Value-Based Health Care Delivery
Welcome and Introduction

Professor Michael E. Porter
Harvard Business School
www.isc.hbs.edu

June 20, 2011

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

• 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, 21\(^{st}\) century medical technology is often delivered with 19\(^{th}\) century organization structures, management practices, and payment models

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

• **Choice** and **Competition** for patients/subscribers are powerful forces to encourage restructuring of care and continuous improvement in value

• Today’s competition in health care is often not aligned with value

\[
\begin{array}{c|c}
\text{Financial success of} & \neq & \text{Patient} \\
\text{system participants} & & \text{success}
\end{array}
\]

• Creating positive-sum **competition on value** is integral 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 patient health results over the care cycle.
- Costs are the total costs of care for a patient’s condition over the care cycle.
Principles of Value-Based Health Care Delivery

- **Quality improvement** is a powerful driver of cost containment and value improvement, where quality is **health outcomes**

- Prevention of illness
- Early detection
- Right diagnosis
- Right treatment to the right patient
- Early and timely treatment
- Treatment earlier in the causal chain of disease
- Rapid cycle time of diagnosis and treatment
- Less invasive treatment methods
- Fewer complications
- Fewer mistakes and repeats in treatment
- Faster recovery
- More complete recovery
- Less disability
- Fewer recurrences, relapses, flare ups, or acute episodes
- Slower disease progression
- Greater functionality and less need for long term care
- Less care induced illness

- **Better health** is the goal, not more treatment
- Better health is **inherently less expensive** than poor health
Creating a Value-Based Health Care Delivery Organization

The Strategic Agenda

1. Organize into Integrated Practice Units (IPUs) Around Patient Medical Conditions
   - Organize primary and preventive care to serve distinct patient populations

2. Establish Universal Measurement of Outcomes and Cost for Every Patient

3. Move to Bundled Prices for Care Cycles

4. Integrate Care Delivery Across Separate Facilities

5. Expand Excellent IPUs Across Geography

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

Existing Model:
Organize by Specialty and Discrete Services

New Model:
Organize into Integrated Practice Units (IPUs)

A medical condition is an interrelated set of patient medical circumstances best addressed in an integrated way

- Defined from the patient’s perspective
- Including common co-occurring conditions and complications
- Involving multiple specialties and services

In primary / preventive care, the organizational unit for care is a defined patient population (e.g. healthy adults, frail elderly)

IPUs can address a single medical condition or groups of closely related medical conditions involving similar specialties, services, and expertise

The patient’s medical condition is the unit of value creation and unit of value measurement in health care delivery
## Integrating Across the Cycle of Care

### Breast Cancer

<table>
<thead>
<tr>
<th>INFORMING AND ENGAGING</th>
<th>MEASURING</th>
<th>ACCESSING THE PATIENT</th>
<th>MONITORING/PREVENTING</th>
<th>DIAGNOSING</th>
<th>PREPARING</th>
<th>INTERVENING</th>
<th>RECOVERING/REHABING</th>
<th>MONITORING/MANAGING</th>
</tr>
</thead>
</table>
| • Advice on self screening  
• Consultations on risk factors | • Self exams  
• Mammograms | • Office visits  
• Mammography unit  
• Lab 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 |
| • Counseling patient and family on the diagnostic process and the diagnosis | • Mammograms  
• Ultrasound  
• MRI  
• Labs (CBC, etc.)  
• Biopsy  
• BRACA 1, 2...  
• CT  
• Bone Scans | • Office visits  
• Lab visits  
• High risk clinic visits | | | | | |
| • Explaining patient treatment options/shared decision making  
• Patient and family psychological counseling | • Labs | • Office visits  
• Hospital visits  
• Lab visits | | | | | |
| • Counseling on the treatment process  
• Education on managing side effects and avoiding complications  
• Achieving compliance | • Procedure-specific measurements | • Hospital stays  
• Visits to outpatient radiation or chemotherapy units  
• Pharmacy visits | | | | | |
| • Counseling on rehabilitation options, process  
• Achieving compliance  
• Psychological counseling | • Range of movement  
• Side effects measurement | • Office visits  
• Rehabilitation facility visits  
• Pharmacy visits | | | | | |
| • Counseling on long term risk management  
• Achieving compliance | • MRI, CT  
• Recurring mammograms (every six months for the first 3 years) | • Office visits  
• Lab visits  
• Mammographic labs and imaging center visits | | | | | |
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>


