Outcome Measurement

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June 10, 2014

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.

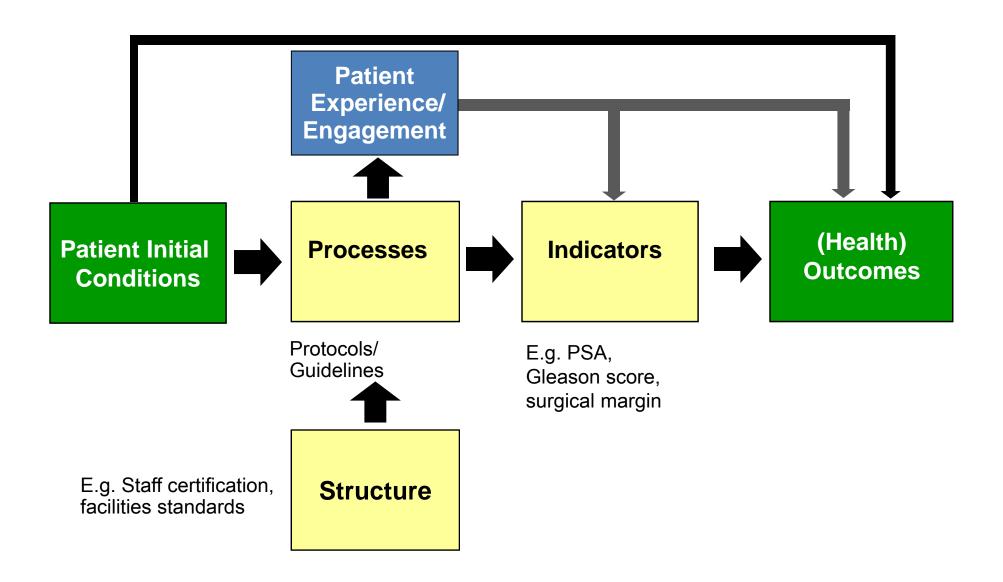
Creating a Value-Based Health Care Delivery System <u>The Strategic Agenda</u>

- 1. Organize Care into Integrated Practice Units (IPUs) around Patient Medical Conditions
 - For primary and preventive care, organize to serve distinct patient segments
- 2. Measure Outcomes and Costs for Every Patient
- 3. Move to Bundled Payments for Care Cycles
- 4. Integrate Care Delivery Systems
- 5. Expand Geographic Reach and Serve Populations
- 6. Build an Enabling Information Technology Platform

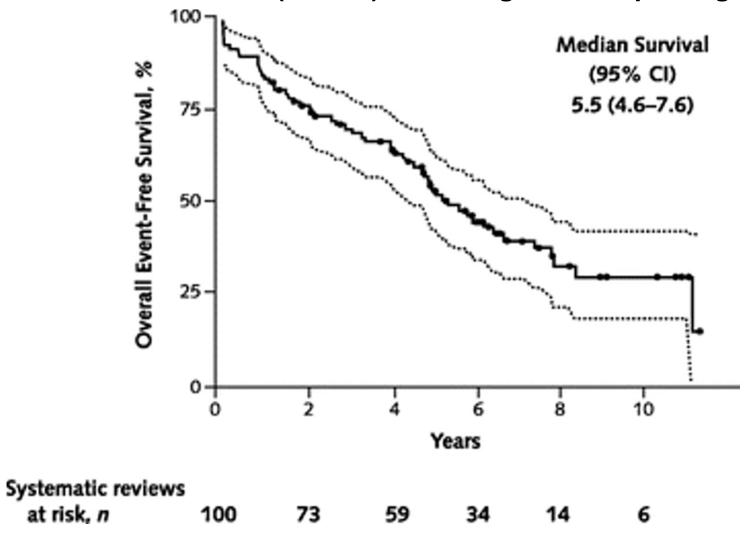
Agenda

- Principles of Outcome Measurement
- Putting Outcomes Measurement into Practice

The Measurement Landscape



Process Measurement is Not Enough Overall survival time (95% CI) free of signals for updating.



Shojania K G et al. Annals of Internal Medicine. 2007;147:224-233

Principles of Outcome Measurement

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

Principles of Outcome Measurement

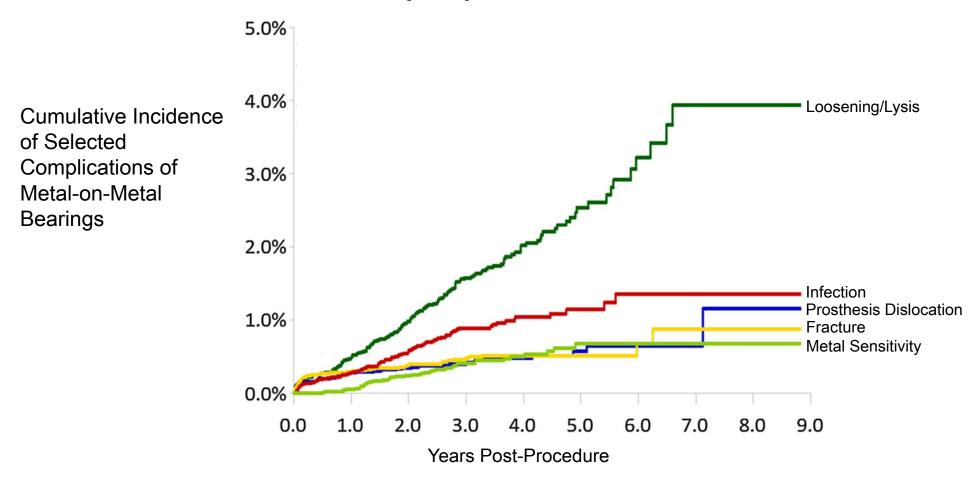
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- 2. Outcomes should reflect the full cycle of care for the condition

