Redefining Global Health Care

Narrowing the Gap Between Aspiration and Action

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JUNE 2, 2007
WHO: COMMISSION ON MACROECONOMICS AND HEALTH

8 Million deaths per year could be averted with programs for which we have effective interventions to prevent and treat several diseases

- HIV/AIDS
- TB
- Malaria
- Childhood Infectious Disease
- Maternal and Perinatal Conditions
- Tobacco-related Illness
- Micronutrient Deficiencies

Source: Table 2, Commission Report 2003
DISPROPORTIONATE IMPACT, DIRE CONSEQUENCES

Most Diseases Disproportionately Affect the Developing World

• Loss of productive workforce (DeBeers, Nestle, etc)
• Economic growth stunted
• Political unrest
• Transmission of disease to developed world
• Consequences for US homeland security

The Need for Effective Solutions is Great

President Bush announces plan to increase PEPFAR funding to $30 billion

MALARIA
DEADLY FAILURES IN DELIVERY

“There is a gap between today’s scientific advances and their application: between what we know and what is actually being done…Action without knowledge and knowledge without action means wasted resources and missed opportunities.”

Dr. Jong-wook Lee
Director General of the World Health Organization
2003-2006
## THE UNITED STATES EXPERIENCE

<table>
<thead>
<tr>
<th>Service</th>
<th>Aspiration</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta blockers within 24 hours of admission with chest pain</td>
<td>100%</td>
<td>69%</td>
</tr>
<tr>
<td>Antibiotic administered within 8 hours of admission with pneumonia</td>
<td>100%</td>
<td>87%</td>
</tr>
<tr>
<td>Mammography at least every 2 years</td>
<td>100%</td>
<td>60%</td>
</tr>
<tr>
<td>Fundoscopic examination for diabetic retinopathy</td>
<td>100%</td>
<td>70%</td>
</tr>
</tbody>
</table>

*Source: Jencks et al analysis of Medicare data, JAMA, 2003*
## SMALL POX AND POLIO

<table>
<thead>
<tr>
<th></th>
<th>Aspiration</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Pox</td>
<td>0 new cases</td>
<td>0 new cases</td>
</tr>
<tr>
<td>Polio</td>
<td>0 new cases</td>
<td>1593 new cases</td>
</tr>
</tbody>
</table>

*Source: World Health Organization Data*
UNPRECEDENTED OPPORTUNITY

- Key leaders and institutions have recognized the gravity
- 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
NEW CHALLENGES

Increasing funding will allow…

• program innovation

• A move from small projects to large scale implementation

• greater impact on the health of populations

• a focus on a wider range of diseases

…but requires thoughtful new leadership to

• manage resources effectively

• close the “know-do” gap

• create administrative efficiencies, reduce resource consumption, reduce supply costs, and improve quality

• Create high value delivery models
GLOBAL HEALTH “STRATEGY” TO DATE

• Countries working in isolation of each other

• Project-based
  • Donor preferences
  • Scarcity of resources
  • Experimental pilots

• Ineffective and Non-results oriented
  • Absence of technology and measurement orientation

• Clear need for a better approach
A NEW PARADIGM

- The need for holistic framework that incorporates all activities and actors contributing to global health outcomes at a medical condition level

- Value = Health outcomes per dollar spent

- Porter and Teisberg’s concept of a “care delivery value chain”

- Allows careful examination of all activities of care delivery system and more thoughtful deployment of resources
<table>
<thead>
<tr>
<th>Developed World and Resource-Poor Settings Suffer from Similar Delivery Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The product is treatment</td>
</tr>
<tr>
<td>- Volume of services (# tests, treatments)</td>
</tr>
<tr>
<td>- Specialties</td>
</tr>
<tr>
<td>- Discrete interventions</td>
</tr>
<tr>
<td>- Individual disease stages</td>
</tr>
<tr>
<td>- Fragmentation of entities and programs</td>
</tr>
<tr>
<td>- Stand alone facilities</td>
</tr>
</tbody>
</table>
THE CARE DELIVERY VALUE CHAIN

INFORMING & ENGAGING
(e.g. Patient education, patient counseling, pre-intervention educational programs, patient compliance monitoring and counseling)

MEASURING
(e.g. Tests, imaging, patient records management)

ACCESSING
(e.g. Office visits, lab visits, hospital sites of care, patient transport, visiting nurses, remote consultation)

MONITORING/ PREVENTING
- e.g. Medical history
- Screening
- Identifying risk factors
- Prevention programs

DIAGNOSING
- e.g. Medical history
- Specifying, organizing tests
- Interpreting data
- Consultation with experts
- Determining the treatment plan

PREPARING
- e.g., Choosing the team
- Pre-intervention preparations - pre-treatment

