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Ethical Issues in Public Health  
**Session 7: Priority Setting & the Global Burden of Disease**

In the past, mortality figures were the leading concern of policy-makers. However, this mortality-focused approach has gradually shifted following the development of summary measures which integrate morbidity, mortality, and disability into one single burden of disease index (like the DALY).

Approximately 10% of the health research funds from public and private sources worldwide are devoted to 90% of the global burden of disease (as measured in DALYs). This is known as the “10/90 gap.” It has been suggested that even this 10% is not used in the most effective manner.

Approximately 90% of the public sector funds spent on health research are in the hands of a small number of countries, which have given priority to their own immediate national health research needs<sup>1</sup>. Private sector funding decisions are based largely on profit perspectives which inevitably limit investment in diseases prevalent in low and middle-income countries as market potential in these areas is often thought to be poor (and arguably underestimated).

Recently, a number of groups have developed recommendations to address this problem. It has been recognized that greater attention must be given to the process of research priority setting. Many of the recommendations have focused on the use of summary measures like the DALY as the primary burden of disease indicator to be used in priority setting efforts.

Table 1 (page 3) presents 1998 data on the sources of global health research and development (R & D) funding. Figures 1.1 – 1.3<sup>2</sup> (pages 4-6) and tables 2 – 5 (pages 7-8) present 2002 data concerning the global burden of disease.

Examine the tables on the following pages and be prepared to discuss the following:

- 1) Assume, as tables 2 & 3 suggest, that a cost utility analysis (CUA) concludes that developing effective interventions for heart disease and cerebrovascular disease will be the most efficient way to reduce mortality globally. After all, these two conditions account for over 20% of total deaths in the world. Note, however, that a global campaign of this sort would not address the two most important causes of death in high mortality developing countries. Is this just?
  
- 2) Now consider tables 4 & 5. Note that the principal causes of disease burden are somewhat different than the principal causes of mortality alone. Is it more just to plan global health priorities on mortality disease burden? Here again note that the principal

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<sup>1</sup> Currat LJ et al. 10/90 Report on Health Research 2003-2004. Global Forum for Health Research. 2004. Chapter 4, pp. 69. Available: <http://www.globalforumhealth.org>

<sup>2</sup> World Health Organization (WHO). 2004. World Health Report: Annex Table 4. Available: [http://www.who.int/whr/2004/en/09\\_annexes\\_en.pdf](http://www.who.int/whr/2004/en/09_annexes_en.pdf) Geneva: WHO.

causes of disease burden vary between developed countries and high/low mortality developing countries.

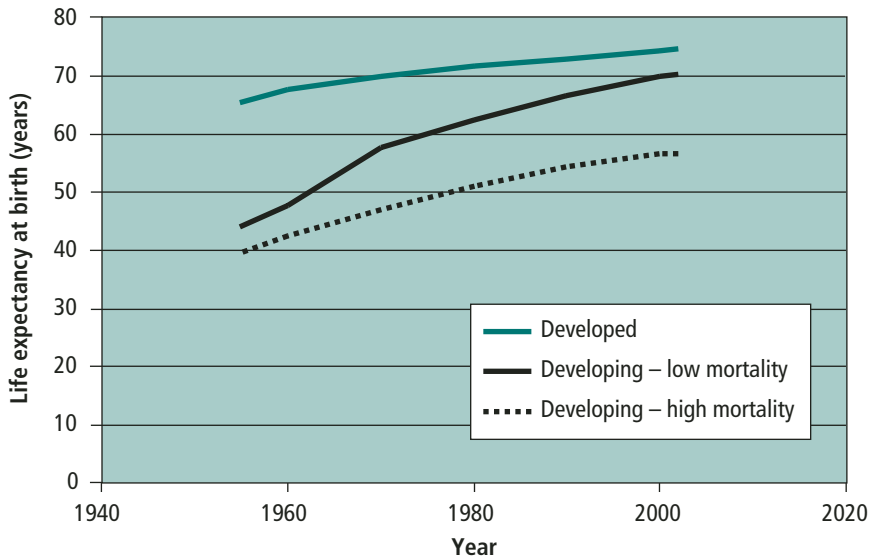
3) From an ethics stand point, how are we to think about the claims of “funders” to give priority to the interests and needs of their own stakeholders in setting research agendas? Address this question both for rich governments and their citizens and private companies and their stockholders.

