

Present and future burden of disease in developing countries

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***Measurement and health information (MHI)
Evidence and Information for Policy (EIP)***

Evidence and Information for Policy



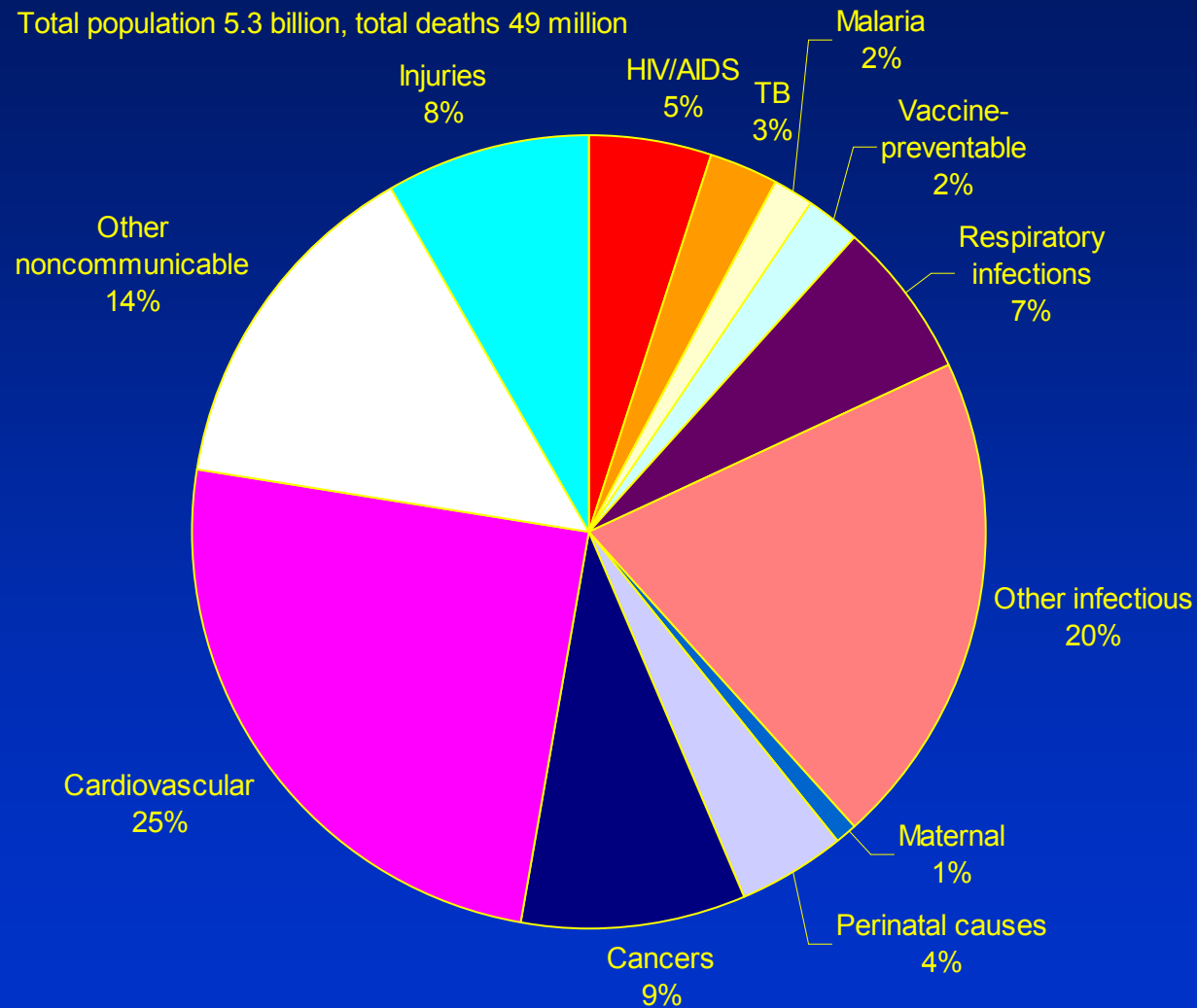
Global Burden of Disease Study

- Original GBD study (Murray and Lopez 1996)
- WHO updates for 2000 to 2002 (World Health Reports 2001 to 2004)
- Comparative risk assessment for 26 global risk factors - World Health Report 2002
- New projections from 2002 to 2015 and 2030
- For more information www.who.int/evidence/bod



