Value-Based Health Care Delivery

Professor Michael E. Porter
Harvard Business School

Managing Global Health
March 4, 2010

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, 21\textsuperscript{st} century medical technology is often delivered with 19\textsuperscript{th} 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
Aligning Competition with 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 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 higher value, 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

Higher cost

Lower cost

County Council Quality Index

Higher Quality

Lower Quality

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
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

Migraine Care in Germany

Existing Model:
Organize by Specialty and Discrete Services

1. 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 on risk factors
- 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
- BRACAs 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
- Office visits
- Hospital stays
- Office visits
- High risk clinic visits
- Lab visits
- Laboratory visits
- Visits to outpatient radiation or chemotherapy units
- Pharmacy
- Rehabilitation facility visits
- Pharmacy
- 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)

### INTERVENING
- Surgery (breast preservation or mastectomy, oncoplastic alternative)
- Plastic or oncoplastic surgery evaluation
- Neo-adjuvant chemotherapy
- Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)

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

### MONITORING/MANAGING
- Periodic mammography
- Other imaging
- Follow-up clinical exams
- Treatment for any continued or later onset side effects or complications
# Integrating Across the Cycle of Care

## Breast Cancer

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  - Consultations on risk factors
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- **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
- **Counseling on rehabilitation options, process**
  - Achieving compliance
- **Counseling on long term risk management**
  - Achieving Compliance

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- **Physical therapy**

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Breast Cancer Specialist
Other Provider Entities
Volume and Experience in a Medical Condition Drives Patient Value

The Virtuous Circle of Value

- Better Results, Adjusted for Risk
- Faster Innovation
- Costs of IT, Measurement, and Process Improvement Spread over More Patients
- Greater Leverage in Purchasing
- Wider Capabilities in the Care Cycle, Including Patient Engagement
- Risk of Better Information/ Clinical Data
- More Fully Dedicated Teams
- More Tailored Facilities
- Rising Process Efficiency
- Rising Capacity for Sub-Specialization
- Improving Reputation
- Greater Patient Volume in a Medical Condition
- Rapidly Accumulating Experience

- 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>
</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>&lt;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. Measure Outcomes and Cost For Every Patient

- **Patient Initial Conditions**
- **Processes/Activities**
  - Protocols/Guidelines
- **Indicators**
  - E.g., Hemoglobin A1c levels for diabetics
- **(Health) Outcomes**
The Outcome Measures Hierarchy

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

**Tier 2**
Process of 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)
Measuring Cost

Aspiration

• Cost should be measured for each patient, aggregated across the full cycle of care

• Cost should be measured for each medical condition (which includes common co-occurring conditions), not for all services

• 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 allocation of shared resources, 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
4. Integrate Care Delivery Across Separate Facilities

Children’s Hospital of Philadelphia (CHOP)

Hospital Affiliates

- Deliver services in the appropriate facility, not every facility
- Excellent providers can manage care delivery across multiple facilities in multiple geographic areas
Levels of System Integration

1. **Rationalize service lines/ IPUs** across facilities to improve volume, avoid duplication, play to strength, and concentrate excellence

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

3. Clinically integrate care **across facilities**, within an IPU structure
   - Develop consistent protocols and provide access to experts by providers throughout the network
   - **Expand coverage** of the care cycle and **integrate care** across the cycle
   - Connecting **ancillary service** units to IPUs
     - E.g. home care, rehabilitation, behavioral health, social work, addiction treatment (organize within service units to align with IPUs)
   - Linking **preventive/primary care** units to specialty IPUs
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

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

**HUBS**
- Specialty Referral Hospitals in Additional Locations
- Broader-Line Referral 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
Value-Based Healthcare Delivery: Implications for Health Plans

“Payor”

Value-Added Health Organization
Health Care Delivery in Resource-Poor Settings Suffers from Similar Problems