**Table 1: Estimated Global Health R & D Funding 1998 (in billion current US\$)<sup>3</sup>**

<b>Sources of Financing</b>	<b>Total in billion US\$</b>	<b>Per cent of Total</b>
Public: high income and transition countries	34.5	47
<i>(U.S. Share)</i>	<i>(19.5)</i>	<i>(26.5)</i>
Public: low and middle income countries	2.5	3
Private: pharmaceutical companies	30.5	42
<i>(U.S. Share)</i>	<i>(20.3)</i>	<i>(27.6)</i>
Private: non-profit funding (foundations and universities)	6.0	8.0
<i>(U.S. Share)</i>	<i>(1.9)</i>	<i>(2.6)</i>
<b>TOTAL</b>	<b>73.5</b>	<b>100</b>
<b><i>(U.S. Share)</i></b>	<b><i>(41.7)</i></b>	<b><i>(56.7)</i></b>

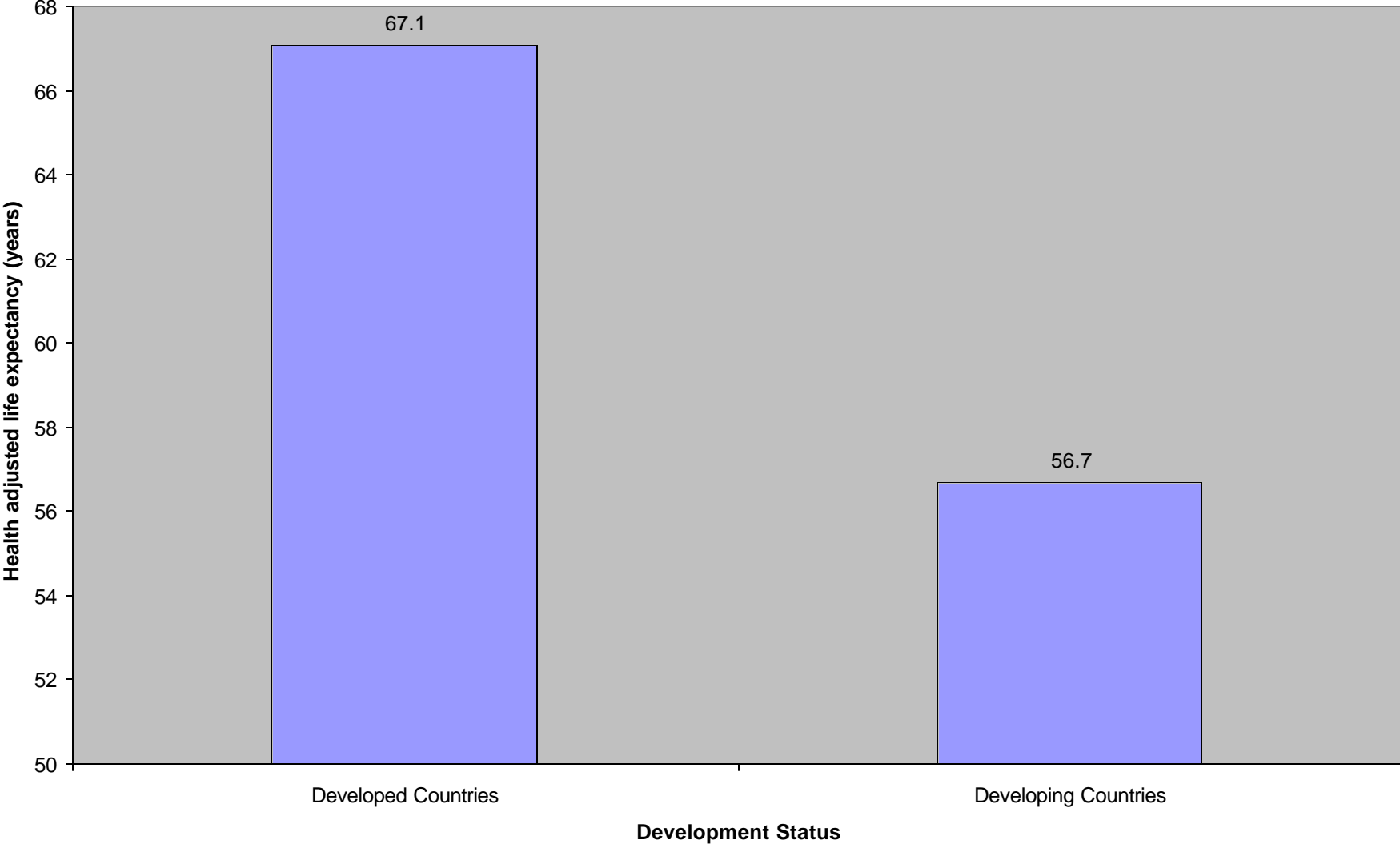
<sup>3</sup> Ibid 10/90 Report, Chapter 5, pp. 112.