The Care Delivery Value Chain Acute Knee-Osteoarthritis Requiring Replacement

INFORMING AND ENGAGING	Importance of exercise, weight reduction, proper nutrition	Meaning of diagnosis Prognosis (short- and long-term outcomes) Drawbacks and benefits of surgery	 Setting expectations Importance of nutrition, weight loss, vaccinations Home preparation 	Expectations for recoveryImportance of rehabPost-surgery risk factors	Importance of rehab adherence Longitudinal care plan	Importance of exercise, maintaining healthy weight
MEASURING	Joint-specific symptoms and function (e.g., WOMAC scale) Overall health (e.g., SF-12 scale)	Loss of cartilage Change in subchondral bone Joint-specific symptoms and function Overall health	Baseline health status Fitness for surgery (e.g., ASA score)	Blood loss Operative time Complications	Infections Joint-specific symptoms and function Inpatient length of stay Ability to return to normal activities	Joint-specific symptoms and function Weight gain or loss Missed work Overall health
ACCESSING	PCP officeHealth clubPhysical therapy clinic	Specialty office Imaging facility	 Specialty office Pre-op evaluation center 	Operating room Recovery room Orthopedic floor at hospital or specialty surgery center	Nursing facilityRehab facilityPT clinicHome	Specialty office Primary care office Health club
	MONITORING/ PREVENTING	DIAGNOSING	PREPARING	INTERVENING	RECOVERING/ REHABBING	MONITORING/ MANAGING
CARE DELIVERY	MONITOR • Conduct PCP exam • Refer to specialists, if necessary	IMAGING • Perform and evaluate MRI and x-ray -Assess cartilage loss -Assess bone alterations	OVERALL PREP Conduct home assessment Monitor weight loss	ANESTHESIA Administer anesthesia (general, epidural, or regional)	SURGICAL Immediate return to OR for manipulation, if necessary	MONITOR • Consult regularly with patient MANAGE
	PREVENT Prescribe anti- inflammatory medicines Recommend exercise regimen Set weight loss targets	-Assess bone alterations CLINICAL EVALUATION Review history and imaging Perform physical exam Recommend treatment plan (surgery or other options)	SURGICAL PREP • Perform cardiology, pulmonary evaluations • Run blood labs • Conduct pre-op physical exam	SURGICAL PROCEDURE Determine approach (e.g., minimally invasive) Insert device Cement joint PAIN MANAGEMENT Prescribe preemptive multimodal pain meds	Monitor coagulation LIVING Provide daily living support (showering, dressing) Track risk indicators (fever, swelling, other) PHYSICAL THERAPY Daily or twice daily PT sessions	Prescribe prophylactic antibiotics when needed Set long-term exercise plan Revise joint, if necessary
						Orthopedic Specialist

Orthopedic Specialist
Other Provider Entities

Measuring Long-Term Outcomes <u>Hip Replacement</u>



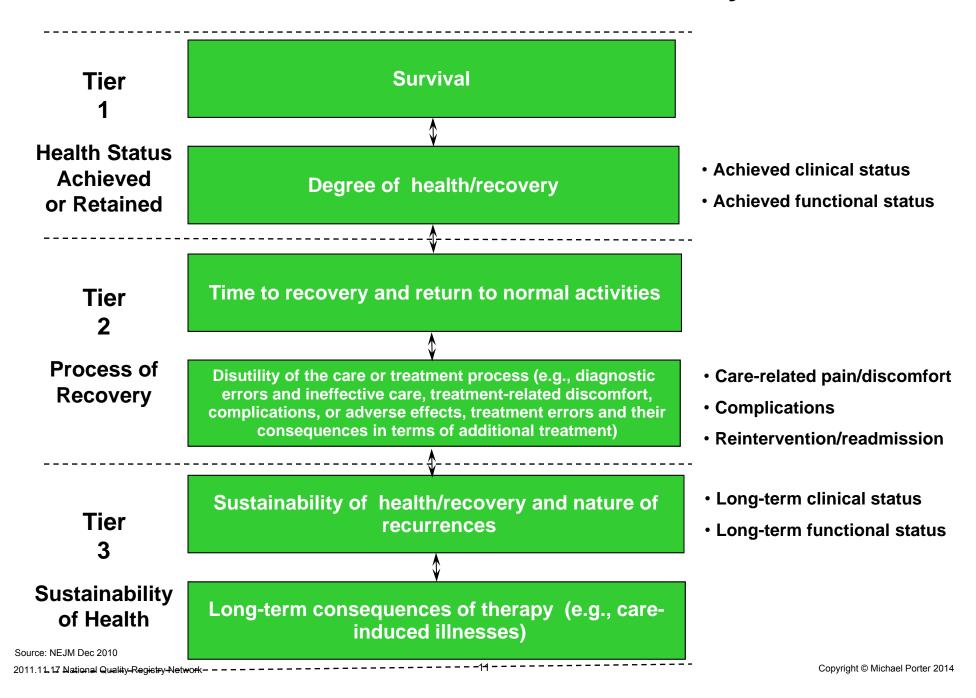
 Measurement often stops 30 days, 90 days, or one year postintervention, but many critical outcomes that matter to patients are revealed over longer time periods

Source: Graves S E et al. The Journal of Bone and Joint Surgery. 2011 Dec 21;93 (Supplement 3):43-47