INTERVENING
- e.g., Ordering and administering drug therapy
- Performing procedures
- Performing counseling therapy

RECOVERING/ REHABING
- e.g., In-patient recovery
- In-patient and outpatient rehab
- Therapy fine-tuning
- Developing a discharge plan

MONITORING/ MANAGING
- e.g., Monitoring and managing the patient’s condition
- Monitoring compliance with therapy
- Monitoring lifestyle modifications

(Patient Value)

(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?
HIV/AIDS CARE DELIVERY VALUE CHAIN

INFORMING & ENGAGING

MEASURING

ACCESSING

PREVENTION & SCREENING
DIAGNOSING & STAGING
DELAYING PROGRESSION
INITIATING ARV THERAPY
ONGOING DISEASE MANAGEMENT
MANAGEMENT OF CLINICAL DETERIORATION

PATIENT VALUE

(Health outcomes per unit of cost)
## HIV/AIDS CARE DELIVERY VALUE CHAIN

<table>
<thead>
<tr>
<th>Prevention &amp; Screening</th>
<th>Diagnosing &amp; Staging</th>
<th>Delaying Progression</th>
<th>Initiating ARV Therapy</th>
<th>Ongoing Disease Management</th>
<th>Management of Clinical Deterioration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify high-risk individuals</td>
<td>Formal diagnosis and staging</td>
<td>Initiate therapies that can delay onset, including vitamins and food supplements</td>
<td>Initiate comprehensive antiretroviral therapy and assess medication readiness</td>
<td>Primary care and maintenance</td>
<td>Identify clinical and laboratory deterioration</td>
</tr>
<tr>
<td>Promote appropriate risk reduction strategies</td>
<td>Determine method of transmission</td>
<td>Treat co-morbidities that affect progression of disease, especially tuberculosis</td>
<td>Manage effects of associated illnesses</td>
<td>Manage side effects of treatment</td>
<td>Initiate second-line, third-line drug therapies</td>
</tr>
<tr>
<td>Modify behavioral risk factors</td>
<td>Identify others at risk</td>
<td>Improve patient awareness of disease progression, prognosis, and transmission</td>
<td>Prepare patient for side effects of treatment</td>
<td>Determine supporting nutritional modifications</td>
<td>Manage acute illness and opportunistic infection either through aggressive outpatient management or hospitalization</td>
</tr>
<tr>
<td>Connect patients with primary care system</td>
<td>Screen for TB, syphilis, and other sexually transmitted diseases</td>
<td>Connect patient to care team, including community health workers</td>
<td>Manage secondary infections and associated illnesses</td>
<td>Provide additional community/social support if needed</td>
<td>Provide access to hospice care</td>
</tr>
<tr>
<td>Create a medical record</td>
<td>Pregnancy testing and contraceptive counseling</td>
<td>Formulate a treatment plan</td>
<td>Determine supporting nutritional modifications</td>
<td>Prepare patient for end-of-life management</td>
<td></td>
</tr>
<tr>
<td>Test at-risk individuals</td>
<td>Create a management plan, including scheduling of follow-up visits</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
# HIV/AIDS Care Delivery Value Chain

## Informing & Engaging
- Prevention counseling on modes of transmission, risk factors
- Explanation of diagnosis and implications
- Explaining course of HIV and prognosis
- Explanation of approach to forestalling progression
- Explanation of medication instructions and side effects
- Counseling about adherence; understanding factors for non-adherence
- Explanation of co-morbid diagnoses and implications
- End-of-life counseling

## Measuring
- HIV testing
- Screening for TB and, if indicated, STIs
- Collect baseline demographics
- CD4+ count monitoring (continuous staging)
- Continuous assessment of co-morbidities
- Regular clinical exams to assess for disease progression
- Socioeconomic and nutrition assessment
- HIV staging and medication response
- High frequency primary care assessments
- Assessing/managing complications of therapy
- HIV testing for others at risk
- Lab evaluation

## Accessing
- Meeting patients in high-risk settings
- Primary care clinics
- Testing centers
- Primary care clinics
- On-site labs at primary care clinics
- Testing centers
- Primary care clinics
- Labs (on-site at primary clinics)
- Pharmacy
- Food centers
- Community health workers/home visits
- Support groups
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## Prevention & Screening

## Diagnosing & Staging

## Delaying Progression

## Initiating ARV Therapy

## Ongoing Disease Management

## Management of Clinical Deterioration
IMPLICATIONS FOR HIV/AIDS CARE

- Screening is most effective when integrated into a primary health care system.
- Intensive evaluation and treatment at time of diagnosis can forestall disease progression.
- Early diagnosis helps in forestalling disease progression.
- Improving maternal and child health care services is integral to the HIV/AIDS care cycle through substantially reducing the incidence of new cases of HIV.
- Coordinated development of primary care infrastructure can improve the value of the HIV/AIDS care cycle while simultaneously improving value in the care of other diseases.
HOW DO WE STUDY COMPLEX STRATEGY PROBLEMS?

