Redefining Health Care Delivery: Implications for Global Health

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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 system that **dramatically improves value**
  – Ownership of entities is secondary (e.g. non-profit vs. for profit vs. government)
• How to create 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\(^{\text{st}}\) century medical technology is delivered with 19\(^{\text{th}}\) century organization structures, management practices, and pricing models

- TQM, process improvements, safety initiatives, pharmacy management, and disease management overlays are beneficial but **not sufficient** to substantially improve value

- Consumers **cannot fix the dysfunctional structure** of the current system
Harnessing Competition on Value

• Competition is a powerful force to encourage **restructuring of care** and **continuous improvement in value**
  – Competition for patients
  – Competition for health plan subscribers

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

<table>
<thead>
<tr>
<th>Financial success of system participants</th>
<th>Patient success</th>
</tr>
</thead>
</table>

• Creating **competition to improve value** is a central challenge in health care reform
Zero-Sum Competition in U.S. Health Care

**Bad Competition**
- Competition to **shift costs** or **capture more revenue**
- Competition to **increase bargaining power** and secure discounts or price premiums
- Competition to **capture patients** and **restrict choice**
- Competition to **restrict services** in order to maximize revenue per visit or reduce costs

**Zero or Negative Sum**

**Good Competition**
- Competition to **increase value for patients**

**Positive Sum**
Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**
   - Not volume
   - Not access
   - Not equity
   - Not cost reduction
   - Not “profit” in the current system

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

- Outcomes are the **full set of health outcomes** achieved by the patient
- Costs are the **total costs**, including costs not necessarily borne by any one provider or even within the health care system
Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**
2. The best way to improve value and contain cost is to **improve quality**, where quality is health **outcomes**

- Prevention of disease
- Early detection
- Right diagnosis
- Early and timely treatment
- Right treatment to the right patients
- Treatment earlier in the causal chain of disease
- Rapid care delivery process with fewer delays
- 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
Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**

2. The best way to improve value and contain cost is to **improve quality**, where quality is health **outcomes**

3. To maximize value health care delivery must be organized around **medical conditions** 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
  - **Includes** the most common co-occurring conditions
  - Involving **multiple** specialties and services

- The medical condition is the **unit of value creation** in health care delivery
Restructuring Care Delivery
Migraine Care in Germany

Existing Model:
Organize by Specialty and Discrete Services

New Model:
Organize into Integrated Practice Units (IPUs)

- The health plan was crucial to this transformation

# The Cycle of Care: Breast Cancer

## INFORMING & ENGAGING
- Advice on self screening
- Consultation on risk factors

## MEASURING
- Self exams
- Mammograms
- Mammograms
- Ultrasound
- MRI
- Biopsy
- BRACA 1, 2

## ACCESSING
- Office visits
- Mammography lab visits
- Office visits
- Lab visits
- High-risk clinic visits
- Hospital visits
- Office visits
- Hospital stay
- Visits to outpatient or radiation chemotherapy units
- Office visits
- Rehabilitation facility visits
- Office visits
- 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
- Genetic evaluation
- Choosing a treatment plan

## PREPARING
- Surgery prep (anesthetic risk assessment, EKG)
- Plastic or oncoplastic surgery evaluation

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

[Breast Cancer Specialist]
[Other Provider Entities]
Integrated Care Delivery Includes the Patient

• Value in health care is **co-produced** by patients and clinicians

• Unless patients **comply** with care and treatment plans and take steps to improve their health, even the best delivery team will fail

• For chronic care, patients **are often the best experts** on their own health and personal barriers to compliance

• Today’s fragmented system creates **obstacles** to patient education, involvement, and adherence to care

• Simply forcing consumers to pay more is a **false solution**

• **IPUs** will improve patient engagement
The virtuous circle extends across geography when care for a medical condition is integrated across locations.
# Fragmentation of Hospital Services
## Sweden

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Number of hospitals performing the treatment (of 116)</th>
<th>Average number of procedures per provider per year</th>
<th>Average number of procedures per provider per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart transplants</td>
<td>3</td>
<td>13</td>
<td>1.1</td>
</tr>
<tr>
<td>Cardiac valve procedures with cardiac catheter</td>
<td>5</td>
<td>11</td>
<td>0.9</td>
</tr>
<tr>
<td>Coronary bypass with cardiac catheter</td>
<td>6</td>
<td>56</td>
<td>4.7</td>
</tr>
<tr>
<td>Cleft lip and palate repair</td>
<td>8</td>
<td>67</td>
<td>5.6</td>
</tr>
<tr>
<td>Splenectomy, Age &gt;7</td>
<td>39</td>
<td>4</td>
<td>0.3</td>
</tr>
<tr>
<td>Total Mastectomy (without complications)</td>
<td>66</td>
<td>45</td>
<td>3.8</td>
</tr>
<tr>
<td>Iguinal &amp; femoral hernia procedures, Age &gt;17</td>
<td>67</td>
<td>47</td>
<td>3.9</td>
</tr>
</tbody>
</table>

Principles of Value-Based Health Care Delivery

5. Care should be **integrated across facilities** and **across regions**, rather than duplicate services in stand-alone units.

