Outcome Measurement

Professor Michael E. Porter
Harvard Business School
www.isc.hbs.edu

January 7, 2014
Creating a Value-Based Health Care Delivery System

The Strategic Agenda

1. Organize Care into Integrated Practice Units (IPUs) around Patient Medical Conditions
   - Organize primary and preventive care to serve distinct patient segments

2. Measure Outcomes and Cost for Every Patient

3. Move to Bundled Payments for Care Cycles

4. Integrate Care Delivery Systems

5. Expand Geographic Reach

6. Build an Enabling Information Technology Platform
The Quality Measurement Landscape

- Patient Initial Conditions
- Processes
  - Protocols/ Guidelines
- Indicators
  - E.g. PSA, Gleason score, surgical margin
- Structure
  - E.g. Staff certification, facilities standards
- (Health) Outcomes
Process Measurement is Not Enough
Overall survival time (95% CI) free of signals for updating.

Principles of Outcome Measurement

1. Outcomes should be measured by medical condition or primary care patient segment

- Not by procedure or intervention
Principles of Outcome Measurement

1. Outcomes should be measured by medical condition or primary care patient segment
   - Not by procedure or intervention

2. Outcomes should reflect the full cycle of care for the condition
Principles of Outcome Measurement

1. Outcomes should be measured by medical condition or primary care patient segment
   - Not by procedure or intervention

2. Outcomes should reflect the full cycle of care for the condition

3. Outcomes are always multi-dimensional and should include the health results most relevant to patients
The Outcome Measures Hierarchy: Dimensions

Tier 1
Health Status
Achieved or Retained

Survival

Mortality

Tier 2
Process of Recovery

Degree of health/recovery

Achieved clinical status
Achieved functional status

Time to recovery and return to normal activities

Time to care completion and recovery

Care-related pain/discomfort
Complications
Reintervention/Readmission

Tier 3
Sustainability of Health

Sustainability of health/recovery and nature of recurrences

Long-term clinical status
Long-term functional status

Source: NEJM Dec 2010

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

Long-term consequences of therapy
The Outcome Measures Hierarchy

Localized Prostate Cancer

1. **Survival**
   - Disease-specific survival

2. **Degree of recovery / health**
   - Anxiety and depression

3. **Time to recovery or return to normal activities**
   - Time to diagnosis
   - Time to treatment
   - Length of inpatient stay
   - Time to return to work

4. **Disutility of care or treatment process**
   (e.g., treatment-related discomfort, complications, adverse effects, diagnostic errors, treatment errors)
   - Bleeding
   - Thrombosis
   - Continence
   - Erectile function

5. **Sustainability of recovery or health over time**
   - Biochemical recurrence
   - Metastatic progression

6. **Long-term consequences of therapy**
   (e.g., care-induced illnesses)
   - Radiation-induced complications of intestine, bladder, bones, skin
Measuring Multiple Outcomes
Prostate Cancer Care in Germany

- Average hospital
- Best hospital

5 year disease specific survival

94% 95%

Source: ICHOM
Localized Prostate Cancer Outcomes
Best Hospital versus German Average

- 5 year disease specific survival: 95% for Martini Klinik, 94% for Average Germany
- Any incontinence: 6.5% for Martini Klinik, 43.3% for Average Germany
- Severe urinary incontinence (1yr)*: 0.4% for Martini Klinik, 4.5% for Average Germany
- Severe erectile dysfunction (1yr)**: 34.7% for Martini Klinik, 75.5% for Average Germany

*more than 5 pads per day
**including patients who were already fully dysfunctional prior to surgery
Principles of Outcome Measurement

1. Outcomes should be measured by medical condition or primary care patient segment
   - Not by procedure or intervention

2. Outcomes should reflect the full cycle of care for the condition

3. Outcomes are always multi-dimensional and should include the health results most relevant to patients

4. Measurement must include initial conditions/risk factors to allow for risk adjustment
Principles of Outcome Measurement

1. Outcomes should be measured by medical condition or primary care patient segment
   - Not by procedure or intervention