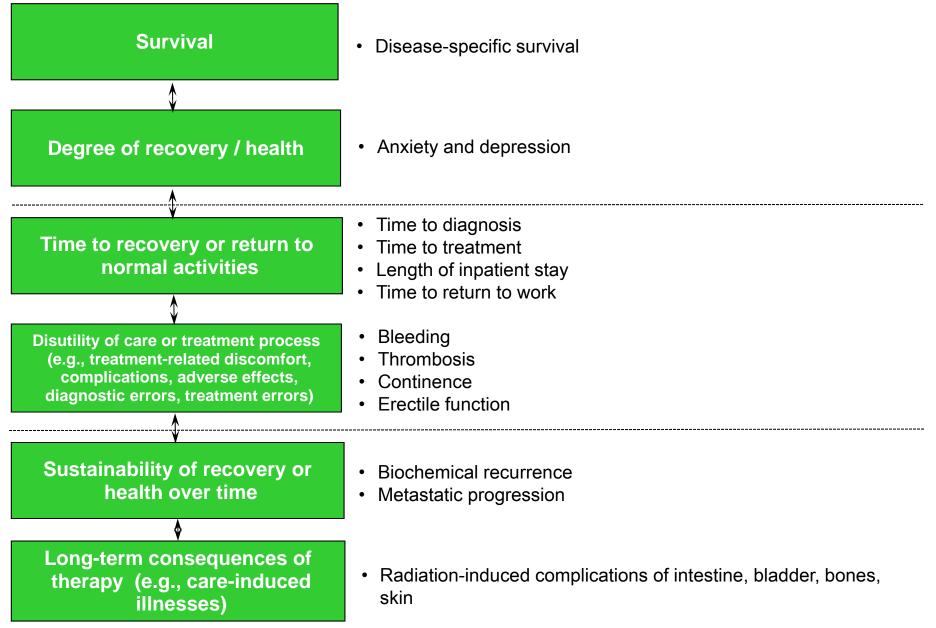
Principles of Outcome Measurement

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

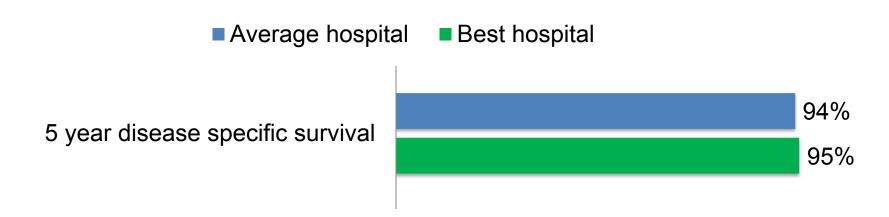
The Outcome Measures Hierarchy



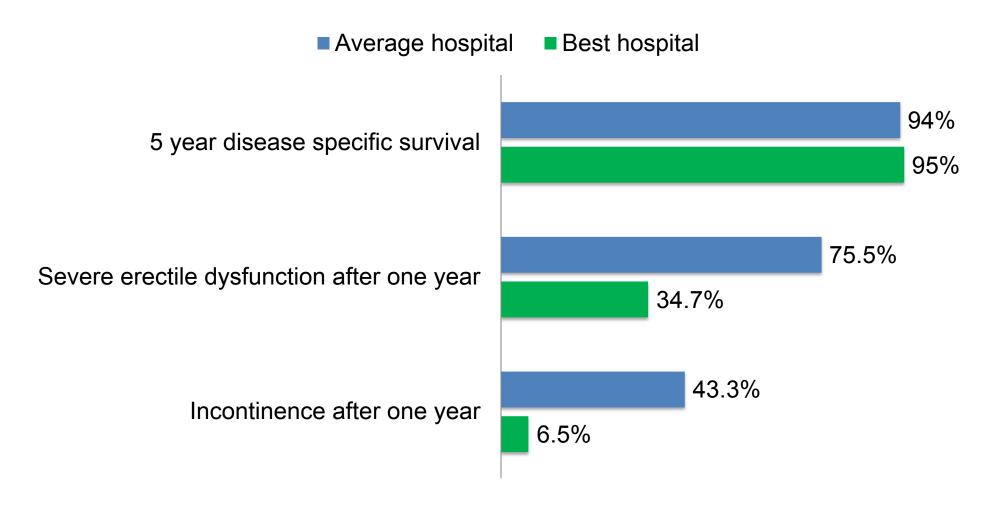
The Outcome Measures Hierarchy Localized Prostate Cancer



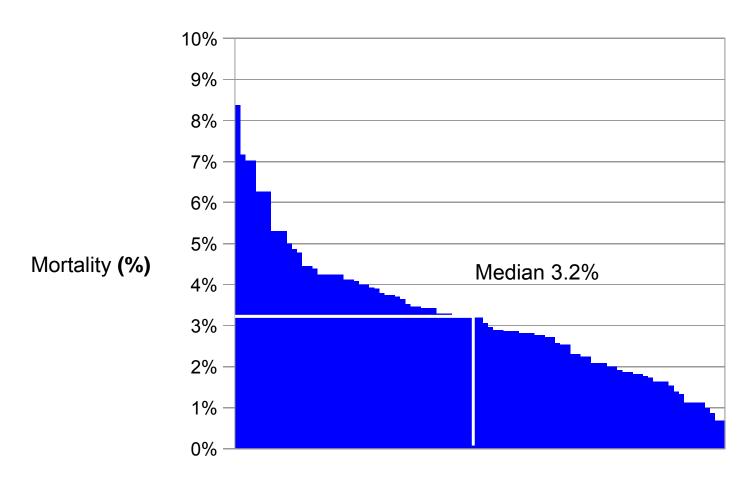
Measuring Multiple Outcomes Prostate Cancer Care in Germany



Measuring Multiple Outcomes -- Continued <u>Prostate Cancer Care in Germany</u>



Variation in Quality Across German Providers: In-hospital Cardiac Bypass Mortality for 77 hospitals (2008)