- **Minimum volume standards** in lieu of rigorous outcome information are an interim step to drive service consolidation
2. Measure Outcomes and Cost for Every Patient

Patient Initial Conditions → Processes → Indicators → (Health) Outcomes

Patient Compliance

Protocols/Guidelines

E.g., Hemoglobin A1c levels for diabetics

Structure

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. Centers, 2005-2007

Number of programs: 240
Number of transplants: 38,515
One year graft survival: 93.2%

- 16 greater than expected graft survival (6.6%)
- 19 worse than expected graft survival (7.8%)
Flawed Cost Measurement in Health Care

- Current cost accounting practices in health care **obscure understanding of the actual costs** of care delivery and **severely compromise** true cost reduction

**Cost Definition Problem**
- Costs are widely confused with **prices**, or allocated based on prices
- **Reimbursement** has been based on past reimbursement rates, rather than actual costs

**Cost Aggregation Problem**
- Costs are measured and aggregated for departments, specialties, discrete services, and line items (e.g. devices)
- Costs are measured **independent of outcomes**
- Costs should be aggregated for **patient medical conditions** over the **full care cycle**

**Cost Allocation Problem**
- Resource costs are allocated across departments and to patients using **averages or estimates**
- Unbilled serves are included in **overhead**
- Costs should be allocated to **individual patients** based on the **actual use of the resources involved** in their care
- The application of **time-driven activity-based costing (TDABC)** to health care delivery reveals many structural opportunities for cost reduction
3. Setting Bundled Prices for Care Cycles

Bundled Price

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

Provider participation is voluntary. All providers are participating

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

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

The Children’s Hospital of Philadelphia®
5. Expanding Excellent IPUs Across Geography

**Leading Provider**

- Grow **areas of excellence across locations**:  
  - Satellite pre- and post-acute services  
  - Affiliations with community providers  
  - New IPU hubs

**NOT:**

- Further widening the service line locally  
- Growing through new broad line, stand-alone units

**Community Provider**

- **Affiliate with excellent providers** in medical conditions and patient populations to access sufficient volume, expertise, and sophisticated facilities and services to achieve superior value  
  - New roles for rural and community hospitals
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
Creating a Value-Based Health Care Delivery Organization

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Participants (91)

Regions

• North West, North East, Yorkshire, Northumberland (14)
• West Midlands, East Midlands, East of England (8)
• South West, South Central, South East Coast (10)
• London & National (54)
• United States (5)

Roles

• Executives (20)
  – 19 CEOs
• Medical Directors (23)
• Clinical Leaders (20)
  – Including 8 GPs
• Nurses (5)
• Managers (17)
• Academics (6)
Senior Faculty

- **Michael E. Porter**, Harvard Business School
- **Thomas H. Lee**, Harvard Medical School, Harvard School of Public Health, Partners HealthCare

