Value-Based Health Care Delivery

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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.
Redefining Health Care Delivery

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

Value: Patient health outcomes per dollar 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

• How to design a health care delivery system that dramatically improves patient value
• How to construct a dynamic system that keeps rapidly improving
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 legacy organizational structures, management practices, and payment models that are inconsistent with modern learning practices and today’s medical science.

Care pathways, process improvements, safety initiatives, case managers, disease management and other overlays to the current structure are beneficial, but not sufficient
Creating The Right Kind of Competition

- Patient **choice** and **competition** for patients are powerful forces to encourage continuous improvement in value and restructuring of care.

- But today’s competition in health care is **not aligned with value**.

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Financial success of system participants ≠ Patient success
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- Creating positive-sum **competition on value** for patients is fundamental to health care reform in every country.
Principles of Value-Based Health Care Delivery

• The overarching goal in health care must be value for patients, not access, cost containment, convenience, or customer service.

\[
\text{Value} = \frac{\text{Health outcomes}}{\text{Costs of delivering the outcomes}}
\]

– 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
   - Organize primary and preventive care to serve distinct patient segments

2. Measure Outcomes and Cost for Every Patient

3. Reimburse through Bundled Prices for Care Cycles

4. Integrate Care Delivery Across Separate Facilities

5. Expand Geographic Coverage by Excellent Providers

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

Existing Model:
Organize by Specialty and
Discrete Services

1. Organizing Care Around Patient Medical Conditions

**Migraine Care in Germany**

**Existing Model:**
Organize by Specialty and Discrete Services

**New Model:**
Organize into Integrated Practice Units (IPUs)

What is a Medical Condition?

• 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
  – E.g., diabetes, breast cancer, knee osteoarthritis

• In primary / preventive care, the unit of value creation is defined patient segments with similar preventive, diagnostic, and primary treatment needs (e.g. healthy adults, frail elderly)

• The medical condition / patient segment is the proper unit of value creation and the unit of value measurement in health care delivery
# Integrating Across the Cycle of Care: Breast Cancer

## INFORMING AND ENGAGING
- Advice on self screening
- Consultations on risk factors
- Counseling patient and family on the diagnostic process and the diagnosis
- Explaining patient treatment options/shared decision making
- Patient and family psychological counseling
- Counseling on the treatment process
- Education on managing side effects and avoiding complications
- Achieving compliance
- Psychological counseling
- Counseling on long term risk management
- Achieving compliance

## MEASURING
- Self exams
- Mammograms
- Mammography unit
- Lab visits
- Office visits
- Mammography unit
- Lab visits
- High risk clinic visits
- Office visits
- Hospital visits
- Lab visits
- Hospital stays
- Visits to outpatient radiation or chemotherapy units
- Pharmacy visits
- Office visits
- Rehabilitation facility visits
- Pharmacy visits
- MRI, CT
- Recurring mammograms (every six months for the first 3 years)

## ACCESSING THE PATIENT
- Office visits
- Mammography unit
- Lab visits
- Office visits
- Lab visits
- High risk clinic visits
- Office visits
- Hospital visits
- Lab visits
- Hospital stays
- Visits to outpatient radiation or chemotherapy units
- Pharmacy visits
- Office visits
- Rehabilitation facility visits
- Pharmacy visits
- Office visits
- Lab visits
- Mammographic labs and imaging center visits
- Medical history
- Control of risk factors (obesity, high fat diet)
- Genetic screening
- Clinical exams
- Monitoring for lumps
- Medical history
- Determining the specific nature of the disease (mammograms, pathology, biopsy results)
- Genetic evaluation
- Labs
- Choosing a treatment plan
- Surgery prep (anesthetic risk assessment, EKG)
- Plastic or oncoplastic surgery evaluation
- Neo-adjuvant chemotherapy
- Surgery (breast preservation or mastectomy, oncoplastic alternative)
- Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)
- In-hospital and outpatient wound healing
- Treatment of side effects (e.g. skin damage, cardiac complications, nausea, lymphedema and chronic fatigue)
- Physical therapy
- Periodic mammography
- Other imaging
- Follow-up clinical exams
- Treatment for any continued or later onset side effects or complications

