International Consortium for Health Outcomes Measurement

Introduction to ICHOM

Dr. Charlotte J Roberts
December 18th 2015
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Why ICHOM?

What we do
Variation in outcomes is a worldwide problem

- 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

“Despite achievements in areas of patient safety, the problem of variation remains endemic, and unmeasured.”

Source: ICHOM analysis, Martin Makary, “How Health Care’s Success Became Distractions”, Health Affairs August 2014
This is why measuring and reporting meaningful outcomes matters Comparing outcomes of prostate cancer care

Focussing on mortality alone…

...may obscure large differences in outcomes that matter most to patients

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
ICHOM was formed to drive the industry towards value-based health care by defining global outcome standards

Where we come from

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 relevant medical conditions and by driving adoption and reporting of these measures worldwide

Value = Patient health outcomes achieved
Cost of delivering those outcomes
ICHOM plays several roles along the journey that will enable value-based health care: our strategic agenda

ICHOM defines internationally recognized Standard Sets of outcomes and related case-mix factors
ICHOM will provide risk-adjusted international benchmarks on outcomes by medical condition
ICHOM will become a methodological partner with media to publish ratings based on ICHOM outcomes

Define Standards | Benchmark on outcomes | Establish outcomes transparency

Measure outcomes | Collaborate to improve value | Develop value-based payment models

ICHOM facilitates adoption and implementation by sharing knowledge and supporting proof-of-concept
ICHOM will enable cooperation to improve value by establishing value collaboratives
ICHOM will engage payers and governments to realign financial incentives and promote transparency

1. We are exploring the inclusion of resources data in benchmarks but the methodology is to be determined
ICHOM is gaining the support of the health care community
ICHOM’s Strategic and Sponsoring Partners*

**STRAategic PARTNERS**

ICA - NSW Agency for Clinical Innovation
SANTEO
Erasmus MC
Ramsay Health Care
GIG - Cancer NHS Wales
Bwrdd Iechyd Prifysgol Hywel Dda
University Health Board

ICHOM’s Strategic and Sponsoring Partners *

**PLATINUM**

ALLIANCE OF DEDICATED CANCER CENTERS
NSH England
November Foundation
IUGA
DICA
American Heart Association
American Stroke Association
The Scottish Government

**GOLD**

Carl Bennet AB

**SILVER**

Bowel Cancer Australia
Boston Children’s Hospital
SickKids
Great Ormond Street Hospital for Children
Hoag Orthopedic Institute

**BRONZE**

Government of South Australia
SA Health

*As of October 2015*
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Why ICHOM?

What we do
We have developed 12 Standard Sets, covering 35% of the disease burden – pipeline covering 9 + 13 additional conditions

We have developed 12 standard sets

1. Breast cancer
2. Dementia
3. Older person
4. Heart failure
5. Pregnancy and childbirth
6. Colorectal cancer
7. Overactive bladder
8. Craniofacial microsomia
9. Inflammatory bowel disease

2015 target

1. Brain tumours
2. Bipolar disorder
3. End stage renal failure
4. Burns
5. Paediatric oncology
6. Rheumatoid arthritis
7. Liver transplantation
8. Hand
9. Chronic rhinosinusitis
10. Malaria
11. Shoulder injury
12. Drug and alcohol addiction
13. Oral health

On-going discussions

1. Brain tumours
2. Bipolar disorder
3. End stage renal failure
4. Burns
5. Paediatric oncology
6. Rheumatoid arthritis
7. Liver transplantation
8. Hand
9. Chronic rhinosinusitis
10. Malaria
11. Shoulder injury
12. Drug and alcohol addiction
13. Oral health

NB: Numbers not representing prioritization/likelihood
The Coronary Artery Disease Standard Set was developed by a team representing 8 countries spanning 4 continents.

