Value Based Health Care Delivery: Strategy For Health Care Leaders

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Setting the Right Goal

• The core purpose of health care is **value for patients**

\[
\text{Value} = \frac{\text{Health outcomes that matter to patients}}{\text{Costs of delivering those outcomes}}
\]

• Delivering high value for patients must be the **central goal** of every health care organization
  - financial success is the **result** of delivering value, not the end in itself

• Health care delivery must shift from **volume** to **value**
Principles of Value-Based Health Care Delivery

• Value is created in caring for a patient’s **medical condition** over the full cycle of care
  → not by a hospital, a site, a specialty, an episode, or an intervention

\[
\text{Value} = \frac{\text{Health outcomes that matter to patients}}{\text{Costs of delivering the outcomes}}
\]

– Outcomes are the **full set of health results that matter** for the patient’s condition
– Costs are the **total costs of care** for the patient’s condition over the care cycle

• The most powerful single lever for reducing cost is **improving outcomes**
Creating a Value-Based Health Care Delivery Organization

The Strategic Agenda

1. Re-organize Care around Patient Conditions, into Integrated Practice Units (IPUs)
   - For primary and preventive care, IPUs serve distinct patient segments

2. Measure Outcomes and Costs for Every Patient

3. Move to Bundled Payments for Care Cycles

4. Integrate Multi-site Care Delivery Systems

5. Expand Geographic Reach To Drive Excellence

6. Build an Enabling Information Technology Platform
1. Organize Care Around Patient Medical Conditions

Headache Care in Germany

Existing Model:
Organize by Specialty and Discrete Service

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Organize into Integrated Practice Units (IPUs) Around Conditions

1. Organize Care Around Patient Medical Conditions
Head & Neck Cancer Care at MD Anderson

Existing Model:
Organize by Specialty and Discrete Service

New Model:
Organize into Integrated Practice Units (IPUs) Around Conditions

Source: Porter, Michael E., Jain, Sachin, The University of Texas MD Anderson Cancer Center: Interdisciplinary Cancer Care. February 26, 2013.
Integrating Across the Care Cycle
A Surgeon Teaches Independent Physical Therapists About Rehabilitation
The Playbook for Integrated Practice Units (IPUs)

1. Organized around a **medical condition** or set of closely related **conditions** (or around defined patient segments for primary care)

2. Care is delivered by a **dedicated, multidisciplinary team** who devote a significant portion of their time to the medical condition

3. Providers see themselves as part of or affiliated with a **common integrated unit**

4. The team takes responsibility for the **full cycle of care** for the condition

5. **Patient education, engagement, adherence, and follow-up** are integrated into care

6. The unit has a **single administrative and scheduling structure**

7. To the extent feasible, **the team is co-located in dedicated facilities**

8. A **physician team captain** or a **clinical care manager** (or both) oversees each patient’s care process

9. **The team accepts joint accountability** for outcomes and costs

10. The team **measures** outcomes, costs, processes, and experiences for each patient using a **common measurement platform**

11. The team **meets formally and informally** on a regular basis to discuss patients, processes, and how to improve results
## Volume in a Medical Condition Enables Value Fragmentation of U.S. Care

<table>
<thead>
<tr>
<th>Procedure / Specialty</th>
<th>Est. Number of Inpatient Procedures</th>
<th>% of Procedures at Hospitals Performing &lt;10 Cases per Year</th>
<th>% of Procedures Performed at Below Minimum Adequate Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary stenting</td>
<td>558,349</td>
<td>&lt;1%</td>
<td>38%</td>
</tr>
<tr>
<td>CABG</td>
<td>427,380</td>
<td>1%</td>
<td>38%</td>
</tr>
<tr>
<td>Radical prostatectomy</td>
<td>77,030</td>
<td>3%</td>
<td>47%</td>
</tr>
<tr>
<td>AAA repair</td>
<td>54,819</td>
<td>17%</td>
<td>50%</td>
</tr>
<tr>
<td>Bariatric surgery</td>
<td>48,672</td>
<td>28%</td>
<td>51%</td>
</tr>
<tr>
<td>Breast cancer surgery</td>
<td>120,704</td>
<td>23%</td>
<td>61%</td>
</tr>
<tr>
<td>Rectal cancer surgery</td>
<td>26,692</td>
<td>45%</td>
<td>65%</td>
</tr>
</tbody>
</table>
Moving to IPU Certification
Specialist Breast Centres in Europe*

