System Improvement in Cardiology

Current status and future activity in Victoria

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Victorian Cardiac Clinical Network
Dept of Health
The problem and how to approach it.
CV Avoidable Mortality

Indicator of quality and performance of healthcare system

Standardised Rate Trend for Hume

Rate per 100,000 population

Department of Health
Better thrombolytic agents
• Increasing number of mechanical interventions
• Better use of adjunctive drugs
Primary PCI vs Thrombolysis

Reperfusion Therapy

- Treatment delay: 120 min
- Primary PCI
- Age
- Infarct location
- Lysis C/I
- Symptom onset
- Shock
- Cardiac arrest
- Traffic
- Weather
- DIDO time
- H’copter
<table>
<thead>
<tr>
<th>Region</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern metro</td>
<td>100%</td>
</tr>
<tr>
<td>Southern metro</td>
<td>100%</td>
</tr>
<tr>
<td>Nth &amp; West metro</td>
<td>98%</td>
</tr>
<tr>
<td>Barwon SW</td>
<td>70%</td>
</tr>
<tr>
<td>Grampians</td>
<td>51%</td>
</tr>
<tr>
<td>Hume</td>
<td>47%</td>
</tr>
<tr>
<td>Loddon-Mallee</td>
<td>40%</td>
</tr>
<tr>
<td>Gippsland</td>
<td>26%</td>
</tr>
</tbody>
</table>
Optimising time to reperfusion for STEMI

Improving Systems of Care

Activating the system
- Symptom recognition & calling ‘000’
- Pre-hospital 12-lead ECG
- Priority ED triage or cath lab access

Supporting the system
- Central role of clinical networks
- 24-hours Cardiology support

Sustaining the system
- Trained workforce
- Performance monitoring & standards
System improvements can minimise delays to treatment

- 80 hospitals
- Quebec, 06-07
- 21% lysis
- n=1832

**Graphical Data**

- Cumulative Incidence of Mortality at 30 d, %
- Patients Treated Within Recommended Delay, %

Mathematical Equation:

\[ y = -0.109x + 12.0; r = -0.75 \]

(95% CI, \(-0.92 : -0.31\))

Lambert, et al. JAMA 2010;303
New Recommendations (2011)

1. **System-based approaches** to deliver timely reperfusion should be undertaken at local level.

2. Establishment of **clinical networks** and efficient protocols to maximise the proportion of patients receiving timely reperfusion.

3. **Routine audit** should be integrated into all clinical services that provide care to patients with ACS.
What’s going on – data and statistics.
• 27% of the population live in rural areas
• Yearly CHD-related death rate increase with remoteness
• 71.1 per 100,000 pop in metro to 85.5 in remote Australia (MJA 2009)
Public and private cardiac separations 2002 - 2012

ACS

Arrhythmias and devices

Heart failure

Dept of Health VAED dataset
ACS Cases 2004 - 2009

In-hospital death rates

Source: Victorian Health Dept internal data

**STEMI Separations by % LOS**

<table>
<thead>
<tr>
<th>Percentage of Admissions</th>
<th>STEMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.4</td>
</tr>
<tr>
<td>2</td>
<td>9.3</td>
</tr>
<tr>
<td>3</td>
<td>17.7</td>
</tr>
<tr>
<td>4</td>
<td>23.5</td>
</tr>
<tr>
<td>5</td>
<td>11.9</td>
</tr>
<tr>
<td>6</td>
<td>6.2</td>
</tr>
<tr>
<td>7</td>
<td>4.2</td>
</tr>
<tr>
<td>8</td>
<td>2.9</td>
</tr>
<tr>
<td>9</td>
<td>2.2</td>
</tr>
<tr>
<td>10</td>
<td>1.6</td>
</tr>
<tr>
<td>11</td>
<td>1.8</td>
</tr>
<tr>
<td>12</td>
<td>1.3</td>
</tr>
<tr>
<td>13</td>
<td>1.7</td>
</tr>
<tr>
<td>14</td>
<td>0.8</td>
</tr>
<tr>
<td>15+</td>
<td>6.5</td>
</tr>
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</table>

