Value-Based Health Care Delivery

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January 22, 2014

Creating A High Value Delivery Organization

• The core issue in health care is the **value of health care delivered**

  Value: Patient health outcomes per pound spent

• Delivering high and improving value is the **fundamental purpose** of health care

• Value is the only goal that can **unite the interests** of all system participants

• Improving value is the only real **solution** to reforming health care versus cost cutting, per se **cost shifting** to patients, **restricting services**, or **reducing provider compensation**
Creating a Value-Based Health Care System

• Significant improvement in value will require fundamental restructuring of health care delivery, not incremental improvements.
• Today’s delivery approaches reflect a legacy of medical science, organizational structures, management practices, patient mobility, and payment models that are obsolete.

Care pathways, process improvements, safety initiatives, care coordinators, focus on frequent flyers, inspections, and other overlays to the current structure can be beneficial, but not sufficient.
Principles of Value-Based Health Care Delivery

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

- Value is measured for the **care of a patient’s medical condition** over the full cycle of care
  - Outcomes are the **full set of health results for a patient’s condition** over the care cycle
  - Costs are the **total costs of care for a patient’s condition** over the care cycle
Creating a Value-Based Health Care Delivery System

The Strategic Agenda

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

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

Existing Model:
Organize by Specialty and
Discrete Service

1. Organize Care Around Patient Medical Conditions
Migraine Care in Germany

Existing Model:
Organize by Specialty and Discrete Service

New Model:
Organize into Integrated Practice Units (IPUs)

# The Care Delivery Value Chain
## Acute Knee-Osteoarthritis Requiring Replacement

<table>
<thead>
<tr>
<th>INFORMING AND ENGAGING</th>
<th>MEASURING</th>
<th>ACCESSING</th>
<th>MONITORING/PREVENTING</th>
<th>DIAGNOSING</th>
<th>PREPARING</th>
<th>INTERVENING</th>
<th>RECOVERING/REHABBING</th>
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<tbody>
<tr>
<td>• Importance of exercise, weight reduction, proper nutrition</td>
<td>• Joint-specific symptoms and function (e.g., WOMAC scale)</td>
<td>• PCP office</td>
<td>• Imaging facility</td>
<td>• Imaging</td>
<td>• Conduct PCP exam</td>
<td>• Prescribe anti-inflammatory medicines</td>
<td>• Monitor weight loss</td>
<td>• Consult regularly with patient</td>
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<td>• Prognosis (short- and long-term outcomes)</td>
<td>• Overall health (e.g., SF-12 scale)</td>
<td>• Health club</td>
<td>• Specialty office</td>
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<td>• Conduct home assessment</td>
<td>• Recommend exercise regimen</td>
<td>• Monitor weight loss</td>
<td>• Prescribe prophylactic antibiotics when needed</td>
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<td>• Drawbacks and benefits of surgery</td>
<td>• Baseline health status</td>
<td>• Physical therapy clinic</td>
<td>• Pre-op evaluation center</td>
<td>• Baseline health status</td>
<td>• Monitor weight loss</td>
<td>• Set weight loss targets</td>
<td>• Operate on patient</td>
<td>• Set long-term exercise plan</td>
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<td>• Fitness for surgery (e.g., ASA score)</td>
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### CARE DELIVERY
- **MONITOR**: Conduct PCP exam
- **PREVENT**: Refer to specialists, if necessary

### IMAGING
- • Perform and evaluate MRI and x-ray
  - Assess cartilage loss
  - Assess bone alterations

### CLINICAL EVALUATION
- • Review history and imaging
- • Perform physical exam
- • Recommend treatment plan (surgery or other options)

### OVERALL PREP
- • Conduct home assessment
- • Monitor weight loss

### SURGICAL PREP
- • Perform cardiology, pulmonary evaluations
- • Run blood labs
- • Conduct pre-op physical exam

### MEDICAL
- • Monitor coagulation

### LIVING
- • Provide daily living support (showering, dressing)
- • Track risk indicators (fever, swelling, other)

### PHYSICAL THERAPY
- • Daily or twice daily PT sessions

### INFORMING AND ENGAGING
- • Importance of exercise, weight reduction, proper nutrition
- • Prognosis (short- and long-term outcomes)
- • Drawbacks and benefits of surgery

