Foundations of Global Health

Impact of Socioeconomic Status

Imagine no possessions
I wonder if you can
No need for greed or hunger
A brotherhood of man
Imagine all the people
Sharing all the world
~John Lennon

Anyone who has ever struggled with poverty knows how extremely expensive it is to be poor.
~James A. Baldwin

In a country well governed, poverty is something to be ashamed of. In a country badly governed, wealth is something to be ashamed of.
~Confucius

Anyone who has ever struggled with poverty knows how extremely expensive it is to be poor.

Learning Objectives
• Describe the links between health and education
• Discuss the connections between health, productivity, and earnings
• Describe key relationships between health & the costs of illness
• Discuss connections between health and equity
• Understand cost-effectiveness analysis
• Discuss two-way relationship between health and development

Poverty: Alarming Stats
• ~1 billion people live in poverty and threat of hunger
  – Live on less than $1 per day
  – No resources to escape generational cycle of poverty
  – Additional 1 billion people live on less than $2 per day
• 1/3 population no access to clean water, adequate nutrition, shelter, sanitation, healthcare
  – Or education, employment, protection
• 30,000 deaths per day (1 every 3 secs) as a result of poverty

GLOBAL AVERAGE INCOME OF THE RURAL POOR*

Daily income per capita (in 1995 international dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>$0.30</th>
<th>$0.60</th>
<th>$1.20</th>
<th>$1.80</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>$0.76</td>
<td>$0.76</td>
<td>$0.76</td>
<td>$0.77</td>
</tr>
<tr>
<td>1996</td>
<td>$0.75</td>
<td>$0.75</td>
<td>$0.75</td>
<td>$0.77</td>
</tr>
<tr>
<td>1999</td>
<td>$0.76</td>
<td>$0.76</td>
<td>$0.76</td>
<td>$0.77</td>
</tr>
<tr>
<td>2002</td>
<td>$0.77</td>
<td>$0.77</td>
<td>$0.77</td>
<td>$0.77</td>
</tr>
</tbody>
</table>

*The rural poor are defined as populations living in rural areas with per capita incomes of less than $1.08 per day

Source: Ravallion et al. 2007: 38-42

Poverty Trends

Percentage population living on less than 2 dollars day 2007-2008

*Former Russia and Soviet states
**Sub-Saharan Africa, SE Asia, Oceania, E Asia, S Asia, W Asia, Latin America and Caribbean

SOURCE: UN

1/3/2012
Poverty Cycle
• Poverty impacted by variety of factors, including social, economic & political
• Cycle difficult to break without community & public support to improve health care, financial services, work skills

Health and Education
• Intergenerational links
• Malnutrition and disease
• Prevention of illness

Education & Long Life

Education For All

Box 5.9: UNESCO Education for All Goals
- Expand and improve early childhood education
- Achieve a 50% improvement in adult literacy rates
- Provide free and compulsory universal primary education by 2015
- Ensure equitable access to learning and life-skills programmes
- Improve all aspects of the quality of education

Source: UNESCO, 2007a
School User Fees

- Fees for school
  - Abolished in many countries
  - Some still collected illegally
  - Tuition, uniforms, textbooks
- Poorest children could not afford them

Box 5.12: Kenya – Abolition of School Fees

Increased Enrollment

- Primary school enrollment increased 20% in many countries
- Weak infrastructure cannot handle increased class sizes - quality suffers
Health, Productivity, and Earnings

- Longevity and higher lifetime earnings
- Increased productivity among healthy workers
- Less absence from work due to illness and ability to continue earning

Global Financial Crisis

Global Unemployment to Increase in 2009
The ILO’s best case projection shows a rise in unemployment across the globe. Figures show the change in unemployment between 2007 and 2009.

Wealth = Health

The Costs of Illness

- Treatment and drugs
- Absence from work
- Transportation to and from provider
- Cost of living with disability

Global Wealth Distribution

Wealth per capita 2000 ($)
- Over 50,000
- 10,000 – 49,999
- 2,000 – 9,999
- Under 2,000
- No data

Source: UNDP - ICTD

The Costs of Illness Diagram

- Affordability of care
- Hospital wait times
- Quality of care
- Cost of care

Source: IHME Health System Performance, 2009

The Costs of Illness Table

<table>
<thead>
<tr>
<th>Activity</th>
<th>% of Adults 18-64 Covered</th>
<th>Median Monthly Household Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial cost</td>
<td>10%</td>
<td>$1,000</td>
</tr>
<tr>
<td>Transportation to provider</td>
<td>15%</td>
<td>$2,000</td>
</tr>
<tr>
<td>Transportation from provider</td>
<td>5%</td>
<td>$3,000</td>
</tr>
<tr>
<td>Total</td>
<td>30%</td>
<td>$6,000</td>
</tr>
</tbody>
</table>

Note: Data were not available for Hawaii in 2004.