• Minimum overall **volume requirement** of 150 new cases annually

• **Dedicated teams of specialists** working with a **multidisciplinary approach**
  – Includes surgery, oncology, radiation, pathology, radiology, nursing, psychology, genetics
  – Specialists each must spend a **minimum % of time** on breast care to qualify
  – Surgeons, radiologists, and pathologists meet **individual volume minimums** to maintain experience

• Led by a **Clinical Director**
  – Mandatory, weekly multidisciplinary case management meetings including all key team members
  – Meetings address care management decisions for at least 90% of patients
  – Centers agree on written protocols for diagnosis, treatment and follow-up

• Centers **provide or direct all services** throughout the patient’s pathway
  – Affiliations with other needed services – e.g. plastic surgery, palliative care

• Collect and audit **clinical data**
  – Formally identify a data manager responsible for collecting and analyzing data on diagnosis, pathology, treatment, and outcomes
  – Participate in benchmarking and annual performance review

*European Society of Breast Cancer Specialists
2. Measure Outcomes and Costs for Every Patient

The Quality Measurement Landscape

- **Patient Experience/Engagement/Adherence**
  - Protocols/Guidelines
  - E.g. PSA, Gleason score, surgical margin

- **Structure**
  - E.g. Staff certification, facilities standards

- **Processes**
  - Protocols/Guidelines

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

- **(Health) Outcomes**
The Outcome Measures Hierarchy

Tier 1
- Survival

Tier 2
- Degree of health/recovery
  - Time to recovery and return to normal activities
    - Disutility of the care or treatment process (e.g., diagnostic errors and ineffective care, treatment-related discomfort, complications, or adverse effects, treatment errors and their consequences in terms of additional treatment)

Tier 3
- Sustainability of health/recovery and nature of recurrences
  - Sustainability of health/recovery and nature of recurrences
    - Long-term consequences of therapy (e.g., care-induced illnesses)

Source: NEJM Dec 2010
The Outcome Measures Hierarchy
Lung Cancer Standard Set

Survival
• Overall survival
• Cause-specific survival

Degree of recovery / health
• ECOG score
• Shortness of breath
• Cough
• EORTC QLQ-C30

Time to recovery or return to normal activities
• Time from diagnosis to treatment

Disutility of care or treatment process (e.g., treatment-related discomfort, complications, adverse effects, diagnostic errors, treatment errors)
• Acute complications of treatment due to surgery, radiation, or medical therapy
• Pain

Sustainability of recovery or health over time
• Health-related quality of life

Long-term consequences of therapy (e.g., care-induced illnesses)
• Duration of time spent in hospital at end of life
• Place of death

Source: ICHOM
Measuring Multiple Outcomes
Prostate Cancer Care in Germany

Average hospital
Best hospital

5 year disease specific survival
95%
94%

Source: Martini-Klinik
Measuring Multiple Outcomes
Prostate Cancer Care in Germany

5 year disease specific survival
- Average hospital: 94%
- Best hospital: 95%

Severe erectile dysfunction after one year
- Average hospital: 75.5%
- Best hospital: 17.4%

Incontinence after one year
- Average hospital: 43.3%
- Best hospital: 9.2%

Source: Martini-Klinik
Adult Kidney Transplant Outcomes
U.S. Centers, 1987-1989

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%)

Adult Kidney Transplant Outcomes
U.S. Centers, 2011-2013

Number of programs included: 209
Number of transplants: 38,370
1 Year Graft Survival: 94.7%

- 4 greater than expected graft survival (1.9%)
- 5 worse than expected graft survival (2.4%)

Measuring the Cost of Care Delivery: Principles

- Cost is the **actual expense** of patient care, not the **charges** billed or collected

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- Cost should be measured by **condition**, with costs aggregated over the **full cycle of care**.