**Figure 1.1 Life expectancy at birth: developed and developing countries, 1955–2002**

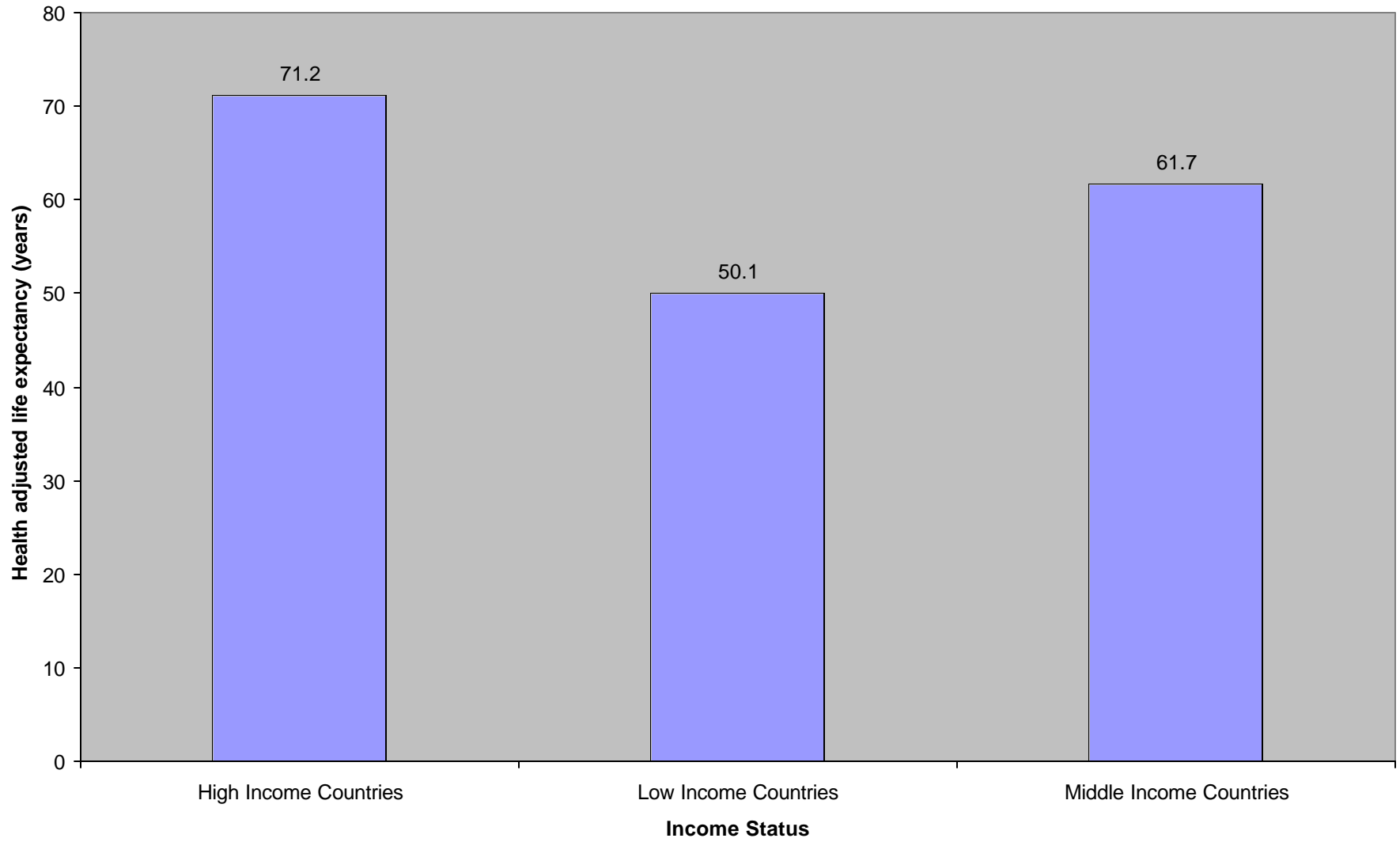


Note: The term developed countries includes Australia, Canada, European countries, former Soviet countries, Japan, New Zealand and the USA. High-mortality developing countries include those in sub-Saharan Africa, and countries with high child and adult mortality in Asia, Central and South America and the Eastern Mediterranean. Other developing countries are referred to as "developing – low mortality".

