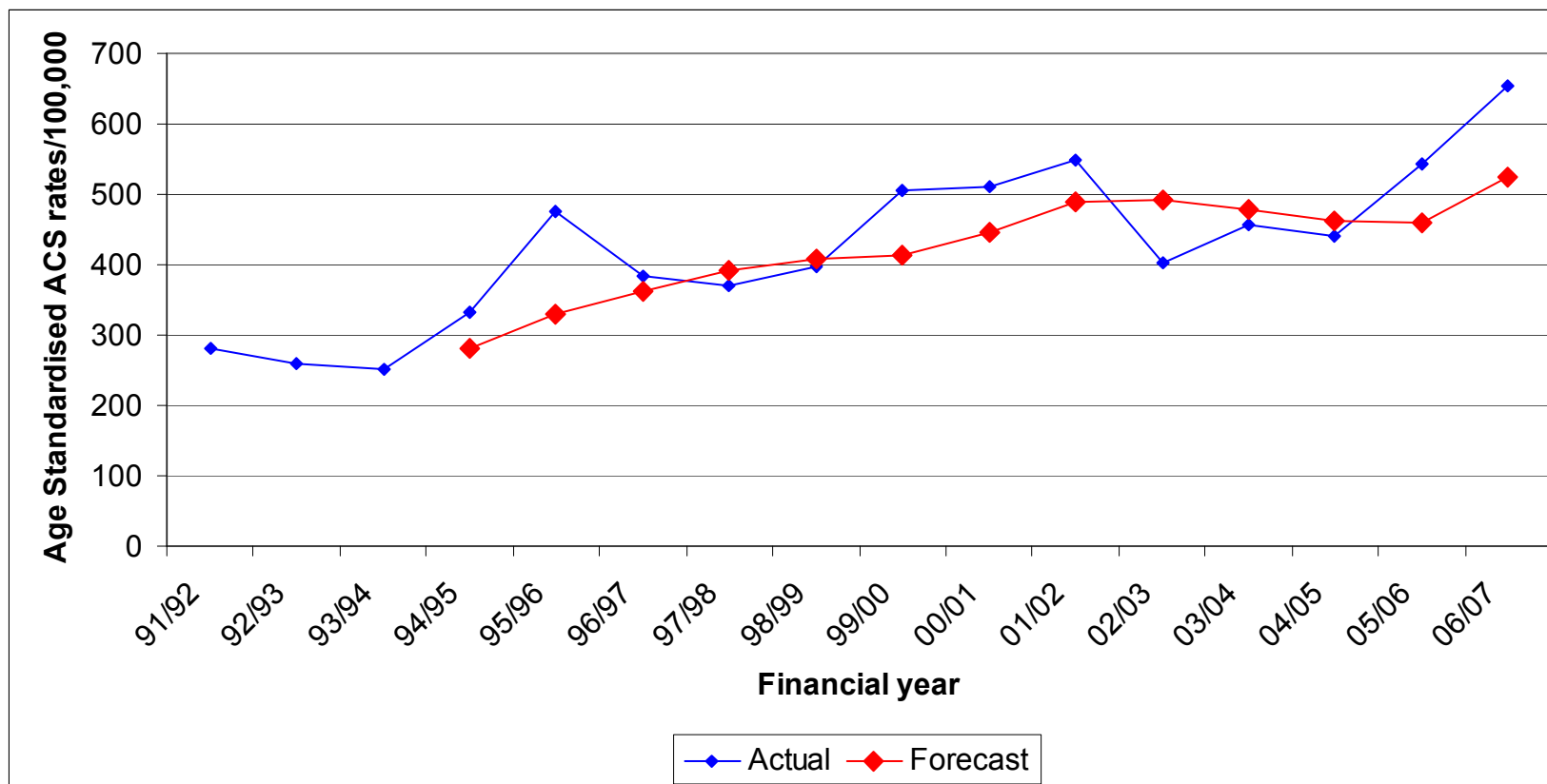


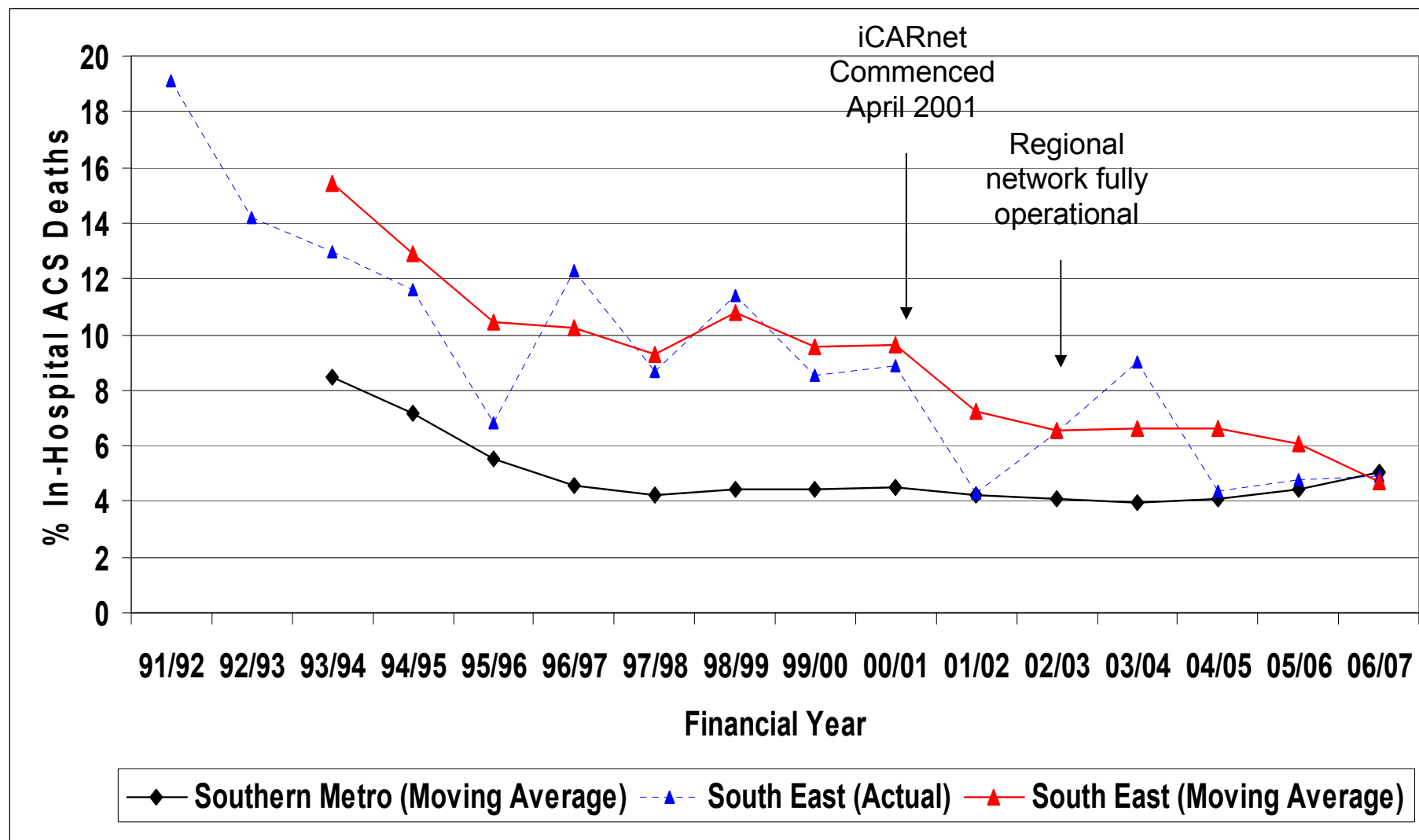
Table: Outcome Data - Intervention Hospital vs 2 Comparative Control Regional Hospitals

Regional Age Standardised ACS Rates

(ISAAC ICD10 Coding)



