Global Health and Development: The Basics

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Prepared as part of an education project of the Global Health Education Consortium and collaborating partners
Learning Objectives

• Define public health and its relevance to global health
• Outline leading causes of death
• Introduce importance of class-based disparity
• Look at the success and failure of global health
• Outline other determinants of health
• Outline importance of health in the global development agenda
WHO Definition of Health

“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”

When we think of health, the image that comes to mind is our physical well-being. However, when the WHO was forming around 1948, it came out with a much broader meaning that includes mental and social well-being. Far-reaching in origin for its time, it extended health beyond the usual confines of mortality and morbidity statistics.

As Szeming Sze, one of the originators of WHO mentions (Chisolm refers to Brock Chisolm, first director-general of WHO): “Chisolm, being a psychiatrist, wanted to mention mental health, and I thought we should put in something that mentioned the preventive side of health. That’s how we came up with the wording in the Constitution that defines health as not merely the absence of disease.”
Modern public health has its historical routes back to John Snow and his investigation of the cholera outbreak in London during 1848-1849. In August 1849, he published a paper that looked at the epidemiology of where different households where getting their water, and their links to getting cholera, and clearly identified that different sources of water were the basis for illness.
What is public health?

“Public health is a negative. When it is at its best, nothing happens: There are no epidemics, Food and water are safe to consume, The citizens are well-informed regarding personal habits that affect their health... There is little class-based disparity in disease or life-expectancy.”

-Laurie Garrett, Author of *Betrayal of Trust*

Public health is seen as failing during time of disasters, but as author Laurie Garrett highlights, the success of public health occurs when it is no longer “an issue”. Some recent failures include SARS, Hurricane Katrina, the Tsunami. One of the global concerns that could lead to a possible global health disaster is the spectre of Avian Flu.
SARS is a respiratory disease caused by a coronavirus. SARS had a major epidemic between November 2002 and July 2003. There were 8,096 known cases and 774 deaths (a case fatality rate of 9.6%). Five major locales had the vast majority of SARS cases (China, Hong Kong, Canada, Taiwan and Singapore). The first cases of SARS were thought to occur in November 2002 in Guangdong province of China. WHO was not informed until February 2003. On March 12, 2003, the WHO issued a global health alert. The spread led to quarantines occurring in Hong Kong, Singapore, Taiwan and Canada. On March 27, 2003, the WHO recommended screening of airline passengers for the symptoms of SARS. The economic impact was large. In Toronto alone, the impact of the quarantine and negative publicity was felt to have lost Canada approximately $2 billion in business.
Hurricane Katrina

http://bbsnews.net/bbsn_photos/topics/hurricane_katrina/astrodome_surrounding_area.sized.jpg (top left)

http://911review.org/Hurricane_Katrina/photos/flooding_kenneler_hurricane_katrina.JPG (top right)

http://www.stephentaylor.ca/archives/katrina12.jpg (bottom)
The tsunami that struck on Dec. 26, 2004 followed an Indian Ocean earthquake of 9.3 on the Richter scale. It was estimated to have killed over 230,000 people, making it the worst tsunami and one of the worst natural disasters in recorded history. It led to deaths not only in neighboring Indonesia, Thailand and Malaysia, but far off areas like Bangladesh, India, Sri Lanka, Maldives, Somalia, Kenya and Tanzania.

Tsunami, a Japanese term that refers to “harbor and wave”, was coined when fisherman returned to port and found that the area around their port was devastated despite having noted no wave when at sea. After an earthquake, the longer wavelength is unnoticed in the open waters, but where smaller amplitude waves hit the shore, they can create massive tidal waves that can devastate the shorelines.
Notes on: Tsunami

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The avian flu is sometimes referred to coming from a particular subtype of Influenza A virus, H5N1, which can cause severe illness in humans who become infected. This strain is transmitted by contact with infected birds. There are reports of human to human transmission in a few cases. The concern with avian flu is wide-spread human to human transmission, leading to a pandemic. As of Nov 13, 2006, there have been about 260 reported cases, and 154 deaths. However, billions of dollars have been invested to prepare for a potential pandemic globally. It is now widely believed that the 1918 Spanish flu pandemic, which killed 50 to 100 million persons, was a H5N1 virus. Could Avian Flu devastate global health? Only time will tell.
Top Ten Leading Causes of Death

Worldwide
- Ischemic Heart Disease
- Stroke
- Lower Respiratory Infections
- HIV/AIDS
- Chronic Bronchitis/Emphysema
- Diarrheal Disease
- Tuberculosis
- Malaria
- Lung Cancer
- Road Traffic Accidents

United States
- Ischemic Heart Disease
- Cancer
- Stroke
- Chronic Bronchitis/Emphysema
- Accidents
- Diabetes
- Influenza/Pneumonia
- Alzheimer’s Disease
- Nephritis
- Septicemia

According to the Global Burden of Disease, by Christopher Murray and Alan Lopez, there are a number of growing causes of deaths. Globally, the large killers are still heart disease, stroke and pneumonia (lower respiratory infections), while in the US, the focus is on heart disease, cancer and stroke.

