Preparing the Healthcare system of 2022

Building the Healthcare System of 2022
Conference
Chris Baggoley
30 July 2012
This presentation will cover:

- the nature of healthcare
- trends in healthcare
- acute care
- dementia
- patient centred care
- appropriateness of care
- healthcare associated infection
- design for quality
- guided self care at home
- genomics
Australia’s Health 2012

Figure 7.1: Possible pathways through the health system
Healthcare organisations as complex systems:

- They deal with people's lives within a complex mix of staffing, funding, technology, expectations and demand.
- It is not easy to produce consistently safe and high quality care in this environment.
- Other high risk industries have many lessons for us.
Traffic systems as a comparison:

• Both are high risk, highly public and have constant change which requires quick and appropriate response
• Both have policing functions built in – to varying effect
• Both depend heavily on the behaviour and decisions of independent, fallible human beings, acting alone and interacting with each other, for safety
• We expect to be safe in both environments but have tolerance for risk, unsafe practice and the consequences – until there is a catastrophe
“The Health System”

- Rock or bird?

\[ f = ma \]

\[ y = x^2 - b \]
Rock or Bird?

- If you think the health system is a rock, an inanimate object, it is able to be predicted, and definitively analysed and calculated. That thinking leads to attempts to restructure and control it.

- If you think the health system is a bird, a complex system with a mind of its own, it needs to be fed, nurtured, and developed.
Aged Care shortage chokes hospitals
Top 10 Causes of Death: 1900 vs. 2010.

Data are from the Centers for Disease Control and Prevention.
 Deaths per 1,000 live births

Year


Males

Females

Note: The infant mortality rate is calculated as the number of deaths of those aged under 1 year divided by the number of live births.

Sources: Commonwealth Bureau of Census and Statistics Bulletins (1912 to 1963); AIHW National Mortality Database (1964 to 2005).

Figure 2.3: All-cause infant mortality rates, 1912 to 2005 (NHPC indicator 1.07)
Figure 2.3: Historical and projected Australian population, 1911–2031

Note: Projected population is shown from 2011 onwards.
Sources: ABS 2008a; ABS 2008b.
Figure 2.17: Trends in leading causes of disease burden, 2003–2023
Figure 6.13: Prevalence of self-reported diabetes, 1989–90 to 2007–08

Notes
2. Based on self-reported data and excludes gestational diabetes.

Figure 6.17: Registered and projected incidence of treated ESKD, by sex, Australia, 1996–2020
Figure 5.6: Prevalence of obesity, people aged 25–64, 1980 to 2007–08

Notes
1. Based on measured height and weight.
2. People living in capital cities and urban areas only.
3. Rates are age-standardised to the 2001 Australian population.

Sources: AIHW 2003 and AIHW analysis of the ABS 2007–08 National Health Survey.
## Australia’s Health 2012

### Table 1.2: Summary of health performance indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Trend</th>
<th>See Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence of heart attacks</td>
<td><img src="image" alt="Favourable" /></td>
<td><img src="image" alt="Unfavourable" /></td>
</tr>
<tr>
<td>Incidence of selected cancers</td>
<td><img src="image" alt="Unfavourable" /></td>
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<td>bowel cancer</td>
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<td>melanoma</td>
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<tr>
<td>lung cancer</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
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<tr>
<td>female breast cancer</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>cervical cancer</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>Incidence of sexually transmitted infections and bloodborne viruses</td>
<td><img src="image" alt="Favourable" /></td>
<td><img src="image" alt="Unfavourable" /></td>
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<tr>
<td>syphilis</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>HIV</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>hepatitis B</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>hepatitis C</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>chlamydia</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>gonococcal infection</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>Incidence of end-stage kidney disease</td>
<td><img src="image" alt="Unfavourable" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>Hospitalisation for injury and poisoning</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>Severe or profound core activity limitation</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
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<tr>
<td>Self-assessed health status</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>Psychological distress</td>
<td><img src="image" alt="No trend" /></td>
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</tr>
<tr>
<td>Infant/young child mortality rate of infants (&lt;1 year)</td>
<td><img src="image" alt="Favourable" /></td>
<td><img src="image" alt="Unfavourable" /></td>
</tr>
<tr>
<td>Infant/young child mortality rate of Indigenous infants (&lt;1 year)</td>
<td><img src="image" alt="Favourable" /></td>
<td><img src="image" alt="Unfavourable" /></td>
</tr>
<tr>
<td>Infant/young child mortality rate of children aged 1–4 years</td>
<td><img src="image" alt="Favourable" /></td>
<td><img src="image" alt="Unfavourable" /></td>
</tr>
<tr>
<td>Life expectancy</td>
<td><img src="image" alt="Favourable" /></td>
<td><img src="image" alt="Unfavourable" /></td>
</tr>
<tr>
<td>all males</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>all females</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>Indigenous males</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
</tr>
<tr>
<td>Indigenous females</td>
<td><img src="image" alt="No trend" /></td>
<td><img src="image" alt="No trend" /></td>
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</tbody>
</table>
## Life expectancy

