Value-Based Health Care Delivery

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This presentation draws on Michael E. Porter and Elizabeth Olmsted Teisberg: Redefining Health Care: Creating Value-Based Competition on Results, Harvard Business School Press, May 2006, and "How Physicians Can Change the Future of Health Care," Journal of the American Medical Association, 2007; 297:1103:1111. 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 Olmsted Teisberg. Further information about these ideas, as well as case studies, can be found on the website of the Institute for Strategy & Competitiveness at http://www.isc.hbs.edu.
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 delivery 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, measurement, and pricing.

- Process improvements, care pathways, lean production, safety initiatives, disease management and other overlays to the current structure are beneficial but not sufficient.
- “Consumers” 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.
The central goal in health care must be **value for patients**, not access, equity, 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**, not just the cost of a single provider or a single service.
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
- 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 relapses or acute episodes
- Slower disease progression
- 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
Cost versus Quality, Sweden
Health Care Spending by County, 2008

Health Care Cost Per Capita (SEK)

Lower cost

Higher cost

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: Öpnna jämförelser, Socialstyrelsen 2008;Sjukvårdsdata i fokus 2008; BCG analysis
Value-Based Health Care Delivery
The Strategic Agenda

1. Organize into Integrated Practice Units around the Patient’s Medical Condition (IPUs)
   - Including primary and preventive care for distinct patient populations

2. Measure Outcomes and Cost for Every Patient

3. Move to Bundled Prices for Care Cycles

4. Integrate Care Delivery Across Separate Facilities

5. Grow by Expanding Excellent IPUs Across Geography

6. Create an Enabling Information Technology Platform
1. Organize Into Integrated Practice Units

Care delivery should be organized around the patient’s medical condition over the full cycle of care

- A medical condition is an interrelated set of patient medical circumstances best addressed in an integrated way
  - Defined from the patient’s perspective
  - Including the most common co-occurring conditions and complications
  - Involving multiple specialties and services

- The patient’s medical condition is the unit of value creation in health care delivery
Organize into Integrated Practice Units
Migraine Care in Germany

Existing Model:
Organize by Specialty and Discrete Services

Organize into Integrated Practice Units
Migraine Care in Germany

Existing Model:
Organize by Specialty and Discrete Services

New Model:
Organize into Integrated Practice Units (IPUs)

# 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 of treatment
- Achieving compliance
- Psychological counseling
- Counseling on long term risk management
- Achieving Compliance

## MEASURING
- Self exams
- Mammograms
- Mammograms
- Ultrasound
- MRI
- Labs (CBC, Blood chems, 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)

## ACCESSING
- Office visits
- Mammography lab visits
- Office visits
- Hospital stays
- Office visits
- Office visits
- Visits to outpatient radiation or chemotherapy units
- 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
- 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
- Surgery (breast preservation or mastectomy, oncoplastic alternative)
- Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)
- Physical therapy
- In-hospital and outpatient wound healing
- Treatment of side effects (e.g. skin damage, cardiac complications, nausea, lymphedema and chronic fatigue)
- Periodic mammography
- Other imaging
- Follow-up clinical exams
- Treatment for any continued or later onset side effects or complications

## DIAGNOSING

## PREPARING

## INTERVENING

## RECOVERING/REHABING

## MONITORING/MANAGING
## Integrating Across the Cycle of Care

### Breast Cancer

<table>
<thead>
<tr>
<th>Prevention</th>
<th>Monitoring</th>
<th>Preparing</th>
<th>Intervening</th>
<th>Recovering</th>
<th>Managing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office visits</td>
<td>Mammography lab visits</td>
<td>Lab visits</td>
<td>Hospital visits</td>
<td>Office visits</td>
<td>Lab visits</td>
</tr>
<tr>
<td>Mammograms</td>
<td>High risk clinic visits</td>
<td>Lab visits</td>
<td>High risk clinic visits</td>
<td>Office visits</td>
<td>Lab visits</td>
</tr>
</tbody>
</table>

### Overview

- **Prevention**
  - Control of risk factors
    - Obesity, high fat diet
    - Genetic screening
    - Monitoring for lumps

- **Monitoring**
  - Medical history
    - Control of risk factors
      - Obesity, high fat diet
    - Genetic screening
    - Monitoring for lumps
  - Lab results

- **Preparing**
  - Surgery breast planning
    - Surgery prior to planning
      - Mastectomy, reconstructive surgery
    - Radiation
  - Adjuvant therapy
    - Hormonal medication
    - Chemotherapy

- **Intervening**
  - Surgery breast treatment
    - Preservation or reconstruction
      - Mastectomy, reconstructive surgery
    - Radiation
  - Treatment of side effects
    - Cardiac complications (e.g., skin damage, lymphedema)

- **Recovering**
  - In-hospital and outpatient treatment
    - Wound healing
  - Rehabilitation
    - Facility visits
  - Pharmacy

- **Managing**
  - Initial mammography
    - Follow-up clinical exams
    - Other imaging
  - Recurrence risks
    - Surveillance exams
    - MRI, CT
  - Mammographic labs and imaging
  - Other imaging
What is Integrated Care?

