Ernest Codman – circa 1915

“…neither the hospital trustees, the physician, nor surgeon, nor administrator consider it their business to make sure that the result to the patient is good”

-Ernest Codman
(1914, Boston)

Agenda

Background

Standard Set Development

Implementation and Benchmarking

Further developments
Variation in health 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
Outcomes are the “real-world” results that matter to patients
Example: Prostate cancer

- Protocols/guidelines
  - E.g., staff certification, facilities standards

- Structure

- Processes

- Patient initial conditions

- Indicators
  - PSA
  - Gleason Score
  - Surgical margin (...)

- (Health) outcomes
  - Survival
  - Continence
  - Erectile function (...)

- Patient experience/engagement
Expenditure on health care is growing at an unsustainable rate

1. Sweden changed reporting methodology and included long-term care spending in 2011, but not prior to 2011; thus HC spend for Sweden is indexed 1995-2010 and 2011-2016 with GDP growth 2010-11. Notes: All indexes based on local currencies; Income = Personal Disposable Income; Source: WHO, EIU (May 2017)
Outcome measurement drives value improvements for all stakeholders

Key stakeholders

- **Patients** will choose their provider based on expected outcomes and their share of the cost

- **Clinicians** will improve quality of care by comparing performance and learning from each other

- **Hospitals** will differentiate into areas where they deliver superior outcomes at competitive prices

- **Payers** will negotiate contracts based on results, not volume, and encourage innovation to achieve those results

- **Life science** will market their products on value, showing improved outcomes relative to costs
ICHOM was formed as a non-profit catalyst to drive the industry towards value-based health care

Our mission:

- Unlock the potential of value-based health care by defining global Standard Sets of outcome measures that really matter to patients and by driving adoption and reporting of these measures worldwide
ICHOM plays several roles along the journey that will enable value-based health care: our strategic agenda

1. We are exploring the inclusion of resources data in benchmarks but the methodology is to be determined

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

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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

Define Standards | Benchmark on outcomes | Establish outcomes transparency

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

Core mission of ICHOM | Current focus | Enabler role

1. We are exploring the inclusion of resources data in benchmarks but the methodology is to be determined
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We need standardisation so that we can meaningfully and reliably compare the *same* outcomes

Comparing apples with oranges is a lot harder than....

...comparing apples with apples

Measuring different outcomes in different ways makes it impossible to meaningfully compare
Framing principles for ICHOM Working Groups

1. Outcomes are defined around the medical condition, not the specialty or the procedure

2. The Standard Set is a “minimum set” focused on the outcomes that matter most to patients

3. Patients are directly involved in defining the Standard Set

4. Patient-reported outcomes are included in every Standard Set to capture symptom burden, functional status and health-related quality of life

5. A “minimum set” of initial conditions/risk factors is included to facilitate meaningful comparison

6. Time points and sources of data collection are clearly defined to ensure comparability of results
Standard Set is defined through series of teleconference calls, supported by research and patient input
The Overall Adult Health Standard Set challenges conventional thinking, bringing a new paradigm to outcomes measurement.

Traditionally, ICHOM’s work has focused on outcomes of care for specific medical conditions...

**Current**
(Individual Conditions)

- Hip & Knee Osteoarthritis
- Cataracts
- Depression and Anxiety
- Coronary Artery Disease
- Diabetes

...however, there are compelling reasons for considering outcomes across population segments

The Overall Adult Health Standard Set will provide the core foundation for modular add-ons of more condition-specific Sets.

**Future**
(Population Segments)

- Diabetes
- Cataracts
- Depression and Anxiety
- Coronary Artery Disease
- Hip & Knee Osteoarthritis

Pediatric Overall Health Sets also in development
ICHOM Working Group members originate from 44 countries

Source: ICHOM; Last Updated: Aug 22, 2017
ICHOM Standard Sets now cover >50% of global disease burden

23 ICHOM Standard Sets to-date

Burden of Disease Covered (%)

