

## Human Capital 2: Health

What is the relationship between health and development?

Like education, both a means and an ends.

As reflected in the HDI, improved health care is an objective in and of itself for development.

Good health means people lead fuller, happier lives.

Good health allows people to improve their education, improve their incomes.

Again, we can return to the Millennium Development Goals at <http://millenniumindicators.un.org>

#### **Goal 4. Reduce child mortality**

##### **Target 5.**

**Reduce by two thirds, between 1990 and 2015, the under-five mortality rate**

##### **Indicators**

- 13.** Under-five mortality rate (UNICEF-WHO)
- 14.** Infant mortality rate (UNICEF-WHO)
- 15.** Proportion of 1 year-old children immunized against measles (UNICEF-WHO)

#### **Goal 5. Improve maternal health**

**Target 6.** Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

##### **Indicators**

- 16.** Maternal mortality ratio (UNICEF-WHO)
- 17.** Proportion of births attended by skilled health personnel (UNICEF-WHO)

#### **Goal 6. Combat HIV/AIDS, malaria and other diseases**

##### **Target 7**

Have halted by 2015 and begun to reverse the spread of HIV/AIDS

##### **Indicators**

- 18.** HIV prevalence among pregnant women aged 15-24 years (UNAIDS-WHO-UNICEF)
- 19.** Condom use rate of the contraceptive prevalence rate (UN Population Division)<sup>c</sup>
- 20.** Ratio of school attendance of orphans to school attendance of non-orphans aged 10-14 years (UNICEF-UNAIDS-WHO)

##### **Target 8.**

Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases

##### **Indicators**

- 21.** Prevalence and death rates associated with malaria (WHO)
- 22.** Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures (UNICEF-WHO)<sup>e</sup>
- 23.** Prevalence and death rates associated with tuberculosis (WHO)
- 24.** Proportion of tuberculosis cases detected and cured under DOTS (internationally recommended TB control strategy) (WHO)

And there is some evidence that things have gotten better for some of these (again doing the 1970, 1996 contrast)

	Advanced	SSA	Asia	MENA
Life Expectancy	71, 78	45, 51	52, 64	60, 71
Infant Survival Rate (per 1000)	978, 994	868, 911	892, 944	907, 974

From the Unicef site, we see the overall trend may mask country specific variation: Under 5 mortality rate



Let us consider one aspect of poor health that combines issues of poverty, vulnerability, and disease: malnutrition.

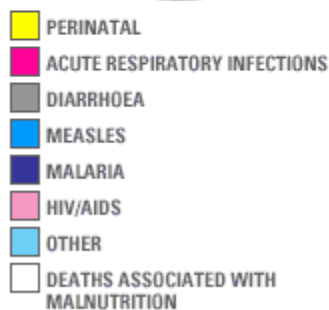
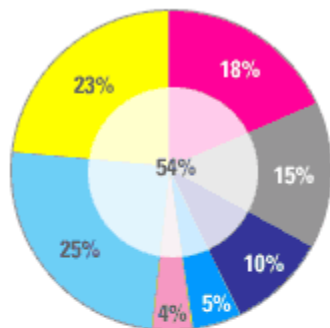
If people are not getting what they need from food, they can be malnourished.

Mother's nutrition has an impact on child's cognitive and physical development, both while the mother is pregnant and while the child is breastfeeding.

Malnutrition leads to problems in intellectual development and physical dexterity.

Malnutrition makes people more susceptible to diseases.

Under-five deaths in developing countries by cause, 2002



Source:  
World Health Organization  
<http://www.unicef.org/progressforchildren/2004v1/childSurvival2.php>

## Types of malnutrition:

- 1) Overnutrition
- 2) Secondary malnutrition (unable to absorb)
- 3) Dietary deficiency or micronutrient malnutrition (iodine, zinc missing)
- 4) Protein-calorie malnutrition

## Measures of undernutrition:

- 1) Clinical assessment. Look for physical symptoms (such as reddish hair and swollen belly for Kwashiorkor).
- 2) Biochemical assessment. Draw blood and look for anemia.
- 3) Dietary assessment. Look at what people are eating and in what quantities and identify gaps in the diet. Use either recall or record.
- 4) Anthropometric assessment. Weight for age, height for age, arm circumference. Wasted (current undernutrition); stunted (past undernutrition).

Estimates from the early 90's suggest 20% of the developing world's population, over 800 million people, are undernourished.

Malnutrition is often a contributing factor in death that is attributed to other causes.

What is the impact of improved health on economic growth?

One study (Bhargava et al., 2001) identifies a positive impact on economic growth brought about by increased health as reflected in the adult survival rate. This is after attempting to control for reverse causality.

Impact is rather small quantitatively.

In general, results suggest that health impacts productivity. Better health leads to higher wages. Early childhood health leads to later higher productivity, and thus higher wages (people born later in the development process are taller, and taller people earn more findings on 8.10, 8.11).

Early childhood health also leads to increased education.

A different perspective on this issue of from the disability adjusted life year (WHO).

The DALY is a health gap measure, which combines information on the impact of premature death and the disability and other non-fatal health outcomes.

One lost year of a healthy life (rather than death as used in the survival rate studies).

Issues such as mental illness and depression show up in DALY rankings that are not on the usual list of health challenges.

Top 5 causes of death and DALY, 1990. Worldwide.

	DALY	Death
1	Lower respiratory infections	Heart Disease
2	Diarrheal diseases	Cerebrovascular disease
3	Perinatal conditions	Lower Respiratory infections
4	Depression	Diarrheal diseases
5	Heart disease	Perinatal conditions

Bronchitis pneumonia strokes

Almost 90% of disease burden as measured by DALY occurs in developing regions, where only 10% of health care dollars are spent.

What types of diseases are on the usual list of health challenges?

AIDS, TB, Malaria, Hepatitis B (A and C as well), Cholera, Typhoid, Parasitic diseases, Acute Respiratory infections, diarrhea, measles...

Will income growth alone lead to improved health?

Level of income is an imperfect predictor of health care system performance. WHO (2000) study. At any given income level, there is wide variation in health system performance.

However, the overall correlation is positive and relatively high: GNP rank and Health system rank =0.80.

Another issue: income elasticities of demand for calories are often quite low.

Increased income does not necessarily lead to improved nutrition. Income elasticities of not so good for you food (soda, candy) is often higher than unity. Income growth may lead to a shift towards foods that lead to other nutritional problems (recall overnutrition issue)

Micronutrient problems are also increasingly recognized as an issue.

Table 8.12 suggests the link between income per capita and life expectancy at birth is not all that close.

Overall, GNP rank and life expectancy (female) are correlated at 0.81, so again we have a reasonable positive correlation, but some variation.

Sorted by income quartile:

	Health System score (standard deviation within group)	Female life expectancy (standard deviation within group)
Lowest	0.42 (.16)	52 (8)
Second	0.59 (.15)	66 (10)
Third	0.69 (.14)	72 (9)
Highest	0.86 (.12)	78 (5)

Broad pattern is that income and health indicators are positively correlated, but there is a great deal of variation within groups as well.

Will income growth lead to better education, thus better health?

Education can also play a critical conditioning factor here. Better educated parents make better decisions and have healthier children.

Many of the allocative questions such as we thought about with education are issues here – clinics or national hospitals...

Also may have different health issues associated with affluence.

Inequality at a given average level of income may be an issue.

Figures 8.8, 8.9 indicate that the death rate of children is influenced by household income class. The death rate for the poorest 40% is triple that of the wealthiest 30%.

Within household inequality can also be an issue, where age and gender specific distribution of resources influences access.