Health Outcomes of Care: An Idea Whose Time has Come

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CADTH Conference
Halifax, Nova Scotia
April 2010
“We are only at the threshold of knowing about the usefulness of medical interventions”

(Barbara Starfield, 2008)
Health Outcomes of Care – Why?

- Goal of healthcare is to improve the health and well-being of the population;
- There is a growing need for information to understand the degree to which investments in health care and treatment interventions have a positive impact on health
  - make ever increasing investments in the health care system but generally lack information to assess effectiveness at the population level
  - Have good measures of “rare” outcomes – mortality, complications, readmission
  - Little information on outcomes for vast majority of patients – some benefit and some do not
- Purpose: Focus on data available to assess health outcomes of care
  - Definition: change in health status as a result of health care interventions
Health Outcomes of Care

Project #1: Focus on existing data

Objective – to use existing data to assess health outcomes of care in key clinical areas

Development of conceptual framework – recognized the importance of understanding health outcomes in the context of other factors

Case studies: depression and diabetes

Data bases: Linked CCHS/HMDB, CORR, CCRS

Finding – can’t do much with existing data due to lack of direct measures of health – general health related quality of life (HRQL) or disease specific!
Health Outcomes of Care – Conceptual Framework

A conceptual framework for health outcomes was developed to guide data development and analysis. It describes the complex interplay between the various factors that can influence health outcomes.

Statistics Canada, CIHI. *Health Outcomes of Care*. 2008
Health Outcomes of Care

Project #2: Focus on data development

Objectives:
• explore current trends contributing to a general shift in our thinking on the need for health outcome information;
• highlight various initiatives currently underway in Canada and internationally to collect and use of health outcome information;
• propose options for new data development/collection/enhancement
Health Outcomes of Care

- “Information gathering”:
  - Literature search
    - Conceptual – why important to report on health outcomes
    - Measurement – general HRQL vs disease specific
    - Examples of use of health outcome reporting
  - Internet search
    - Key organisations involved in health outcome collection/reporting and/or patient reported outcome
    - Mostly focused on UK to date
  - Interviews with key contacts
    - Canadian contacts
    - UK contacts
Health Outcomes of Care – Why now is a good time?

- **Current trends** -
  - Greater emphasis on need to report on outcomes – population level (i.e. development of indicators);
  
  - Movement toward greater emphasis on *patient reported outcomes* (PROs);
    - acknowledgment of need to capture the patient’s perspective on the impact of illness and health care interventions including impact on health status

  “Patient-reported data is a new technology of patient experience that can transform medical care and health services research.” (paraphrased from Paul Ellwood, 1988)
Health Outcomes of Care – Why now is a good time?

• Current trends (cont’d)-
  – Advances in measurement of HRQL –
    • HUI, SF-36, EQ-5D
    • Databanks:
      • Patient-Reported Outcomes Measurement Information System (PROMIS) (US);
      • Patient-Reported Outcome and Quality of Life Instruments Database (PROQOLID) (France)
  – Advances in data collection – IT developments (interactive voice response (IVR), touch screens, hand-held computer devices, mobile phones and web based applications)
Health Outcome Information: “Ideal” data structure

- **Policy Level**
  - Composite performance indicators

- **Administrative Level**
  - Performance Indicators

- **Clinical Level**
  - Information to improve clinical practice

Starts with definition of a minimum data set

Source: Adapted from Wolfson and Alvarez (2002) and Frank (2008) and Erickson (2004) – incorporate element of time
Health Outcomes – Case Study
Heart Transplantation
(Edmonton, Alberta)

- Use: clinical care (pilot project)

- Measures: HRQL (HUI) and disease specific

- Data collection: (Outpatient clinic)
  - Pre-op measures (assessment clinics) – patients fill out HUI on laptop while waiting for clinician
  - Post-op – follow-up measures conducted each time patient visits the outpatient clinic
  - HUI report included in the patient medical record

- Reporting:
  - Clinical practice: HRQL information used by care team (physicians and nurses) in clinical care of patient
  - Patient also gets a copy prior to visit with physician – patient feels they better interaction with the physician as a result
Health Outcomes – Case Study
Heart Transplantation
(Edmonton, Alberta)

Source: Santana, Feeny (2008)
Health Outcomes – Case Study
Alberta Bone and Joint Institute
(Calgary, Alberta)

• Use: performance indicator – Measurement Framework

• Measures: HRQL (SF-36) and WOMAC

• Data collection:
  – Pre-op measures – patients fill out HRQL measures at assessment clinic
  – Post-op – follow-up measures at appropriate post-op time (i.e. 6 months, 1 year)
  – SF-36 and WOMAC part of comprehensive patient information system

