Value-Based Health Care Delivery

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Harvard Business School

Vanguard Vision
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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

• Universal coverage and access to care are **essential, but not enough**

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

  Value: Patient health outcomes per dollar spent

• How to design a health care system that **dramatically improves patient value**
  – Ownership of entities is secondary (e.g. non-profit vs. for profit vs. government)

• 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, 21st century medical technology is often delivered with 19th century organization structures, management practices, and pricing models

- Process improvements, safety initiatives, disease management and other **overlays** to the current structure are beneficial, but not sufficient
- Consumers alone **cannot fix the dysfunctional structure** of the current system
Creating Competition on Value

- Competition for patients/subscribers is a powerful force to encourage restructuring of care and continuous improvement in value

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

| Financial success of system participants | ≠ | Patient success |

- Creating positive-sum competition on value is a central challenge in health care reform in every country
Principles of Value-Based Health Care Delivery

The central goal in health care must be \textit{value for patients}, not access, volume, convenience, or cost containment.

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

- Outcomes are the \textbf{full set of patient health outcomes} over the care cycle.
- Costs are the \textbf{total costs of care for the patient’s condition} over the care cycle.

How to design a health care system that \textbf{dramatically improves patient value}.
**Principles of Value-Based Health Care Delivery**

*Quality improvement* is the key driver of cost containment and value improvement, where quality is **health outcomes**

| - Prevention of illness and recurrences | - Fewer complications |
| - Early detection | - Fewer mistakes and repeats in treatment |
| - Right diagnosis | - Faster recovery |
| - Right treatment to the right patient | - More complete recovery |
| - Early and timely treatment | - Less disability |
| - Treatment earlier in the causal chain of disease | - Fewer relapses or acute episodes |
| - Rapid cycle time of diagnosis and treatment | - Slower disease progression |
| - Less invasive treatment methods | - 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
Note: Cost including; primary care, specialized somatic care, specialized psychiatry care, other medical care, political health- and medical care activities, other subsidies (e.g. drugs)
Source: Öppna jämförelser, Socialstyrelsen 2008; Sjukvårdsdata i fokus 2008; BCG analysis
Creating a Value-Based Health Care Delivery System

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. Organize Around Patient Medical Conditions
Migraine Care in Germany

Existing Model:
Organize by Specialty and Discrete Services

- Imaging Centers
- Outpatient Physical Therapists
- Outpatient Neurologists
- Primary Care Physicians
- Inpatient Treatment and Detox Units
- Outpatient Psychologists

New Model:
Organize into Integrated Practice Units (IPUs)

- Affiliated Imaging Unit
- Primary Care Physicians
- West German Headache Center
  - Neurologists
  - Psychologists
  - Physical Therapists
  - Day Hospital
- Essen Univ. Hospital Inpatient Unit
- Affiliated “Network” Neurologists

## Integrating Across the Cycle of Care

### Breast Cancer

<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/REHABING</th>
<th>MONITORING/MANAGING</th>
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<tr>
<td>• Advice on self screening</td>
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<td>• Consultations on risk factors</td>
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<td>• Counseling patient and family on the diagnostic process and the diagnosis</td>
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<td>• Explaining patient treatment options/shared decision making</td>
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<td>• Patient and family psychological counseling</td>
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<td>• Education on managing side effects and avoiding complications of treatment</td>
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<td>• Counseling on rehabilitation options, process</td>
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<td>• Counseling on long term risk management</td>
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</tbody>
</table>

| Self exams  |
| Mammograms  |
| Mammograms  |
| Ultrasound  |
| MRI  |
| Labs (CBC, etc.)  |
| Blood chams, etc.  |
| Biopsy  |
| BRACA 1, 2...  |
| CT  |
| Bone Scans  |
| Labs  |
| Procedure-specific measurements  |
| Range of movement  |
| Side effects measurement  |
| MRI, CT  |
| Recurring mammograms (every six months for the first 3 years)  |

| Office visits  |
| Mammography lab visits  |
| Office visits  |
| Hospital stays  |
| Office visits  |
| Office visits  |
| Office visits  |
| Hospital visits  |
| Lab visits  |
| Visits to outpatient radiation or chemotherapy units  |
| Pharmacy  |
| Rehabilitation facility visits  |
| Pharmacy  |
| 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 onco-plastic surgery evaluation  |
| Neo-adjuvant chemotherapy  |
| Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)  |
| Physical therapy  |
| Periodic mammography  |
| Other imaging  |
| Follow-up clinical exams  |
| Treatment for any continued or later onset side effects or complications  |