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Life Expectancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males at birth</td>
<td>73.1</td>
</tr>
<tr>
<td>Females at birth</td>
<td>79.5</td>
</tr>
<tr>
<td>Males at 65</td>
<td>14.6</td>
</tr>
<tr>
<td>Females at 65</td>
<td>18.5</td>
</tr>
</tbody>
</table>

## Mortality

<table>
<thead>
<tr>
<th>Cause</th>
<th>Value in 1988</th>
<th>Value in 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>All causes</td>
<td>725.3</td>
<td>459.3</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>26.7</td>
<td>18.5</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>24.3/29.5</td>
<td></td>
</tr>
<tr>
<td>Lung cancer</td>
<td>38.0</td>
<td>28.7</td>
</tr>
<tr>
<td>Colon cancer</td>
<td>25.6</td>
<td>14.3</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>192.4</td>
<td>73.5</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td></td>
<td>74.1</td>
</tr>
<tr>
<td>Diabetes</td>
<td>12.3/12.5</td>
<td></td>
</tr>
<tr>
<td>COPD</td>
<td>3.9</td>
<td>14.3</td>
</tr>
<tr>
<td>Accidental falls</td>
<td></td>
<td>5.7/3.8</td>
</tr>
<tr>
<td>Transport accidents</td>
<td>18.1</td>
<td>7.1</td>
</tr>
<tr>
<td>Suicide</td>
<td>12.8</td>
<td>7.5</td>
</tr>
<tr>
<td>Infant mortality</td>
<td>4.2</td>
<td>8.7</td>
</tr>
<tr>
<td>Maternal mortality</td>
<td></td>
<td>4.9 → 1.8</td>
</tr>
<tr>
<td>PYLL</td>
<td>5,000.6</td>
<td>2,822.9</td>
</tr>
</tbody>
</table>

### Worst third
- Males at birth
- Females at birth
- Males at 65
- Females at 65

### Middle third
- All causes
- Breast cancer
- Prostate cancer
- Lung cancer
- Colon cancer
- Coronary heart disease
- Cerebrovascular disease
- Diabetes
- COPD
- Accidental falls
- Transport accidents
- Suicide
- Infant mortality
- Maternal mortality
- PYLL

### Best third
- Males at birth
- Females at birth
- Males at 65
- Females at 65

### Notes
1. Data for Australia reflect those in the OECD database and may differ to data presented elsewhere in this report.
2. Life expectancy figures represent years of life remaining at the stated age.
3. Values for mortality data refer to number of deaths per 100,000 population, with the exception of values for infant mortality (deaths per 1,000 live births), maternal mortality (deaths per 100,000 live births) and PYLL (years lost per 100,000 population aged 0–69). All mortality data have been standardised to the 1980 OECD population.


**Figure 1.6**: Australia’s ranking among OECD countries, selected mortality indicators, 1988 and 2007 (or nearest years)
### Risk and protection

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>2012</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco smoking</td>
<td>28.6</td>
<td>16.6</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>10.4</td>
<td>11.2</td>
</tr>
<tr>
<td>Measured obesity</td>
<td>24.6</td>
<td></td>
</tr>
<tr>
<td>Fruit and vegetable consumption</td>
<td>165.5</td>
<td>204.0</td>
</tr>
<tr>
<td>Low birthweight babies</td>
<td>6.0</td>
<td>6.2</td>
</tr>
<tr>
<td>Measles vaccination</td>
<td>94.0</td>
<td>83.0</td>
</tr>
<tr>
<td>DTP vaccination</td>
<td>91.9</td>
<td>71.0</td>
</tr>
</tbody>
</table>