- Develop **theoretical principles** about the underlying phenomenon
- Employ a mix of **quantitative** and **qualitative** analysis
- Conduct in-depth **field research** focused on the role of organizational leaders and their choices
- Careful study of numerous **case studies** spanning multiple settings and encompassing both success and failure
- Develop **frameworks** that can be applied prospectively to guide practice
- Intensive interaction with **practitioners** to disseminate concepts and refine implementation in specific country settings
CASE EXAMPLE: RWANDA

Prevention Testing

Diagnosis Staging

Delaying progression Initiating ART

Managing Deterioration Disease Management
CASE EXAMPLE: RWANDA

- Prevention Testing
- Diagnosis Staging
- Delaying progression
- Initiating ART
- Managing deterioration
- Disease Management
CASE EXAMPLE: RWANDA

Diagnosis

Staging

Delaying progression

Initiating ART

Disease Management

Managing Deterioration
CASE EXAMPLE: RWANDA
CASE EXAMPLE: RWANDA

Prevention Testing

Diagnosis Staging

Delaying progress

Initiating ART

Disease Management

Managing Deterioration
CASE EXAMPLE: RWANDA
EVALUATE HOW THE SEQUENCE OF ACTIVITIES IS ALIGNED WITH VALUE

• Are there coordination and linkages across activities?

• How are human resources deployed?

• How are facilities and organizational structures arranged to create value?

• How is information shared across activities?
COORDINATION AND LINKAGES ACROSS ACTIVITIES
EVALUATE HOW THE SEQUENCE OF ACTIVITIES ARE ALIGNED WITH VALUE

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HOW ARE HUMAN RESOURCES DEPLOYED?

- Health Centre
  - Twice monthly for meds + training.
  - 0-4 hours walk
- Accompagnateur Leader
  - Average 20 – 30 accompagnateurs
  - Seeks help if necessary
- Patient Accompagnateur
  - Average 4 to 5 households
  - Daily accompaniment (1 to 2 hours/day)
  - Average visit time per house 15-20 minutes
- Patient
  - 63% of patient encounters and 75% of time spent with patients, makes up just 9% of the labor costs
EVALUATE HOW THE SEQUENCE OF ACTIVITIES ARE ALIGNED WITH VALUE

• Are there coordination and linkages across activities?

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FACILITIES ARRANGED TO CREATE VALUE

• Governments (not NGOs) can ensure the right to services.

• Building the public health infrastructure and education system (not private clinics and schools) will best serve the public and allow the right to health care and education.

• Integrated HIV programs can increase uptake of vaccinations, family planning, and improve primary health care in the public sector.
EVALUATE HOW THE SEQUENCE OF ACTIVITIES ARE ALIGNED WITH VALUE

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Communities of Practice: Progress to Date

Community of Practice among Partners in Health Network

Guides and materials shared with community of health practitioners

Interactive site invites feedback from users
Before
Facilities were rehabilitated…

After
Summary of detailed unit costing, extrapolated to a full district

100% = US$ 4.7 million in ‘steady state’ (2011)

- New Sites/Capital investment (14%)
- Labour, excl. accompagnateurs (32%)
- Labour, accompagnateurs only (5%)
- Supplies (28%)
- Outpatient Nutritional Support (5%)
- Social (education, housing, mutuelles, micro-finance, etc.)
- Transport/Communication
- Referrals
- Building/Infrastructure
- Administration
- "Building/Infrastructure"
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- "Administration"
- "New Sites/Capital investment (14%)"

Estimated ‘catchment’ area of unit

100% = 265,000

Methodology:
Theoretical catchment area + Patients coming from other areas (based on survey) - Overlaps between centres = Actual population served

~18 US$/Capita
~6000 US$/Capita
PARTNERS IN HEALTH: RESULTS

- **Haiti**
  - Over 1 million patient visits in clinics in 2005
  - More than 9500 HIV patients monitored with over 2200 on ART

- **Peru**
  - More than 2000 people treated for MDR-TB
  - Trained over 4000 healthcare workers in MDR-TB management in 2005

- **Rwanda**
  - Projects sites serve over 350,000 people
  - Over 1800 on ART, 100 more each month
AN OPPORTUNITY FOR HARVARD TO LEAD

• There is a deadly gap between what we know and what we do

• Millions of lives can potentially be saved even without new technology, but simply by doing what we know better

• There is an urgent need for a new science of healthcare delivery that helps global health practitioners implement effective solutions

• Harvard University is uniquely positioned and qualified to promote this new discipline