<table>
<thead>
<tr>
<th>Current Model</th>
<th>New Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The product is <strong>treatment</strong></td>
<td>• The product is <strong>health</strong></td>
</tr>
<tr>
<td>• Measure <strong>volume</strong> of services</td>
<td>• Measure <strong>value</strong> of services</td>
</tr>
<tr>
<td>(number of tests, treatments)</td>
<td>(health outcomes per unit of cost)</td>
</tr>
<tr>
<td>• Discrete <strong>interventions</strong></td>
<td>• Care cycles</td>
</tr>
<tr>
<td>• <strong>Individual</strong> diseases</td>
<td>• Sets of prevalent <strong>co-occurring conditions</strong></td>
</tr>
<tr>
<td>• <strong>Fragmented, localized, pilots, programs, and entities</strong></td>
<td>• <strong>Integrated</strong> care delivery system</td>
</tr>
</tbody>
</table>
A Framework for Global Health Delivery

I. Care Delivery Value Chains for Medical Conditions

II. Shared Delivery Infrastructure

III. Aligning Delivery with External Context

IV. Leveraging the Health Care System for Economic and Social Development

Supporting Public Policies
The Care Delivery Value Chain
HIV/AIDS

INFORMING/ENGAGING
- Prevention counseling on modes of transmission and condom use
- Explanation of diagnosis and the implications
- Explaining the course of HIV and the prognosis
- Explanation of the approach to forestalling progression
- Explanation of Medication Instructions and Side-Effects
- Counseling about adherence: understanding factors for non-adherence
- Explanation of the co-morbid diagnoses and the implications
- End-of-Life Counseling

MEASURING
- HIV testing
- Screen for sexually transmitted infections
- Collect baseline demographics
- HIV testing for others at risk
- Clinical examination CD4+ count and other labs
- Testing for common co-morbidities such as tuberculosis and sexually transmitted diseases
- Pregnancy testing
- CD4+ Count Monitoring (Continuous Staging)
- Regular Primary Care Assessment
- HIV Testing for Others at Risk
- Laboratory Evaluation for Medication Initiation
- HIV Staging and Medication Response
- Highly Frequency Primary Care Assessment
- Assessing Managing Complications of Therapy
- HIV testing for others at risk (bi-annually)
- Laboratory Evaluation
- HIV Staging and Medication Response
- Regular Primary Care Assessment
- Laboratory Evaluation

ACCESSING
- Testing centers
- High risk settings
- Primary Care Clinics
- Primary Care Clinics
- On-site laboratories at Primary Care Clinics
- Testing Centers
- Primary Care Clinics
- Laboratories (on-site at primary clinic)
- Pharmacy
- Food Centers
- Community Health Workers/Home Visits
- Support Groups
- Primary Care Clinics
- Laboratories (on-site at primary clinic)
- Pharmacy
- Community Health Workers/Home Visits
- Support Groups
- Primary Care Clinics
- Laboratories (on-site at primary clinic)
- Regular Primary Care Assessment
- Laboratory Evaluation
- Food Centers
- Primary Care Clinics
- Laboratories (on-site at primary clinic)
- Community Health Workers/Home Visits
- Hospitals & Hospice Facilities
- Support Groups

SCREENING/PREVENTING
- Connecting patients with primary care system
- Identifying high risk individuals
- Testing at-risk individuals
- Promoting appropriate risk reduction strategies
- Modifying behavioral risk factors
- Creating a medical record
- Formal diagnosis and staging
- Determine method of transmission and others at potential risk
- Identify others at risk
- Screen for TB, syphilis, and other sexually transmitted diseases
- Pregnancy testing and contraceptive counselling
- Create management plan, including scheduling of follow-up visits
- Formulate a treatment plan
- Initiate therapies that can delay onset, including vitamins and food
- Treat co-morbidities that affect progression of disease, especially tuberculosis
- Improve patient awareness of disease progression, prognosis, and transmission
- Connect patient to care team, including community health work
- Initiate comprehensive anti-retroviral therapy and assess medication readiness
- Prepare patient for disease progression and side-effects of associated treatment
- Manage secondary infections and associated illnesses
- Managing effects of associated illnesses
- Managing side effects of treatment
- Determine supporting nutritional modifications
- Preparing patient for end-of-life management
- Primary care and health maintenance
- Identifying clinical and laboratory deterioration
- Initiating second-line, third-line drug therapies
- Managing acute illness and opportunistic infection either through aggressive outpatient management or hospitalization
- Provide additional community/social support if needed
- Access to Hospice Care