### Illness and care

<table>
<thead>
<tr>
<th>Measure</th>
<th>2007</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMFT</td>
<td>1.1</td>
<td>1.6</td>
</tr>
<tr>
<td>Incidence of AIDS</td>
<td>32.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Traffic accident injuries</td>
<td></td>
<td>1,797,1,534</td>
</tr>
<tr>
<td>Practising physicians</td>
<td>2.1</td>
<td>3.0</td>
</tr>
</tbody>
</table>

#### Value in 1988 → Value in 2007

**DTP**  
Diphtheria, tetanus and pertussis.

**DMFT**  
Decayed, missing or filled teeth.

**AIDS**  
Acquired Immune deficiency syndrome.

**ESKD**  
End-stage kidney disease.

### Notes

1. Data for Australia reflect those in the OECD database and may differ to data presented elsewhere in this report.
2. Risk and protection data are, in order: proportion of people aged 15 and over who are daily smokers, annual litres of alcohol per capita, proportion of people aged 18 and over with a measured BMI of 30 or more, annual kilograms of fruit and vegetables per capita, number of babies weighing less than 2.5 kilogram per 100 live births, and proportion of children immunised at 24 months.
3. Data for DMFT are the average number of decayed, missing or filled teeth among children aged 12. The latest Australian data for DMFT are from 2004.
4. Data on incidence of AIDS and road traffic accident injuries are number per million population.
5. Practising physicians refer to physicians providing care directly to patients, and are presented here per 1,000 population.


### Figure 1.7: Australia’s ranking among OECD countries, selected risk and illness indicators, 1988 and 2007 (or nearest years)
Australia’s Health 2012

Figure 7.14: Public hospital emergency department presentations, by age and sex, 2010–11

Source: AIHW 2012a.
Emergency doctor: We can't cope!
Hospital ‘overcrowded, overwhelmed’
Hospital bed situation critical across NSW

The Daily Telegraph – 10 February 2010
Patients are forced to wait in a hospital emergency room.
Australian EDs are facing rising demand, well above rates of population growth:

- In 2004-05, there were 4.3 million presentations to EDs. By 2010-11, this had risen to 6 million – an increase of nearly 40% over 5 years.
- Over the same period, population growth was 10%.

### National ED presentations vs Population (% change over 2004-05)

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent change over 2004-05</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>0.00%</td>
</tr>
<tr>
<td>2006-07</td>
<td>5.00%</td>
</tr>
<tr>
<td>2007-08</td>
<td>10.00%</td>
</tr>
<tr>
<td>2008-09</td>
<td>15.00%</td>
</tr>
<tr>
<td>2009-10</td>
<td>20.00%</td>
</tr>
<tr>
<td>2010-11</td>
<td>25.00%</td>
</tr>
</tbody>
</table>

Sources: AIHW Australian Hospital Statistics publications, 2004-05 to 2010-11; and Australian Bureau of Statistics 3101.0 Demographic Statistics Table 2. Population Change
Dementia – Burden of Disease

- 280,000 people with dementia currently
- 590,000 expected by 2030 and almost 1 million in 2050
- not a normal part of ageing
- fourth highest burden of disease from 2023, overtaking stroke
Dementia – Burden of Disease

• research focus on diagnostic criteria, biomarkers, data sets, neuroimaging and life style factors to prevent or delay onset

• early diagnosis enables access to psychological and pharmacological therapies

• key risk factors are physical activity, diet, smoking and body weight

• 100,000 fewer Australians with dementia in 2050 if physical inactivity reduced by 5% every 5 years
Figure 4.17: Level of care across ACFI domains for permanent residents, 30 June 2009.

Note: Figure excludes missing data for 19,192 appraisals (12%).
Source: AIHW analysis of DoHA ACCMIS database as at October 2009.
Patient-centred care: Improving quality and safety through partnerships with patients and consumers
What is patient-centred care?

• Health care that is respectful of, and responsive to, the preferences, needs and values of patients and consumers

• An innovative approach to the planning, delivery and evaluation of health care which is based on mutually beneficial partnerships between healthcare providers, patients and families

• Institute for Family- and Patient-Centered Care
What do patients value in care?

