Outcome Measurement

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This presentation draws on Redefining Health Care: Creating Value-Based Competition on Results (with Elizabeth O. Teisberg), Harvard Business School Press, May 2006; “A Strategy for Health Care Reform—Toward a Value-Based System,” New England Journal of Medicine, June 3, 2009; “Value-Based Health Care Delivery,” Annals of Surgery 248: 4, October 2008; “Defining and Introducing Value in Healthcare,” Institute of Medicine Annual Meeting, 2007. Additional information about these ideas, as well as case studies, can be found the Institute for Strategy & Competitiveness Redefining Health Care website at http://www.hbs.edu/rhc/index.html. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means — electronic, mechanical, photocopying, recording, or otherwise — without the permission of Michael E. Porter and Elizabeth O. Teisberg.
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**
  - E.g. Staff certification, facilities standards

- **Processes**
  - Protocols/Guidelines
  - E.g. Staff certification, facilities standards

- **Indicators**
  - E.g. PSA, Gleason score, surgical margin

- **(Health) Outcomes**

- **Patient Experience/Engagement**
Process Measurement is Not Enough
Overall survival time (95% CI) free of signals for updating.

Principles of Outcome Measurement

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   - Not by procedure, intervention, or specialty
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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

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

Source: NEJM Dec 2010
The Outcome Measures Hierarchy

Localized Prostate Cancer

Survival
- Disease-specific survival

Degree of recovery / health
- Anxiety and depression

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

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

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

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

5 year disease specific survival

Average hospital: 94%
Best hospital: 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
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4. Measurement must include **initial conditions/risk factors** to allow for risk adjustment
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5. Standardized outcome measures and risk factors 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

- Defining Outcomes
- Collecting Data
- Compiling and Analyzing Data
- Comparing and Improving Outcomes
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 by 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

- Quality of life (EQ-5D)
- Functionality (WOMAC-score)
- Range of motion at least 0/0/90
- Limited ability to walk
- 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)
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Collecting Data
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 it 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
Comparing and Improving 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.
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 best practices

- 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.

Physician and registry leaders

Patient representatives
ICHOM Standard Set for Localized Prostate Cancer: Outcomes

Treatment approaches covered

- Watchful waiting
- Active surveillance
- Prostatectomy
- External beam radiation therapy
- Brachytherapy
- Androgen Deprivation Treatment
- Other

Details: (1) Clavien-Dindo-Classification, (2) Common Terminology Criteria for Adverse Events (CTCAE), version 4.0. (3) Expanded Prostate Cancer Index Composite (EPIC)-26

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ICHOM's Plan: Having Standard Sets covering 70% of the Disease Burden by 2017

4 conditions 12 conditions 24 conditions 40 conditions 50+ conditions

Share of disease burden in industrialized countries

Source: ICHOM
In our first year, we’ve successfully developed Standard Sets in four conditions, and now we are ramping up quickly.

Conditions targeted for 2014:

- Parkinson’s disease
- Lung cancer
- Advanced prostate cancer
- Depression and anxiety
- Cleft lip and palate
- Hip and knee osteoarthritis
- Stroke
- Macular Degeneration
- ...
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