**Figure 1.2: Health Adjusted Life Expectancy (HALE) by Development Status, 2002**



**Figure 1.3: Health Adjusted Life Expectancy (HALE) by Income Status, 2002**



**Table 2: Ten Leading causes of death, 2002<sup>4</sup>**

<b>All Countries</b>	<b>% of Total Deaths</b>
1 Ischaemic heart disease	12.6%
2 Cerebrovascular disease	9.6%
3 Lower respiratory infections	6.6%
4 HIV/AIDS	4.9%
5 Chronic obstructive pulmonary disease	4.8%
6 Perinatal conditions	4.3%
7 Diarrhoeal diseases	3.1%
8 Tuberculosis	2.8%
9 Trachea, bronchus, lung cancers	2.2%
10 Malaria	2.1%

**Table 3: Ten Leading causes of deaths for developed and developing countries, 2002<sup>5</sup>**

	<b>Developed countries</b>	<b>% total deaths</b>		<b>Developing low mortality countries</b>	<b>% total deaths</b>
1	Ischaemic heart disease	22.8%	1	Cerebrovascular disease	13.8%
2	Cerebrovascular disease	13.3%	2	Ischaemic heart disease	9.7%
3	Trachea, bronchus, lung cancers	4.5%	3	Chronic obstructive pulmonary disease	9.5%
4	Lower respiratory infections	3.3%	4	Lower respiratory infections	3.7%
5	Chronic obstructive pulmonary disease	3.2%	5	Perinatal conditions	3.6%
6	Colon and rectum cancers	2.6%	6	Tuberculosis	3.3%
7	Diabetes mellitus	1.8%	7	Stomach cancer	3.1%
8	Self-inflicted injuries	1.8%	8	Road traffic accidents	3.0%
9	Hypertensive heart disease	1.7%	9	Trachea, bronchus, lung cancers	2.8%
10	Stomach cancer	1.7%	10	Hypertensive heart disease	2.7%

	<b>Developing high mortality countries</b>	<b>% total deaths</b>
1	Lower respiratory infections	10.0%
2	HIV/AIDS	9.6%
3	Ischaemic heart disease	9.3%
4	Perinatal conditions	6.6%
5	Diarrhoeal diseases	5.5%
6	Cerebrovascular disease	5.3%
7	Malaria	4.4%
8	Tuberculosis	3.6%
9	Chronic obstructive pulmonary disease	2.8%
10	Measles	2.5%

<sup>4</sup> Mathers CD et al. Global Burden of Disease in 2002: data sources, methods, and results. World Health Organization. December 2003. Table 10, pp. 47. Available <http://www.who.int>

<sup>5</sup> Ibid, Table 15, pp. 52



**Table 4: Ten leading causes of burden of disease and injury, 2002<sup>6</sup>**

	% of total DALYs
<b>All countries</b>	
1 Perinatal conditions	6.5%
2 Lower respiratory infections	5.8%
3 HIV/AIDS	5.8%
4 Unipolar depressive disorders	4.5%
5 Diarrhoeal diseases	4.1%
6 Ischaemic heart disease	3.9%
7 Cerebrovascular disease	3.3%
8 Malaria	3.0%
9 Road traffic accidents	2.6%
10 Tuberculosis	2.4%

**Table 5: Leading causes of burden for developed and developing countries, 2002<sup>7</sup>**

<b>Developed countries</b>		<b>% total DALYs</b>	<b>Developing low mortality countries</b>		<b>% total DALYs</b>
1	Ischaemic heart disease	9.1%	1	Unipolar depressive disorders	6.0%
2	Unipolar depressive disorders	7.3%	2	Perinatal conditions	5.9%
3	Cerebrovascular disease	6.4%	3	Cerebrovascular disease	5.0%
4	Alcohol use disorders	3.6%	4	Road traffic accidents	3.7%
5	Hearing loss, adult onset Chronic obstructive pulmonary disease	2.8%	5	Ischaemic heart disease Chronic obstructive pulmonary disease	3.3%
6	Road traffic accidents	2.6%	6	Lower respiratory infections	3.1%
7	Trachea, bronchus, lung cancers	2.5%	7	Tuberculosis	2.6%
8	Alzheimer and other dementias*	2.4%	8	Diarrhoeal diseases	2.4%
9	Self-inflicted injuries	2.3%	9	Cataracts	2.4%
10			10		
<b>Developing high mortality countries</b>		<b>% total DALYs</b>			
1	HIV/AIDS	9.2%			
2	Lower respiratory infections	8.5%			
3	Perinatal conditions	8.0%			
4	Diarrhoeal diseases	5.8%			
5	Malaria	5.1%			
6	Maternal conditions	3.1%			
7	Unipolar depressive disorders	3.1%			
8	Ischaemic heart disease	2.9%			
9	Measles	2.8%			
10	Tuberculosis	2.7%			

<sup>6</sup> Ibid, Table 18, pp. 53-54.

<sup>7</sup> Ibid, Table 20, pp. 57.