Each bar represents one hospital

Comprehensive Measurement of Outcomes Varies Greatly by Condition

		Musculoskeletal		Cancer				
Levels	Dimensions	Hip Osteo- arthritis	Chronic Low Back Pain	Breast Cancer	Colorec -tal Cancer	Leukemia and Lymphoma	Lung Cancer	
T1: Survival	Mortality	1		3	3	3	3	
T1: Degree of Health Achieved or	Achieved clinical status	5	10		1			
Maintained	Achieved functional status	15	13					
T2: Time to Recovery or Return to Normal Activities	Time to recovery		2	3	3			
T2: Disutility of Care	Complications	11	4		2			
or Treatment Process	Reintervention/readmi ssion	4	1	2	3			
T3: Sustainability of Health or Recovery	Long-term clinical status	4	8		1			
and Nature of Recurrences	Long-term functional status	11	13					
T3: Long-term Consequences of Therapy	Long-term consequences of therapy							

^{1.} Dimensions are aspects of care that ICHOM believes registries should consider measuring to be comprehensive. 2. ICHOM name represents a common term to group measures across registries that are measuring essentially the same thing but with different terms. 3. International Consortium for Outcomes Measurement - ICHOM Source: ICHOM Repository (10/16/2012); BCG analysis

Principles of Outcome Measurement

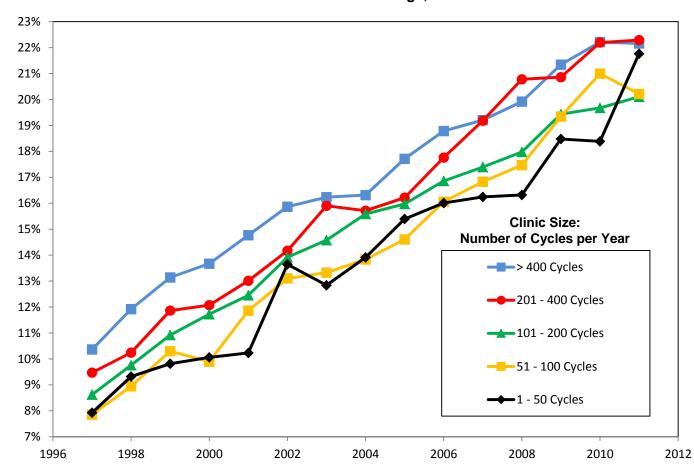
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- 4. Measurement must include **initial conditions/risk factors** to allow for risk adjustment
- 5. **Standardize** outcome measures to enable comparison and learning

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

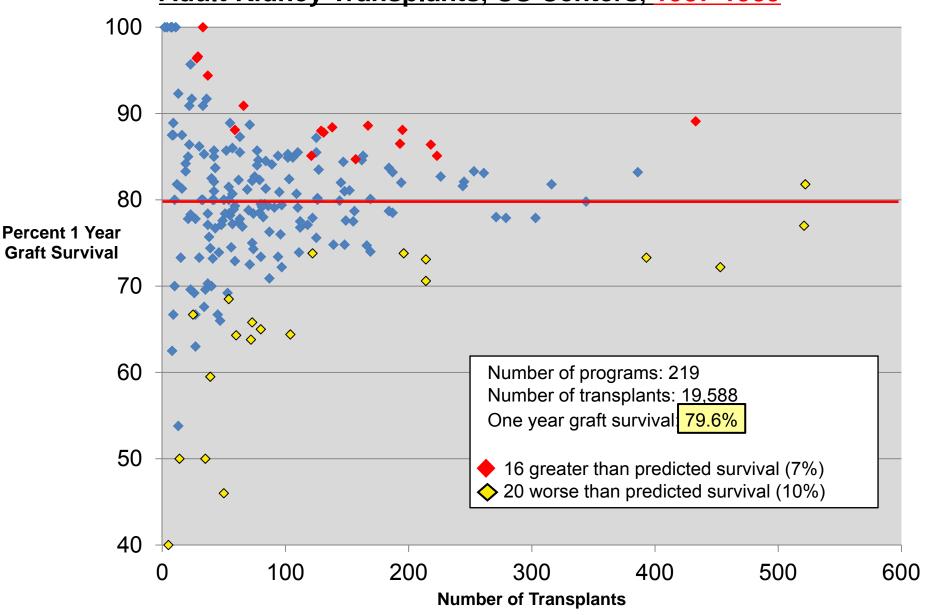


Source: Michael Porter, Saquib Rahim, Benjamin Tsai, *Invitro Fertilization: Outcomes Measurement.* Harvard Business School Press, 2008

Data: Center for Disease Control and Prevention. "Annual ART Success Rates Reports." http://www.cdc.gov/art/ARTReports.htm, Jul 2, 2013.