## MONITORING/PREVENTING
- Office visits
- Mammography unit
- Lab visits
- Office visits
- Lab visits
- High risk clinic visits
- Office visits
- Hospital visits
- Lab visits
- Hospital stays
- Visits to outpatient radiation or chemotherapy units
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Attributes of an Integrated Practice Unit (IPU)

1. Organized around the **patient medical condition** or set of closely related conditions (or patient segment in primary care)
2. Involves a **dedicated, multidisciplinary team** who devotes a significant portion of their time to the condition
3. Providers involved are members of or affiliated with a **common organizational unit**
4. Takes responsibility for the **full cycle of care** for the condition
   - Encompassing **outpatient, inpatient, and rehabilitative** care as well as **supporting services** (e.g. nutrition, social work, behavioral health)
5. Incorporates **patient education, engagement, and follow-up** as integral to care
6. Utilizes a **single administrative and scheduling structure**
7. **Co-located** in dedicated facilities
8. Care is led by a **physician team captain** and a **care manager** who oversee each patient’s care process
9. **Measures** outcomes, costs, and processes for each patient using a **common information platform**
10. Providers function as a team, **meeting formally and informally** on a regular basis to discuss patients, processes and results
11. Accepts **joint accountability** for outcomes and costs
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>
</tr>
</thead>
<tbody>
<tr>
<td>Knee Procedure</td>
<td>68</td>
<td>1.5%</td>
<td>55</td>
<td>1</td>
</tr>
<tr>
<td>Diabetes age &gt; 35</td>
<td>80</td>
<td>1.3%</td>
<td>96</td>
<td>2</td>
</tr>
<tr>
<td>Kidney failure</td>
<td>80</td>
<td>1.3%</td>
<td>97</td>
<td>2</td>
</tr>
<tr>
<td>Multiple sclerosis and cerebellar ataxia</td>
<td>78</td>
<td>1.3%</td>
<td>28</td>
<td>1</td>
</tr>
<tr>
<td>Inflammatory bowel disease</td>
<td>73</td>
<td>1.4%</td>
<td>66</td>
<td>1</td>
</tr>
<tr>
<td>Implantation of cardiac pacemaker</td>
<td>51</td>
<td>2.0%</td>
<td>124</td>
<td>2</td>
</tr>
<tr>
<td>Splenectomy age &gt; 17</td>
<td>37</td>
<td>2.6%</td>
<td>3</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Cleft lip &amp; palate repair</td>
<td>7</td>
<td>14.2%</td>
<td>83</td>
<td>2</td>
</tr>
<tr>
<td>Heart transplant</td>
<td>6</td>
<td>16.6%</td>
<td>12</td>
<td>&lt;1</td>
</tr>
</tbody>
</table>

2. Measuring Outcomes and Cost for Every Patient
The Measurement Landscape

- Patient Initial Conditions
- Processes
  - Protocols/Guidelines
- Patient Adherence
- Indicators
  - E.g., Hemoglobin A1c levels for diabetics
- (Health) Outcomes
  - E.g., Staff certification, facilities standards
The Outcome Measures Hierarchy

**Tier 1**
- **Health Status Achieved or Retained**
  - Survival

**Tier 2**
- **Process of Recovery**
  - 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**
  - Sustainability of health/recovery and nature of recurrences
  - Long-term consequences of therapy (e.g., care-induced illnesses)

Source: NEJM Dec 2010
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. Center Results, 2008-2010

Number of programs included: 236
Number of transplants: 38,535
1-year graft survival: 93.55%

- 8 greater than expected graft survival (3.4%)
- 14 worse than expected graft survival (5.9%)
Measuring the Cost of Care Delivery: Principles

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

- Cost should be measured around the **patient**

- Cost should be aggregated over the **full cycle of care for the patient’s medical condition**, not for departments, services, or line items

- Cost depends on the **actual use of resources** involved in a patient’s care process (personnel, facilities, supplies)
  - The **time** devoted to each patient by these resources
  - The **capacity cost** of each resource
  - The **support costs** required for each patient-facing resource
Major Cost Reduction Opportunities in Health Care