- Being treated with dignity and respect
- Having confidence & trust in providers
- Courtesy & availability of staff
- Continuity & transitions
- Coordination of care
- Pain management & physical comfort
- Respect for preferences
- Emotional support
  - Jenkinson et al. (2002) Qual Saf Health Care
Approaches and strategies

- Providing opportunities for patients to provide feedback – not just surveys
- Supporting families and carers to be more engaged in the care process – eg calling rapid response team
- Providing access to information – eg medical records, prompt sheets, pre-operative, discharge etc
- Implementing rights-based patient charters or codes
- Undertaking design processes that involve patients and families as equal partners
- Involving patients and families at the governance level – eg advisory committees
Approaches and strategies

- Providing training to improve communication skills and consultations styles for health care workers
- Engaging leaders and managers within the organisation
- Supporting staff to provide patient-centred care – staff and practice development
- Assessing staff satisfaction and undertaking activities to improve staff satisfaction
- Using indicators associated with patient-centred care to measure performance
- Improving complaints processes to ensure they are resolved properly
Evidence regarding patient-centred care and safety and quality

PCC linked with improved safety:

- Decreased mortality\(^1\)
- Decreased rates of hospital-acquired infection\(^2\)
- Decreased surgical complications\(^3\)
- Higher quality clinical care/best practice\(^4\)
- Improved patient functional status\(^2\)

## Predictors of one-year mortality after AMI

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Hazard ratio</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adherence to care guidelines</td>
<td>0.901</td>
<td>0.830</td>
</tr>
<tr>
<td>Patient-centred care</td>
<td>0.992</td>
<td>0.015</td>
</tr>
<tr>
<td>Access to providers</td>
<td>0.994</td>
<td>0.020</td>
</tr>
<tr>
<td>Courtesy</td>
<td>0.995</td>
<td>0.227</td>
</tr>
<tr>
<td>Information about care and illness</td>
<td>0.996</td>
<td>0.076</td>
</tr>
<tr>
<td>Coordination of care</td>
<td>0.992</td>
<td>0.008</td>
</tr>
<tr>
<td>Attention to patient preferences</td>
<td>0.993</td>
<td>0.004</td>
</tr>
<tr>
<td>Emotional support</td>
<td>0.996</td>
<td>0.074</td>
</tr>
<tr>
<td>Family involvement</td>
<td>0.997</td>
<td>0.179</td>
</tr>
<tr>
<td>Physical comfort</td>
<td>0.989</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Preparation for transition to outpatient</td>
<td>0.999</td>
<td>0.488</td>
</tr>
</tbody>
</table>

*Meterko et al, Mortality among patients with acute myocardial infarction, Health Services Research, 2010*
Organizational outcomes

Business-case:

- Decreased malpractice claims
- Higher employee retention rates
- Reduced operating costs
- Increased market share

How do we support patients to be active partners in care?

**Challenge:**

- Can we put in place hospital systems that enable patients and families to directly escalate care and call for a rapid response team when they notice the signs of deterioration?
- How do we provide tools to engage patients in medication management and review?
- Do we provide information to support patient needs?
What do patients value in performance reporting?

1. Skills of medical staff
2. Serious medical errors
3. Use of latest technology
4. Patient satisfaction with care
5. Sensitivity & caring nature of nurses
6. Coordination between hospitals & other services
7. Satisfactory discharge information
8. Job satisfaction of hospital staff
9. ER waiting times
10. Elective surgery waiting times
Most Important Types of Information About Surgeons, Sicker Adults, 2005

Base: Had major surgery in the past 2 years

<table>
<thead>
<tr>
<th>Percent:</th>
<th>AUS</th>
<th>CAN</th>
<th>GER</th>
<th>NZ</th>
<th>UK</th>
<th>US</th>
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</thead>
<tbody>
<tr>
<td>Experience with specific conditions</td>
<td>68</td>
<td>59</td>
<td>59</td>
<td>67</td>
<td>59</td>
<td>55</td>
</tr>
<tr>
<td>Outcomes of specific surgery or treatment</td>
<td>52</td>
<td>53</td>
<td>47</td>
<td>49</td>
<td>43</td>
<td>55</td>
</tr>
<tr>
<td>Patient satisfaction ratings</td>
<td>36</td>
<td>36</td>
<td>33</td>
<td>36</td>
<td>43</td>
<td>41</td>
</tr>
<tr>
<td>Training</td>
<td>23</td>
<td>32</td>
<td>36</td>
<td>26</td>
<td>19</td>
<td>34</td>
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</tbody>
</table>

2005 Commonwealth Fund International Health Policy Survey of Sicker Adults
Safety and quality

*Staphylococcus aureus* bacteraemia

This page currently presents data on healthcare-associated *Staphylococcus aureus* bacteraemia (SAB) associated with care provided by each hospital.

