Value-Based Health Care and the Role of Outcomes
Opportunities for the OECD

Professor Michael E. Porter
Harvard Business School
Meeting with OECD
Paris
19th May 2016

The Health Care Problem is a Global Issue

Health Care Spending vs GDP and Income

1992-2013

Notes: Indexes based on local currencies; Income = Personal Disposable Income; HC expenditures as % of GDP are OECD estimates

Source: Economist Intelligence Unit May 2014, BCG analysis
Substantial Outcomes Variation Within and Across Countries

2x variation in 30-day mortality rate from heart attack in US hospitals

4x variation in bypass surgery mortality in the UK hospitals

5x variation of major obstetrical complications among US hospitals

9x variation in complication rates from radical prostatectomies in the Dutch hospitals

18x variation in reoperation rates after hip surgery in German hospitals

20x variation in mortality after colon cancer surgery in Swedish hospitals

36x variation in capsule complications after cataract surgery in Swedish hospitals

Outcomes variation is pervasive across conditions and all types of outcomes wherever systematic data is available
Solving the Health Care Problem

• The **fundamental goal** of health care is to improve value for patients
• Delivering high value health care is the **definition of success**

\[
\text{Value} = \frac{\text{Health outcomes that matter to patients}}{\text{Costs of delivering these outcomes}}
\]

• Value is the only goal that can **unite the interests** of system participants
• Improving value is the **only real solution**

• The question is how to redesign health care delivery systems to **substantially improve patient value**
Where is Value Created

• Value is created in caring for a patient’s **medical condition** over the **full cycle of care**
  – **Not** by a hospital, a care site, a specialty, an episode, or an intervention

\[
\text{Value} = \frac{\text{Set of health results that matter for the condition}}{\text{Total cost of all necessary services}} \text{ over the care cycle}
\]

• Value in **primary care** is created for **segments of patients** with similar primary and preventive needs
  – E.g. Older adults, patients with multiple chronic conditions, healthy adults
• The most powerful single lever for reducing cost is **improving outcomes**
Creating a Value-Based Health Care Delivery Organization

The Strategic Agenda

1. Re-organize Care around Patient Conditions, into Integrated Practice Units (IPUs)
   - IPUs that serve distinct patient segments
2. Measure Outcomes and Costs for Every Patient
3. Move to Bundled Payments for Care Cycles
4. Integrate Multi-site Care Delivery Systems
5. Expand Excellent Provider Reach Across Geography
6. Build an Enabling Information Technology Platform
Organizing Care Around Medical Conditions
Migraine Care in Germany

Existing Model:
Organize by Specialty and Discrete Service

New Model:
Organize Around Conditions into Integrated Practice Units (IPUs)

Organizing Primary Care Around Segments

Oak Street Health

- **Low-income older adults** living in *under-served urban* communities
  - Four severity subgroups
- **Multidisciplinary team** covering the full care cycle: physicians, PAs, NPs, RNs, medical assistants, care managers, social workers, clinical informatics specialists, and scribes
- Co-located in **dedicated facilities**
- Explicit processes to **engage** patients and reduce **obstacles to accessing** care
- Offers **free rides, home-visits**, and selected in-house services such as podiatry, behavioral health, and pharmacy
- For close relationships with **preferred specialists** and **testing** and **imaging** partners
- **Accountable** for outcomes, cost, and patient experience
- **Single risk-adjusted payment** covering overall care
- Network of **15 practice sites** across the Midwest

Source: Oak Street Health
The Quality Measurement Landscape

- **Patient Initial Conditions**
- **Processes**
- **Indicators**
- **(Health) Outcomes**

**Patient Experience/Engagement**

- Protocols/Guidelines
  - E.g. PSA, Gleason score, surgical margin

**Structure**
- E.g. Staff certification, facilities standards
The Outcome Measures Hierarchy

**Tier 1**

Health Status

Achieved or Retained

- Survival

**Degree of health/recovery**

- Achieved clinical status
- Achieved functional status

**Tier 2**

Process of Recovery

- Time to recovery and return to normal activities

**Tier 3**

Sustainability of health/recovery and nature of recurrences

- Sustainability of health/recovery
- Long-term clinical status
- Long-term functional status

Sustainability of Health

- Long-term consequences of therapy (e.g., care-induced illnesses)

- Disutility of the care or treatment process (e.g., diagnostic errors and ineffective care, treatment-related discomfort, complications, or adverse effects, treatment errors and their consequences in terms of additional treatment)

