Measuring clinical variation to support quality improvement and transparency in healthcare systems

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Outline of the presentation

• Setting the scene – about BHI
• Current BHI reporting on clinical variation
• Potential for reporting at operating theatre level
Setting the scene – about BHI
National Health Performance Authority
USA Institute for Health Improvement

Bureau of Health Information
Quebec’s Health and Welfare Commissioner
USA Accountable Care Organisation
La haute autorité de santé France

Canadian Institute of Health Information

UK Care Quality Commission
Ontario Quality Council
I am firmly convinced that the public reporting of information about the health system and hospital performance is essential for the future of NSW Health.

It is the single most important driver (or lever) for the creation of public confidence in the health system, engagement of clinicians, improvement and enhancement of clinical practice and cost efficiency.

Garling Report
BHI’s purpose

To provide the community, healthcare professionals and the NSW Parliament with independent, timely and accurate information about the performance of the NSW public health system in ways that enhance the system’s accountability and inform efforts to improve health care.

Accountability & transparency
(funders, patients, public, staff)

• Support a culture of openness about performance
• Create public confidence and inform expectations and choices for patients
BHI’s purpose

To provide the community, healthcare professionals and the NSW Parliament with independent, timely and accurate information about the performance of the NSW public health system in ways that enhance the system’s accountability and inform efforts to improve health care.

Informing improvement efforts
(clinicians, managers, policy makers)

• Planning
• Evaluating
• Assessing
BHI reports

- Annual performance report
- Hospital Quarterly
- Insights into Care
- Patient Perspectives
- Data Matters
- Spotlight on Measurement
- Snapshots, briefs, dashboards and profiles
Our framework to measure performance

Healthcare performance assessment framework

- **Sustainability:** caring for the future
- **Efficiency:** value for money
- **Effectiveness:** making a difference for patients
- **Equity:** health for all, healthcare that’s fair
- **Productivity**
  - Resources, structures and organisation
- **Impact**
  - Services delivered
- **Patient needs and expectations**
- **Patient health and wellbeing**

Accessibility: healthcare, when & where needed
Appropriateness: the right healthcare, the right way

Our framework to measure performance

Healthcare performance assessment framework

Accessibility: healthcare, when & where needed

Efficiency: value for money

Patient needs and expectations

Effectiveness: making a difference for patients

Resources, structures and organisation

Patient health and wellbeing

Equity: health for all, healthcare that’s fair

Sustainability: caring for the future

Services delivered

Impact
Efficiency

Output efficiency

INPUTS
Resources

OUTPUTS
Activity
Efficiency

Outcome efficiency

INPUTS
Resources

OUTPUTS
Activity

OUTCOMES
Changes in health
Patient experience
Clinical variation
“Variation is a thief. It robs from processes, products and services the qualities that they are intended to have. …”

Berwick, 1991
Some variation in healthcare is unavoidable …

.. however, when it is unrelated to patients’ needs or preferences – variation represents poor performance
How to identify and act on unwarranted variation in healthcare?
30-day mortality following hospitalisation

Altogether, the five conditions included in this report account for around 20% of hospital mortality

The vast majority of NSW hospitals did not have higher than expected mortality

- Hospitals higher than expected: 7
- Neither higher or lower than expected: 66
- Hospitals lower than expected: 3
30-day mortality following hospitalisation – hospital outliers

Figure 32: Hip fracture surgery 30-day risk-standardised mortality ratio, NSW public hospitals, July 2009 – June 2012

lower mortality  no difference  higher mortality  90% limits  95% limits

Risk-Standardised Mortality Ratio (Observed / Expected)

Expected number of deaths within 30 days

Tamworth Hospital  Orange Hospital  Coffs Harbour Hospital  Gosford Hospital  St Vincent’s Hospital

NSW
Hip fracture surgery: appropriateness

Figure 2.22

Percentage of hip fracture surgery among patients aged 65 years and over initiated within 48 hours of hospital admission (public and private hospitals), NSW and comparator countries, 2011 or nearest year.