- Excellent providers can manage care delivery **across multiple geographies**.
Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**
2. The best way to improve value and contain cost is to **improve quality**, where quality is health **outcomes**
3. To maximize value, health care delivery must be organized around **medical conditions** over the **full cycle of care**
4. Drive value improvement by increasing provider **experience, scale, and learning** at the **medical condition level**
5. Care should be **integrated across facilities and across regions**, rather than duplicate services in stand-alone units
6. **Measure** and **report** outcomes for every provider for every medical condition

- **For** medical conditions over the cycle of care
  - Not for interventions or short episodes
  - Not for practices, departments, clinics, or hospitals
  - Not separately for types of service (e.g. inpatient, outpatient, tests, rehabilitation)

- Results should be measured at **the level at which value is created**
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)**
Swedish Obesity Registry Indicators

Initial Conditions

- Demographics (age, sex, height, weight, BMI, waist circumference etc)
- Baseline labs – HbA1c (a measure of long-term blood glucose control), Triglycerides, Low Density Lipoprotein (bad cholesterol), High Density Lipoprotein (good cholesterol) Comorbidities (sleep apnea, diabetes, depression, etc)
- SF-36/OP-9 (validated quality of life measures)

Surgery

- Background (Previous surgeries, anesthesia risk class)
- Operation type and concurrent operations (gall bladder removal, appendix removal, etc)
- Perioperative complications
- Surgery data (surgery/anesthesia times, blood loss, etc)
- 6 week follow-up

Source: SOReg: Swedish National Obesity Registry
6-week follow-up

- Length of stay
- <30d surgical complications (bleeding, leakage, infection, technical complications, etc)
- <30d general complications (blood clot, urinary infection, etc)
- Other operations required (gall bladder, plastic surgery, etc)
- Repetition of anthropometric measurements (height, weight, waist, BMI, and change from initial)
- Diabetes labs (HbA1c)

1,2 & 5-year follow-up

- Anthropometrics and change from initial
- Labs (diabetes, triglycerides & cholesterol)
- Comorbidities, and ongoing treatments
- Delayed complications of operation (hernia, ulcer, treatment related malnutrition or anemia, etc)
- Other surgeries since registration
- SF-36/OP-9 (validated quality of life measures)

Source: SOReg: Swedish National Obesity Registry
1. Set the goal as value for patients, not containing costs
2. The best way to improve value and contain cost is to improve quality, where quality is health outcomes
3. Reorganize health care delivery around medical conditions over the full cycle of care
4. Drive value improvement by increasing provider experience, scale, and learning at the medical condition level
5. Care should be integrated across facilities and across regions, rather than duplicate services in stand-alone units
6. Value must be measured and ultimately reported by every provider for each medical condition
7. Reimbursement must be aligned with value and reward innovation
   • Bundled reimbursement for care cycles, not payment for discrete treatments or services
     – Most DRG systems are too narrow
     – Adjusted for patient complexity
   • Time base bundled reimbursement for managing chronic conditions
   • Reimbursement for prevention and screening service bundles, not just treatment

• Providers and health plans must be proactive in driving new reimbursement models, not wait for government
Principles of Value-Based Health Care Delivery

1. Set the goal as **value for patients**, not containing costs
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3. Reorganize health care delivery around **medical conditions** over the **full cycle of care**
4. Drive value improvement by **increasing** provider **experience**, **scale**, and **learning** at the **medical condition level**
5. Care should be **integrated across facilities** and **across regions**, rather than duplicate services in stand-alone units
6. Value must be **measured** and ultimately **reported** by every provider for each medical condition
7. Reimbursement must be aligned with **value** and reward **innovation**
8. Information technology can enable **restructuring of care delivery** and **measuring results**, but is not a solution by itself

- Common data definitions
- Precise interoperability standards
- Patient-centered data warehouse
- Include all types of data (e.g. notes, images)
- Cover the full care cycle, including referring entities
- Accessible to all involved parties
- Templates for medical conditions
Value-Based Healthcare Delivery: Implications for Health Plans