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Breast Cancer Specialist  
Other Provider Entities
Volume in a Medical Condition Enables Value

The Virtuous Circle of Value

- Volume and experience have an **even greater** impact on value in an IPU structure than in the current system.
## Fragmentation of Hospital Services
### 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>
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<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>

Integrated Models of Primary Care

• Organize primary care around specific patient populations (e.g. healthy adults, frail elderly, type II diabetics) rather than attempting to be all things to all patients

• Involving defined service bundles covering appropriate prevention, screening, diagnosis, wellness and health maintenance

• Services are provided by multidisciplinary teams, including ancillary health professionals and support staff in dedicated facilities

• Alliances with specialty IPUs covering the prevalent medical conditions represented in the patient population

• Delivered not only in traditional settings but at the workplace, community organizations, and in other locations that offer regular patient contact and the ability to develop a group culture of wellness

• Today’s primary care is fragmented and attempts to address overly broad needs with limited resources
2. Measure Outcomes and Cost for Every Patient

- For medical conditions
- **Real time** and "on-line" in care delivery, not just retrospectively or in clinical studies
- **Not** for interventions or short episodes
- **Not** separately for types of service (e.g. inpatient, outpatient, tests, rehabilitation)
- **Not** for practices, departments, clinics, or entire hospitals

Measuring and reporting **volume** by medical condition
Measuring Value

- **Patient Initial Conditions**
- **Processes**
- **Indicators**
- **(Health) Outcomes**

**Patient Compliance**

- Protocols/Guidelines
  - E.g., Hemoglobin A1c levels for diabetics
- Structure
  - E.g., Staff certification, facilities
The Outcome Measures Hierarchy

Tier 1
- Survival
- Health Status
  - Degree of health/recovery

Tier 2
- Time to recovery and return to normal activities
- Process of Recovery
  - 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
  - Long-term consequences of therapy (e.g., care-induced illnesses)

Recurrences
Care-induced Illnesses
Adult Kidney Transplant Outcomes,
U.S. Center Results, 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, 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%)
Measuring Health Care Costs

• Current organization structure and cost accounting practices in health care obscure the measurement of costs, leaving major opportunities for cost efficiencies

  – Over-resourced facilities
    ▪ E.g. routine care delivered in expensive hospital settings
  – Under-utilization of expensive space, equipment, and facilities
  – Poor utilization of highly skilled physicians and staff
  – Over-provision of low- or no-value testing and other services in order to justify billing
  – Lengthy cycle and wait times
  – Missed opportunities for volume procurement
  – Excess inventory and weak inventory management

• These cost drivers do not require outcome tradeoffs, but may actually improve them
3. Move to Bundled Prices for Care Cycles

- Fee for service
- Bundled reimbursement for medical conditions
- Global budgeting
- Global capitation
What is a Bundled Payment?

- A **total package price** for the care cycle for a medical condition
  - Including time-based bundled reimbursement for **managing chronic conditions** and for **primary/preventive** service bundles
  - Including responsibility for **avoidable complications**
- The bundled price should be **severity adjusted**

**What is Not a Bundled Payment**

- Price for a **short** episode (e.g. inpatient only, procedure only)
- **Separate** payments for physicians and facilities
- “**Medical Home**” payment for care coordination
- **Pay-for-performance** bonuses
- **DRGs** can be a **starting point** for bundled payment models
Bundled Payment in Practice
Hip and Knee Replacement in Stockholm, Sweden

