Redefining Global Health Care Delivery
Narrowing the Gap Between Aspiration and Action

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Unprecedented Opportunity

• Key leaders and institutions have recognized the gravity of global health problems

• Since 2001, over $85B in new funding for development

• 28x HIV/AIDS spending increase from $300M in 1996 to $8.5B

• Dramatic decline in treatment costs

• A golden era of funding for global health programs
Case Example: Rwanda
Global Health “Strategy” to Date

• Countries and even districts working in isolation
• Project-based
  • Donor preference driven
  • Experimental pilots that never scale
• Competition among implementers
• Cottage industry approach
• Fragmentation of services
• Absence of results and measurement
• Resources often diverted for overhead and consultants

• Clear need for a better approach
Relationships Between Various Stakeholders in Tanzania

- United Nations
- Bilateral aid
- Drug-delivery programs
- Tanzanian government
- Coordinating committees
- Plans and programs
- IMF/World Bank
- Nongovernmental organizations
Redefining Global Health Care

• Universal coverage is 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

• How to create a dynamic system that keeps rapidly improving
Principles of Value-Based Health Care Delivery

1. The goal should be **value for patients**, not volume of services or cost reduction
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1. The goal should be **value for patients**, not volume of services or cost reduction

2. The best way to **contain costs** is to **improve quality**

   Quality = Health outcomes

   - Prevention
   - Early detection
   - Right diagnosis
   - Early and timely treatment
   - Treatment earlier in the causal chain of disease
   - Right treatment to the right patients
   - Fewer delays in the care delivery process
   - Fewer mistakes and repeats in treatment
   - Fewer complications
   - Less invasive treatment methods
   - Faster recovery
   - More complete recovery
   - Less disability
   - Fewer relapses or acute episodes
   - Slower disease progression
   - Less need for long term care

• Better health is **inherently less expensive** than poor health
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3. Health care delivery should center on **medical conditions** over the **full cycle of care**
Restructuring Health Care Delivery
Migraine Care in Germany

Existing Model: Organize by Specialty and Discrete Services

- Imaging Centers
- Outpatient Physical Therapists
- Outpatient Neurologists
- Primary Care Physicians
- Outpatient Psychologists
- Inpatient Neurologists
- Inpatient Treatment and Detox Units

New Model: Organize into Integrated Practice Units (IPUs)

- Imaging Unit
- Primary Care Physicians
- West German Headache Center
  - Neurologists
  - Psychologists
  - Physical Therapists
  - Day Hospital
- Essen Univ. Hospital Inpatient Unit
- Network Neurologists

- Organize around the **patient over the cycle of care**, not the specialist/intervention/department

## Care Delivery Value Chain

### 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**
  - Lab visits
  - High-risk clinic 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
- **Medical counseling**
- **Surgery prep (anesthetic risk assessment, EKG)**
- **Patient and family psychological counseling**
- **Plastic or oncoplastic surgery evaluation**

#### INTERVENCING
- **Surgery (breast preservation or mastectomy, oncoplastic alternative)**
- **Adjuvant therapies (hormonal medication, radiation, and/or chemotherapy)**
- **In-hospital and outpatient wound healing**
- **Treatment of side effects (skin damage, neurotoxic, cardiac, nausea, lymphodema and chronic fatigue)**
- **Physical therapy**

#### RECOVERING/REHABING
- **Psychological counseling**
- **Follow-up clinical exams**
- **Treatment for any continued side effects**

#### MONITORING/MANAGING
- **Breast Cancer Specialist**
- **Other Provider Entities**

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*Primary care providers* are often the **beginning** and **end** of the care cycle.
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4. Health care delivery should be **integrated across facilities and regions**, rather than take place in stand-alone units
Managing Care Across Geography
The Children’s Hospital of Philadelphia (CHOP) Affiliations