• Reporting:
  – Report on the 6 dimensions of quality of care accessibility, efficiency, acceptability, safety, appropriateness and effectiveness
    • Improved physical and social function and reduced pain
Health Outcomes – Case Study
Alberta Bone and Joint Institute
(Calgary, Alberta)

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Physical and Social Function and Pain Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current Way</td>
</tr>
<tr>
<td></td>
<td>Improved physical function</td>
</tr>
<tr>
<td></td>
<td>Improved social function (daily living activities)</td>
</tr>
<tr>
<td></td>
<td>Reduced pain</td>
</tr>
</tbody>
</table>

TARGET FOR NEW APPROACH: Ongoing improvement in physical and social function and in pain reduction
Health Outcomes – Case Studies
Elective surgery
(Spirehealthcare, UK)

• Use: system performance (joint replacement, cataract)
  – Indicator: *health improvement following surgery*

• Measures:
  – HRQL (SF-36) and disease specific (Oxford Hip/Knee, Visual Functioning 14)

• Data collection:
  – Data collection conducted via patient surveys (Outcome Technologies)
  – Pre-op measures: at time of admission to hospital
  – Post-op measures: 4-6 months via mailed survey

• Reporting:
  – Performance reporting: results available on the web by hospital
  – Patient reported outcomes part of suite of performance indicators
## Health Outcomes – Case Study
### Spire Alexandra Hospital

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Number of Incidences in 2007</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRSA blood infections</td>
<td>0</td>
<td>0 per 1,000 bed days</td>
</tr>
<tr>
<td>How we keep our MRSA rate so low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clostridium difficile infections</td>
<td>0</td>
<td>0 per 1,000 bed days</td>
</tr>
<tr>
<td>How we keep our Clostridium difficile rate so low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wound infection after hip replacement surgery</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>How we minimise the risk of wound infection after surgery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return to the operating theatre for an unplanned procedure</td>
<td>13</td>
<td>0.40%</td>
</tr>
<tr>
<td>How we minimise the chance of a further unplanned procedure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unplanned re-admission to hospital within 31 days for further treatment of the same or a related condition</td>
<td>26</td>
<td>0.68%</td>
</tr>
<tr>
<td>How we keep unplanned readmissions low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health improvement following surgery</td>
<td>Overall health rating before surgery</td>
<td>Overall health rating after surgery</td>
</tr>
<tr>
<td>Hip replacement (after 6 months)</td>
<td>20</td>
<td>38 (maximum score is 48)</td>
</tr>
<tr>
<td>How we measure health improvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cataract surgery (after 4 months)</td>
<td>84%</td>
<td>95%</td>
</tr>
<tr>
<td>How we measure visual health improvement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Focus on Patient Reported Outcomes (PROMS) including health outcomes

“While a surgeon may deem a hip replacement successful because the procedure has been performed perfectly on the day, the patient will rightly disagree if they are still in pain and continue to have a poor quality of life some months down the line. This programme is the first of its kind in the world and the information collected will empower patients to choose a hospital that achieves the best results for the operation they need.”

(Lord Darzi, Health Minister, Department of Health, England; June 2, 2009)
Health Outcomes – Case Study
Select Elective Surgeries
National Health Service (NHS)

• Pilot study: (LSHTM – Nick Black)
  – Small number of elective procedures with 2,400 patients at 24 sites, and demonstrated the feasibility of routine health outcomes measurement.
  – Developed surgery specific questionnaires – data collected at admission and 3/6 months post-op

• NHS: Royal College of Surgeons and LSHTM
  – Starting April 2009, mandatory health outcome data collection for NHS patients undergoing
    • Hip and Knee replacements,
    • Groin Hernia and
    • Varicose Vein surgeries
Health Outcomes – CIHI and STC efforts

- CIHI: Continuing Care Reporting System (CCRS)
  - Inter-RAI MDS clinical assessment tool – improvements in health and functional status
  - Captured at various point of care electronically
  - Used by nurses to assess status and plan care
- Statistics Canada: Data linkage
  - Linked hospital administrative data with health survey data (HUI)
  - Micro-simulation – bring together range of data sources to project effects of various types of care on outcomes – including health adjusted quality of life
A plug……

CIHI and Stats Can will be co-hosting the annual Data User’s Conference.

The conference will be held Sept 20th – 21st in Ottawa.

This year’s theme is focused on measuring and monitoring health outcomes of care through data.
Thank-you!

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