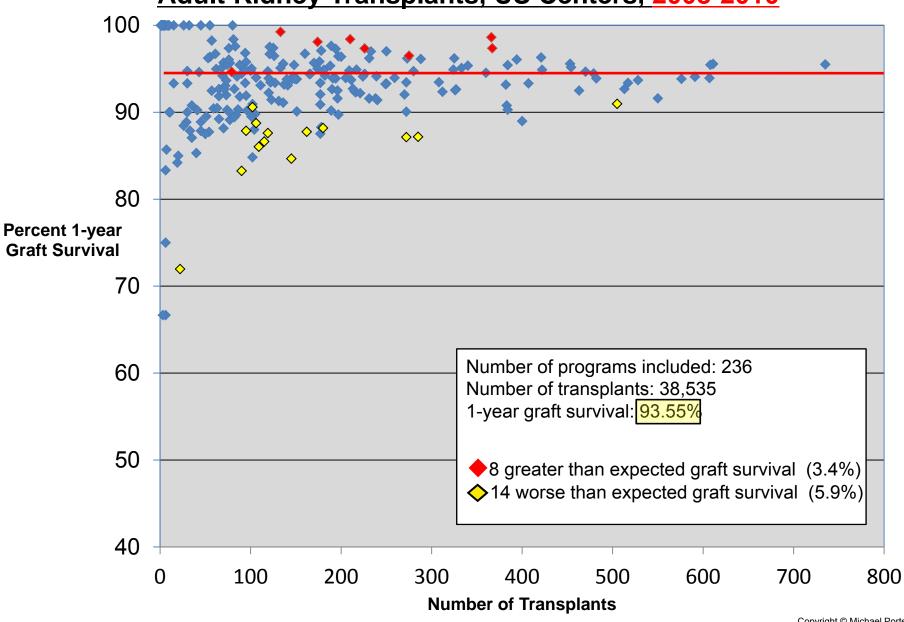
Comparing Outcomes across Centers

Adult Kidney Transplants, US Centers, 1987-1989



Comparing Outcomes across Centers

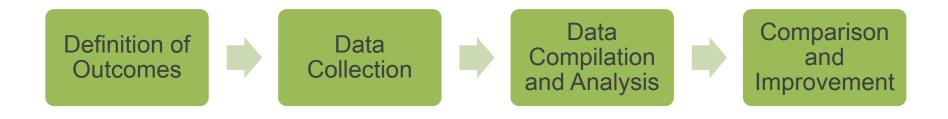
Adult Kidney Transplants, US Centers, 2008-2010



Agenda

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Outcome Measurement And Improvement Process



Definition Of Outcomes

Working groups

- are 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
- are supported a project leader from quality management department
- consist of dedicated people from different professional groups, across specialties, including outcome experts
- meet regularly to define and improve outcome measures, risk adjustment factors and validated instruments
- Involve patients and their perspective into their indicator sets
- Should meet and compare with peers on national and international level

Various Outcomes Are Measured Over Care Cycle

Example primary knee replacement process Schön Klinik

hospital rehab hospital orthopedic private practice before after three after twelve start end at discharge rehabilitation surgery rehabilitation months months · Quality of life Functionality Quality of life Range of motion at **Functionality** Quality of life (EQ-5D) least 0/0/90 (Staffelstein-(EQ-5D) (EQ-5D) (Staffelstein- Functionality · Limited ability to Functionality Functionality score, score. (WOMAC-(WOMACphysician-(WOMACwalk physician-· Limited ability to score) reported) reported) score) score) Functionality walk (actual vs Functionality (Staffelsteinexpected) (Staffelstein- Vascular lesion (a/e) score. score. Nerve damage (a/e) physicianphysician- Fracture (a/e) reported) reported) Postoperative wound infection (a/e) Hematoma. bleeding (a/e) Other complications Mortality (a/e)

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 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

Data Collection Process in Spine Care at Schön Klinik ca. **7.000** 70-80% 1.000 Briefe Patienten werden pro Jahr in der Schön Klinik an der Wirbelsäule operiert und ihre Behandlungsergebnisse gemessen Patientenzufriedenheitsbefragung: während des Aufenthalts Patientenbefragung: Patientenbefragung: Gesundheitszustand Gesundheitszustand Gesundheitszustand Gesundheitszustand Schmerzzustand Patientenbefragung: Schmerzzustand Schmerzzustand Schmerzzustand Beeinträchtigung im Alltag Beeinträchtigung im Alltag Beeinträchtigung im Alltag Beeinträchtigung im Alltag Allgemeine Anamnesedaten dem Eingriff Allgemeine Anamnesedaten Allgemeine Anamnesedaten Allgemeine Anamnesedaten nach 12 Monaten nach 24 Monaten Rückmeldungen an Patienten Rückmeldungen an Patienter Rückmeldungen an Patienten Erfassung medizinischer bei auffälligen Werten bei auffälligen Werten bei auffälligen Werten Die Behandlungsergeb-nisse werden international Fachinformationen: in der Klinikgruppe "Global Diskussion der Ergebnisse Vor einem Eingriff wird ge-Diskussion der Ergebnisse Diskussion der Ergebnisse Health Partner" aus Schwe-den in derselben Art und z.B. Komplikationen, in der klinikübergreifenden in der klinikübergreifenden in der klinikübergreifenden Weise gemessen und im Ex-pertenkreis gemeinsam zweimal im Jahr besprochen. Behandlungsdetails etc. Fachgruppe

Collecting Outcome Data: Moving to a Real-time System

EMR Capture

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

Patient-Reported Outcomes

- 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
 - 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 Existing Workflow



While waiting, patient fills in survey on tablet (illustrative) with integrated instructions

 e.g., Partners HealthCare has developed an instruction video, delivered on iPad, instead of the staff

Minimize time spent by admin. staff during surveying



Report printed or viewed on screen to quickly inform clinicians about the patient's condition, to use in clinical setting

 Patient can report information they are not comfortable to discuss

Reduce time upfront & focus the clinician's interaction



Integrate additional data needed such as "Review of Systems" and save data to 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

Capture info. for existing documentation needs

Source: Interview Duke University Health System Oncology Group and Partners HealthCare, HIT Policy Committee Clinical Documentation Hearing February 2013, Abernethy, A.P., et al, "Management of gastrointestinal symptoms in advanced cancer patients: The rapid learning cancer clinic model", Curr Opin Support Palliat Care, 2010 March, 4(1), 36-45

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
- Report to external disease registries if available
- 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

Partners Healthcare Has Integrated PROM Reports Into Their Patient Portal And EHR Record For Real-time Use