Source: Commonwealth Fund National Surveys on U.S. Health System Performance, 2009
Medical Costs

Surgical Costs By Country

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>US</th>
<th>INDIA</th>
<th>THAILAND</th>
<th>SINGAPORE</th>
<th>NEW ZEALAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart bypass</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$11,000</td>
<td>$16,000</td>
<td>$19,000</td>
</tr>
<tr>
<td>Heart valve</td>
<td>$160,000</td>
<td>$9,000</td>
<td>$10,000</td>
<td>$13,600</td>
<td>$17,600</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>$20,000</td>
<td>$4000</td>
<td>$5500</td>
<td>$4000</td>
<td>$8500</td>
</tr>
<tr>
<td>Knee replacement</td>
<td>$60,000</td>
<td>$8,000</td>
<td>$10,000</td>
<td>$13,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Spinal fusion</td>
<td>$22,000</td>
<td>$8000</td>
<td>$7000</td>
<td>$9000</td>
<td>$15,000</td>
</tr>
</tbody>
</table>

SOURCE: AMERICAN MEDICAL ASSOCIATION, JUNE 2007 AND MED/JAR

Medical Tourism

Medical tourism by country

Global pharma sales and growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Sales - $ billions</th>
<th>Sales growth on previous year - %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>67000</td>
<td>3.5</td>
</tr>
<tr>
<td>2005</td>
<td>72000</td>
<td>7.3</td>
</tr>
<tr>
<td>2006</td>
<td>80000</td>
<td>8.8</td>
</tr>
<tr>
<td>2007</td>
<td>95000</td>
<td>14.4</td>
</tr>
<tr>
<td>2008</td>
<td>120000</td>
<td>24.9</td>
</tr>
<tr>
<td>2009</td>
<td>140000</td>
<td>17.8</td>
</tr>
<tr>
<td>2010</td>
<td>155000</td>
<td>10.3</td>
</tr>
</tbody>
</table>

Source: WHO

Counterfeit Drugs

- Global concern
- Random mixtures:
  - Harmful toxic substances
  - Inactive, ineffective preparations
- Unreliable, treatment failure or even death
- May appear so similar to genuine product & deceive health professionals and patients

Bad Medicine

<table>
<thead>
<tr>
<th>Counterfeit medicine</th>
<th>Country/Year</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-diabetic tsed medicines</td>
<td>China, 2009</td>
<td>Contained 6 times the normal dose of glibenclamide. Five people died, nine people hospitalized.</td>
</tr>
<tr>
<td>Metformin (analogues)</td>
<td>United Republic of Tanzania, 2009</td>
<td>Contained no active ingredient and sold via.Eastern sites operated outside the USA</td>
</tr>
<tr>
<td>Viagra &amp; Cialis (for erectile dysfunction)</td>
<td>Thailand, 2008</td>
<td>Delivered 40 mg.</td>
</tr>
<tr>
<td>Xanax (for treating anxiety)</td>
<td>United States of America, 2007</td>
<td>Smuggled into Thailand from an unknown source in an unknown country.</td>
</tr>
<tr>
<td>Deprose (for treating bupropion)</td>
<td>United Kingdom, 2007</td>
<td>Detected in the legal supply chain. (lacked sufficient active ingredient)</td>
</tr>
<tr>
<td>Lipitor (for lowering cholesterol)</td>
<td>United Kingdom, 2008</td>
<td>Detected in the legal supply chain. (lacked sufficient active ingredient)</td>
</tr>
</tbody>
</table>

Lost Income: Chronic Disease

Figure 5.15: Economic Burden of Diabetes in Canada, by Sex and Cost Component, 1998
Health Care: Blue Light Special?

Are Today’s Shoppers Creating Lifelong Health Care Habits?