Regional In-Hospital ACS Deaths



Outcomes Analysis

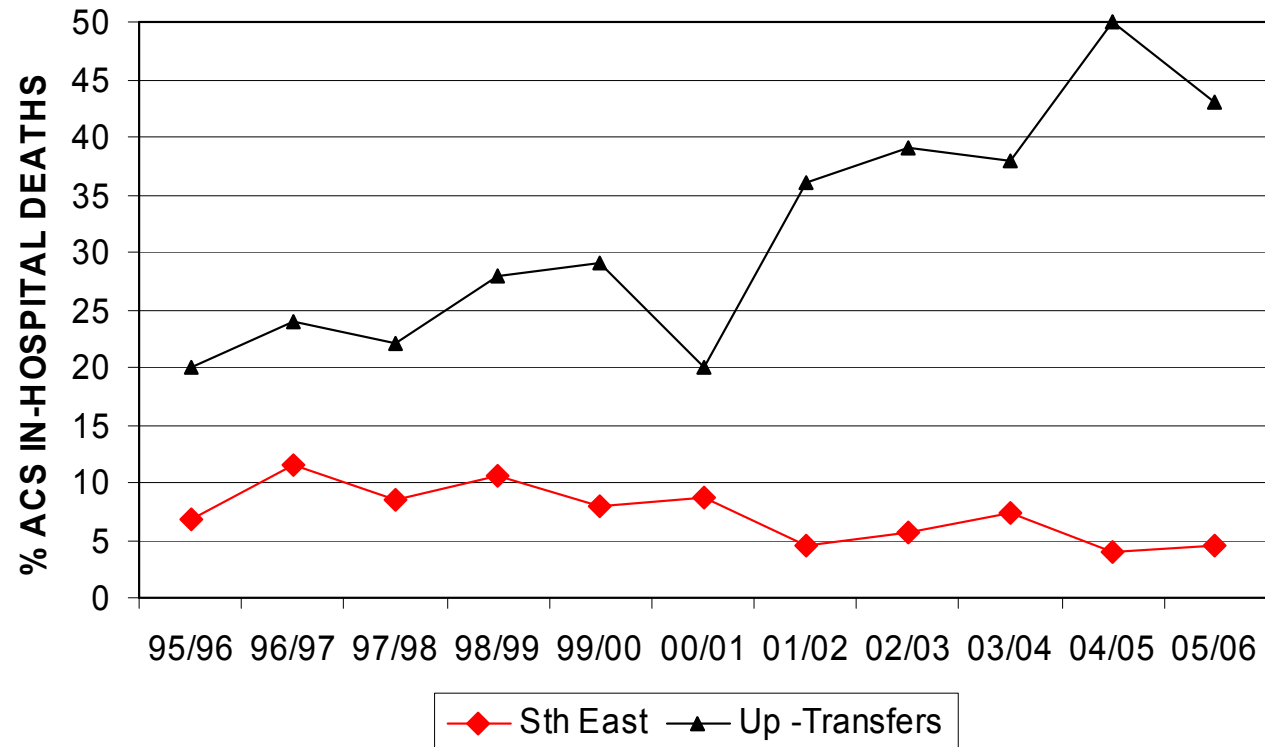


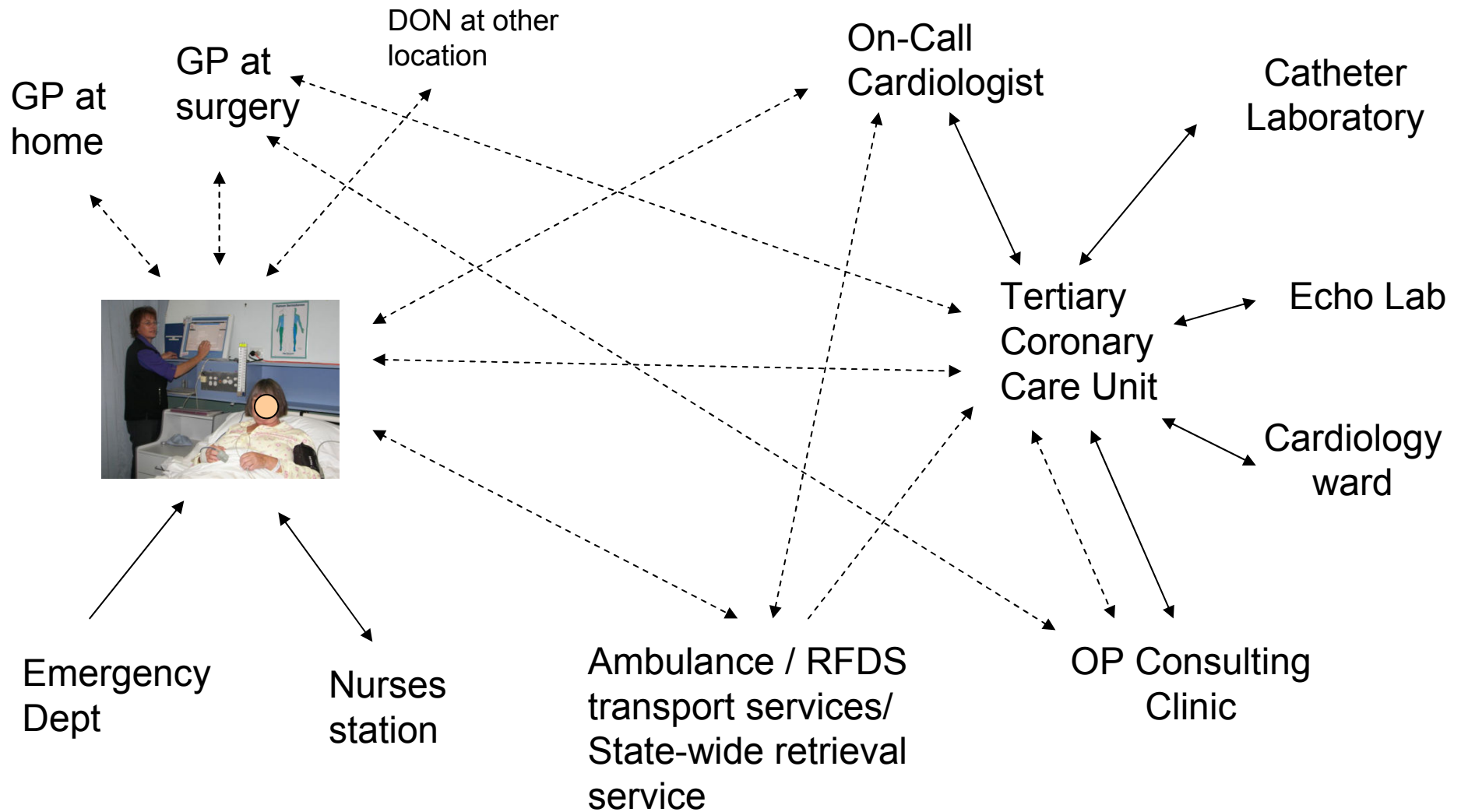
Figure: Time Series Analysis – In-hospital ACS Death and Up-Transfers to Tertiary Hospital - Intervention Region



Ongoing Clinical Network Research and Development

- Improving patient safety
 - Extending POCT Clinical Network
- Networking the Web-based, secure EMR
 - Developing and evaluating its role in research and CPI initiatives
 - Integrating with POCT
- Improving communication and remote support with video-phone conferencing
- Developing the capacity for building complex databases for evaluation and health surveillance
 - Matched clinical care, outcome, serum bank data

Networked POCT and EMR





Meeting the Challenges of a Changing Practice Environment

- Increase efficiency, safety and quality of care
- Re-design and integrate care processes
- Be more accountable for processes of care and outcomes
 - Remove of barriers/impediments to EBC
- Demonstrate quality improvement
- Build team based, multi-disciplinary care
- Manage role re-definition
- Provide care closer to where people live (clinic or home based delivery, local capacity)
- Collect, analyse and feedback data through processes integrated into routine clinical care



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