- Clive Weston, Myocardial Infarction National Audit Programme
- Erica Spatz, Yale
- Bob McNamara, Yale
- Larry Sadwin*, American Heart Association
- Mark Schoebel, American Heart Association
- Louise Morgan, American Heart Association
- David Shahian, Massachusetts General Hospital, Harvard Medical School
- Jack Lewin, Cardiovascular Research Foundation
- Paul Heidenreich, Cardiology
- John Rumsfeld, Veterans Health Administration
- Robert Jesse, Veterans Health Administration
- Robert Yeh, Massachusetts General Hospital
- Tomas Jernberg, Swedeheart
- Alba Rosas Ruiz, Departament de Salut, Generalitat de Catalunya
- Terrance Chua Siang Jin, National Heart Centre
- Bishnu Panigrahi, Fortis Healthcare
- John Beltrame, Queen Elizabeth Hospital, Adelaide

*Patient representative; †Working Group lead
A Standard Set is defined through series of teleconference calls, supported by research and patient input.
ICHOM Standard Set for Coronary Artery Disease: Outcomes

Treatment approaches covered

- Lifestyle modification
- Drug therapy
- Percutaneous coronary intervention
- Coronary bypass grafting
- Other forms of therapy

A "reference guide" contains all the details to measure in a standard way the outcomes recommended.
The Standard Set includes baseline data to assess outcomes and perform risk adjustment for comparability

<table>
<thead>
<tr>
<th>Risk Factor/Initial Condition</th>
<th>Measure Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic Factors</strong></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>Date of birth</td>
</tr>
<tr>
<td>Sex</td>
<td>Sex at birth</td>
</tr>
<tr>
<td><strong>Baseline Health Status</strong></td>
<td></td>
</tr>
<tr>
<td>Previous AMI</td>
<td>N/A</td>
</tr>
<tr>
<td>Heart failure</td>
<td>N/A</td>
</tr>
<tr>
<td>Hypertension</td>
<td>N/A</td>
</tr>
<tr>
<td>Stroke</td>
<td>N/A</td>
</tr>
<tr>
<td>Diabetes</td>
<td>N/A</td>
</tr>
<tr>
<td>Insulin dependence</td>
<td>If patient has a confirmed history of diabetes</td>
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<tr>
<td>Peripheral arterial disease</td>
<td>N/A</td>
</tr>
<tr>
<td>Dialysis dependence</td>
<td>N/A</td>
</tr>
<tr>
<td>Baseline creatinine</td>
<td>N/A</td>
</tr>
<tr>
<td>Chronic lung disease</td>
<td>Oxygen dependency</td>
</tr>
<tr>
<td>Liver cirrhosis</td>
<td>N/A</td>
</tr>
<tr>
<td>Dementia</td>
<td>N/A</td>
</tr>
<tr>
<td>Body mass index</td>
<td>Height and weight</td>
</tr>
<tr>
<td>Peak troponin elevation</td>
<td>Troponin T or I, peak level, lab's upper limit of normal</td>
</tr>
<tr>
<td>Presenting creatinine</td>
<td>Creatinine level</td>
</tr>
<tr>
<td>Presenting heart rate</td>
<td>First measurement or earliest record for episode of care</td>
</tr>
<tr>
<td>Presenting systolic blood pressure</td>
<td>First measurement or earliest record for episode of care</td>
</tr>
<tr>
<td>Type of AMI</td>
<td>NSTEMI or STEMI</td>
</tr>
<tr>
<td>Cardiogenic shock at first medical contact</td>
<td>N/A</td>
</tr>
<tr>
<td>Cardiac arrest</td>
<td>Episode of cardiac arrest</td>
</tr>
<tr>
<td>Status</td>
<td>Prior to entering operating room</td>
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<tr>
<td>Pre-procedural creatinine</td>
<td>Creatinine level</td>
</tr>
<tr>
<td>Left main disease</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of major diseased vessels</td>
<td>LAD system, Circumflex system, and/or Right system with ≥50% narrowing of any vessel preoperatively</td>
</tr>
<tr>
<td><strong>Prior Treatments</strong></td>
<td></td>
</tr>
<tr>
<td>Previous CABG</td>
<td>Date of previous CABG</td>
</tr>
<tr>
<td>Previous PCI</td>
<td>Date of previous PCI</td>
</tr>
</tbody>
</table>
Five standard sets have been published in academic journals
Seven other Standard Sets are being written and submitted for publication
Global demand to measure and compare outcomes is impressive
14 nat’l registries + ~50 institutions are already measuring or implementing ICHOM Standard Sets