- Grand View Hospital, PA
  Pediatric Inpatient Care
- Abington Memorial Hospital, PA
  Pediatric Inpatient Care
- Chester County Hospital, PA
  Pediatric Inpatient Care
- CHILDREN’S HOSPITAL OF PHILADELPHIA
- Shore Memorial Hospital, NJ
  Pediatric Inpatient Care
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5. Value must be **measured** and **reported**

### Value:
- Patient health outcomes
- Total cost of achieving those outcomes
# Measuring Value

## Care Cycle vs. Discrete Interventions

<table>
<thead>
<tr>
<th>INFORMING &amp; ENGAGING</th>
<th>MEASURING</th>
<th>ACCESSING</th>
<th>PROVIDER MARGIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advice on self screening</td>
<td>• Counseling patient and family on the diagnostic process and the diagnosis</td>
<td>• Self exams</td>
<td>• Measure outcomes, not just processes of care</td>
</tr>
<tr>
<td>Consultation on risk factors</td>
<td>• Explaining patient choices of treatment and achieving compliance</td>
<td>Mammograms</td>
<td>Breast Cancer Specialist</td>
</tr>
<tr>
<td></td>
<td>• Counseling on treatment and prognosis and achieving compliance</td>
<td>Ultrasound</td>
<td>Other Provider Entities</td>
</tr>
<tr>
<td></td>
<td>• Counseling on rehabilitation options, process and achieving compliance</td>
<td>MRI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Counseling on long term risk management and achieving compliance</td>
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</tr>
</tbody>
</table>

## Measuring

- Procedure-specific measurements
- Range of movement
- Side effects measurements
- Recurring mammograms (every 6 months for the first 3 years)

## Accessing

- Office visits
- Mammography lab visits
- High-risk clinic 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

- Medical counseling
- 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/Rehabbing

- In-hospital and outpatient wound healing
- Psychological counseling
- Treatment of side effects (skin damage, neurotoxic, cardiac, nausea, lymphedema and chronic fatigue)

## Monitoring/Managing

- Periodic mammography
- Other imaging
- Follow-up clinical exams
- Treatment for any continued side effects
The Outcome Measures Hierarchy
Breast Cancer

Survival

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

Degree of recovery / health

- Remission
- Functional status
- Breast conservation outcome

Time to recovery or return to normal activities

- Time to remission
- Time to achieve functional status

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

- Nosocomial infection
- Febrile neutropenia
- Nausea
- Limitation of motion
- Vomiting
- Depression

Sustainability of recovery or health over time

- Cancer recurrence
- Febrile neutropenia
- Sustainability of functional status

Long-term consequences of therapy (e.g., care-induced illnesses)

- Incidence of secondary cancers
- Premature osteoporosis
- Brachial plexopathy
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6. Reimbursement should be aligned with **value** and reward **innovation**

   - Bundled reimbursement for **care cycles**, not discrete treatments or services
     - Most DRG systems are **too narrow**
   - Reimbursement for **prevention and screening**, not just treatment
   - Reimbursement for **overall management of chronic conditions**
   - Reimbursement adjusted for **patient complexity**
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7. Information technology enables restructuring of care delivery and measuring results

- Common data definitions
- Interoperability standards
- Patient-centered database
- Includes all types of data (e.g. notes, images)
- Cover the full care cycle, including referring entities
- Accessible to all involved parties
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 treatment</td>
<td>The product is health</td>
</tr>
<tr>
<td>Measure volume of services (# tests, treatments)</td>
<td>Measure value of services (health outcomes per unit of cost)</td>
</tr>
<tr>
<td>Focus on specialty services or types of practitioners</td>
<td>Coordinated and integrated care delivery</td>
</tr>
<tr>
<td>Discrete interventions</td>
<td>Care cycles</td>
</tr>
<tr>
<td>Individual disease stages</td>
<td>Sets of prevalent co-occurrences</td>
</tr>
<tr>
<td>Fragmentation of programs and entities</td>
<td>Integrated care delivery systems</td>
</tr>
<tr>
<td>Localized pilots and demonstration projects</td>
<td>Systems that are integrated across communities and regions</td>
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Emerging Framework for Global Health Delivery