Patient and doctor can both access report real-time

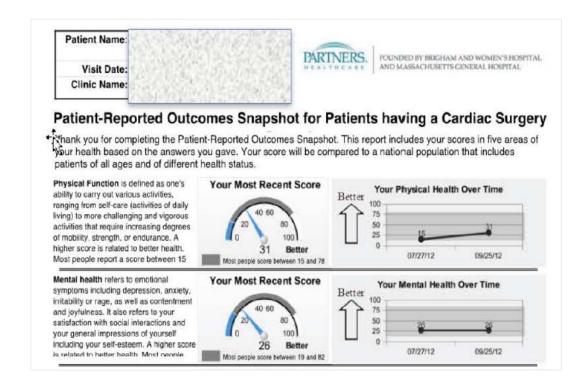
Report provides simple visual form with definition, indicator and trend

Physician access through EHR

Patient report access options

(~50% of Patients using Gateway)



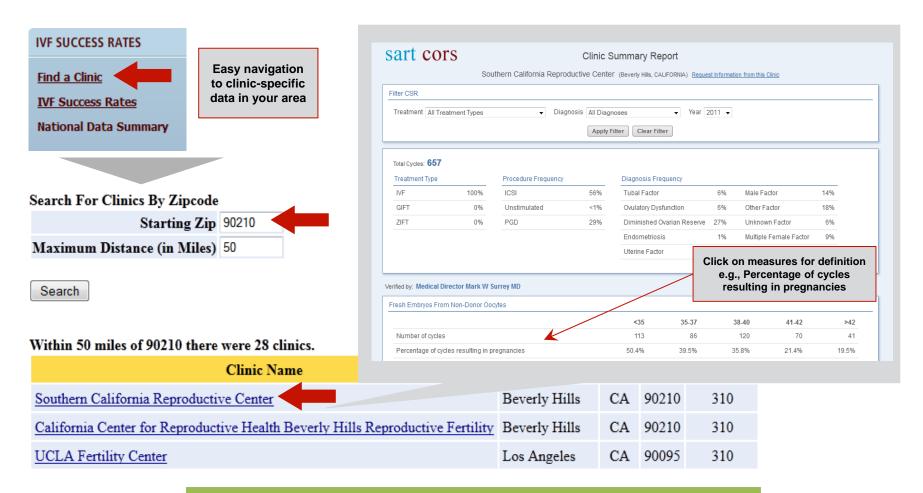


PROM pilot program demonstrating that ease of access and timeliness of reports encourage further reporting and use

Reporting Outcomes

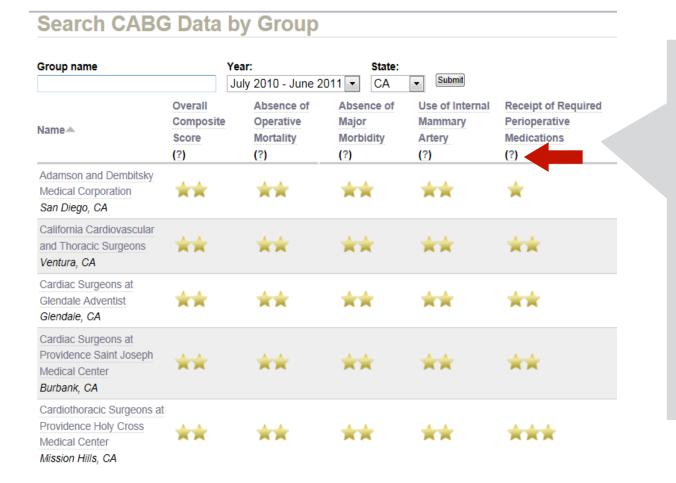
- Begin with internal reporting to clinicians
 - Comparing outcomes of care teams or physicians over time, then across locations
 - Move from blinded to unblinded data at the individual provider level
- Expand reporting over time to include referring providers, payers, and patients
 - An agreed upon 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

SART IVF Registry Houses A Database On Their Website, With Performance Of Each ART Clinic



Public data creates accountability for data accuracy and promotes action among physician groups

STS Reports Data On Physician Groups Using A Report Card, With Composite Metric And Star Rating



Click for definition of the AVR Overall Composite Star Ratings:

"Surgical performance is measured based on a combination of the NQF-endorsed isolated AVR mortality measure and the same morbidity outcomes that make up the NQF-endorsed CABG morbidity measures.... Participants receive a score for each of the two domains, plus an overall composite score, which is calculated by "rolling up" the domain scores into a single number. In addition to receiving a numeric score, participants are assigned to a rating category designated by one to three stars."

STS provides patients with national, risk-adjusted benchmarks against which to gauge a provider's results

Data Comparison and Improvement

- Convene regular meetings to analyze outcome variations and trends
 - Create an environment that allows open discussion of results with no repercussions for participants willing to learn and make constructive changes
- Utilize outcomes analysis to investigate process improvement and potential care innovations
- Collaborate with external registries and leading national and international providers to benchmark performance and compare best practices
- Combine outcome data with care cycle costing data to examine opportunities for value improvement through better efficiency, reducing redundancy, and eliminating activities that do not contribute to outcome improvement

Aravind Clinic Created A Internal Web Portal For Physicians To Review Their Outcomes



Source: Aravind Eye Care Hospitals Cataract Surgery Outcome Monitoring training document illustrative report view

Aravind Engages Full Team In Outcome Review

Regular Meetings Key To Achieving Culture Shift And Change

Weekly meetings convene clinicians to discuss process, quality and outcomes

Sample quality meeting agenda highlights importance of clinical engagement and action



Physicians, nurses and assistants involved in weekly outcome discussion

Start meeting with previous weeks minutes – follow-up items

Review overall data – free and paid patients

Look at complications and outcomes

V. Look at each cases risk factors and surgeon, technique, how was it managed (to protocol) in order to asses causes of variation

V. Brainstorm systems or ideas to prevent future complications and issues to track

VI. End of meeting – raise any other issues and provide summary of next steps

Source: Interview with Aravind Eye Care Hospitals India, Aravind webiste

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:

We are transforming health care by empowering clinicians worldwide to measure and compare their patients' outcomes and to learn from each other how to improve.