HIV/AIDS is the #4 killer in the world, while other infectious diseases (diarrheal disease, tuberculosis, and malaria) are #6,7,and 8 respectively. As trends go forward, even developing countries will experience more chronic disease problems and hence are at increased risk of facing a dual burden of disease both from infectious disease and chronic diseases.
“There are no epidemics”? 

- 39 million infected with HIV 
- 12 million AIDS orphans 
- Sub-Saharan Africa 
  - 70% of infections 
  - 80% of deaths 
  - 2% of those infected currently receive treatment 

With our ability to control and limit disease (such as SARS), are there any epidemics globally. One of the obvious ones presently is the HIV/AIDS crisis that is currently causing catastrophic harm in sub-Saharan Africa and is threatening in South-East Asia, Eastern Europe, India and China.

Government hospital in Malawi "Thirty-five to forty percent of illness at the hospital is AIDS-related. We lack equipment, staff and medicines," says Director Dr Maurice Bonongwe. "We are overwhelmed in every aspect of the epidemic.” - BBC
AIDS is a worldwide phenomenon

As this graph shows, AIDS has hit sub-Saharan Africa particularly hard but it has reached all parts of the world. Anti-retrovirals, the drugs that treat HIV/AIDS, are becoming more cost-affordable. By the end of 2005, WHO estimates 1.3 million persons are on anti-retroviral treatment for HIV/AIDS.
TB is also a growing worry ...

Estimated TB incidence rates, 2004

Notes on: TB is also a growing worry ...

The impacts are also showing up with the re-emergence of TB. About 20 years ago, the world was on the verge of getting rid of TB. However, with the co-infection with HIV/AIDS, TB is making a remarkable comeback. Over 2 million die from TB every year, and 9 million new cases are seen every year. Treatment exists for TB, including simple Direct-Observed Treatment, Short-Course or “DOTS” for about $11/course of treatment. The DOTS treatment calls for patients to take their medicines under direct observation, one treatment at a time. However, concern is increasing over the emergence of multi-drug resistant TB (MDRTB). The challenge continues to find new therapeutic regiments/drugs to treat this devastating disease.
Malaria remains a problem especially in the tropical areas. Of growing concern is the increase in chloroquine, primaquine and mefloquine resistance that are leading to increase use of costly artemesin-derivative drugs.

Enormous between-country differences

Source: World Bank. World Bank Development Indicators 2002. This graph shows the enormous discrepancy between Africa and the Rest of the World. Sierra Leone, in 2001, had 316 deaths per 1000 children born by the age of five. In comparison, Sweden had only 3 deaths by the age by the age of five. Over a 100-fold difference!
There is little class-based disparity?

<table>
<thead>
<tr>
<th>Country</th>
<th>High-income OECD</th>
<th>Least Dev’d</th>
<th>Sub Saharan Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Life expectancy</strong></td>
<td>78.1</td>
<td>50.4</td>
<td>46.5</td>
</tr>
<tr>
<td><strong>GDP per capita</strong></td>
<td>$27,169</td>
<td>$1274</td>
<td>$1831</td>
</tr>
</tbody>
</table>

*Purchasing power parity, which equalizes currency values over time. Source: HDR 2003

This table shows the enormous differences in wealth and life expectancy between High-income and the Least Developed and Sub-Saharan Africa (SSA)
Ratios of Key Demographic Indicators: Least Developed compared to Upper Middle Income Countries

<table>
<thead>
<tr>
<th>Indicator</th>
<th>1960</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant mortality rate</td>
<td>1.8</td>
<td>4.3</td>
</tr>
<tr>
<td>Child mortality rate</td>
<td>2.1</td>
<td>5.7</td>
</tr>
<tr>
<td>Total fertility rate</td>
<td>1.3</td>
<td>2.1</td>
</tr>
<tr>
<td>Population growth rate*</td>
<td>0.9</td>
<td>1.7</td>
</tr>
</tbody>
</table>

* Figure is for 1961.