- Understanding costs requires **mapping the care process**.

Mapping Resource Utilization
MD Anderson Cancer Center – New Patient Visit

Registration and Verification
Receptionist, Patient Access Specialist, Interpreter

Intake
Nurse, Receptionist

Clinician Visit
MD, mid-level provider, medical assistant, patient service coordinator, RN

Plan of Care Discussion
RN/LVN, MD, mid-level provider, patient service coordinator

Plan of Care Scheduling
Patient Service Coordinator

Patient arrives
Check in patient communicate arrival RCPT
Verify patient information; complete consent forms PAS

Interpreter needed? RCPT
N 95%
Y 5%

Add language translation time for each process INT, RCPT

Assess patient; assemble paperwork; place patient in room RN

Laryngoscopy needed?
N 10%

Perform laryngoscopy MD, MA, PSC

Discus plan of care MD

Review plan of care; introduce team; review schedule for return visit RN

Clean room; complete paperwork; check email and voicemail for updates or changes to plan of care RN

Changes to Plan of Care?
Y

Notify patient of changes RN

Enter next process

Source: HBS, MD Anderson Cancer Center
Measuring the Cost of Care Delivery: Principles

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• Cost should be measured around the **patient**, not for departments, service units, or the organization as a whole

• Cost should be measured by **condition**, with costs aggregated over the **full cycle of care**

• Understanding costs requires **mapping care process**

• Cost depends on the **actual use of resources** involved in a patient’s care process (personnel, facilities, supplies, and support services)

• “Overhead” costs should be **associated with the patient-facing resources and services** (e.g. IT, billing, HR, space)

Putting Cost and Outcomes Together
Comparing Overall Value in Localized Prostate Cancer Care

![Graph showing comparison of outcomes for different treatment options.](image)

1 / Cost

Recurrence Free Survival (%)

100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0

Sexual Function*

Bowel Function*

Urinary Incontinence*

Urinary Bother*

Source: HBS, MD Anderson Cancer Center

* Collected on Expanded Prostate Cancer Index Composite
Major Cost Reduction Opportunities in Health Care

• Reduce **process variation** that lowers efficiency and increases complexity of supplies without improving outcomes
• Eliminate **low- or non-value added** services or tests
  – Sometimes driven by protocols or to justify billing
• Minimize use of **physician and skilled staff** for less skilled activities
• Move routine or uncomplicated services out of **highly-resourced** facilities
• **Improve utilization** of expensive physicians, staff, clinical space, and facilities through reducing **duplication and service fragmentation**
• Rationalize redundant **administrative** and **scheduling** units
• **Reduce cycle times** across the care cycle
• Add services that **lower total care cycle cost**
• Increase **cost awareness** in clinical teams

• Many cost reduction opportunities will actually **improve outcomes**
3. Move to Bundled Payments for Care Cycles

Bundled Reimbursement

- A single price covering the **full care cycle for an acute medical condition**
- Time-based reimbursement for overall care of a **chronic condition**
- Time-based reimbursement for **primary/preventive care** for a **defined patient segment**

Global provider budgets

Fee for service

Global capitation
Principles of a Value-Based Bundle

• **Condition** based, not specialty, procedure, episode or care site based
• **Risk** adjusted, or covering a *defined patient group* in terms of complexity
  - 80/20 rule
• **Contingent on outcomes**, including care guarantees
• Payment based on the *cost of efficient and effective care*, not sum of past charges
• Specified *limits of responsibility* for unrelated care needs, and *stop loss* provisions to mitigate against outliers
• A level of *price stability*
Bundled Payment in Practice
Hip and Knee Replacement in Stockholm, Sweden