ICHOM Runs Global Working Groups to Define Standard Sets of Outcomes



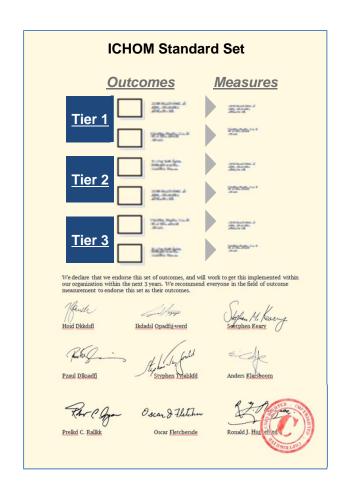
ICHOM facilitates a process with international physician and registry leaders and patient representatives to develop a global Standard Set of outcomes that really matter to patients

Physician and registry leaders

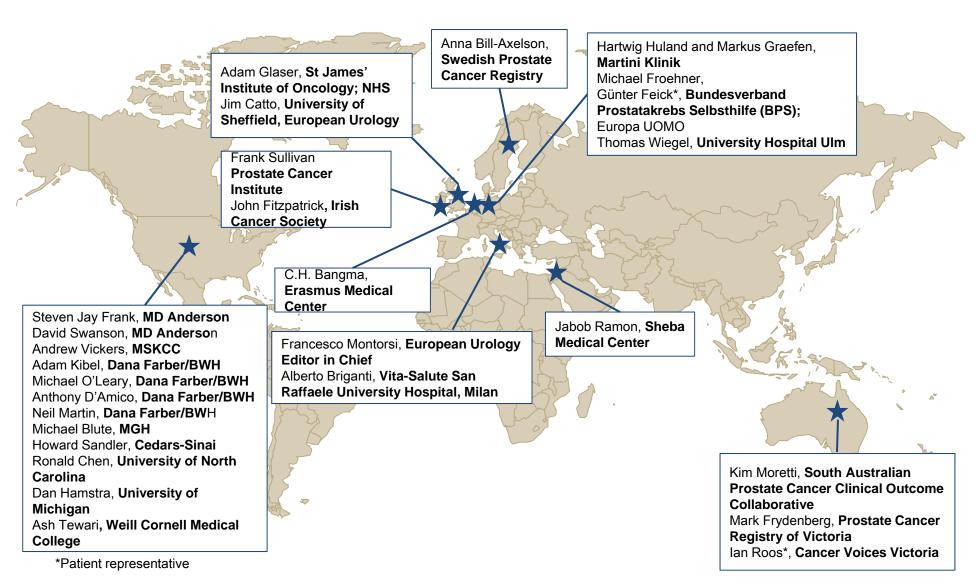


Patient representatives

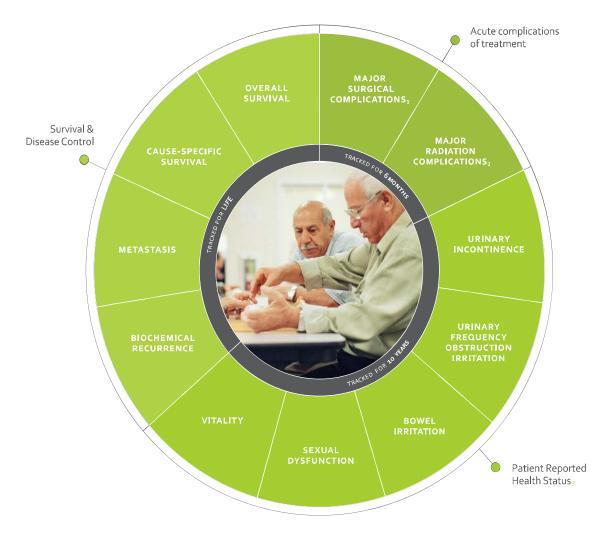




ICHOM Localized Prostate Cancer Working Group



ICHOM Standard Set for Localized Prostate Cancer

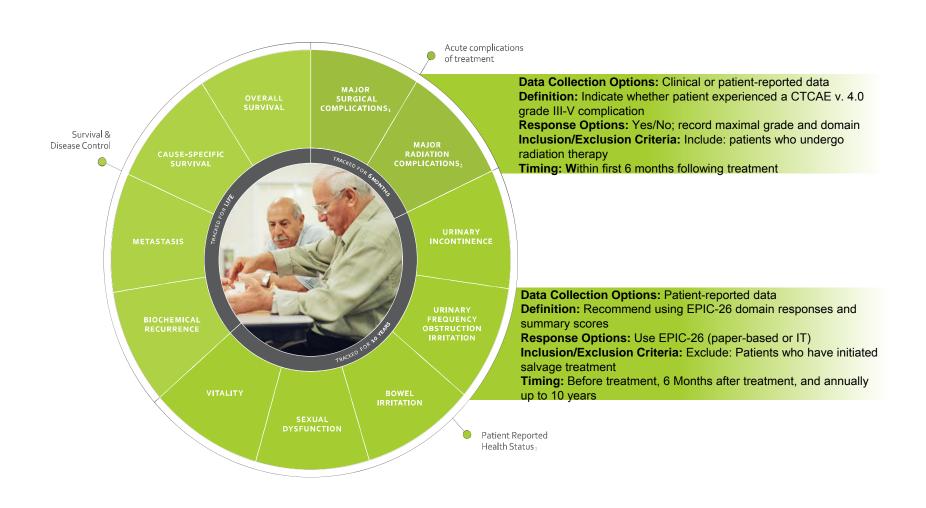


Treatment approaches covered

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

© 2013 ICHOM. All rights reserved. When using this set of outcomes, or quoting therefrom, in any way, we solely require that you always make a reference to ICHOM as the source so that this organization can continue i ts work to define more standard outcome sets.