• **Components** of the bundle

<table>
<thead>
<tr>
<th>Components</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Pre-op evaluation</td>
<td>1 follow-up visit within 3 months</td>
</tr>
<tr>
<td>Lab tests</td>
<td>Any additional surgery to the joint</td>
</tr>
<tr>
<td>Radiology</td>
<td>within 2 years</td>
</tr>
<tr>
<td>Surgery &amp; related admission</td>
<td>If post-op infection requiring</td>
</tr>
<tr>
<td>Prosthesis</td>
<td>antibiotics occurs, guarantee</td>
</tr>
<tr>
<td>Drugs</td>
<td>extends to 5 years</td>
</tr>
<tr>
<td>Inpatient rehab, up to 6 days</td>
<td></td>
</tr>
</tbody>
</table>

• 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** but all providers are involved

• The bundled price for a knee or hip replacement is about **US $8,000**
4. Integrate Care Delivery Across Separate Facilities

Children’s Hospital of Philadelphia Care Network

- 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

- Map showing locations of network hospitals and outpatient units in Pennsylvania, New Jersey, and Delaware.
Levels of System Integration

• Select a **scope of service lines** where the organization can achieve excellence

• **Rationalize service lines/ IPUs** across facilities to improve volume, avoid duplication, and deepen the team

• **Offer specific services at the appropriate facility**
  – E.g. acuity level, cost level, need for convenience

• **Clinically integrate care across facilities**, within an IPU structure
  – **Expand and integrate** the care cycle
  – Better connect **preventive/primary care** units to specialty IPUs

• There is a major opportunity to improve value through **moving care out** of heavily resourced, tertiary and quaternary facilities
5. Expand Excellent IPUs Across Geography

• Grow **areas of excellence** and **leverage across locations**, rather than adding broad line, stand-alone units

• **Affiliations with excellent providers** in medical conditions where there is insufficient volume or expertise to achieve superior value
Expanding Excellent IPUs Across Geography
The Cleveland Clinic Managed Practices

- Rochester General Hospital, NY
  - Cardiac Surgery
- CLEVELAND CLINIC
  - Cardiac Care
- Chester County Hospital, PA
  - Cardiac Surgery
- Cape Fear Valley Health System, NC
  - Cardiac Surgery
- McLeod Heart & Vascular Institute, SC
  - Cardiac Surgery
- Cleveland Clinic Florida Weston, FL
  - Cardiac Surgery
6. Create 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 over time
- Data encompasses the **full care cycle**, including referring entities
- Allowing access and communication among **all involved parties**, including patients
- **“Structured”** data vs. free text
- **Templates** for medical conditions to enhance the user interface
- Architecture that allows **easy extraction of outcome, process, and cost measures**
- Interoperability standards enabling communication among **different provider systems**
Creating a Value-Based Health Care Delivery System

The Strategic Agenda

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Value-Based Health Care Delivery: Implications for Contracting Parties/Health Plans

- Providers can lead in developing new relationships with health plans through their role in providing health benefits for their own employees.
Value-Based Health Care Delivery: Implications for Government

• Establish **universal measurement** and **reporting** of provider **health outcomes**
  – Also require universal reporting by **health plans**

• Remove obstacles to the **restructuring of health care delivery** around the integrated care of medical conditions

• Shift reimbursement systems to **bundled prices for cycles of care** instead of payments for discrete treatments or services

• **Open up competition** among providers and across geography

• Mandate **EMR adoption** that enables integrated care and supports outcome measurement
  – National **standards** for data definitions, communication, and aggregation
  – **Software as a service** model for smaller providers

• Set policies that encourage greater **responsibility of individuals** for their health and their health care
Value-Based Health Care Delivery: The Role of Employers

• Employer interests are more closely aligned with patient interests than any other system participant
  – Employers need healthy, high performing employees
  – Employers bear the costs of chronic health problems and poor quality care
  – The cost of poor health is 2 to 7 times more than the cost of health benefits
    ▪ Absenteeism
    ▪ Presenteeism

• Employers are uniquely positioned to improve employee health
  – Daily interactions with employees
  – On-site clinics for quick diagnosis and treatment, prevention, and screening
  – Group culture of wellness

• Providers can establish direct relationships with employers to enable value based approaches