Redefining Global Health Care

Narrowing the Gap Between Aspiration and Action

Jim Yong Kim, M.D., Ph.D.
Michael E. Porter, Ph.D

Global Health Delivery Case Discussion
April 22, 2009
Gaps in health financing, human resources, and access to care have **fatal consequences** for millions in developing countries

- **Millions of deaths from preventable & treatable causes**
  - 6.3 million preventable **childhood deaths**
  - ½ million **maternal deaths**
  - 3 million **HIV deaths** – less than 1-in-8 on treatment
  - 2 million **tuberculosis deaths**
  - 1 million **malaria deaths** - mostly children

→ **Over 10 million needless deaths each year**
  
  ...from conditions for which safe, effective, affordable prevention & treatment exist
the implementation bottleneck

- Vaccines
- Primary Health Care
- Drug Therapies
- Maternal and Child Health Care
- Basic Surgery
investment

Bill and Melinda Gates Foundation $6.5 B
The Global Fund $8.6 B
President’s Emergency Plan for AIDS $15 B
International Finance Facility $4 B
Multi-Country HIV/AIDS Program $1.1 B
Global Alliance $3 B
Public-private partnerships $1.2 B
Anti-Malaria Initiative in Africa (proposed) $1.2 B
United Nations Fund $360 M
Warren Buffet $37 B

TOTAL $77.7 B

*Funds pledged, committed, or spent. Overlap exists between organizations (e.g., PEPFAR money supports the Global Fund).

the implementation bottleneck

• Vaccines
• Primary Health Care
• Drug therapies
• Maternal Child Health Care
• Basic Surgery

New Developments:
• Microbicides and other preventive tools
• New malaria and TB drugs, diagnostics
• New combination therapies
• Drugs for neglected diseases
• >10 new vaccines
# Global Health Delivery Failures

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ARVs for PMTCT</strong></td>
<td><strong>9% coverage of women overall and 50% of women who</strong></td>
</tr>
<tr>
<td><em>Reduce HIV transmission by 40%</em></td>
<td><strong>test positive in a clinic are given ARVs for</strong></td>
</tr>
<tr>
<td></td>
<td><strong>PMTCT</strong></td>
</tr>
<tr>
<td><strong>ITNs for Malaria Prevention</strong></td>
<td><strong>Only 3% of children in endemic areas sleep</strong></td>
</tr>
<tr>
<td><em>Reduce infant mortality by 23%</em></td>
<td><strong>under nets</strong></td>
</tr>
</tbody>
</table>

Source: WHO
Global Health “Strategy” to Date

- Countries and even districts working in isolation
- Intervention-based
- Project-based
  - Donor preference driven
  - Experimental pilots that never scale
- Resources often diverted for overhead and consultants
- Broad policy guidelines and plans for investment in facilities, equipment, and human resources
- Competition among implementers
- Parallel systems
- Cottage industry approach to care delivery
- Fragmentation of services
- Absence of results and measurement

- **Clear need for a better approach**
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\textsuperscript{st} century medical technology is delivered with 19\textsuperscript{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
Restructuring Care Delivery
Migraine Care in Germany

Existing Model:
Organize by Specialty and Discrete Services

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

New Model:
Organize into Integrated Practice Units (IPUs)

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

- The health plan was crucial to this transformation

Principles of Value-Based Health Care Delivery

Value is enhanced by increasing provider experience, scale, and learning at the medical condition level.

- 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>DRG</th>
<th>Total admissions per year nationwide</th>
<th>Number of admitting providers</th>
<th>Average admissions/provider / year</th>
<th>Average admissions/provider / week</th>
<th>Average percent of total national admissions per provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes age &gt; 35</td>
<td>7,649</td>
<td>80</td>
<td>96</td>
<td>2</td>
<td>1.3%</td>
</tr>
<tr>
<td>Kidney failure</td>
<td>7,742</td>
<td>80</td>
<td>97</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>Multiple sclerosis and cerebellar ataxia</td>
<td>2,218</td>
<td>78</td>
<td>28</td>
<td>1</td>
<td>1.3%</td>
</tr>
<tr>
<td>Inflammatory bowel disease</td>
<td>4,816</td>
<td>73</td>
<td>66</td>
<td>1</td>
<td>1.4%</td>
</tr>
<tr>
<td>Implantation of cardiac pacemaker</td>
<td>6,324</td>
<td>51</td>
<td>124</td>
<td>2</td>
<td>2.0%</td>
</tr>
<tr>
<td>Splenectomy age &gt; 17</td>
<td>129</td>
<td>37</td>
<td>3</td>
<td>&lt;1</td>
<td>2.6%</td>
</tr>
<tr>
<td>Cleft lip &amp; palate repair</td>
<td>583</td>
<td>7</td>
<td>83</td>
<td>2</td>
<td>14.2%</td>
</tr>
<tr>
<td>Heart transplant</td>
<td>74</td>
<td>6</td>
<td>12</td>
<td>&lt;1</td>
<td>16.6%</td>
</tr>
</tbody>
</table>

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

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.
The Outcome Measures Hierarchy

**Tier 1**
- **Health Status Achieved**
  - Survival

**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)
The Developed World and Resource-Poor Settings Suffer from Similar Delivery Problems

**Current Model**
- The product is *treatment*
- Measure *volume* of services (# tests, treatments)
- Focus on facilities, *specialties* or *types* of practitioners
- Discrete *interventions*
- Individual diseases
- *Fragmented* programs and entities
- *Localized* pilots and demonstration projects

**New Model**
- The product is *health*
- Measure *value* of services (health outcomes per unit of cost)
- *Coordinated* and *integrated* care delivery
- Care cycles
- Sets of prevalent *co-occurrences*
- *Integrated* care delivery systems
- Integrated *systems across communities and regions*
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 on risk factors
- Explaining diagnosis and implications
- Explaining course and prognosis of HIV
- 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
- HIV testing for others at risk
- CD4+ count, clinical exam, labs
- Continuous monitoring of CD4+
- Lab evaluations for initiating drugs
- HIV staging, response to drugs
- Managing complications
- Regular primary care assessments
- Primary care clinics
- Hospitals, hospices

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

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

DIAGNOSING & STAGING
- 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

DELAYING PROGRESSION
- Initiating comprehensive ARV therapy, assessing drug readiness
- Preparing patient for disease progression, treatment side effects
- Managing secondary infections, associated illnesses
- Connecting patient with care team

INITIATING ARV THERAPY
- Initiating second- and third-line drug therapies
- Managing secondary infections, associated illnesses
- Preparing patient for end-of-life management
- Primary care, health maintenance

ONGOING DISEASE MANAGEMENT
- Identifying clinical and laboratory deterioration
- Initiating second- and third-line drug therapies
- Managing acute illnesses and opportunistic infections through aggressive outpatient management or hospitalization
- Providing social support
- Access to hospice care

MANAGEMENT OF CLINICAL DETERIORATION

(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

Care Delivery System

External Context for Health

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

JOBS

COMMUNICATION SYSTEMS

EDUCATION

HOUSING

PHYSICAL INFRASTRUCTURE

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

- Basic Science
  - What is the patho-physiology?

- Clinical Science
  - What is the diagnosis and appropriate intervention?

- Evaluation Science
  - Does the intervention work?

- Health Care Delivery Science
  - How is the intervention best delivered?
  - How can the overall delivery of care be integrated and optimized over the care cycle?
  - What is the overall value of care (set of outcomes; costs)?