### MEASURING
- • Joint-specific symptoms and function (e.g., WOMAC scale)
- • Overall health (e.g., SF-12 scale)

### ACCESSING
- • PCP office
- • Health club
- • Physical therapy clinic

### MONITORING/PREVENTING
- • Imaging facility
- • Specialty office

### DIAGNOSING
- • Conduct home assessment
- • Monitor weight loss

### PREPARING
- • Operating room
- • Recovery room
- • Orthopedic floor at hospital or specialty surgery center

### INTERVENING
- • Nursing facility
- • Rehab facility
- • PT clinic
- • Home

### RECOVERING/REHABBING
- • Primary care office
- • Health club

### MONITORING/MANAGING
- • Importance of exercise, maintaining healthy weight

### Orthopedic Specialist

### Other Provider Entities

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**Orthopedic Specialist**

**Other Provider Entities**
Integrating Across the Care Cycle
An Orthopedic Surgeon Teaches A Course to Physical Therapists About Treatment Post-Surgery
What is a Medical Condition?

**Specialty Care**

- A medical condition is an interrelated set of patient medical circumstances best addressed in an integrated way
  - Defined from the patient’s perspective
  - Involving multiple specialties and services
  - Including common co-occurring conditions and complications
  
  **Examples:** diabetes, breast cancer, knee osteoarthritis

**Primary/Preventive Care**

- The corresponding unit of value creation is defined patient segments with similar preventive, diagnostic, and primary treatment needs (e.g. healthy adults, patients with complex chronic conditions, frail elderly)

- The medical condition / patient segment is the proper unit of value creation and value measurement in health care delivery

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Volume in a Medical Condition Enables Value

The Virtuous Circle of Value

- Volume and experience will have an even greater impact on value in an IPU structure than in the current system.
## Role of Volume in Value Creation
### Fragmentation of Hospital Services in Sweden

<table>
<thead>
<tr>
<th>DRG</th>
<th>Number of admitting providers</th>
<th>Average percent of total national admissions</th>
<th>Average admissions/provider/year</th>
<th>Average admissions/provider/week</th>
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<tbody>
<tr>
<td>Knee Procedure</td>
<td>68</td>
<td>1.5%</td>
<td>55</td>
<td>1</td>
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<tr>
<td>Diabetes age &gt; 35</td>
<td>80</td>
<td>1.3%</td>
<td>96</td>
<td>2</td>
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<tr>
<td>Kidney failure</td>
<td>80</td>
<td>1.3%</td>
<td>97</td>
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<td>Multiple sclerosis and cerebellar ataxia</td>
<td>78</td>
<td>1.3%</td>
<td>28</td>
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<tr>
<td>Inflammatory bowel disease</td>
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<td>1.4%</td>
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<td>Implantation of cardiac pacemaker</td>
<td>51</td>
<td>2.0%</td>
<td>124</td>
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<td>Splenectomy age &gt; 17</td>
<td>37</td>
<td>2.6%</td>
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<td>Cleft lip &amp; palate repair</td>
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<td>14.2%</td>
<td>83</td>
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<td>Heart transplant</td>
<td>6</td>
<td>16.6%</td>
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Low Volume Undermines Value
Mortality of Low-birth Weight Infants in Baden-Württemberg, Germany

- Minimum volume standards are an interim step to drive value and service consolidation in the absence of rigorous outcome information

Source: Hummer et al, Zeitschrift für Geburtshilfe und Neonatologie, 2006; Results duplicated in AOK study: Heller G, Gibt et al.
2. Measure Outcomes and Costs for Every Patient
The Measurement Landscape

- Patient Initial Conditions
- Processes
  - Protocols/Guidelines
- Indicators
  - E.g. PSA, Gleason score, surgical margin
- (Health) Outcomes
- Structure
  - E.g. Staff certification, facilities standards
The Outcome Measures Hierarchy