Ongoing Disease Management
- Managing acute illness and opportunistic infection either through aggressive outpatient management or hospitalization
- Provide additional community/social support if needed
- Access to Hospice Care

Managing of Clinical Deterioration

Diagnosing/Staging
- Formal diagnosis and staging
- Determine method of transmission and others at potential risk
- Identify others at risk
- Screen for TB, syphilis, and other sexually transmitted diseases
- Pregnancy testing and contraceptive counselling

Delays Progression
- Initiate therapies that can delay onset, including vitamins and food
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Initiating Anti-Retroviral Therapy
- Initiate comprehensive anti-retroviral therapy and assess medication readiness
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Ongoing Disease Management
- Managing effects of associated illnesses
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Management of Clinical Deterioration
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Care Delivery Value Chain
Illustrative Implications for HIV/AIDS Care

- **Targeted prevention** for at-risk individuals creates more value than across the board efforts

- **Early diagnosis** helps in forestalling disease progression

- **Intensive evaluation and treatment at the time of the diagnosis** can forestall disease progression

- **Improving compliance with first stage drug therapy** lowers drug resistance and the need to move to more costly second line therapies
Shared Delivery Infrastructure

Health Clinics ↔ Community Health Workers ↔ District Hospitals

Testing Laboratories ↔ Tertiary Hospitals

Cross Cutting Issues

- Supply Chain Management
- Information and IT
- Human Resource Development
- Insurance and Financing
Integrating “Vertical” and “Horizontal”

Care Delivery Value Chains

- HIV/AIDS
- Malaria
- Perinatal
- Tuberculosis

Shared Delivery Infrastructure

- Health Clinics
- Community Health Workers
- District Hospitals
- Testing Laboratories
- Tertiary Hospitals

- Integrating care across related diseases
- What care at what facilities
- Integrating care across the system
Shared Delivery Infrastructure
Illustrative Implications for HIV/AIDS Care

• Screening is most effective when integrated into a primary health care system

• Providing maternal and child health care services is integral to the HIV/AIDS care cycle by substantially reducing the incidence of new cases of HIV

• Community health workers can not only improve compliance with ARV therapy but can simultaneously address other conditions
Integrating Delivery and Context

External Context for Health

Integrated Care Delivery

Access to Care Facilities

Health Awareness

Family/Community Attitudes and Support

Nutrition

Environmental Factors

Water & Sanitation

Broader Influences

JOBS

HOUSING

EDUCATION

PHYSICAL INFRASTRUCTURE

TRANSPORTATION

VIOLENCE

POLITICAL STABILITY

COMMUNICATION SYSTEMS

Environmental Factors

POLITICAL STABILITY

COMMUNICATION SYSTEMS
Integrating Care Delivery and Social/Economic Context
Illustrative Implications for HIV/AIDS Care

• Community health workers can have a major role in **overcoming transportation and other barriers to access and compliance with care**

• Providing **nutrition support** can be important to success in ARV therapy

• Integrating HIV screening and treatment into routine primary care facilities can help address the **social stigma** of seeking care for HIV/AIDS

• Gender dynamics **limit the use of some prevention options** in certain settings

• Management of **social and economic barriers** is critical to the treatment and prevention of HIV/AIDS
The Relationship Between Health Systems and Economic Development

Better Health **Enables** Economic Development

- Enables people to work
- Raises productivity

Health System Development **Fosters** Economic Development

- Direct employment (health sector jobs)
- Local procurement
- Catalyst for infrastructure (e.g. cell towers, internet, and electrification)
A New Field of Health Care Delivery

- What is the *pathophysiology*?
- What is the *proper diagnosis* and *appropriate intervention*?
- Does the *intervention* work?
- • How are interventions best *delivered*?
- • How can the entire set of interventions and supporting services be *integrated and optimized over the care cycle*?
- • How should delivery *adapt to local conditions*?
- • What is the *overall value* of care (set of outcomes, costs)?