Sources: NSW Ministry of Health, extracted from SAPHaRI, Centre for Epidemiology and Evidence, NSW (BHI Analyse). OECD Health Statistics 2014.
Hip fracture surgery: appropriateness

Figure 2.23 Percentage of hip fracture surgery performed on patients aged 65 years and over, by time of initiation of surgery, NSW public and private hospitals, 2003–2013

Source: NSW Ministry of Health, extracted from SAPHeRI, Centre for Epidemiology and Evidence, NSW (BHI Analysis)
60-day returns to acute care

Figure 6  60-day returns to acute care per 100 hospitalisations (age and sex adjusted), NSW public hospitals, July 2000 – June 2012
60-day readmission – total knee replacement – peer group

Figure 59 Total knee replacement: 60-day RSRR by peer group, July 2009 – June 2012

Higher than expected
No different than expected
Lower than expected
60-day readmission – total knee replacement – reasons

Figure 60 Total knee replacement: number of, and reasons for return to acute care following hospitalisation, day 1–60 post discharge, NSW public hospitals, July 2009 – June 2012
ED use at the end of life, NSW

Patterns of ED visits near the end of life

One in 5 people with cancer died within a year of diagnosis

- Of those who died in the last 180 days of life, 75% visited an ED.
- Of those who died in the last 90 days of life, 67% visited an ED.
- Of those who died in the last 30 days of life, 47% visited an ED.
Potential reporting at operating theatre level
Context – Overview of internal influences on OT efficiency

<table>
<thead>
<tr>
<th>Staff</th>
<th>Resources</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Availability</td>
<td>• Management of staff</td>
<td>• Access to accurate and timely information</td>
</tr>
<tr>
<td>• Training and professional development</td>
<td>• Management of equipment and consumables</td>
<td>• Planning and prioritisation</td>
</tr>
<tr>
<td>• Seniority and leadership experience</td>
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</tbody>
</table>

Note: Adapted from the “Operating Theatre Efficiency Guidelines: A guide to the efficient management of operating theatres in New South Wales hospitals” by the NSW Agency for Clinical Innovation (2014).
### Context – Overview of external influences on OT efficiency

<table>
<thead>
<tr>
<th>Admission and booking office processes</th>
<th>Pre-operative patient planning and assessment</th>
<th>Other clinical and non-clinical functions</th>
<th>Patient flow processes and bed availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Including receiving and processing ‘Request for Admission’ booklets, waitlist coordination and management</td>
<td>• Including pre-operative clinics</td>
<td>• Including central sterile services department, radiology, allied health and service suppliers, availability of staff and support, equipment availability, booking, processing and equipment servicing</td>
<td>• Managing competing demands on the availability of beds by other departments and services</td>
</tr>
<tr>
<td></td>
<td>• Ensuring optimum patient preparedness for theatre and reducing theatre delays and cancellations</td>
<td></td>
<td>• e.g. the Emergency Department, direct admission protocols from clinics and GP’s, intensive care and other services</td>
</tr>
</tbody>
</table>

**Note:** Adapted from the “Operating Theatre Efficiency Guidelines: A guide to the efficient management of operating theatres in New South Wales hospitals” by the NSW Agency for Clinical Innovation (2014).
Opportunities and potential

• Patient reported outcomes
  – Pre-post intervention measures
  – Adverse events and complications

• Utilisation as an outcome
  – Unplanned post-op admissions / return to operating theatre
  – Admissions to ICU from hospital wards

• Complications and adverse events
  – Post-surgical / post-interventions
  – Care-induced loss of functional status / disease progression
Key performance indicators (existing)

Elective Surgery:

- Activity compared to previous year (Number)
- Operating room occupancy (%)

Proportion of children (to 16 years) treated within their LHD of residence:

- Emergency Surgery (%)
- Planned Surgery (%)

Bureau of Health Information
Risk standardised complication ratios

• In development
• Medical and surgical
• Surgical include:
  – Haemorrhage and haematoma
  – Sepsis
  – Physiologic and metabolic derangement
  – Wound dehiscence
  – Pulmonary embolism / deep vein thrombosis
  – Foreign body

  – Accidental puncture or laceration
  – Transfusion reaction
  – Prosthetic associated infection
  – Vascular graft failure
  – Anaesthesia associated
Challenges to good measurement and reporting

- Availability and quality of data
- Complex analytical definitions and models
- Attribution
- Understanding context
- Trade-offs
- Multiple audiences with different information needs
- Culture of openness and transparency
Thank you

Any questions?