1. Localized Prostate Cancer *
2. Lower Back Pain *
3. Coronary Artery Disease *
4. Cataracts *
5. Parkinson’s Disease *
6. Cleft Lip and Palate *
7. Stroke *
8. Hip and Knee Osteoarthritis *
9. Macular Degeneration *
10. Lung Cancer *
11. Depression and Anxiety *
12. Advanced Prostate Cancer *
13. Breast Cancer *
14. Dementia
15. Heart Failure
16. Pregnancy and Childbirth
17. Colorectal Cancer *
18. Older Persons
19. Overactive Bladder *
20. Craniofacial Microsomia
21. Inflammatory Bowel Disease
22. Chronic Kidney Disease
23. Hypertension

Committed/In process
- Congenital upper limb anomalies
- Pediatric facial palsy
- Oral health
- Inflammatory arthritis
- Diabetes (I+ II)
- Atrial fibrillation
- Overall adult health
- Overall pediatric health
- Hand & wrist conditions

15 Standard Sets published to date in peer-reviewed journals
Agenda

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Successful implementation projects can broadly be split into four phases with continuous change management throughout

Key Tasks

- Assessment and define scope for project and recruit local Project Manager
- Establish project team and governance structure
- Plan for launch with key stakeholders to achieve clinical buy-in
- Develop an implementation plan to guide the project

- Determine and process map pilot implementation site
- Assess IT and informatics infrastructure within pilot site
- Perform a gap analysis of what data is collected versus what isn’t
- Secure additional IT/Information platforms to address data gaps
- Secure PROM licenses for Standard Set as required

- Deploy IT solution
- Pilot data collection with part of dataset
- Assess Pilot period
- Refine Workflow and IT systems using PDSA cycles

- Scale up to implement full dataset for all patients within scope
- Collect data on every patient, ensure data completeness and validity
- Troubleshoot full dataset issues & quality assure data through audit
- Begin to analyze full dataset and report to clinicians and patients
**Erasmus MC has implemented the ICHOM Standard Set for Cleft Lip and Palate as part of their broader VBHC strategy**

<table>
<thead>
<tr>
<th><strong>Background</strong></th>
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<tbody>
<tr>
<td>Erasmus MC has a long-term VBHC strategy, which began in 2013</td>
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<td>A key part of this strategy is global benchmarking</td>
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<td>As one of their leading pilots, Erasmus MC has implemented the ICHOM Standard Set for CLP</td>
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<table>
<thead>
<tr>
<th><strong>Summary</strong></th>
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<tbody>
<tr>
<td>Dedicated VBHC project team to support implementation</td>
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<tr>
<td>Piloting in single 2-weekly outpatient clinic</td>
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<tr>
<td>Developed in-house, user-friendly data collection platform</td>
</tr>
<tr>
<td>PROMs data collected remotely via web portal &amp; in waiting room</td>
</tr>
<tr>
<td>Changes to patient flow and appointment schedules to fit data collection and streamline care</td>
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<table>
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<tr>
<th><strong>Early results</strong></th>
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<tr>
<td>90% compliance for PROMs</td>
</tr>
<tr>
<td>100% compliance for clinician-reported outcomes and administrative metrics</td>
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<thead>
<tr>
<th><strong>Next steps</strong></th>
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<tbody>
<tr>
<td>Scale to all CLP patients in other clinics at Erasmus MC</td>
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<tr>
<td>Shift care pathways to match the ICHOM Standard Set for all CLP patients</td>
</tr>
<tr>
<td>Openly share electronic data collection platform with other global cleft care providers to facilitate international benchmarking</td>
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</table>
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

Study this clinic...

...to improve outcomes in these clinics

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.
Global Benchmarking
First global outcome benchmarking projects in hip/knee/osteoarthritis and cataracts

Project set up

<table>
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<tr>
<th></th>
<th>Hip/Knee/Osteoarthritis</th>
<th>Cataracts</th>
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</thead>
<tbody>
<tr>
<td>Countries</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Reporting Sites</td>
<td>25</td>
<td>53</td>
</tr>
<tr>
<td>Patients (Since 2016)</td>
<td>6k</td>
<td>60k</td>
</tr>
</tbody>
</table>

- Risk-adjustment of raw data
- Benchmark on key indicators—focusing on patient-reported outcomes
- Individual reporting to participating organizations
- “Best-in-class” organizations identified with intent to publish analyses of relative performance