The SAB data are provided to the AIHW by state and territory health authorities for public hospitals and by individual private hospitals. Data are only reported for hospitals where available—generally, this is for hospitals covered by a healthcare-associated infection surveillance program. Day hospitals are not usually covered by a healthcare associated infection surveillance program as healthcare associated infections are not generally diagnosed during a day hospital stay.

Three pieces of information are reported for hospitals that have information on SAB:

1. the number of cases of SAB associated with care provided by the hospital (both admitted and non-admitted care) during the reported time period
2. the number of days of patient care under surveillance during the reported time period for the hospital
3. the SAB rate for the reported time period expressed as the number of cases of SAB per 10,000 days of patient care.

There is a national benchmark of no more than 2.0 cases per 10,000 days of patient care for acute care public hospitals in each state and territory. This benchmark was agreed by the Council of Australian Governments in the National Healthcare Agreement.
Using what we gather — information for improved care
Public reporting

- Strong and consistent evidence that public reporting stimulates quality improvement in hospitals
- The majority of studies show significant positive impact of public reporting on clinical outcomes

*Board N, Watson D*
Hospital level reporting

• Stimulates and focuses quality improvement initiatives that support better care and better health

• Necessary for accountability and transparency
Measurement of quality of care is the most important data flow.

Measures of quality of care are as robust and logical as the best reviews, studies and trials; peak clinical groups can develop and maintain the best measures.

Healthcare reporting supports best practice measurement, timely and targeted reporting, trend and variance detection and responsive feedback loops.

Participation in quality measurement is not optional.
Docs seek gag orders to stop patients’ reviews

Physicians want to prevent people from posting negative online comments

CHICAGO — Some doctors have started fighting back against ugly Internet reviews by asking patients to abide by what are effectively gag orders that bar them from posting negative comments online.

Physicians are taking action as online ratings services such as Zagat’s and Angie’s List grow in popularity and expand their reviews beyond restaurants and plumbers to include medical care.
Queensland hospitals have worst record for killing, maiming patients, botched operations

By Siobhain Ryan The Australian January 30, 2009 12:01am

Queensland hospitals have the nation’s worst published record for killing or maiming their patients through botched operations, medication errors and other mistakes.

And NSW is one of the safest, reporting a third fewer serious errors despite its larger population.

The figures, released in a Productivity Commission report, provide a rare state-by-state breakdown of so-called "sentinel events" - the most preventable and potentially deadly mistakes that occur every year in the nation's hospitals, *The Australian* reports.
Figure 5.1: Proportion of people aged 15–74 with at least adequate level of health literacy (level 3 and above), by selected characteristics, 2006

Notes
1. ‘Other’ region includes Inner regional, Outer regional and Remote areas.
2. SES is based on the IRSD for households, derived from area of residence.

Source: ABS 2008a.
5 Percentage of eligible encounters at which appropriate care was received, * 2009–2010

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage of appropriate care received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary artery disease</td>
<td></td>
</tr>
<tr>
<td>Dyspepsia</td>
<td></td>
</tr>
<tr>
<td>Chronic heart failure</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td></td>
</tr>
<tr>
<td>Low back pain</td>
<td></td>
</tr>
<tr>
<td>Panic disorder</td>
<td></td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td></td>
</tr>
<tr>
<td>Venous thromboembolism</td>
<td></td>
</tr>
<tr>
<td>Osteoporosis</td>
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<td>Cerebrovascular accident</td>
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<td>Community-acquired pneumonia</td>
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<td>Osteoarthritis</td>
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<td>Preventive care</td>
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<td>Surgical site infection</td>
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<td>Asthma</td>
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<td>Hyperlipidaemia</td>
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<td>Obesity</td>
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<td>Antibiotic use</td>
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<td>Alcohol dependence</td>
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* Bars indicate 95% confidence intervals. Circle size represents the number of eligible encounters for each condition.
The Quality of Health Care Delivered to Adults in the United States

Elizabeth A. McGlynn, Ph.D., Steven M. Asch, M.D., M.P.H., John Adams, Ph.D., Joan Keeseey, B.A., Jennifer Hicks, M.P.H., Ph.D., Alison DeCristofaro, M.P.H., and Eve A. Kerr, M.D., M.P.H.