- Care-related pain/discomfort
- Complications
- Reintervention/readmission

Source: NEJM Dec 2010

PROMs are a powerful tool to capture multiple of these areas.
Measuring Multiple Outcomes
Prostate Cancer Care in Germany

5 year disease specific survival
- Average hospital: 94%
- Best hospital: 95%

Severe erectile dysfunction after one year
- Average hospital: 75.5%
- Best hospital: 17.4%

Incontinence after one year
- Average hospital: 43.3%
- Best hospital: 9.2%

Source: ICHOM
The Catalytic Role of Outcomes

- Outcomes define success for every physician and health care organization
- Continuous outcome measurement directly informs clinical care
- Outcomes foster multidisciplinary IPUs and inform care innovation
- Outcomes highlight and validate opportunities for cost reduction that are truly value-enhancing
- Outcomes are an essential component of value-based bundled payments
- Outcomes guide the delivery of the right services at the right locations
- Outcomes define areas for provider service line growth and affiliation
- Measuring outcomes will drive the restructuring of health care delivery
Standardizing Patient Outcomes Measurement

Michael E. Porter, Ph.D., M.B.A., Stefan Larsson, M.D., Ph.D., and Thomas H. Lee, M.D.

The arc of history is increasingly clear: health care is shifting focus from the volume of services delivered to the value created for patients, with “value” defined as the outcomes achieved relative to the costs. But progress has been slow and halting, partly because measurement of outcomes that matter to patients, aside from survival, remains limited. And for many conditions, death is a rare outcome whose measurement fails to differentiate excellent from merely competent providers.

Experience in other fields suggests that systematic outcomes measurement is the sine qua non of value improvement. It is also essential for the development of outcome-based incentives for providers to embrace accountability for results.

If we’re to unlock the potential of value-based health care for driving improvement, outcomes measurement must accelerate. That means committing to measuring a minimum sufficient set of outcomes for every major medical condition — with well-defined methods for their collection and risk adjustment — and then standardizing those sets nationally and globally.

Why has arriving at the essential measures of performance been so difficult in health care, when it seems to occur naturally in other fields? First, in health care, outcomes are uncertain given the complexity of the patient and the large range of providers involved. Second, even when outcomes are certain, they are unobserved. For example, only 139 (7%) are actual outcomes and only 32 (<2%) are patient-reported outcomes (see bar graph). Defaulting to measurement of discrete processes is understandable, given the historical organization of health care delivery around specialty services and fee-for-service payments.

Yet process measurement has had limited effect on value. Such measures receive little attention from patients, who are interested in results. Process measures don’t truly differentiate among providers, so incentives for improvement are limited. Nor does improving process compliance from 95% to 98% matter much for patient outcomes. The real challenge is to link the process with outcomes — and do that consistently and nationally for every condition.

In some cases, outcomes can be observed directly. This is particularly true in surgery, where patient outcomes are frequently observed and become outcomes for quality improvement purposes. But in most other cases, outcomes need to be estimated by statistical means, such as through multivariate regression analysis, using data from national registries and other sources. This is why the Joint Commission is using mortality as a reliable indicator of quality for most procedures. But such efforts can only go so far, as they target only major performable procedures. The result is that quality improvements are piecemeal and highly variable across regions and providers.

The answer is to develop minimum standards of performance with which all providers must comply. But this is a daunting task, as it requires standardizing the outcomes and methods of measurement across every major medical condition. Failing that, we should at least develop a minimum set of core measures that are widely accepted as meaningful and important. This is the goal of the Patient-Centered Outcomes Research Institute (PCORI), which is developing a list of conditions and core measures of performance. The challenge remains to ensure that the measures are meaningful and easy to use across the entire health system.
ICHOM was Formed to Accelerate Value-Based Health Care by Defining Global Outcome Standards

Our Roots

Three organizations with the desire to unlock the potential of **Value-Based Health Care** founded ICHOM in 2012:

ICHOM is a **nonprofit**
- Independent 501(c)3 organization
- Idealistic and ambitious goals
- Global focus
- Engages diverse stakeholders

Our Mission

Unlock the potential of Value-Based Health Care by defining global standard sets of outcome measures that really matter to patients for the most prevalent medical conditions and by accelerating adoption and reporting of these measures worldwide.