- **Process variation** that reduces efficiency without improving outcomes
- Over-provision of low- or non-value adding services or tests
  - Sometimes to follow rigid protocols or justify billing
- Redundant administrative and scheduling units
- **Low utilization** of expensive physicians, staff, clinical space and equipment, partly due to duplication and service fragmentation
- Use of physicians and skilled staff for less skilled activities
- Delivering care in over-resourced facilities
  - E.g. routine care delivered in expensive hospital settings
- **Long cycle times** and unnecessary delays
- Excess inventory and weak inventory management
- Focus on minimizing the costs of discrete services rather than optimizing the total cost of the care cycle
- Lack of cost awareness in clinical teams

- There are numerous cost reduction opportunities that do not require outcome tradeoffs, but will actually improve outcomes
3. Reimbursing through Bundled Prices 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. Integrating Care Delivery Across Separate Facilities
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

2011.09.03 Comprehensive Deck
Four Levels of Provider System Integration

1. Choose an overall scope of services where the provider system can achieve excellence in value

2. Rationalize service lines / IPUs across facilities to improve volume, better utilize resources, and deepen teams

3. Offer specific services at the appropriate facility
   – Based on medical condition, acuity level, resource intensity, cost level, need for convenience
   – E.g., shifting routine surgeries to smaller, more specialized facilities

4. Clinically integrate care across units and facilities using an IPU structure
   – Integrate services across the care cycle
   – Integrate preventive/primary care units with specialty IPUs

There are major value improvements available from concentrating volume by medical condition and moving care out of heavily resourced hospital, tertiary and quaternary facilities
5. Expanding Geographic Coverage by Excellent Providers

Leading Providers

• Grow *areas of excellence across geography*:
  − *Hub and spoke* expansion of satellite pre- and post-acute services
  − *Affiliations* with community providers to extend the reach of IPUs

• Increase the *volume of patients* in medical conditions or primary care segments vs. *widening* service lines locally, or adding new *broad line* units

Community Providers

• *Affiliate with excellent providers* in more complex medical conditions and patient segments in order to access expertise, facilities and services to enable high value care
  − New roles for *rural* and *community* hospitals
Expanding Geographic Coverage by Excellent Providers
The Cleveland Clinic Affiliate Programs

- Central DuPage Hospital, IL
  Cardiac Surgery
- Chester County Hospital, PA
  Cardiac Surgery
- CLEVELAND CLINIC
- Pikeville Medical Center, KY
  Cardiac Surgery
- St. Vincent Indianapolis, IN
  Kidney Transplant
- Cape Fear Valley Medical Center, NC
  Cardiac Surgery
- McLeod Heart & Vascular Institute, SC
  Cardiac Surgery
- St. Vincent Indianapolis, IN
  Kidney Transplant
- Charleston, WV
  Kidney Transplant
- Cleveland Clinic Florida Weston, FL
  Cardiac Surgery
- Rochester General Hospital, NY
  Cardiac Surgery
6. Building an Enabling Information Technology Platform

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

- Common data definitions
- Combine all types of data (e.g. notes, images) for each patient
- 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

- Organize into Integrated Practice Units
- Measure Outcomes and Cost For Every Patient
- Move to Bundled Prices for Care Cycles
- Integrate Care Delivery Across Separate Facilities
- Grow Excellent Services Across Geography

Build an Enabling IT Platform
### Creating a Value-Based Health Care Delivery System

**Implications for Physician Leaders**

<table>
<thead>
<tr>
<th>1. Integrated Practice Units (IPUs)</th>
<th>• Lead <em>multidisciplinary teams</em>, not specialty silos</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Measure Cost and Outcomes</td>
<td>• Become an expert in <em>measurement</em> and <em>process improvement</em></td>
</tr>
<tr>
<td>3. Move to Bundled Prices</td>
<td>• Proactively develop new <em>bundled reimbursement options</em> and <em>care guarantees</em></td>
</tr>
<tr>
<td>4. Integrate Across Separate Facilities</td>
<td>• Champion <em>value enhancing rationalization, relocation, and integration</em> with sister hospitals, as well as between inpatient and outpatient units, instead of protecting turf</td>
</tr>
<tr>
<td>5. Expand Excellence Across Geography</td>
<td>• Create networks and affiliations to expand high-value care <em>outside the local area</em></td>
</tr>
<tr>
<td>6. Enabling IT Platform</td>
<td>• Become a <em>champion for the right EMR systems</em>, not an obstacle to their adoption and use</td>
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</tbody>
</table>