Key Elements of Integrated Care:

- Care for the full care cycle of a medical condition
- Encompassing inpatient/outpatient/rehabilitation care
- By dedicated teams focused around the patient
- Co-located in dedicated facilities
- In which providers are all part of the same organizational entity
- Utilizing a single administrative and scheduling structure
- With joint accountability for outcomes and overall costs

Integrated care is not the same as:

- Co-location
- Care delivered by the same organization
- A multispecialty group practice
- Clinical Pathways
- Freestanding focused factories
- An Institute or Center
- A Center of Excellence
- A health plan/provider system (e.g. Kaiser Permanente)
- Medical home
- Accountable Care Organization
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>
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</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>
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<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>

IPUs and Value

**Outcomes**

- **Better decisions** in terms of diagnosis and treatment
  - Specialized experience and expertise
  - Better coordination/peer review
  - Better integration of co-occurrences
- **Better execution** of treatment
  - Specialized experience and expertise
  - Tailored facilities
  - Seamless management of common co-occurrences
- **Faster** cycle time
- **Improved patient compliance and engagement** with care
- **Full range of support services** needed to achieve success for the patient (e.g., nutrition, rehabilitation, counseling, psychological support)
- **Vastly greater patient convenience**

**Cost**

- Greater provider efficiency
- Better utilization of facilities
- Streamlined administrative costs
2. Measuring Outcomes and Cost for Every Patient

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

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

Patient Compliance
The Outcome Measures Hierarchy

Tier 1
Health Status Achieved
- Survival

Tier 2
Process of Recovery
- Degree of health/recovery
- Time to recovery or return to normal activities
- Disutility of care or treatment process (e.g., discomfort, complications, adverse effects, errors, and their consequences)

Tier 3
Sustainability of Health
- Sustainability of health or recovery and nature of recurrences
- Long-term consequences of therapy (e.g., care-induced illnesses)
The Outcome Measures Hierarchy

Breast Cancer

**Survival**
- Survival rate (One year, three year, five year, longer)

**Degree of recovery / health**
- Degree of remission
- Functional status
- Breast conservation
- Depression

**Time to recovery or return to normal activities**
- Time to remission
- Time to functional status

**Disutility of care or treatment process**
- Nosocomial infection
- Nausea/vomiting
- Febrile neutropenia

**Sustainability of recovery or health over time**
- Cancer recurrence
- Sustainability of functional status

**Long-term consequences of therapy**
- Incidence of secondary cancers
- Brachial plexopathy

**Initial Conditions/Risk Factors**
- Stage upon diagnosis
- Type of cancer (infiltrating ductal carcinoma, tubular, medullary, lobular, etc.)
- Estrogen and progesterone receptor status (positive or negative)
- Sites of metastases
- Previous treatments
- Age
- Menopausal status
- General health, including co-morbidities
- Psychological and social factors

Disutility of care or treatment process (e.g., treatment-related discomfort, complications, adverse effects, diagnostic errors, treatment errors)

Sustainability of functional status

Incidence of secondary cancers

Fertility/pregnancy complications

Premature osteoporosis
Adult Kidney Transplant Outcomes, U.S. Center Results, 1987-1989

Number of programs: 219
Number of transplants: 19,588
1 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, 1998-2000

1 year graft survival 90.9%
- 10 greater than predicted survival (4.5%)
- 14 worse than predicted survival (6.4%)
Adult Kidney Transplant Outcomes
U.S. Center Results, 2005-2007

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

- 16 greater than expected graft survival (6.6%)
- 19 worse than expected graft survival (7.8%)
Improvement in In-vitro Fertilization Success Rates

Percent Live Births per Fresh, Non-Donor Embryo Transferred by Clinic Size
Women Age <38, 1997-2005

Clinic Size:
Number of Cycles per Year
Success per Embryo Transferred

Cost Measurement

Aspiration

• Cost should be measured at the **medical condition level** (which includes common co-occurring conditions), not for all services combined
• Cost should be measured for each patient, aggregated across the **full cycle of care**
• The cost of each activity or input attributed to a patient should reflect that patient’s use of resources (e.g. time, facilities, service), not average allocations
• The only way to properly measure cost per patient is to track the time devoted to each patient by providers, facilities, support services, and other shared costs

Reality

• Most providers track charges not costs
• Most providers track cost by billing category, not for medical conditions
• Most providers cannot accumulate total costs for particular patients
• Most providers use arbitrary or average allocations, not patient specific allocations
3. Move to Bundled Prices for Care Cycles

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

• **Total package price** for the care cycle for a medical condition
  – Includes responsibility for **avoidable complications**
  – “Medical condition capitation”
• The bundled price should be **severity adjusted**

What is Not Bundled Payment

• Prices for **short** episodes (e.g. inpatient only, procedure only)
• **Separate** payments for physicians and facilities
• **Pay-for-performance** bonuses
• “**Medical Home**” payment for care coordination