ABSTRACT

BACKGROUND
We have little systematic information about the extent to which standard processes involved in health care—a key element of quality—are delivered in the United States.

METHODS
We developed a comprehensive list of major clinical conditions and preventive care. We identified recommended care for these conditions from the U.S. Preventive Services Task Force, the U.S. Public Health Service, the American Cancer Society, and the American College of Cardiology Foundation National Guideline Clearinghouse. We obtained survey data from a random sample of 1,000 adult respondents from the 1998 RAND Health Insurance Experiment. We also had data from 1991 and 1992.

RESULTS
Participants received 54.9 percent (95 percent confidence interval, 54.3 to 55.5) of recommended care. We found little difference among the proportion of recommended preventive care provided (54.9 percent), the proportion of recommended acute care provided (53.5 percent), and the proportion of recommended care provided for chronic conditions (56.1 percent). Among different medical functions, adherence to the process-from 78.7 percent of recommended care (95 percent confidence interval, 73.3 to 84.2) for senile cataract to 10.5 percent of recommended care (95 percent confidence interval, 6.8 to 14.6) for alcohol dependence.

CONCLUSIONS
The deficits we have identified in adherence to recommended processes for basic care pose serious threats to the health of the American public. Strategies to reduce these deficits in care are warranted.
How Often Recommended Care is Received, Selected Conditions

- Alcohol dependence: 10.5%
- Hip fracture: 22.8%
- Atrial fibrillation: 24.7%
- Diabetes mellitus: 45.4%
- Asthma: 53.5%
- Overall: 54.9%
- Depression: 57.7%
- Congestive heart failure: 63.9%
- Hypertension: 64.7%
- Prenatal care: 73.0%
- Breast cancer: 75.7%

The Challenge of Implementation

Putting Evidence Into Practice
Australian Safety and Quality Goals for Health Care

Potential areas for Goals

- Healthcare Associated Infections
- Medication Safety
- Partnering with patients and consumers
- Appropriateness of care
  - Cardiovascular Disease
    (Stroke care and Acute Coronary Syndrome)
  - Diabetes
Potential Goal: Appropriateness of care

To ensure patients receive care that is appropriate for their clinical needs, initially in specific high volume, high cost areas

⇒ Priority area 1: Cardiovascular disease

⇒ Priority area 2: Diabetes
Potential Goal: Partnering with patients and consumers

To improve health outcomes and patient experience of care through active partnerships with patients and consumers at all levels of healthcare provision and planning

- Impact on patients & the health system
  - increasing body of evidence outlining the association between a patient-centred approach, good patient experience & high quality health care; links between patient-centred care & clinical outcomes, including decreased readmission rates & reduced length of stay

- Evidence of effective strategies
  - Improving patient-provider communication
  - Supporting consumer/patient knowledge & action, e.g. health literacy, self management & shared decision making
  - Supporting organisational improvement
The NSQHS Standards

Standard 1 Governance for Safety and Quality in Health Service Organisations

Standard 2 Partnering with Consumers

Standard 3 Healthcare Associated Infections

Standard 4 Medication Safety

Standard 5 Patient Identification and Procedure Matching

Standard 6 Clinical Handover

Standard 7 Blood and Blood Products

Standard 8 Preventing and Managing Pressure Injuries

Standard 9 Recognising and Responding to Clinical Deterioration in Acute Health Care

Standard 10 Preventing Falls and Harm from Falls
ACSQHC: The Australian Quality Improvement Cycle

1. **Health Sector Programs**
2. **Identify issues and risks**
3. **Data and information**
4. **Accreditation – Measurement of systems, actions and data**
5. **Solutions, actions tools and supports**
6. **National Safety And Quality Standards**

**ACSQHC: The Australian Quality Improvement Cycle**
NSQHC Standard 3 – Preventing and controlling healthcare associated infections

Through
- governance and systems for infection prevention, control and surveillance
- infection prevention and control strategies
- managing patients with infections or colonisations
- antimicrobial stewardship
- cleaning, disinfection and sterilization
- communicating with patients and carers
Antimicrobial Resistance

Superbug hits our hospitals

Massive jump in VRE infections

ELISA BLACK
HEALTH REPORTER

CASES of “superbug” VRE have increased tenfold in South Australian hospitals in the past four years. SA Health figures show that while there were just four cases of vancomycin-resistant enterococci (VRE) in SA’s public hospitals in 2007, that number had risen to 56 cases in 2010.