2. Outcomes should reflect the full cycle of care for the condition

3. Outcomes are always multi-dimensional and should include the health results most relevant to patients

4. Measurement must include initial conditions/risk factors to allow for risk adjustment

5. Standardize outcome measures to enable comparison and learning
Comparing Outcomes Across Institutions/Sites
In-vitro Fertilization Success Rates

Percent Live Births per Fresh, Non-Donor Embryo Transferred by Clinic Size
Women Under 38 Years of Age, 1997-2011

Comparing Outcomes across Centers


Number of programs: 219
Number of transplants: 19,588
One year graft survival: 79.6%

- 16 greater than predicted survival (7%)
- 20 worse than predicted survival (10%)
Comparing Outcomes across Centers

Adult Kidney Transplants, US Centers, 2008-2010

Number of programs included: 236
Number of transplants: 38,535
1-year graft survival: 93.55%

- 8 greater than expected graft survival (3.4%)
- 14 worse than expected graft survival (5.9%)
Putting Outcomes and Measurement into Practice

Definition of Outcomes → Data Collection → Data Compilation and Analysis → Comparison and Improvement
Defining Outcomes

Working groups

• **Led by an experienced clinician** (not necessarily a physician) who has a deep knowledge of the medical condition and who is a **true advocate** for outcome measurement

• Supported a project leader from **quality management department** or other unit

• Consisting of dedicated people from **different professional groups, specialties**, and including **outcome experts**

• Who meet regularly to define and improve **outcome measures**, **risk adjustment** factors and **validated instruments**

• Involving **patients** and their perspective into defining measures

• Incorporating **meeting and comparing with peers** on national and international level
Outcomes Over the Care Cycle

Example primary knee replacement process at Schön Klinik

<table>
<thead>
<tr>
<th>hospital</th>
<th>rehab</th>
<th>orthopedic outpatients</th>
</tr>
</thead>
<tbody>
<tr>
<td>before surgery</td>
<td>at discharge</td>
<td>start rehabilitation</td>
</tr>
<tr>
<td>start rehabilitation</td>
<td>end rehabilitation</td>
<td>after three months</td>
</tr>
<tr>
<td>after twelve months</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Quality of life (EQ-5D)
- Functionality (WOMAC-score)

- Range of motion at least 0/0/90
- Limited ability to walk (actual vs expected)
- Vascular lesion (a/e)
- Nerve damage (a/e)
- Fracture (a/e)
- Postoperative wound infection (a/e)
- Hematoma, bleeding (a/e)
- Other complications
- Mortality (a/e)

- Functionality (Staffelstein-score, physician-reported)
- Quality of life (EQ-5D)
- Functionality (WOMAC-score)
- Functionality (Staffelstein-score, physician-reported)
- Quality of life (EQ-5D)
- Functionality (WOMAC-score)
- Functionality (Staffelstein-score, physician-reported)
Data Collection

Initial steps

• Collect **baseline data** on all outcome dimensions at the start of care
• Capture available outcome metrics from **clinical/administrative systems**
• Identify the **best placed individual(s)** for entering data and making on each measure
  – E.g. physicians, nurses, patients or dedicated measurement staff
• Create a processes to **enter measures efficiently**, ideally as part of the standard workflow
• **Survey patients** to measure patient-reported outcomes
• Access **payor** information if available to capture care upstream
• Create an **auditing system** to eliminate errors, as well as to test the objectivity of qualitative scoring and judgments
Collecting Outcome Data: Moving to a Real-time System

Paper and Pencil
• Lack of automation is **not** a reason to delay starting

EMR Capture
• Modify the **EMR** to allow efficient collection of clinician-reported measures
  – E.g. standardized, medical-condition specific templates

Capturing Patient-Reported Outcomes
• Paper surveys can be highly effective and scanned
• Create tablet and web-based tools to **gather patient-reported outcomes**
  – E.g. Dartmouth Spine Center tablets, patient portals

Long Term Tracking
• Develop practical **patient tracking** methods to follow patients over extended time periods
  – Letters with paper surveys
  – Internet surveys
  – Data capture during follow up visits
  – Incentives and phone reminders
  – Links to registries, payor and government databases (e.g., worker’s compensation, unemployment, death records)
Duke Oncology and Partners make PROM collection simple by integrating into patient's care and existing workflow