Another ~120 institutions have expressed interest in measuring Standard Sets and are discussing with ICHOM how to begin
The first four Standard Sets have gained international traction

Hospitals and registries worldwide are implementing and measuring

12 institutions and 2 registries
▪ Dana Farber, USA
▪ Irish Prostate Cancer Outcomes Registry, Ireland
▪ Martini Klinik, Germany

Sample use cases
▪ Compare functional outcomes across surgeons
▪ Conduct CER¹ for alternative therapies

9 institutions and 4 registries
▪ National Eye Center, Singapore
▪ Swedish Cataract Registry, Sweden
▪ Aravind Eye Care System, India

Sample use cases
▪ Track QI improvements re: complications
▪ Improve selection of patients for surgery

3 institutions and 1 registry
▪ Mass General Hospital, USA
▪ Fortis Healthcare, India
▪ CADOSA, Australia

Sample use cases
▪ Improve appropriateness of diagnostic angio and PCI
▪ Track and improve impact of cardio rehab

6 institutions and 5 registries
▪ Stanford Medical Center, USA
▪ DaneSpine, Denmark
▪ South Carolina Spine Center, USA

Sample use cases
▪ Study QOL longevity of spinal procedures
▪ Market patient-centered care to referring providers

1. CER = Comparative Effectiveness Research
We are currently developing a global benchmarking program

Objectives of Global Comparisons project

- Pool health outcomes data from 10-15 leading provider organizations – 2 conditions for pilot
- Risk-adjust raw data and organize comparisons on key indicators
  - Particular focus on patient-reported outcomes
- Provide individual – and confidential – reporting to participating organizations
- Identify the “best-in-class” and publish about their performance

Sample output – Hip and Knee

- Case mix complexity (risk-adjusted)
- Acute complications:
  - Mortality
  - Readmissions
- Patient-reported health status:
  - Knee pain
  - Knee functioning
  - Work status
  - Time to recovery
  - Health-related QoL
  - Overall satisfaction
- Disease progression:
  - Need for surgery
  - Reoperation or revision

Case mix average complexity = 1.0

World average (for participants)
Global comparisons will set the stage for more rapid learning and improvement.

Outliers exist in all areas of medicine

Over time, we expect variation to narrow and performance to improve globally

Mean change in ODI

Note: Adjusted for age, sex, race, body mass index, diagnosis, education, any neurological deficit, stomach problem, joint problem, other comorbidities, baseline treatment preference, and baseline scores; Source: Desai et al, Variation in Outcomes Across Centers After Surgery for Lumbar Stenosis and Degenerative Spondylolisthesis in the Spine Patient Outcomes Research Trial, Spine 2013.
Join us in London for the Fourth ICHOM Conference!

In May 2016, the ICHOM team will hold our largest conference to date. **We would be delighted if you would join us.**

- **When and where:**
  May 16-17, University College London

- **Content:**
  The theme of the 2016 conference will be **implementation and impact**: how to implement the Standard Sets—and the positive results that can come from outcomes measurement.

- **Format:**
  Attendees will participate in two days of plenary sessions, small-group discussions, and networking, with opportunities to hear from members of the ICHOM team, distinguished guest speakers, and from one another.

- **Register here:**

  **The registration fee will increase on January 1.**