The increase is worse in the large public hospitals, where there are more seriously ill and immunocompromised patients who are most susceptible to infection.

The data showed that infection rates of methicillin-resistant Staphylococcus aureus, known as MRSA or Golden Staph, had remained relatively stable over the same period, with 188 cases in 2010.

While the increase in VRE in SA reflects a similar trend interstate, medical professionals are concerned that it could eventually lead to bacteria that are entirely antibiotic resistant.

Professor John Turnidge, an expert in microbiology at Adelaide University, said there were cases overseas of VRE transferring its resistance genes to MRSA.

“That fills us with dread because Golden Staph is even more promiscuous with how it spreads its genes,” he said.

“It could give rise to even worse multi-resistant bacteria.”

“VRE is especially bad if gets into the bloodstream.

“About 20 per cent of people with this will die within 30 days but these are the most vulnerable patients so it’s hard to pinpoint the deaths,” Prof Turnidge said.

FYI

Resistant bacteria

WHAT ARE THEY?

Superbugs are antibiotic-resistant bacteria that kill tens of thousands of people in hospitals worldwide each year. Patients with weakened immune systems, such as those with cancer or organ transplants, and the young and elderly, are vulnerable. They are spread through touching people or surfaces such as hospital beds that have the bacteria, which is why washing hands in hospital is important.

TYPES

Vancomycin-resistant enterococci (VRE) is a potentially lethal strain of the normally harmless enterococci bacteria, which does not respond to the antibiotic Vancomycin. Clinical infections include urinary tract infections and meningitis. Methicillin-resistant Staphylococcus aureus (MRSA), are common bacteria that are usually harmless and are carried by many healthy people on their skin or in the nose, but some strains are resistant to the antibiotic methicillin and other antibiotics. Also called golden staph, it can lead to pneumonia and blood infections. MRSA cause infections of the skin such as boils, abscesses and cellulitis.

NEW THREATS

An enzyme NDM-1, identified in India and now in Australia, has alarmed health authorities because it can be passed between different bacteria, rendering antibiotics ineffective.

FYI

Number of VRE cases

<table>
<thead>
<tr>
<th>HOSPITAL</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
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<td>Lyell McEwin Hospital</td>
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<td>Women's and Children's Hospital</td>
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Time Line of the Rapid Rate of Resistance

Note: Some of the dates are estimates only.

Source: Pry 2008.
1 An agenda for addressing antimicrobial resistance

**SURVEILLANCE**
- Resistance surveillance
  - Human isolates (hospital, community)
  - Animal isolates
- Usage surveillance
  - Human (hospital, community)
  - Animal health
  - Health care-associated infection

**RESEARCH**
- Basic science
- Epidemiology
- Social drivers

**INTERVENTION**
- Regulation
  - Registration
  - Reimbursement
  - Animal use
  - Access to new drugs
- Infection prevention
  - Infection control
  - Immunisation
  - Health care epidemiology
- Education
  - Stewardship programs
  - Prescribers
  - Consumers
  - Clinical practice guidelines

Extended Hand Wash Order

OR STAFF MEMBERS MUST WASH HANDS.

Doctors and other VIP’s ought to wash their hands, too.

OPERATING-ROOM
What is the single most important EBD recommendation for improving safety and outcomes for ALL patients?