While waiting, the patient fills in survey on a tablet (illustrated) with integrated instructions
- e.g., Partners HealthCare has developed an instruction video, delivered on iPad, instead of the staff

Report is printed or viewed on screen to quickly inform clinicians about the patient’s condition and use in clinical setting
- Patient can report information they are not comfortable to discuss

Integrate additional data needed such as "Review of Systems" and save data to the health info system to reduce documentation time
- Partners uses pdf of patients report attached to the EHR
- Duke Oncology uses data export directly to their data warehouse

Minimize time spent by admin. staff during surveying
Reduce time upfront & focus the clinician’s interaction
Capture info. for existing documentation needs

Compiling and Analyzing Outcome Data

• Compile outcomes data and initial conditions in a centralized registry or database
  – Data should be structured around patients and their medical conditions, not visits or episodes

• Create reports covering risk-adjusted patient cohorts over time

• Compare outcomes across providers and locations

• **Refine** the measures, collection methods, and risk-adjustment factors over time

• Report to **external disease registries** if available
Reporting Outcomes

• Begin with **internal reporting to clinicians**
  – Comparing outcomes of physicians or care teams **over time**
  – Comparing **across locations**
  – Move from **blinded** to **unblinded** data at the individual provider level

• **Expand reporting** over time to referring providers, payers, and eventually patients
  – An agreed upon **path to external transparency** of outcomes

• Work with provider peers, payers, and government to **standardize reporting measures and methods**

• Ultimately, **universal reporting of standardized measures** will be the strongest driver in value improvement
STS provides patients with national, risk-adjusted benchmarks against which to gauge a provider’s results.

Note: Public reporting is voluntary since 2011. CABG = Coronary artery bypass grafting. Source: Society of Thoracic Surgeons website, interview with STS.
Outcome Improvement Process

• Convene *regular meetings* to analyze outcome variations and trends
  – Create a culture that allows *open discussion of results* with no repercussions for participants willing to learn and make constructive changes

• Collaborate with external registries and leading national and international providers to *benchmark performance and compare best practices*

• Create mechanisms to pilot and spread process improvement

• Utilize outcomes analysis to prioritize and guide *process improvement* and *potential care innovations*

• Combine outcome data with *TDABC at the condition level* to examine opportunities for value improvement through eliminating activities that do not contribute to outcomes
ICHOM is a nonprofit dedicated to accelerating development and impact of outcomes measurement.

ICHOM's co-founders

- Independent 501(c)3 organization
- Idealistic and ambitious goals
- Global focus
- Engages diverse stakeholders

ICHOM’s Mission:

Transforming health care by empowering clinicians worldwide to measure and compare their patients’ outcomes and to learn from each other how to improve.
ICHOM Working Groups

- Define standard outcome sets all providers should track

ICHOM facilitates a process with international physician and registry leaders and patient representatives to develop a global Standard Set of Outcomes for relevant medical conditions.
ICHOM's Plan: More Than 50 Conditions by 2017

<table>
<thead>
<tr>
<th>Year</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>4 conditions</td>
</tr>
<tr>
<td>2014</td>
<td>12 conditions</td>
</tr>
<tr>
<td>2015</td>
<td>24 conditions</td>
</tr>
<tr>
<td>2016</td>
<td>40 conditions</td>
</tr>
<tr>
<td>2017</td>
<td>50+ conditions</td>
</tr>
</tbody>
</table>

Share of disease burden in industrialized countries:
- 2013: 9%
- 2014: 37%
- 2015: 45%
- 2016: 57%
- 2017: 70%
Sponsors

- Sponsoring partners are providing financial support for scaling and weight to our effort.
Getting Involved

- **Attendance** in ICHOM events and courses
- **Adoption** of standard outcome sets
- **Seconding** staff to be ICHOM fellows
- **Encouraging senior clinicians** to join working groups
- **Supporting** ICHOM directly and via societies, consortia, and other groups

www.ichom.org