Sample output

(Hip/Knee/Osteoarthritis)
GLOBE Participants in HKO and CAT Pilots

**HKO Sites**
- Royal Melbourne Hospital, Melbourne, Australia
- Bergman Clinics, Naarden, Netherlands
- Ikazia Hospital, Rotterdam, Netherlands
- St. Elisabeth Hospital, Tilburg, Netherlands (3 sites)
- Medinova and Orthopedium Clinics, Rotterdam, Netherlands (4 sites)
- Bergman Clinics, Naarden, Netherlands (3 sites)
- Sahlgrenska University Hospital, Gothenburg, Sweden
- St Erik Eye Hospital, Stockholm, Sweden
- Royal Free London, London, UK (3 sites)
- Aneurin Bevan University Health Board, UK (2 sites)
- Moorfields Eye Hospital, London, UK
- Connecticut Joint Replacement Institute (CJRI), Connecticut, USA
- Brigham and Women's Hospital, Massachusetts, USA
- Providence Health & Services, Oregon, California, and Washington, USA (9 sites)
- Luz Saúde, Lisbon, Portugal (2 sites)
- José de Mello Saúde, Lisbon, Portugal
- Luz Saúde, Lisbon, Portugal
- Mayo Clinic, Florida, USA
- Humanitas Research Hospital, Milan, Italy
- Malay National Cataract Surgery Registry, Malaysia (3 sites)
- Aravind Eye Care System, India (10 sites)
- Sheba Medical Center, Tel Hashomer, Israel
- Royal Melbourne Hospital, Melbourne, Australia

**CAT Sites**
- Connecticut Joint Replacement Institute (CJRI), Connecticut, USA
- Brigham and Women's Hospital, Massachusetts, USA
- Providence Health & Services, Oregon, California, and Washington, USA (9 sites)
- Luz Saúde, Lisbon, Portugal (2 sites)
- José de Mello Saúde, Lisbon, Portugal
- Luz Saúde, Lisbon, Portugal
- Mayo Clinic, Florida, USA
- Humanitas Research Hospital, Milan, Italy
- Malay National Cataract Surgery Registry, Malaysia (3 sites)
- Aravind Eye Care System, India (10 sites)
- Sheba Medical Center, Tel Hashomer, Israel
- Royal Melbourne Hospital, Melbourne, Australia
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Further developments
ICHOM is leading the development of Value Based commissioning and procurement programs

**Erasmus MC Value Based Payment, Netherlands**

*ICHOM and Erasmus MC have worked together to establish bundled payments for stroke services*

- **Aim:** Bundled-payment system for integrated stroke services in Rotterdam
- **Progress:** Stroke care partners (6) have agreed to formally work together to measure a set of outcomes and costs
- **Next steps:** Explore how payments can be linked to outcomes in 1 contract in 2018

**Menzis Value Based Payment, Netherlands**

*ICHOM and Menzis have worked together to develop value based bundled payments*

- **Aim:** Bundled payment system for hip and knee replacements, incorporating improvement cycles and supporting care integration
- **Progress:** Payment system on track to go live in early 2018
- **Next steps:** Launch the contract in early 2018

**Wales Value Based Procurement, UK**

*ICHOM and NHS Wales have worked together to conduct a value based procurement pilot*

- **Aim:** Link payment for cataract supplies to outcomes
- **Progress:** Supplier preliminary proposals/ideas received
- **Next steps:** Formally launch the value-based procurement tender
ICHOM is catalyzing the introduction of Value Based Health Care into medical education

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Objective</th>
<th>Stakeholders</th>
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<tbody>
<tr>
<td>The medical education initiative presents a unique opportunity to increase the awareness and practice of value based healthcare (VBHC)</td>
<td>The <strong>objective</strong> of the medical education initiative is to mobilize a multi-stakeholder committee to develop a VBHC curriculum for undergraduate and post-graduate students</td>
<td>Key stakeholders include Swansea Medical School (UK), Erasmus MC (Netherlands), and Cascais Medical School (Portugal)</td>
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Completion of curriculum anticipated in 2018 – materials will serve as a model for future VBHC education initiatives