<table>
<thead>
<tr>
<th>Habit</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put off trip to see doctor for routine exams</td>
<td>34%</td>
</tr>
<tr>
<td>Utilize medical services in drugstores or super centers</td>
<td>18%</td>
</tr>
<tr>
<td>Try OTC meds to avoid cost of going to physician</td>
<td>43%</td>
</tr>
<tr>
<td>Use Internet for specific health care information including diagnosis and treatment</td>
<td>52%</td>
</tr>
</tbody>
</table>

Source: Elizabeth Becker-Grasman, PhD, April 2012

Health and Equity

- Access to health services
- Responsiveness to the needs of the people
- Extent to which financing of health systems is fair

Health inequity in all countries

“There are no conditions of life to which a man cannot get accustomed, especially if he sees them accepted by everyone around him.” (Tocqueville, 1877)

Health Equity: Within Countries

- Prepaid
- Less Poor
- Middle
- Less Rich
- Richest

City Slums

- Rapid urbanization is taking place in Africa
  - Kenya: 85% population growth between 1989-1999 was in densely packed slums of Nairobi and Mombasa
- Overcrowded small dwellings, poor sanitary conditions, widespread contagious diseases, conflicts due to fusion of different cultures

In Nairobi, where 60% of the city’s population lives in slums, child mortality in the slums is 2.5 times greater than in other areas of the city.

In Mombasa’s slums, up to 50% of children aged between 5 and 9 are already infected with TB — near the national average.
Health Equity: Between Countries

Health Disparities: Working Class Difference

Risk of Death by Income

Reverse Inequality: Thailand

Health Equity Goals

Cost-Effectiveness Analysis

1. Improve the conditions of daily life – the circumstances in which people are born, grow, live, work, and age.
2. Tackling the inequitable distribution of power, money, and resources – the structural drivers of those conditions of daily life – globally, nationally, and locally.
3. Measure the problem, evaluate action, develop the knowledge base, develop a workforce that is trained in the social determinants of health, and raise public awareness about the social determinants of health.

- Method to compare cost of investment with amount of health purchased with it
- Depends on:
  - cost of intervention
  - extent it can reduce morbidity, mortality, and disability
  - how effectively it can be implemented
- Best intervention is cheaper & more effective than current strategy
- Carefully consider interventions that are less effective (why change?)
Health and Development

• Good health promotes economic development at the level of societies

• Investment by local and foreign investors is less likely in low-income countries with high burdens of communicable disease

• Higher levels of economic development promote better health at individual and societal levels

Human Development Index

• Measures 3 dimensions of human development
  – Living a long and healthy life, knowledge, & standard of living

• Measures of:
  – life expectancy
  – school enrollment
  – literacy
  – income

• Broader view than just income (GDP)
**Questionable Priorities**

- Funding for prevention is always cheaper than paying for disease.
- Additional cost to educate, provide clean water, basic health services minimal to other spending.
- By taking care of basic needs, we can accomplish major improvements in health & decrease determinants of poverty.

**Global Priority**

<table>
<thead>
<tr>
<th>Global Priority</th>
<th>$U.S. Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic education for all</td>
<td>6</td>
</tr>
<tr>
<td>Water and sanitation for all</td>
<td>9</td>
</tr>
<tr>
<td>Reproductive health for all women</td>
<td>16</td>
</tr>
<tr>
<td>Basic health services</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
</tr>
</tbody>
</table>

**Practice Questions**

- What is the generational cycle of poverty?
- How many people live on less than $1 per day? What 2 regions have the most people in this category?
- How is education linked to SES? Health?
- How is wealth linked to health?
- How does income influence health disparities within countries?
- Describe the 3 health equity goals.
- Define cost-effectiveness analysis.
- Name 2 very good interventions based on the Copenhagen Consensus. Name 2 fair interventions.
- What does the human development index measure?

**In Summary...**

- Education and health are closely linked.
- Health status is a major determinant of school enrollment and success in school.
- Health is strongly associated with productivity and earnings.
- Health is an important contributor to productivity.
- Health care costs can result in large out-of-pocket expenditures and push people into poverty.
- Inequity in health and access to health care is found in all countries—rich & poor.
- Inequity in health is found within countries between a nation’s rich & poor people (i.e. wealth = health).
- Health is a major national expenditure in all countries.