**ALOS (days)**
- 5.2

**NSTEMI Separations by % LOS**

<table>
<thead>
<tr>
<th>Percentage of Admissions</th>
<th>NSTEMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10.9</td>
</tr>
<tr>
<td>2</td>
<td>14.0</td>
</tr>
<tr>
<td>3</td>
<td>16.8</td>
</tr>
<tr>
<td>4</td>
<td>13.3</td>
</tr>
<tr>
<td>5</td>
<td>10.1</td>
</tr>
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<td>6</td>
<td>6.5</td>
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<tr>
<td>7</td>
<td>5.4</td>
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<tr>
<td>8</td>
<td>3.7</td>
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<tr>
<td>9</td>
<td>3.0</td>
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</tr>
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**ALOS (days)**
- 5.4
Inter-hospital transfers to Level 5 (large teaching) hospitals

Source: Victorian Health Dept internal data
Inter-Hospital Transfers for CAGS

CAGS Waiting List 2010-11
Cancellations or postponements as % of scheduled admissions

Source: Victorian Health Dept internal data
Achieving better health outcomes.
Reform Priorities

**System Improvements:**
(people-focussed)

1. Developing a system that is responsive to people’s needs
2. Improving every Victorian’s health status and health experiences
3. Expanding service, workforce and system capacity
4. Increasing the system’s financial sustainability and productivity

**Enablers:**
(knowledge-focussed)

5. Implementing continuous improvements and innovation
6. Increasing accountability and transparency
7. Utilising e-health and communications technology
What can we achieve?

• Increase dissemination of evidence-based practice

• Decrease clinical variation across state – diagnosis, treatments, prognosis

• Increase clinician participation in decision making and policy development

• Improve system monitoring and benchmarking

• Improve integration of QA activities
• Cardiac nurse facilitator program
• Pre-hospital notification of STEMI project
• State-wide guidelines for ACS by hospital capability
• Develop links with rural health, Ambulance Victoria and ARV
• Snapshot ACS
• Victorian Cardiac Outcome Registry (VCOR)
• POCT troponins in Barwon SW
• Cardiac rehab minimum standards
• Cardiac rehab standardised referral form
Victorian Cardiac Outcomes Registry

Paper-based CRF

Version 1.0
October 2012

jointly funded by Department of Health and Medibank Private
<table>
<thead>
<tr>
<th>Acutely ill patient with cardiac problem</th>
<th>Acute emergency patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertain about diagnosis or acute treatment</td>
<td>Dial 000</td>
</tr>
<tr>
<td>Need urgent help with ECG interpretation</td>
<td></td>
</tr>
<tr>
<td>Advice about how patient should be managed</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Needs immediate admission to CCU or ICU</th>
<th>Patient requires retrieval or urgent transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute coronary syndromes</td>
<td>Call ARV 1 300 368 661</td>
</tr>
<tr>
<td>Acute arrhythmias</td>
<td></td>
</tr>
<tr>
<td>Other conditions with haemodynamic instability</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Urgent cardiac advice needed</th>
<th>Call Cardiology Advice Line</th>
</tr>
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<tbody>
<tr>
<td>Undergoing active resuscitation</td>
<td></td>
</tr>
<tr>
<td>Time critical condition</td>
<td></td>
</tr>
<tr>
<td>Requires immediate transport to another facility</td>
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Impact at state level

Within Health Department

• Established advisory role
• Climate of enhanced “clinical engagement” with Secretary
• Partnering with other arms of Dept to implement and manage projects arising from new funding

Within Government

• Access to and support of Health Minister
Victorian Cardiac Clinical Network

The Future

• Exploit potential of clinical networks –
  ✓ collaborative
  ✓ state-wide engagement
  ✓ rural bias

• Support for projects – in line with Health Priorities Framework

• Close the gap – reduce clinical variation, ensure equity of access to high quality evidence-based care, promote primary prevention
Enablers of a Clinical Network: SA Experience

Evidence-based clinical pathways

POCT TnT

Training and ongoing support

Cardiology Advice Line

Coordination of supply of expensive drugs
In-Hospital ACS Deaths in South Australia
Regional vs Metro

iCARnet
Commenced April 2001
Regional network fully operational

% In-Hospital ACS Deaths

Financial Year

Southern Metro (Moving Average)  South East (Actual)  South East (Moving Average)

Courtesy Dr P. Tideman, ICARNET, SA