- **Components** of OrthoChoice bundle

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-op evaluation</td>
<td>All physician and staff fees and costs</td>
</tr>
<tr>
<td>Lab tests</td>
<td>1 follow-up visit within 3 months</td>
</tr>
<tr>
<td>All Radiology</td>
<td>Responsible for complications and any additional surgery to the joint within 2 years</td>
</tr>
<tr>
<td>Surgery &amp; related admissions</td>
<td>If post-op deep infection requiring antibiotics occurs, guarantee extends to 5 years</td>
</tr>
<tr>
<td>Prosthesis</td>
<td></td>
</tr>
<tr>
<td>Drugs</td>
<td></td>
</tr>
<tr>
<td>Inpatient rehab</td>
<td></td>
</tr>
</tbody>
</table>

- Initially applied to all **relatively healthy patients** (i.e. ASA scores of 1 or 2)
- **Mandatory reporting** by providers to the joint registry plus supplementary reporting
- The Stockholm bundled price for a knee or hip replacement is about **US $8,300**

Results:
- Complications fell 18% after 2 years
- Functional outcomes remained constant
- Length of stay fell 16%
- Volume shifted toward specialty hospitals and away from full service acute hospitals
- Standardization and improvement of care processes and efficiency took place
- Patients were exceptionally satisfied
### The Swedish Spine Bundle
**Condition:** Spinal Stenosis Requiring Decompression

<table>
<thead>
<tr>
<th>Base Payment</th>
<th>Warranty Payment</th>
<th>Performance Payment</th>
<th>Total Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard Payment</strong></td>
<td><strong>Warranty Payment</strong></td>
<td><strong>Performance Payment</strong></td>
<td><em><em>54,537 ($8,139</em>)</em>*</td>
</tr>
<tr>
<td>42,044</td>
<td>4,357</td>
<td><strong>8,136</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Risk Adjustment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4,357</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Covered
- Preoperative consultation, surgery, inpatient stay, implants, medications, laboratories, radiology, physical therapy, and follow-up care.

### Risk adjustment
- Age, gender, patient-reported pre-operative pain measured by Visual Analog Scale (VAS)

### Covered
- Surgery wrong side/level
- Disk herniation
- Re-stenosis
- Mechanical complication
- Pseudoarthrosis
- Cerebrospinal fluid leak
- Ongoing Bleeding
- Infection
- Pain in neck/arm/back
- Wound dehiscence
- Implant related pain

### Performance Payment
- **Amount:** Average of 10 percent of base reimbursement
- **Criteria:** Based on the **actual** improvement in pain at 1 year after surgery (Global Assessment Scale) versus **expected** pain outcome based on registry data for similar patients

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* Based on Jan 1, 2012 exchange rate of 6.8 SEK to 1 USD

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4. Integrate Multi-site Care Delivery Systems
Children’s Hospital of Philadelphia Care Network

Main Campus
The Children’s Hospital of Philadelphia

Wholly-Owned Outpatient Units:
- Pediatric & Adolescent Primary Care
- Pediatric & Adolescent Specialty Care Center
- Pediatric & Adolescent Specialty Care Center & Surgery Center
- Pediatric & Adolescent Specialty Care Center & Home Care

Network Hospitals:
- CHOP Newborn Care
- CHOP Pediatric Care
- CHOP Newborn & Pediatric Care
Four Levels of Provider System Integration

1. **Define the overall scope of services** where each unit can achieve high value

2. **Concentrate volume in fewer locations** in the conditions that providers treat

3. Choose the **right location for each service** based on medical condition, acuity level, resource intensity, cost level and need for convenience
   - E.g., shift routine surgeries out of tertiary hospitals to smaller, more specialized facilities