For Each Outcome Domain Clear Definitions And Time Points Specified In Corresponding User Manual

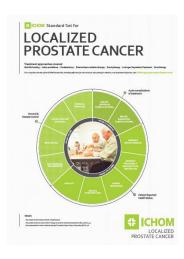


Standard Sets In Five Conditions Already Developed





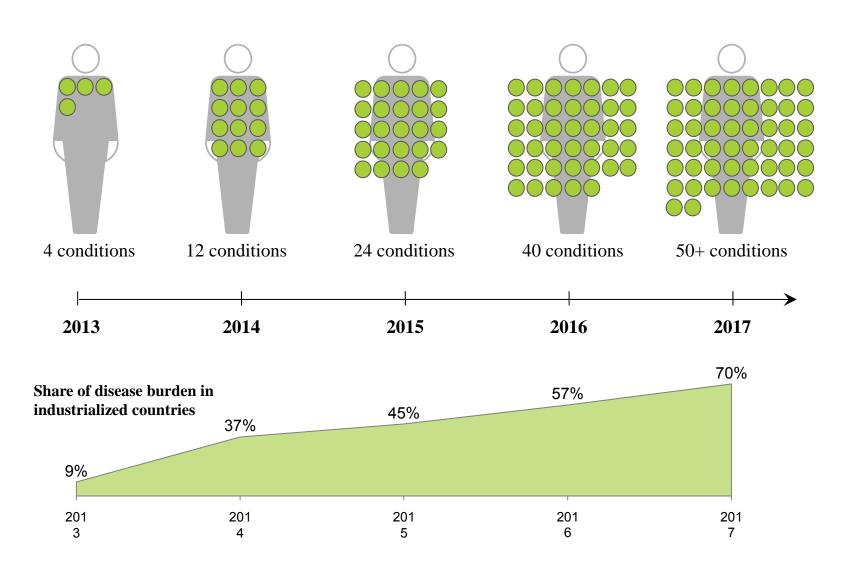




Conditions targeted for 2014

- Stroke
- Hip and Knee Osteoarthritis
- Macular Degeneration
- Lung Cancer
- Parkinson's Disease
- Depression and Anxiety
- Cleft Lip and Palate
- ___

ICHOM Standard Sets Will Cover 70% of the Disease Burden By 2017



Once Set Is Defined, Supporting Materials Are Created To Raise Awareness And Support Adoption

Flyer



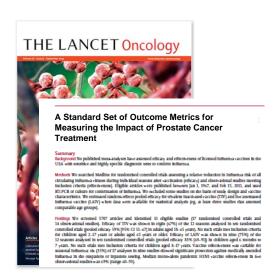
- Beautifully designed rendition of ICHOM Standard Set
- Promoted at conferences, Harvard health care courses, and on the ICHOM website

Reference Guide



- Full detail of Standard Set for institutions interested to start collecting or payors looking to integrate into reimbursement programs
- Includes definitions, inclusion and exclusion criteria, time points for data collection, and index events

Academic Publication



- Announces the Standard Set to the medical community
- Explains process to arrive at Standard and motivation for each outcome and risk factor selected

Implementing Outcomes Measurement is not Easy

ICHOM can assist you with 3 different levels of support

Download our "Reference Guides"

Clear and unambiguous definitions to implement our Standard Sets



Free on our website

Join the Implementation Network

Resources to help you get started

Community to connect with your peers and ask questions

Regular **Webinars** to share content and discuss your issues



\$500 per Medical Condition (launch price)

Get on-site support

Our ICHOM team provides on-site support to select partners

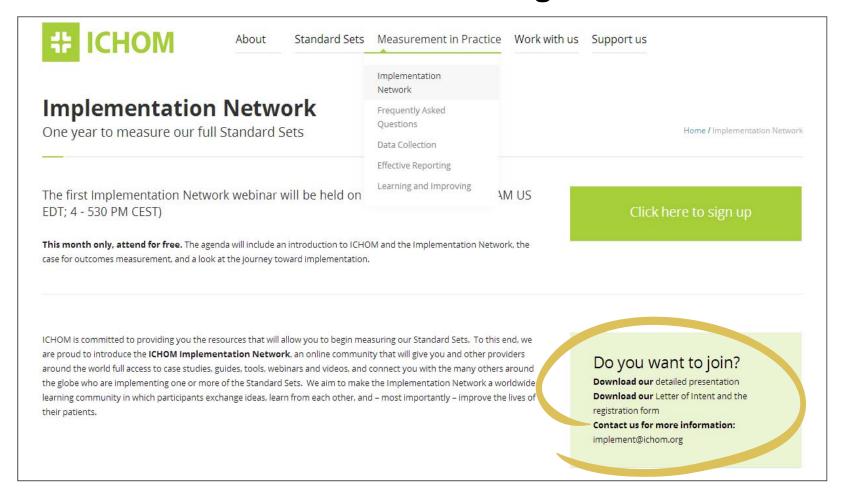
 E.g. 4-weeks diagnostic, seminars,...

This is only offered to selected ICHOM Sponsors

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