Tier 1
Health Status Achieved or Retained
- Survival
- 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)
  - Sustainability of health/recovery and nature of recurrences
  - Long-term consequences of therapy (e.g., care-induced illnesses)

Tier 2
Process of Recovery
- Achieved clinical status
- Achieved functional status
- Care-related pain/discomfort
- Complications
- Reintervention/readmission
- Long-term clinical status
- Long-term functional status

Source: NEJM Dec 2010
Measuring Multiple Outcomes
Prostate Cancer Care in Germany

5 year disease specific survival

Average hospital: 94%
Best hospital: 95%

Source: ICHOM
Measuring Multiple Outcomes -- Continued
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: ICHOM
Measuring the Cost of Care Delivery: Principles

• Cost is the **actual expense** of patient care, not the **tariff** billed or collected

• Cost should be measured around the **patient**, not just the department or provider organization

• Cost should be aggregated over the **full cycle of care for the patient’s medical condition**

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

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

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**Decision Point**
- Time (minutes)
Major Cost Reduction Opportunities in Health Care

• Reduce **process variation** that lowers efficiency and raises inventory without improving outcomes

• Eliminate **low-** or **non-value added** services or tests
  – Sometimes driven by protocols or to justify billing

• Rationalize redundant **administrative** and **scheduling** units

• **Improve utilization** of expensive physicians, staff, clinical space, and facilities by reducing duplication and service fragmentation

• Minimize use of **physician and skilled staff** time for less skilled activities

• Reduce the provision of routine or uncomplicated services in **highly-resourced** facilities

• **Reduce cycle times** across the care cycle

• **Optimize total care cycle cost** versus minimizing cost of individual service

• Increase **cost awareness** in clinical teams

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

Bundled Price

- 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
Bundled Payment in Practice
Hip and Knee Replacement in Stockholm, Sweden

- **Components** of the bundle

  - Pre-op evaluation
  - Lab tests
  - Radiology
  - Surgery & related admissions
  - Prosthesis
  - Drugs
  - Inpatient rehab, up to 6 days

  - All physician and staff fees and costs
  - 1 follow-up visit within 3 months
  - Any additional surgery to the joint within 2 years
  - If post-op infection requiring antibiotics occurs, guarantee extends to 5 years

- Currently applies to all *relatively healthy patients* (i.e. ASA scores of 1 or 2)
- The same *referral process* from PCPs is utilized as the traditional system
- **Mandatory reporting** by providers to the joint registry plus supplementary reporting

  - Applies to all qualifying patients. Provider participation is *voluntary*, but all providers are continuing to offer total joint replacements

- The Stockholm bundled price for a knee or hip replacement is about **US $8,000 (4,800GBP)**
4. Integrate Care Delivery Systems
Children’s Hospital of Philadelphia Care Network

The Children’s Hospital of Philadelphia®

Network Hospitals:
- CHOP Newborn Care
- CHOP Pediatric Care
- CHOP Newborn & Pediatric Care

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
Four Levels of Provider System Integration

1. **Define the overall scope of services** where the provider 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
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
- Cape Fear Valley Medical Center, NC
  Cardiac Surgery
- McLeod Heart & Vascular Institute, SC
  Cardiac Surgery
- Cleveland Clinic Florida Weston, FL
  Cardiac Surgery
- Rochester General Hospital, NY
  Cardiac Surgery
- Pikeville Medical Center, KY
  Cardiac Surgery
- Charleston, WV
  Kidney Transplant

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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.

- Combine **all types of data** (e.g. notes, images) for each patient
- Common **data definitions**
- Data encompasses the **full care cycle**, including care by referring entities
- Allow access and communication among **all involved parties**, including with patients
- **Templates** for medical conditions to enhance the user interface
- "**Structured**" data vs. free text
- Architecture that allows easy extraction of **outcome measures**, **process measures**, and **activity-based cost measures** for each patient and medical condition
- Interoperability standards enabling communication among **different provider** (and payor) **organizations**
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