Major causes of death, 2002 low and middle income countries

Total population 5.3 billion, total deaths 49 million



Low and middle income countries, 2002

Leading Causes of Death

Children 0-4 (10.5 million)		Adults 15-59 (13.1 million)	
<i>Cause</i>	% total deaths	<i>Cause</i>	% total deaths
1 Lower respiratory infections	17.4	1 HIV/AIDS	13.3
2 Diarrhoeal diseases	16.2	2 Ischaemic heart disease	9.8
3 Low birth weight	12.1	3 Tuberculosis	6.1
4 Malaria	7.9	4 Cerebrovascular disease	5.8
5 Birth asphyxia & trauma	6.9	5 Road traffic accidents	5.3
6 Measles	5.2	6 Suicide	3.6
7 Congenital anomalies	3.9	7 Homicide	3.2
8 HIV/AIDS	3.2	8 Liver cirrhosis	2.7
9 Pertussis	2.8	9 Obstructive lung disease	2.6
10 Tetanus	1.9	10 Lung cancer	2.3

Source: World Health Report 2004, WHO



Disability Adjusted Life Years

$$DALY = YLL + YLD$$

YLL Years of life lost due to mortality

YLD Equivalent years of healthy life lost due to disability

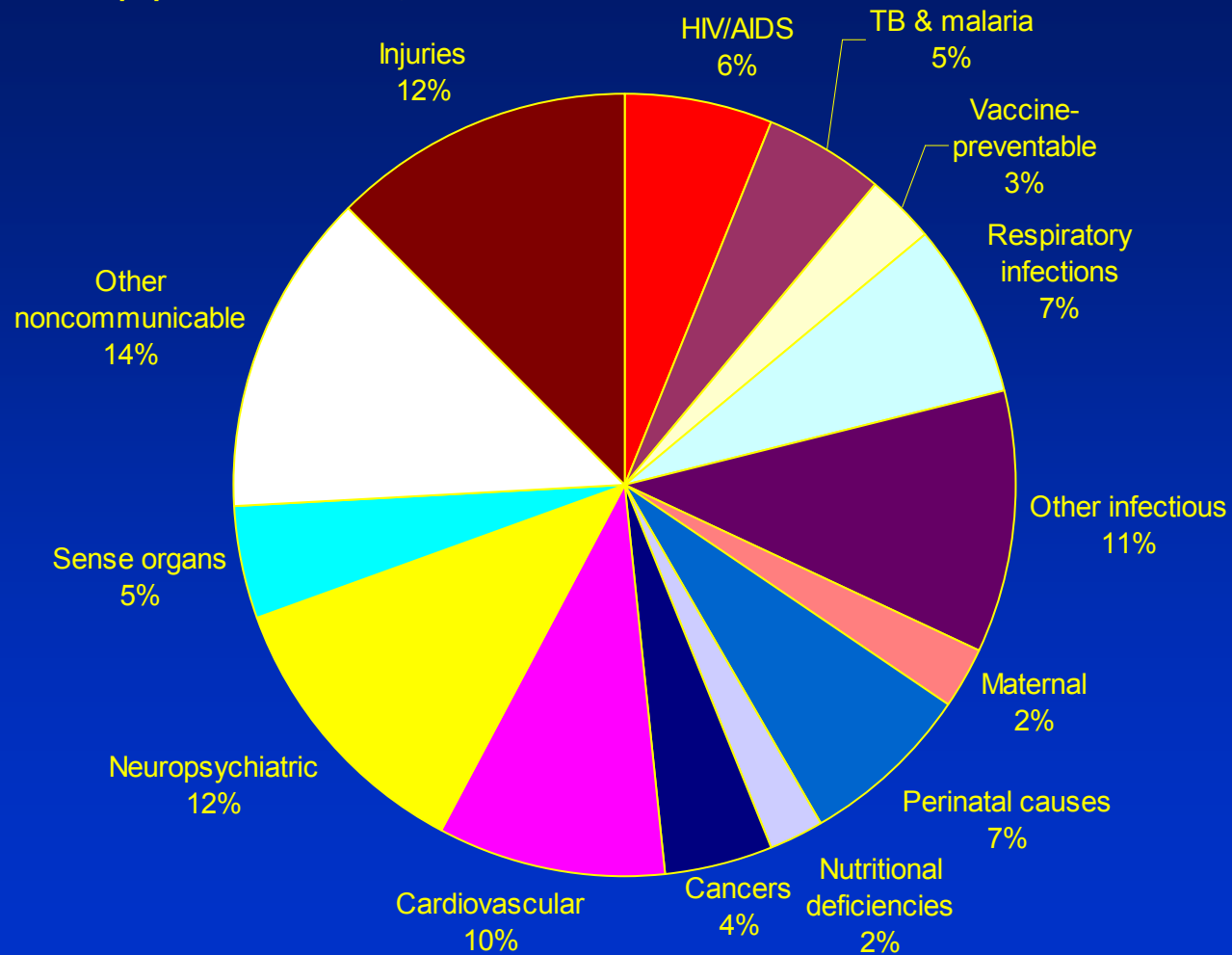
Time is used as the common metric for mortality and health states:

