Value-Based Global Health Care Delivery

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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

• Achieving 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 payment 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 often not aligned with value.

  Financial success of system participants $\neq$ 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, 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

- Prevention of illness and recurrences
- 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, flare ups, 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
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
- Affiliated “Network” Neurologists
- Essen Univ. Hospital Inpatient Unit

# 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 rehabilitation options, process
- Achieving compliance
- Counseling on long term risk management
- Achieving Compliance

### MEASURING
- Self exams
- Mammograms
- Mammograms
- Ultrasound
- MRI
- Labs (CBC, etc.)
- 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
- Office visits
- Hospital stays
- Office visits
- Office visits
- Lab 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

### 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 oncoplastic surgery evaluation
- Neo-adjuvant chemotherapy
- 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, lymphohedema and chronic fatigue)
- Physical therapy

### DIAGNOSING

### PREPARING

### INTERVENING
- Surgery (breast preservation or mastectomy, oncoplastic alternative)

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

### MONITORING/MANAGING

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Breast Cancer Specialist
Other Provider Entities

20100924 Princeton GHD

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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
What is Integrated Care?

Attributes of an Integrated Practice Unit (IPU):

1. Organized around the patient’s medical condition
2. Involves a dedicated 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. Provides the full cycle of care for the condition
   - Encompasses inpatient, outpatient, and rehabilitative care as well as supporting services (e.g. nutrition, social work, behavioral health)
   - Includes 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 processes and outcomes as a team, not individually
10. And accepts joint accountability for outcomes and costs
Volume in a Medical Condition Enables 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
- Rising Capacity for Sub-Specialization
- Rising Process Efficiency
- More Tailored Facilities
- More Fully Dedicated Teams
- Better Information/Clinical Data
- Rapidly Accumulating Experience
- Greater Patient Volume in a Medical Condition
- Improving Reputation

- Volume and experience will have an even greater impact on value in an IPU structure than in the current system

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## 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>

2. Measure Outcomes and Cost for Every Patient

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

Protocols/Guidelines
- E.g., Staff certification, facilities

Structure
- E.g., Hemoglobin A1c levels for diabetics
The Outcome Measures Hierarchy

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

**Tier 2**
- **Process of 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)

**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%)
3. Move to Bundled Prices for Care Cycles

Fee for service

Bundled reimbursement for medical conditions

Global budgeting

Global capitation
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

The 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
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 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

• There is a major opportunity to improve value through **moving care out** of heavily resourced hospital, tertiary and quaternary facilities
5. Expand Excellent IPUs Across Geography
The Cleveland Clinic Managed Practices
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
Health Care Delivery in Resource-Poor Settings: The Need for New Approaches

Current Model

• The product is **treatment**

• Measure **volume** of services (number of tests, treatments)

• Discrete **interventions**

• **Individual** diseases

• **Fragmented, localized, pilots, programs, and entities**

New Model

• The product is **health**

• Measure **value** of services (health outcomes per unit of cost)

• **Care cycles**

• Sets of prevalent **co-occurring conditions**

• Large scale **integrated care delivery systems**
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

<table>
<thead>
<tr>
<th>INFORMING/ENGAGING</th>
<th>MEASURING</th>
<th>ACCESSING</th>
<th>SCREENING</th>
<th>DIAGNOSING/STAGING</th>
<th>DELAYING PROGRESSION</th>
<th>INITIATING ANTIRETROVIRAL THERAPY</th>
<th>ONGOING DISEASE MANAGEMENT</th>
<th>MANAGEMENT OF CLINICAL DETERIORATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention counseling on modes of transmission and condom use</td>
<td>HIV testing</td>
<td>Testing centers</td>
<td>Connecting patients with primary care system</td>
<td>Formal diagnosis and staging</td>
<td>Initiate therapies that can delay onset, including vitamins and food</td>
<td>Managing effects of associated illnesses</td>
<td>Identifying clinical and laboratory deterioration</td>
<td></td>
</tr>
<tr>
<td>Explanation of diagnosis and the implications</td>
<td>HIV testing for others at risk</td>
<td>High risk settings</td>
<td>Identifying high risk individuals</td>
<td>Determine method of transmission and others at potential risk</td>
<td>Treat co-morbidities that affect progression of disease, especially tuberculosis</td>
<td>Managing sick effects of treatment</td>
<td>Initiating second-line, third-line drug therapies</td>
<td></td>
</tr>
<tr>
<td>Explaining the course of HIV and the prognosis</td>
<td>Clinical examination (CD4 count and other labs)</td>
<td>Primary care clinics</td>
<td>Testing at-risk individuals</td>
<td>Identify others at risk</td>
<td>Improve patient awareness of disease progression, prognosis, and transmission</td>
<td>Managing acute illness and opportunistic infection either through aggressive outpatient management or hospitalization</td>
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</tr>
<tr>
<td></td>
<td>Testing for common co-morbidities such as tuberculosis and sexually transmitted diseases</td>
<td>On-site laboratories at primary care clinics</td>
<td>Promoting appropriate risk reduction strategies</td>
<td>Screen for TB, syphilis, and other sexually transmitted diseases</td>
<td>Connect patient to care team, including community health work</td>
<td>Providing additional community social support if needed</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Pregnancy testing</td>
<td>Testing Centers</td>
<td>Modifying behavioral risk factors</td>
<td>Pregnancy testing and contraceptive counseling</td>
<td>Create management plan, including scheduling of follow-up visits</td>
<td>Access to Hospice Care</td>
<td>MANAGEMENT OF CLINICAL DETERIORATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Creating a medical record</td>
<td>Create management plan, including scheduling of follow-up visits</td>
<td>Formulate a treatment plan</td>
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CD4+ Count Monitoring (Continuous Staging) | HIV Testing for Others at Risk | Primary Care Clinics | HIV screening | Hospital visits | Clinical staging |

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Care Delivery Value Chain
Illustrative Implications for HIV/AIDS Care

- **Intensive evaluation and treatment at the time of 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

- **Scope of services** at each facility
  - Integrate care across related diseases
- Provide care at the right facility
- Integrate care across facilities
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 also simultaneously address other conditions.
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**

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

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

• 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 improvement (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?
- What is the overall value of care (outcomes, costs)?
- 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?