Source: Human Development Report 2003. This table shows that the demographic differences (the inter-country inequalities) are increasing over time, leading to increased poverty and health gaps between the rich and poor countries of the world. For example, according to this table in 1960 infant mortality in the least developed countries was 1.8 times that of the upper middle income countries while in 2000, it was 4.3 times as great.
The success of global health

- Life expectancy is around 80 in many countries around the world and climbing
- Life expectancy in developing countries has climbed to about 65 from 41 in the early 1950s
- Elimination of smallpox (certified in 1979)
- Almost elimination of polio and measles
- Decline in global child mortality from 192 (1950s) to 79 per 1000 live births by 2004
- Immunization coverage approximately 75-80% worldwide.
The failure of global health

- Number of people with HIV (39 million), 4.1 million new infections and 2.8 million deaths per year
- More than 10 million children die per year, 6-7 million are preventable (98% in developing countries)
- Fall in life expectancy in Russia since 1990, leading to 1.5 million premature deaths
- Life expectancy in Sub-Saharan Africa is lower than 20 years ago; child mortality rates climbing in 15 countries.
- Significant health disparity intra- and inter-country differences.
Determinants of Health

- Poverty
- Nutrition
- Education
- Water and Sanitation

A number of things may contribute to poor health than disease and poor health care. A few of the examples include poverty, nutrition, education, water and sanitation. However, other considerations may include inequality, war, bad government, trade and globalization. A number of things may determine good or poor health and it requires significant thought to determine what to prioritize first in trying to improve the health of a population.
Poverty

• More than 1 billion live on less than $1/day
• Another 1.5 billion live on less than $2/day
The poor are especially disadvantaged. They are not able to purchase good nutritious food in adequate quantity and therefore are at increased risk of developing infections. Once they develop infections, they are far more likely to delay in seeking treatment, they are less likely to get good treatment, and their body is less able to combat the infection.
Education

- 114 million children have no education
- 584 million women are illiterate
- If a girl receives >6 years of school, child survival rates are 40% higher, immunization rates 50% higher, and AIDS rates are half
Poverty - Education and Health

The poor are also less likely to get a good education. In many parts of the world, family poverty leads to increased requirements for children to work to provide for the family (either as laborers or on family farms). In particular, the HIV/AIDS crisis has pushed many girls out of school to take care of sick family members and provide household services. This poor education has an enormous impact on the health of children, on their knowledge about how to protect against HIV/AIDS and other sexually transmitted diseases, and about the merits and methods of contraception and child spacing.
Water and Sanitation

- 1 billion people lack access to safe water
- 2.4 billion lack access to sanitation
- 1.6 million annual deaths in children under the age of 5 due to diarrhoeal diseases

Photo courtesy of Ryan’s Well Foundation
Poverty - Water - Sanitation and Health

Poverty

Poor water and sanitation

Diarrheal disease

Death

The poor are also less likely to be able to seek good clean water sources and provide sanitation services for fecal matter. This in turn, leads to increased risk of diarrheal disease and death.
An exciting time to be involved in global health

OUR COMMON INTEREST
REPORT OF THE COMMISSION FOR AFRICA

THE END OF POVERTY
ECONOMIC POSSIBILITIES FOR OUR TIME
JEFFREY D. SACHS
FOREWORD BY BONO

Macroeconomics and Health:
Investing in Health for Economic Development

Report of the Commission on Macroeconomics and Health
Health is central to the Millennium Development Goals*

Goal #4: Reduce child mortality by two-thirds between 1990 and 2015
Goal #5: Reduce maternal mortality by three-quarters between 1990 and 2015
Goal #6: Halt and reverse the spread of HIV/AIDS, TB and malaria by 2015.

*8 goals to be reached by 2015, adopted in 2000 by 189 nations. Three of the eight Millennium Development Goals (MDGs) for the year 2015 concentrate on health. In fact, health is central to the global development agenda. However, as the mid-progress report (2004) shows, we're far from achieving these aims we've set forth. [http://www.un.org/millenniumgoals/mdg2004chart.pdf](http://www.un.org/millenniumgoals/mdg2004chart.pdf)

How can we achieve these aims? First, we need to look at practical solutions that are readily available. Second, we need to encourage our own governments to help facilitate the needs of the poorest of the world. Third, we need to participate in finding solutions.
Health is also central to reducing poverty

Goal #1: Reduce by half the proportion of people living on less than a dollar a day by 2015.

Global health can help reduce the primary Millennium Development Goal as well; reducing poverty by improving productivity leads to greater investment in human and physical capital.
Summary

- Public health is more than taking care of an individual’s health. It is maximizing the well-being of an entire population.
- Chronic diseases are becoming more prevalent with aging populations.
- It isn’t only the absolute level of disease that concerns us, but also the very inequitable distribution of disease.
- Global health is improving in general, but there are parts of the world that lag far behind.
- Other factors may play a role in health, like poverty, nutrition, education and water and sanitation.
- Health is central to global development objectives.

We are only touching the surface of global health in this module. In the ~100 modules of the Global Health Module Collection, you’ll see many other issues of importance. We hope this module gives you a taste of just some of the many issues that makes global health an exciting profession to be part of!
General References

Papers


Books


Web links

Credits

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