• DRGs can be a **starting point** for bundled models
Bundled Payment in Practice
Hip and Knee Replacement in Sweden

- In 2009, Stockholm County Council began to offer a **bundled price for joint replacement** (hip and knee), that includes:
  - Pre-op evaluation
  - Lab tests
  - Radiology
  - Surgery & related admission
  - Prosthesis
  - Drugs
  - Inpatient rehab, up to 6 days
  - 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

- Eligibility is restricted to **relatively healthy patients** (i.e. ASA scores of 1 or 2)
- **Same referral** process as the traditional system
- **Mandatory** reporting to joint registry plus supplementary
- Provider participation is **voluntary** but all providers are involved
  - 6 public hospitals, 4 private hospitals
  - 3400 patients treated in 2009
- The bundled price for a knee or hip replacement is about **US $8,000**
4. Integrate Care Delivery Across Separate Facilities

Confederation of Standalone Units/Facilities

Integrated Care Delivery Network

• Increase **volume**
• Benefits limited to **contracting** and spreading fixed cost

• Increase **value**
• The network is **more than** the sum of its parts
Children’s Hospital of Philadelphia (CHOP)
Hospital Affiliates
Children’s Hospital of Philadelphia (CHOP)
Primary and Specialty Care Network
Levels of System Integration

- **Rationalize service lines/IPUs** across facilities to improve volume, avoid duplication, and concentrate excellence

- **Offer specific services** at the **appropriate facility**
  - E.g. acuity level, cost level, need for convenience
  - Patient referrals across units

- **Clinically integrate care across facilities**, within an IPU structure
  - **Expand** and **integrate** care across facilities
  - **Consistent protocols** and access to experts throughout the network (IT enabled)
  - Connect **ancillary service units** to IPUs
    - E.g. home care, rehabilitation, behavioral health, social work, addiction treatment (organize within service units to align with IPUs)
  - Better connect **preventive/primary care** units and specialty IPUs
Enabling System Integration

Practice Structure
- **IPU structure**
  - “Virtual” IPUs even if providers practice at different locations
  - First step is to increase **consistency** of protocols/processes across sites
  - **Case management structure** spanning units where appropriate

Physician Organization
- **Employed** physicians
- Formal **affiliations** with independent physicians
  - Support service is an inducement for affiliation (E.g. IT, back office)
- **Rotation** of staff across locations

Common Systems
- **Common EMR platform** which aggregates information across units
- Common **outcome and process measurement** systems

Scheduling
- Common or federated **patient scheduling service** across units

Cost Measurement
- Ability to accurately accumulate **cost per patient** across the entire care cycle
- Ability to measure **cost by location** for each service/activity

Culture
- Management practices that foster **affiliation with the organization**, developing **personal relationships**, and **regular contact** among dispersed staff
5. Grow by Expanding Excellent IPUs Across Geography
The Cleveland Clinic Managed Practices

- Grow in ways that improve **value**, not just volume
Models of Geographic Expansion

Affiliations

- Affiliation Agreements with Independent Provider Organizations
- Second Opinions and Telemedicine

Dispersed Services

- Dispersed Diagnostic Centers
- Convenience Sensitive Service Locations in the Community
- Complex IPU Components (e.g. surgery) in Additional Locations

New Hubs

- Specialty Hospitals as Referral Hubs in Additional Locations
- New Broader-Line Hospital Hubs
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**
A Mutually Reinforcing Strategic Agenda

Organize into Integrated Practice Units

Integrate Care Delivery Across Separate Facilities

Measure Outcomes and Cost For Every Patient

Grow Excellent Services Across Geography

Move to Bundled Prices for Care Cycles

Create an Enabling IT Platform
Value-Based Healthcare Delivery: Implications for Contracting Parties/Health Plans

“Payor” → Value-Added Health Organization
Value-Adding Roles of Health Plans

- Assemble, analyze and manage the total medical records of members
- Provide for comprehensive and integrated prevention, wellness, screening, and disease management services to all members
- Assist in coordinating patient care across the care cycle and across medical conditions
- Monitor and compare provider results by medical condition
- Provide advice to patients (and referring physicians) in selecting excellent providers
- Encourage and reward integrated practice unit models by providers
- Design new bundled reimbursement structures for care cycles instead of fees for discrete services
- Measure and report overall health results for members by medical condition versus other plans
- Health plans will require new capabilities and new types of staff to play these roles
Value-Based Health Care: The Role of Employers

• Employer interests are more closely aligned with patient interests than any other system player
  – 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
      o Absenteeism
      o 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 should establish direct relationships with employers to enable value based approaches
Value-Based Health Care Delivery: Implications for Government

- Remove obstacles to the **restructuring of health care delivery** around the integrated care of medical conditions
- Establish **universal measurement** and **reporting** of provider **health outcomes**
- Require universal reporting by health plans of **health outcomes for members**
- 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
- Encourage greater **responsibility of individuals** for their health and their health care