I. Care delivery value chains for medical conditions

II. Shared delivery infrastructure

III. External context of resource-poor settings

IV. Health system impact on economic development
The Care Delivery Value Chain

HIV/AIDS

**INFORMING & ENGAGING**
- Prevention counseling on modes of transmission on risk factors
- Explaining diagnosis and implications
- Explaining course and prognosis of HIV
- Explaining approach to forestalling progression
- Explaining medical instructions and side effects
- 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+
- Continuously assessing co-morbidities
- Regular primary care assessments
- HIV staging, response to drugs
- Managing complications
- HIV staging, response to drugs

**ACCESSING**
- Meeting patients in high-risk settings
- Primary care clinics
- Testing centers
- Primary care clinics
- Clinic labs
- Testing centers
- Primary care clinics
- Food centers
- Home visits
- Primary care clinics
- Pharmacy
- Support groups
- Primary care clinics
- Pharmacy
- Support groups
- Primary care clinics
- 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

**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)
Analyzing the Care Delivery Value Chain

1. Are the set of activities and the sequence of activities in the CDVC aligned with value?
2. Is the appropriate mix of skills brought to bear on each activity and across activities, and do individuals work as a team?
3. Is there appropriate coordination across the discrete activities in the care cycle, and are handoffs seamless?
4. Is care structured to harness linkages (optimize overall allocation of effort) across different parts of the care cycle?
5. Is the right information collected, integrated, and utilized across the care cycle?
6. Are the activities in the CDVC performed in appropriate facilities and locations?
7. What provider departments, units and groups are involved in the care cycle? Is the provider’s organizational structure aligned with value?
8. What are the independent entities involved in the care cycle, and what are the relationships among them? Should a provider’s scope of services in the care cycle be expanded or contracted?
Implications for HIV/AIDS Care - I

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

• Intensive evaluation and treatment at 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

- HIV/AIDS
- TUBERCULOSIS
- MATERNAL, PERINATAL CARE
- MALARIA

Clinics  Community Health Workers  District Hospitals  Testing Labs  Tertiary Hospitals
Implications for HIV/AIDS Care - II

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

• Improving 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

• Coordinated development of primary and secondary care infrastructure can improve the value of the HIV/AIDS care cycle while simultaneously improving value in the care of other diseases
Integrating Delivery and Context
Close-In Factors

- Nutrition
- Environmental Factors
  - Shared Delivery Infrastructure
    - HIV/AIDS
    - TUBERCULOSIS
    - MATERNAL, PERINATAL CARE
    - MALARIA
- Health Awareness Education
- Water & Sanitation
- Access to Care Facilities
Integrating Delivery and Context
Farther-Out Factors

- JOBS
  - Environmental Factors
    - Nutrition
  - Shared Delivery Infrastructure
    - HIV/AIDS
    - TUBERCULOSIS
    - MATERNAL, PERINATAL CARE
    - MALARIA

- HOUSING
  - Water & Sanitation
- COMMUNICATION SYSTEMS
  - Health Awareness Education
- TRANSPORTATION
  - Access to Care Facilities

Shared Delivery Infrastructure

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Implications for HIV/AIDS Care - III

• 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

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

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

• 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

Better Health Systems Foster Economic Development

- Employment (health sector jobs)
- Procurement, if sourced locally
- Infrastructure (e.g. cell towers, internet, and electrification)
Is There a Place for a New Field in Health Research and Education?

Basic Science

What is the pathophysiology?

Clinical Science

What is the diagnosis and appropriate intervention?

Evaluation Science

Does the intervention work?

Healthcare Delivery Science

How do we best deliver high value care to everyone?
An Opportunity for Harvard to Lead

Develop a Global Health Delivery Framework

Create Innovation Centers

High Value Health Care Delivery

Launch Communities of Practice

Educate Leaders
“To create and nurture a community of the best people committed to leadership in alleviating human suffering caused by disease.”