“Payor” → Value-Added Health Organization
### Developed World and Resource-Poor Settings Suffer from Similar Delivery 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 (# tests, treatments)</td>
<td>• Measure <strong>value</strong> of services (health outcomes per unit of cost)</td>
</tr>
<tr>
<td>• Focus on facilities, <strong>specialties</strong> or <strong>types</strong> of practitioners</td>
<td>• Coordinated and integrated care delivery</td>
</tr>
<tr>
<td>• Discrete <strong>interventions</strong></td>
<td>• Care cycles</td>
</tr>
<tr>
<td>• Individual diseases</td>
<td>• Sets of prevalent co-occurrences</td>
</tr>
<tr>
<td>• <strong>Fragmented</strong> programs and entities</td>
<td>• <strong>Integrated</strong> care delivery systems</td>
</tr>
<tr>
<td>• <strong>Localized</strong> pilots and demonstration projects</td>
<td>• <strong>Integrated</strong> systems across communities and regions</td>
</tr>
</tbody>
</table>
Relationships Between Various Stakeholders in Tanzania
I. Care Delivery Value Chains for Medical Conditions

II. Shared Delivery Infrastructure

III. Aligning Delivery with External Context

IV. Leveraging Health Care Delivery System For Economic and Social Development

Supporting Public Policies
# The Care Delivery Value Chain: HIV/AIDS

## Preparing

### Informing & Engaging
- Prevention counseling on modes of transmission on risk factors
- Explaining diagnosis and implications
- Explaining course and prognosis of HIV
- Delaying progression
- Diagnosing & Staging
- Initiating ARV therapy
- Counseling about adherence; understanding factors for non-adherence
- Explaining co-morbid diagnoses
- End-of-life counseling

### Measuring
- HIV testing
- TB, STI screening
- Collecting baseline demographics
- Monitoring CD4+
- Continuous assessing co-morbidities
- Regular primary care assessments
- HIV staging, response to drugs
- Managing complications
- HIV staging

### Accessing
- Meeting patients in high-risk settings
- Primary care clinics
- Food centers
- Testing centers
- Home visits
- Primary care clinics
- Pharmacy
- Support groups
- Primary care clinics
- Pharmacy
- Support groups
- Hospitals, hospices

## Prevention & Screening
- Connecting patient with primary care
- Identifying high-risk individuals
- Testing at-risk individuals
- Promoting appropriate risk reduction strategies
- Modifying behavioral risk factors
- Creating medical records

## Diagnosing & Staging
- Formal diagnosis, staging
- Determining method of transmission
- Identifying others at risk
- TB, STI screening
- Pregnancy testing, contraceptive counseling
- Creating treatment plans

## Delaying Progression
- Initiating therapies that can delay onset, including vitamins and food
- Treating co-morbidities that affect disease progression, especially TB
- Improving patient awareness of disease progression, prognosis, transmission
- Connecting patient with care team

## Initiating ARV Therapy
- Initiating comprehensive ARV therapy, assessing drug readiness
- Preparing patient for disease progression, treatment side effects
- Managing secondary infections, associated illnesses
- Preparing patient for end-of-life management

## Ongoing Disease Management
- Managing effects of associated illnesses
- Managing side effects
- Determining supporting nutritional modifications
- Preparing patient for end-of-life management
- Primary care, health maintenance

## Management of Clinical Deterioration
- Identifying clinical and laboratory deterioration
- Initiating second- and third-line drug therapies
- Managing acute illnesses and opportunistic infection through aggressive outpatient management or hospitalization
- Providing social support
- Access to hospice care

(Health outcomes per unit of cost)
Care Delivery Value Chain
Implications for HIV/AIDS Care

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

• Intensive evaluation and treatment at 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 ↔ District Hospitals ↔ Tertiary Hospitals

Community Health Workers ↔ Testing Laboratories

Cross Cutting Issues
- Supply Chain Management
- Human Resource Development
- Insurance and Financing
Integrating “Vertical” and “Horizontal”

Care Delivery Value Chains

- HIV/AIDS
- Malaria
- Perinatal
- Tuberculosis

Shared Delivery Infrastructure

- Health Clinics
- District Hospitals
- Tertiary Hospitals
- Community Health Workers
- Testing Laboratories
Shared Delivery Infrastructure
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 not only improve compliance with ARV therapy but can simultaneously address other conditions
Integrating Delivery and Context
Broader Influences

External Context for Health

Care Delivery System

- Water & Sanitation
- Environmental Factors
- Nutrition
- Access to Care Facilities
- Health Awareness
- Family/Community Attitudes and Support

JOBS
EDUCATION
COMMUNICATION SYSTEMS
TRANSPORTATION
HOUSING
PHYSICAL INFRASTRUCTURE
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 prevention options in some settings.

Management of social and economic barriers is critical to the treatment and prevention of HIV/AIDS.
IV. 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)
Is there a place for a new field in global health?

- What is the pathophysiology?
- What is the diagnosis and appropriate intervention?
- Does the intervention work?
Is there a place for a new field in global health?

Basic Science → Clinical Science → Evaluation Science → Health Care Delivery Science

- What is the patho-physiology?
- What is the diagnosis and appropriate intervention?
- Does the intervention work?
- How is the intervention best delivered?
- How can the overall delivery system be integrated and optimized over the full care cycle?
- What is the overall value of care (set of outcomes; costs)?