Value-Based Health Care Delivery

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Introduction to Social Medicine
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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.
Principles of Value-Based Health Care Delivery

• The central goal in health care must be **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 **full set of patient health outcomes** over the care cycle
– Costs are the **total costs of care for the patient’s condition** over the care cycle

• How to design a health care system that **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**

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

- **Better health** is the goal, not more treatment
- Better health is **inherently less expensive** than poor health
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
- Inpatient Treatment and Detox Units
- Primary Care Physicians
- Outpatient Psychologists

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

- Affiliated Imaging Unit
- 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

### 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

### Measuring
- Self exams
- Mammograms
- Mammograms
- Ultrasound
- MRI
- Labs (CBC, etc.)
- Biopsy
- BRACA 1, 2...
- CT
- Bone Scans
- Labs
- Procedure-specific measurements
- Range of movement
- Side effects measurement

### Accessing
- Office visits
- Mammography lab visits
- Hospital stays
- Visits to outpatient radiation or chemotherapy units
- Pharmacy
- Rehabilitation facility visits
- Pharmacy
- Lab visits
- Mammographic labs and imaging center visits

### Monitoring/Preventing
- Medical history
- Control of risk factors (obesity, high fat diet)
- Genetic screening
- Clinical exams
- Monitoring for lumps

### Diagnosing
- Medical history
- Determining the specific nature of the disease (mammograms, pathology, biopsy results)
- Genetic evaluation
- Labs

### Preparing
- Choosing a treatment plan
- Surgery prep (anesthetic risk assessment, EKG)
- Plastic or oncoplastic surgery evaluation
- Neo-adjuvant chemotherapy

### Intervening
- Surgery (breast preservation or mastectomy, oncoplastic alternative)
- Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)
- Physical therapy

### Recovering/Rehabbing
- In-hospital and outpatient wound healing
- Treatment of side effects (e.g., skin damage, cardiac complications, nausea, lymphodema and chronic fatigue)

### Monitoring/Managing
- Periodic mammography
- Other imaging
- Follow-up clinical exams
- Treatment for any continued or later onset side effects or complications

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What is Integrated Care?

Attributes of an Integrated Practice Unit (IPU):

1. Organized around the **patient’s medical condition**
2. Involves a **dedicated, multidisciplinary team** who devote a significant portion of their time to the condition
3. Where providers are part of a **common organizational unit**
4. Utilizing a **single administrative and scheduling structure**
5. Providing 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)
   - Including **patient education, engagement and follow-up**
6. **Co-located** in dedicated facilities
7. With a **physician team captain** and a **care manager** who oversee each patient’s care process
8. Where the team **meets formally and informally** on a regular basis
9. And measures **outcomes and processes** as a **team**, not individually
10. Accepting **joint accountability** for outcomes and costs
Integrated Models of Primary Care

• Today’s primary care is **fragmented** and attempts to address **overly broad needs** with limited resources

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

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

• Provide services with **multidisciplinary teams** including ancillary health professionals and support staff, in **dedicated facilities**

• Form **alliances with specialty IPUs** covering the prevalent medical conditions represented in the patient population

• Deliver services not only in traditional settings but at the **workplace, schools, community organizations**, and in **other locations** offering regular patient contact and the ability to develop a **group culture of wellness**
Volume and experience will 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>
</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 compelling outcome information is an interim step to drive service consolidation
2. Measure Outcomes and Cost for Every Patient

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

**Protocol/Guidelines**
- E.g., Hemoglobin A1c levels for diabetics

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

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The Outcome Measures Hierarchy

**Tier 1**
- **Health Status Achieved or Retained**
  - **Survival**
  - **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%)
Cost Reduction in Health Care

• Current organization structure and cost accounting practices in health care obscure the understanding of actual costs in care delivery
• There are major opportunities for cost efficiencies
  – Over-resourced facilities
    ▪ E.g. routine care delivered in expensive hospital settings
  – Under-utilization of expensive clinical 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/follow rigid protocols
  – Long cycle times
  – Redundant administrative and scheduling personnel
  – Missed opportunities for volume procurement
  – Excess inventory and weak inventory management
  – Lack of cost knowledge and awareness in clinical teams

• Such cost reduction opportunities do not require outcome tradeoffs, but may actually improve outcomes
3. Move to Bundled Prices for Care Cycles

- Bundled reimbursement covers the **full care cycle** for an acute medical condition, and **time-based reimbursement** for chronic conditions or primary/preventive care for a patient population.
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 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

- 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

- Choose an overall **scope of service lines** where the provider can achieve excellence
- **Rationalize service lines/ IPUs** across facilities to improve volume, avoid duplication, and deepen teams
- **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
5. Expand Excellent IPUs Across Geography

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

• Affiliate 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
- Allows 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 measures, process measures, and activity based cost measures for each patient and medical condition
- Interoperability standards enabling communication among different provider systems
Value-Based Health Care Delivery: Implications for Government

• Establish *universal measurement* and *reporting* of health outcomes

• Remove obstacles to *integrated care for medical conditions*

• Shift reimbursement systems to *bundled prices for care cycles*

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

• Set policies to encourage greater *involvement and responsibility of individuals* for their health and their health care

• Set standards and mandate *EMR adoption* that supports integrated care and outcome measurement