Value = \[
\text{Patient health outcomes achieved}
\]
\[
\text{Cost of delivering those outcomes}
\]
ICHOM’s Strategic Agenda

Define internationally recognized Standard Sets of outcomes and related case-mix factors

Provide risk-adjusted international benchmarks by medical condition

A methodological partner with media to publish ratings based on ICHOM outcomes

Core Mission

Define Standards

Benchmark on outcomes

Establish outcomes transparency

Measure outcomes

Collaborate to improve value

Develop value-based payment models

Enablers

Facilitates adoption and implementation by sharing knowledge and supporting proof-of-concept

Enables cooperation to improve value by establishing value collaboratives

Engages payers and governments to realign financial incentives and promote transparency

Value-Based Health Care
International leaders come together to develop standard sets

ICHOM’s Stroke Standard Set

Stephanie Gething, Aneurin Bevan University Health Board, Wales
Charlie Davie, UCLPartners Academic Health Science Network, Royal Free London NHS Foundation Trust, London

Eric Smith, University of Calgary; AHA GWTG, Calgary
Frank Silver, University of Toronto; Ontario Stroke Registry, Toronto
Patrice Lindsay, Heart and Stroke Foundation of Canada; WSO, ON

Bo Norrving, Lund University; Swedish Stroke Register (Riksstroke), Lund

Gerard Ribbers, Erasmus Medical Center; Rijndam rehabilitation center, Rotterdam
Sheila Martins, Hospital Moinhos de Vento; National Stroke Registry; Brazilian Stroke Society, Porto Alegre

Liping Liu, Capital Medical University, Beijing Tiantan Hospital, Beijing

Lee Schwamm, MGH/Harvard Medical School; AHA GWTG, Paul Coverdell National Acute Stroke Registry, Stroke Joint Commission, Boston, MA
Joel Salinas, MGH/Harvard Medical School, Boston, MA
Mary George, Centers for Disease Control and Prevention; Paul Coverdell National Acute Stroke Registry, Atlanta, GA
Adam Kelly, University of Rochester Medical Center, NY
Linda Williams, VA HSR&D Stroke QUERI, Indiana University School of Medicine, Indianapolis, IN
Teri Ackerson*, American Heart Association
Louise Morgan, American Heart Association, NJ

Julie Bernhardt, The Florey Institute of Neuroscience and Mental Health, Melbourne

*Patient/carer representative

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ICHOM Standard Set

Dementia

- All-cause mortality

Survival

Degree of recovery / health

- Functional status (disease progression, symptom burden)
- Neuro-psychiatric Inventory
- Cognition (Montreal Cognitive Assessment)

Time to recovery or return to normal activities

- Time to full-time care
- Type of care required

Disutility of care or treatment process (e.g., treatment-related discomfort, complications, adverse effects, diagnostic errors, treatment errors)

- Falls
- Hospital Admissions

Sustainability of recovery or health over time

- Quality of Life and Wellbeing (QOL-AD)
- Activities of Daily Living (Bristol ADL scale)
- Caregiver quality of life (EuroQol-5D-5L (EQ5D))

Long-term consequences of therapy (e.g., care-induced illnesses)
# ICHOM Standard Sets By Condition

<table>
<thead>
<tr>
<th>Standard Sets Complete (2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Localized Prostate Cancer *</td>
</tr>
<tr>
<td>2. Lower Back Pain *</td>
</tr>
<tr>
<td>3. Coronary Artery Disease *</td>
</tr>
<tr>
<td>4. Cataracts *</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard Sets Complete (2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Parkinson’s Disease*</td>
</tr>
<tr>
<td>6. Cleft Lip and Palate</td>
</tr>
<tr>
<td>7. Stroke</td>
</tr>
<tr>
<td>8. Hip and Knee Osteoarthritis*</td>
</tr>
<tr>
<td>9. Macular Degeneration*</td>
</tr>
<tr>
<td>10. Lung Cancer*</td>
</tr>
<tr>
<td>11. Depression and Anxiety*</td>
</tr>
<tr>
<td>12. Advanced Prostate Cancer</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Conditions in Year Three (2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Breast Cancer</td>
</tr>
<tr>
<td>14. Dementia</td>
</tr>
<tr>
<td>15. Older Persons*</td>
</tr>
<tr>
<td>16. Heart Failure</td>
</tr>
<tr>
<td>17. Pregnancy and Childbirth</td>
</tr>
<tr>
<td>18. Colorectal Cancer</td>
</tr>
<tr>
<td>19. Overactive Bladder</td>
</tr>
<tr>
<td>20. Craniofacial Microsomia</td>
</tr>
<tr>
<td>21. Inflammatory Bowel Disease</td>
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</table>

