The new world order...welcome to the era of outcomes and value

November 2016
Value Based Healthcare - A simple proposition

Outcomes that matter to patients = Cost incurred

= Value
What do we mean by outcomes

Mortality

Adverse events
• Complications, iatrogenic events, readmission

Patient reported outcome measures (PROMs)
• Health-Related Quality of life
• Functional ability
• Economic activity and social engagement
Value is relative – we can only learn by studying variation

A sporting analogy

1896 Olympics, Athens, Greece, 100 meter dash
A sporting analogy

2012 Olympics, London, UK
A sporting analogy

This chart includes medals for the United States and Australia in the "Intermediary" Games of 1906, which the I.O.C. does not formally recognize.
We can explain some variation – but much typically remains

Example: breast cancer surgery in the Netherlands

Clear negative correlation between volume and remaining cancer tissue...

... but large variation - single low volume hospitals also with excellent results

Average percentage of patients with remaining tissue

<table>
<thead>
<tr>
<th>Number of breast cancer patients per hospital (2008)</th>
<th>Percentage of patients with remaining tumour tissue</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;100</td>
<td>13.5</td>
</tr>
<tr>
<td>100–200</td>
<td>10.5</td>
</tr>
<tr>
<td>200–300</td>
<td>9.5</td>
</tr>
<tr>
<td>300–400</td>
<td>6.8</td>
</tr>
<tr>
<td>&gt;400</td>
<td>3.6</td>
</tr>
</tbody>
</table>

1. Only 1 hospital with more than 400 patients in 2008
Note: Location volumes and results have been added up for a number of hospitals that treat breast cancer at several locations
Source: BCG experience
This all sounds obvious - so what is new?

**Ambition for making change happen:** Moving outcomes measurement beyond academic research into:

- Clinician change management
- Health system decision-making
- Long term health care efficiency improvement

**Scale:** Coalescence of measurement initiatives across hospitals, cities and provinces, and now countries

**Technology:** Digitisation of health information makes it cheaper and quicker to collect, store, and analyse
Survival is an important outcome but gains have been slowing over the last 3 decades.

Source: stats.oecd.org
The side effects of cancer treatment may represent a bigger opportunity than survival gains

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**Focussing on mortality alone…**

- Germany: 94.0
- Sweden: 94.0
- Martini Klinik: 95.0

5 year survival

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**…may obscure large differences in outcomes that matter most to patients**

1 yr incontinence

- Germany: 43.3
- Sweden: 50.0
- Martini Klinik: 6.5

1 yr severe erectile dysfunction

- Germany: 75.5
- Sweden: 80.0
- Martini Klinik: 34.7

Swedish data rough estimates from graphs; Source: National quality report for the year of diagnosis 2012 from the National Prostate Cancer Register (NPCR) Sweden, Martini Klinik, BARMER GEK Report Krankenhaus 2012, Patient-reported outcomes (EORTC-PSM), 1 year after treatment, 2010
Quality improvement can be cost-reducing

NIKE identified four indication groups (IGs) with common responses to surgery...

...which created the potential for $8m per year in savings

Swedish Cataract surgeries ('000s)

Potential disinvestment

Sweden has shown dramatically improved survival with the introduction and use of outcomes feedback.

Sweden AMI 30 day Mortality

% mortality within 30 days after AMI

Year


3rd Quartile CAGR: -8%
Median CAGR: -9%
1st Quartile CAGR: -11%

Source: Swedish RIKS-HIA

UK AMI 30 day Mortality

Deaths within 30 days of emergency admission to hospital: (AMI)

Year

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010

3rd Quartile CAGR: -5%
Median CAGR: -5%
1st Quartile CAGR: -4%
Projecting trend improvement effect in UK AMI 30 day mortality

**Projecting UK potential for improvement**

<table>
<thead>
<tr>
<th>Year</th>
<th>AMI 30 day mortality after admission (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>5.9%</td>
</tr>
<tr>
<td>2011</td>
<td>5.4%</td>
</tr>
<tr>
<td>2012</td>
<td>5.0%</td>
</tr>
<tr>
<td>2013</td>
<td>4.6%</td>
</tr>
<tr>
<td>2014</td>
<td>4.2%</td>
</tr>
<tr>
<td>2015</td>
<td>3.9%</td>
</tr>
<tr>
<td>2016</td>
<td>3.6%</td>
</tr>
<tr>
<td>2017</td>
<td>3.3%</td>
</tr>
<tr>
<td>2018</td>
<td>3.0%</td>
</tr>
<tr>
<td>2019</td>
<td>2.9%</td>
</tr>
<tr>
<td>2020</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

Difference in CAGR of 3.8%.

**Projected value over 10 years**

**Outcomes**

- **~3945** fewer deaths within 30 days of an emergency admission from AMI
- **worth ~$1.6b** in 2012 dollars over 10 years

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1 Potential for Improvement in Practice – UK population - difference to current trajectory
2 Projected % readmissions within 28 days with Swedish levels of outcome improvement
ICHOM is a nonprofit dedicated to accelerating development and impact of outcomes measurement

ICHOM’s three founders with the desire to unlock the potential of VBHC...

...launched ICHOM as a nonprofit
+ Independent 501(c)3 organization
+ Idealistic and ambitious goals
+ Global focus
+ Engages diverse stakeholders

Our mission:
To define a global standard set of outcome measures that really matter to patients for the most relevant medical conditions...and drive adoption of these measures worldwide to unlock the potential of value-based health care
Developed 19 Standard Sets thus far, covering 47% of the global disease burden.

Recent 2016 releases:
- Dementia
- Frail elderly care
- Heart Failure
- Pregnancy and childbirth
- Breast cancer
- Craniofacial Microsomia
- Colon cancer

Planned for 2017:
- Chronic Kidney Disease
- Inflammatory bowel disease
- Hypertension
- Facial palsy
- Type 1 Diabetes
- HIV
- Oral Health
- Congenital hand malformations
- Overactive bladder & incontinence
- General Adult Health
- General Paediatric Health
Global uptake of standard sets circa Jan 2015
Where might we get to?

400 pages of comparisons between every health service region in Sweden

170 different conditions covered

Population health, behaviour, clinical and patient reported outcomes covered

Produced every 2 years

Data drill down available that allows comparison of individual hospitals, patient subsets and managing clinicians
Example comparisons produced

Bowel cancer

Cataracts