Other Principles

- **Professor Kamalini Ramdas**, London Business School
- **Dr. James Mountford**, UCL Partners
- **Dr. Emma Stanton**, Harkness Fellow, Harvard Business School
- **Dr. Jenny Shand**, UCL Partners
- **Dr. Caleb Stowell**, Harvard Business School
# Value-Based Health Care Delivery: Seminar Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday, June 20</th>
<th>Tuesday, June 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00-08:15</td>
<td>08:00-8:15 Welcome</td>
<td>08:15-10:45 UK Mini Cases</td>
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<tr>
<td></td>
<td>Michael Porter</td>
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<tr>
<td>08:30-08:45</td>
<td>08:15-8:35 UCLH Homeless Discussion: Tom Lee</td>
<td>8:35-8:45 Protagonist Discussion: Alex Bax, Nigel Hewett</td>
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<td></td>
<td>Bruce Keogh</td>
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<tr>
<td>08:45-09:15</td>
<td>08:35-8:45 Protagonist Discussion: Harini Narayan</td>
<td>9:10-9:20 Protagonist Discussion: Harini Narayan</td>
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<td></td>
<td>Michael Porter</td>
<td>9:25-9:45 Stroke Case Discussion: Tom Lee</td>
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<tr>
<td>09:15-10:00</td>
<td>09:00-10:45 Synthesis and Discussion</td>
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<tr>
<td>Topic Lecture</td>
<td>8:50-9:10 GWH Maternity Case Discussion: Michael Porter</td>
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<tr>
<td>Intro to Value-Based Health Care Delivery</td>
<td>9:10-10:45 Protagonist Discussion: Charlie Davie</td>
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<td></td>
<td>Michael Porter</td>
<td>10:00-10:45 Synthesis and Discussion</td>
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<td></td>
<td>10:00-11:30 HBS Case 1: MD Anderson Cancer Care</td>
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<td></td>
<td>Michael Porter</td>
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<tr>
<td>11:00-11:45</td>
<td>10:45-11:00 Break</td>
<td>11:00-12:30 HBS Case 3: Cleveland Clinic</td>
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<td></td>
<td>11:30-11:45 Break</td>
<td>12:30-13:30 Lunch</td>
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<td></td>
<td>11:45-12:30 HBS Case 1: MD Anderson Video and</td>
<td>12:30-13:30 Lunch</td>
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<tr>
<td>Discussion</td>
<td>12:30-13:15 Topic Lecture: IPUs, Outcomes and Cost</td>
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<td>13:00-13:45 Lunch</td>
<td>12:30-13:30 Lunch</td>
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<td>13:15-14:15 Lunch</td>
<td>13:00-13:45 Lunch</td>
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<tr>
<td></td>
<td>13:30-13:15 Topic Lecture: IPUs, Outcomes and Cost</td>
<td>13:30-14:45 HBS Case 3: Cleveland Clinic Protagonist</td>
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<td></td>
<td>13:30-13:15 Topic Lecture: IPUs, Outcomes and Cost</td>
<td>Dr. Toby Cosgrove, CEO</td>
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<td>13:30-14:45 HBS Case 3: Cleveland Clinic Protagonist</td>
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<td>14:15-14:15 Lunch</td>
<td>14:15-15:15 Facilitated Discussion: Moving to Action</td>
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<td>14:15-15:45 HBS Case 2: Commonwealth Care Alliance</td>
<td>Tom Lee</td>
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<td>14:15-15:45 HBS Case 2: Commonwealth Care Alliance</td>
<td>15:00-16:00 Break</td>
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<td>14:15-15:45 HBS Case 2: Commonwealth Care Alliance</td>
<td>15:45-16:15 Wrap Up, Take Aways, and Next Steps</td>
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<td>14:15-15:45 HBS Case 2: Commonwealth Care Alliance</td>
<td>Michael Porter and Tom Lee</td>
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<td>15:45-16:00 Break</td>
<td>Michael Porter and Tom Lee</td>
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<tr>
<td></td>
<td>16:00-16:45 HBS Case 2: Commonwealth Care Alliance</td>
<td>16:45-17:15 Topic Lecture: System Integration and Growth</td>
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<td></td>
<td>16:00-16:45 HBS Case 2: Commonwealth Care Alliance</td>
<td>Michael Porter</td>
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<tr>
<td></td>
<td>16:45-17:15 Topic Lecture: Applying a Value Framework</td>
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<td>17:15-17:45 Discussion and Take-Aways from Day 1</td>
<td>Tom Lee</td>
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<tr>
<td></td>
<td>17:15-17:45 Discussion and Take-Aways from Day 1</td>
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<td>17:45-18:00 Break</td>
<td>Tom Lee</td>
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<td></td>
<td>17:45-18:00 Break</td>
<td>17:45-18:00 Break</td>
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<tr>
<td>18:00-18:30</td>
<td>18:00-21:30 Reception and Dinner at Barber-Surgeons’</td>
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<tr>
<td>Break</td>
<td>Hall</td>
<td>18:00-21:30 Reception and Dinner at Barber-Surgeons’ Hall</td>
</tr>
<tr>
<td></td>
<td>18:30-21:30 Reception and Dinner at Barber-Surgeons’</td>
<td></td>
</tr>
</tbody>
</table>
The Case Method

• **Raise your hand** to participate
• Use **case facts only** during the discussion
• **No questions** to the instructor are appropriate during the case discussion
• There are **no “right” answers**