<table>
<thead>
<tr>
<th>Under Consideration for 2016</th>
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</thead>
<tbody>
<tr>
<td>22. Chronic Kidney Disease</td>
</tr>
<tr>
<td>23. Oral Health</td>
</tr>
<tr>
<td>24. Inflammatory Arthritis</td>
</tr>
<tr>
<td>25. Bipolar Disorder</td>
</tr>
<tr>
<td>26. Congenital Hand Malformations</td>
</tr>
<tr>
<td>27. Facial Palsy</td>
</tr>
<tr>
<td>28. HIV/AIDS</td>
</tr>
<tr>
<td>29. Pediatrics Epilepsy</td>
</tr>
<tr>
<td>30. Pediatric Overall Health</td>
</tr>
<tr>
<td>31. Adult Overall Health</td>
</tr>
<tr>
<td>32. Substance Use Disorders</td>
</tr>
<tr>
<td>33. Burns</td>
</tr>
<tr>
<td>34. Head and Neck Cancer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Burden of Disease Covered</th>
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</thead>
<tbody>
<tr>
<td>18%</td>
</tr>
<tr>
<td>35%</td>
</tr>
<tr>
<td>45%</td>
</tr>
</tbody>
</table>

* Published or in press in Peer-Reviewed Journals
Standard Sets Published or Accepted for Publication

- Localized Prostate Cancer
- Coronary Artery Disease
- Low Back Pain
- Cataract
- Adv. Prostate Cancer
- Stroke
- Hip & Knee OA
- Cleft Lip & Palate
- Macular Degeneration

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Every week, organizations interested in measuring Standard Sets reach out to ICHOM.
Appendix
Standard Set is defined through series of teleconference calls, supported by research and patient input.

ICHOM Standard Set Methodology v2.0, currently in use

- **Working Group Process**
  - Working Group Launch
  - Meeting 1*: Outcome domains
  - Meeting 2*: Outcome definitions
  - Meeting 3*: Outcome wrap-up
  - Meeting 4*: Case-mix domains
  - Meeting 5*: Case-mix definitions
  - Meeting 6*: StSet and publication wrap-up
  - Meeting 7*: Review & transition to implementation
  - Standard Set Launch

- **Literature input**
  - Research & propose scope
  - Literature review of outcome domains and definitions
  - Literature review of risk factor domains and definitions

- **Patient input**
  - Patient focus group (FG)
  - Validation of outcome domains (distribute survey via pat. org.)

- **External Input**
  - Open review period
  - Survey
  - 2 round Delphi process

* Most meetings are telephonic or via video

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Every Standard Set also includes case-mix variables for risk adjustment: Stroke Standard Set example

<table>
<thead>
<tr>
<th>Demographic factors</th>
<th>Risk adjustment variable</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Date of birth</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>Sex at birth</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Country specific reporting</td>
<td></td>
</tr>
<tr>
<td>Living location</td>
<td>Pre and 90 days post stroke</td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>Pre and 90 days post stroke</td>
<td></td>
</tr>
<tr>
<td>Prestroke functional status</td>
<td>Mobility, Toileting and Dressing</td>
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</table>

<table>
<thead>
<tr>
<th>Stroke type and severity</th>
<th>Risk adjustment variable</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke type</td>
<td>IS; ICH; TIA</td>
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</tr>
<tr>
<td>Stroke severity</td>
<td>NIHSS &amp; Level of Consciousness</td>
<td></td>
</tr>
<tr>
<td>Duration of symptoms</td>
<td>&lt; 1h; 1h - 1 day; &gt; 1 day; Unable to determine</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vascular and systemic</th>
<th>Risk adjustment variable</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior Stroke</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Prior TIA</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Prior MI</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Coronary artery disease</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Hypertension</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Hyperlipidemia</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Smoking status</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Alcohol use (&gt; 1 drink/day)</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>Length of hospital stay</td>
<td>Date of admission &amp; discharge</td>
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</tr>
<tr>
<td>Diagnostic evidence base</td>
<td>Clinical alone; Clinical + MRI; Clinical + CT</td>
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<tr>
<td>Rehabilitation</td>
<td>Dedicated rehabilitation during acute or post acute care</td>
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<tr>
<td>Discharge destination</td>
<td>Discharge following acute care hospitalization</td>
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<tr>
<td>IV Thrombolytic therapy</td>
<td>Patient received IV Thrombolytic therapy</td>
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<tr>
<td>Thrombectomy</td>
<td>Patient underwent Thrombectomy</td>
<td></td>
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<tr>
<td>Hemicraniectomy</td>
<td>Patient underwent Hemicraniectomy</td>
<td></td>
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<tr>
<td>Comfort care (optional item)</td>
<td>Did care goals shift from treatment &amp; recovery to emphasis on comfort?</td>
<td></td>
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