- Provide single-bed rooms

---

**Single-Bed Rooms Reduce Infection Rates**

- For example, singles enable proactive separation of patients upon admission, making it possible to prevent infection from unrecognized carriers of pathogens
- Easier to clean and decontaminate after patient is discharged
- Private toilets help contain outbreaks of *C. difficile* and norovirus

---

**Widely held beliefs obstructing adoption of single-bed rooms**

- Beliefs are not evidence-based

---

- Single rooms prevent visual observation of patients, therefore worsening safety
- Single rooms require much higher nurse staffing levels (41%), greatly increasing costs
- Many patients (up to 50%) like having roommates
Transfers Worsen Patient and Staff Safety

- Increase infections
- Transfers cause medical complications and worsen outcomes, especially in high acuity patients
- Cause sharp peaks in errors
- A major cause of staff injuries
- Each transfer requires hours of staff time and paperwork
- Each transfer adds .5 day to hospital stay

- Transfers reduced 90% compared to unit with multi-bed rooms
- Saves $5 million per year
- Medication errors reduced 70%
Design for Reducing Falls

- Bedrails ineffective
- No clear evidence showing any single traditional design measure is consistently effective (lighting, flooring, handrails)
  - But bundles of design measures can be effective
- Limited evidence suggests design for good visual access reduces falls
- Electronic sensors are promising, but good research is lacking

Design for Reducing Errors

- EBD measures shown to reduce errors:
  - Single rooms – via reduced transfers
  - Very good lighting in spaces for medication dispensing and data entry
  - Reduced noise and distraction
  - Decentralized medication storage or dispensing areas (long walks by staff linked to safety ‘shortcuts’ and errors)

Lighting Levels and Medication Dispensing Errors

- Randomized controlled studies have shown that lighting levels affect medication dispensing errors
- Higher illumination levels (1500 lux) on task are associated with fewer errors than lower levels (150-500 lux) common in healthcare spaces
The New Royal Adelaide Hospital

- 100% overnight single rooms
- private ensuite
- fold out sofas for visiting family
- natural light
- window which can open
- easy access to outdoor areas
Aerial view from the south

Interior view of the entry cloister level three
Patient Centred Care

User-centred design and redesign

- environmental psychology principles
- data collected from staff and patients
- patient journey mapped
- Kaiser Permanente
Experience based design and co-design

- methodology development by Bate and Robert
- partner with patients and staff to identify developments that could improve their care experience
- co-design solutions with patients
<table>
<thead>
<tr>
<th>Healthcare Outcomes</th>
<th>Single-bed rooms</th>
<th>Access to daylight</th>
<th>Appropriate lighting</th>
<th>Views of nature</th>
<th>Family zone in patient rooms</th>
<th>Carpeting</th>
<th>Noise-reducing finishes</th>
<th>Ceiling lifts</th>
<th>Nursing floor layout</th>
<th>Decentralized supplies</th>
<th>Acuity-adaptable rooms</th>
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Care Assessment Platform (CAP)

Dr. Mohanraj Karunanithi | Research Team Leader
23 July 2012
Traditional Cardiac Rehabilitation

Lack of Referrals (< 11%) in Australia

Uptake and Completion: (of eligible patients)

QLD: 16%; NSW: 19%

USA: 18.7%
Alternative care models are required

• One size doesn’t fit all
• Tailored approach to the provision of Cardiac Rehabilitation
• Requirements:
  – Access
  – Personalised
  – Convenient
  – Available
  – Cost effective
  – Time efficient
Care Assessment Platform (CAP)

ICT Home Care Delivery of CR

Wellness Diary Connected

Measurement data

Health Reports

Server

Discussion, messaging

Educational material

SMS

Motivational/educational/relaxation - multimedia

Community Care Team

Measurements

Monitored

Steps

Exercise

2:22 h (last 7 days)

Weight

62.0 kg (7 days a)

Community Care Team

Programmes

SMS

Motivational/educational/relaxation - multimedia

Goal Tracker

Recent Images

Exercise by Duration

Steps daily

Blood clot

What is a Heart Attack

Blood clot

Community Care Team
Healthcare in 2022

Human Genomics into the Future

• whole genome sequencing faster and cheaper than testing individual genes

• interpretation of WGS not well developed, costly, needs new software and specialised bio informatics

• genomic technology has potential to transform delivery of health care in Australia

• “new technologies are set to revolutionise clinical practice and public health” (UK GHP Foundation)
Healthcare in 2022

Human Genomics into the Future

- facilitate more accurate and timely diagnosis
- ensure patients get right treatment at right time
- facilitate assessment of disease risk
- focus preventative health
- enable infectious diseases to be controlled faster
Jobs available

Proof readers wanted for Human Genome Sequence.

1 million positions available.

How NIH can bail us out of the worst economic crisis.