4. **Integrate care across appropriate locations** through IPU structures
Delivering the Right Care at the Right Location
Rothman Institute, Philadelphia

Patient Risk Factors: Age, Weight, Expected Activity, General Health, and Bone Quality

Cost of Total Hip Replacement: ~$12,000 USD

Cost of Total Hip Replacement: ~$45,000 USD

Ambulatory Surgery Center
Rothman Orthopaedic Specialty Hospital
Bryn Mawr Community Hospital
Jefferson University Academic Medical Center

Facility Capability
- Lowest Complexity
- Low
- Medium
- Highest Complexity
5. Expand Geographic Reach
The Cleveland Clinic Affiliate Programs

- Central DuPage Hospital, IL
  - Cardiac Surgery

- Chester County Hospital, PA
  - Cardiac Surgery

- CLEVELAND CLINIC

- St. Vincent Indianapolis, IN
  - Kidney Transplant

- Cleveland Clinic Florida Weston, FL
  - Cardiac Surgery

- Cape Fear Valley Medical Center, NC
  - Cardiac Surgery

- McLeod Heart & Vascular Institute, SC
  - Cardiac Surgery

- Pikeville Medical Center, KY
  - Cardiac Surgery

- Rochester General Hospital, NY
  - Cardiac Surgery

- Charleston, WV
  - Kidney Transplant

- Cape Fear Valley Medical Center, NC
  - Cardiac Surgery
6. Build an Enabling Integrated IT Platform

Utilize information technology to enable **restructuring of care delivery** and **measuring results**, rather than treating it as a solution itself.

**Attributes of a Value-Based IT Platform**

- Combines **all types of data** (e.g. notes, images) for each patient
- Uses common **data definitions**
- Data encompasses the **full care cycle**
- Allows access and communication among **all involved parties**, including patients and referring entities
- Enables data exchange and aggregation among the **different provider organizations** involved with each patient
- Provides **views and templates by medical condition** to enhance the user interface for IPU teams
- Creates searchable “**structured**” data vs. free text
- The architecture allows easy extraction of **outcome measures, process measures**, and **activity-based costing metrics** for each patient /medical condition
A Mutually Reinforcing Strategic Agenda

1. Organize into Integrated Practice Units (IPUs)

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 Integrated Information Technology Platform
# Measuring Internationally Standardized Outcomes

**ICHOM Standard Sets**

|-----------------------------|-------------------------------|---------------------------------|
| 1. Localized Prostate Cancer*  
2. Lower Back Pain*  
3. Coronary Artery Disease*  
4. Cataracts                   | 1. Parkinson’s Disease          
2. Cleft Lip and Palate        
3. Stroke                      
4. Hip and Knee Osteoarthritis  
5. Macular Degeneration        
6. Lung Cancer                 
7. Depression and Anxiety      
8. Advanced Prostate Cancer    | 1. Heart Failure*                
2. Dementia*                   
3. Craniofacial Microsomia*    
4. Burns                       
5. Congenital Heart Anomalies  
6. Pregnancy and Childbirth    
7. Peptic Ulcer Disease        
8. Inflammatory Bowel Disease  
9. Epilepsy                     
10. Overactive Bladder         
11. End-stage Renal Disease    
12. Diabetes                   
13. Bipolar Disorder           
16. Colorectal Cancer          
17. Breast Cancer              
18. Preventative health        
19. Frail Elderly              |

* Sets Published in Peer-Reviewed Journals

<table>
<thead>
<tr>
<th>Burden of Disease Covered</th>
<th>18%</th>
<th>35%</th>
<th>45%</th>
</tr>
</thead>
</table>

[www.ICHOM.org](http://www.ICHOM.org)
Selected References


• Websites Including Videos
  – http://www.isc.hbs.edu/
  – https://www.ichom.org/
  – Case studies and curriculum guide available at:
    http://www.isc.hbs.edu/resources/courses/health-care-courses/Pages/health-care-curriculum.aspx