1 DALY represents one lost year of equivalent full health due to mortality, morbidity, disability



Major causes of burden of disease, 2002 low and middle income countries

Total population 5.3 billion, total DALYs 1.4 billion



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Low and middle income countries, 2002

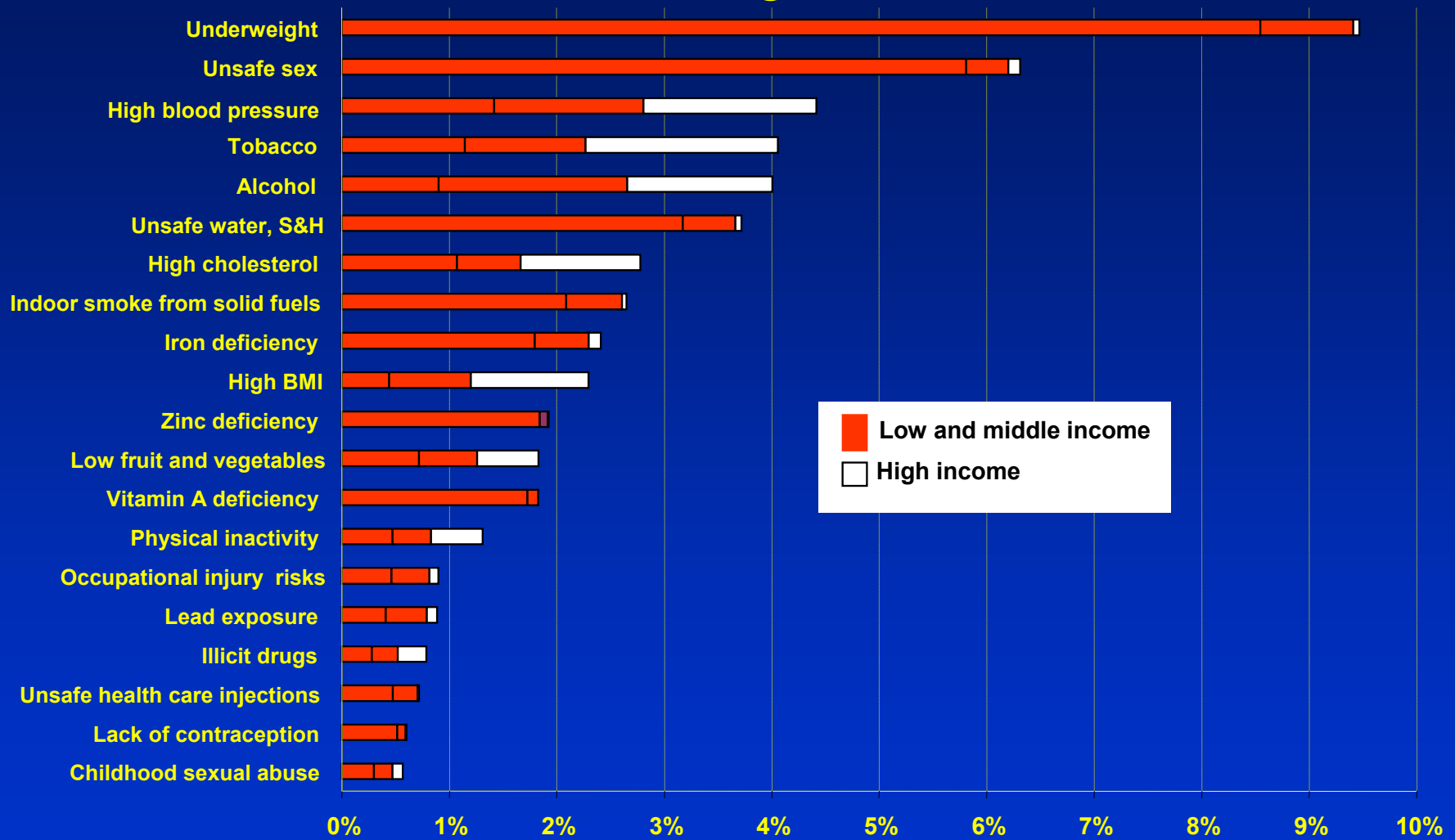
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Global distribution of burden of disease attributable to 20 leading selected risk factors



Attributable DALYs (% total 1.44 billion)

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Projection methods and scope

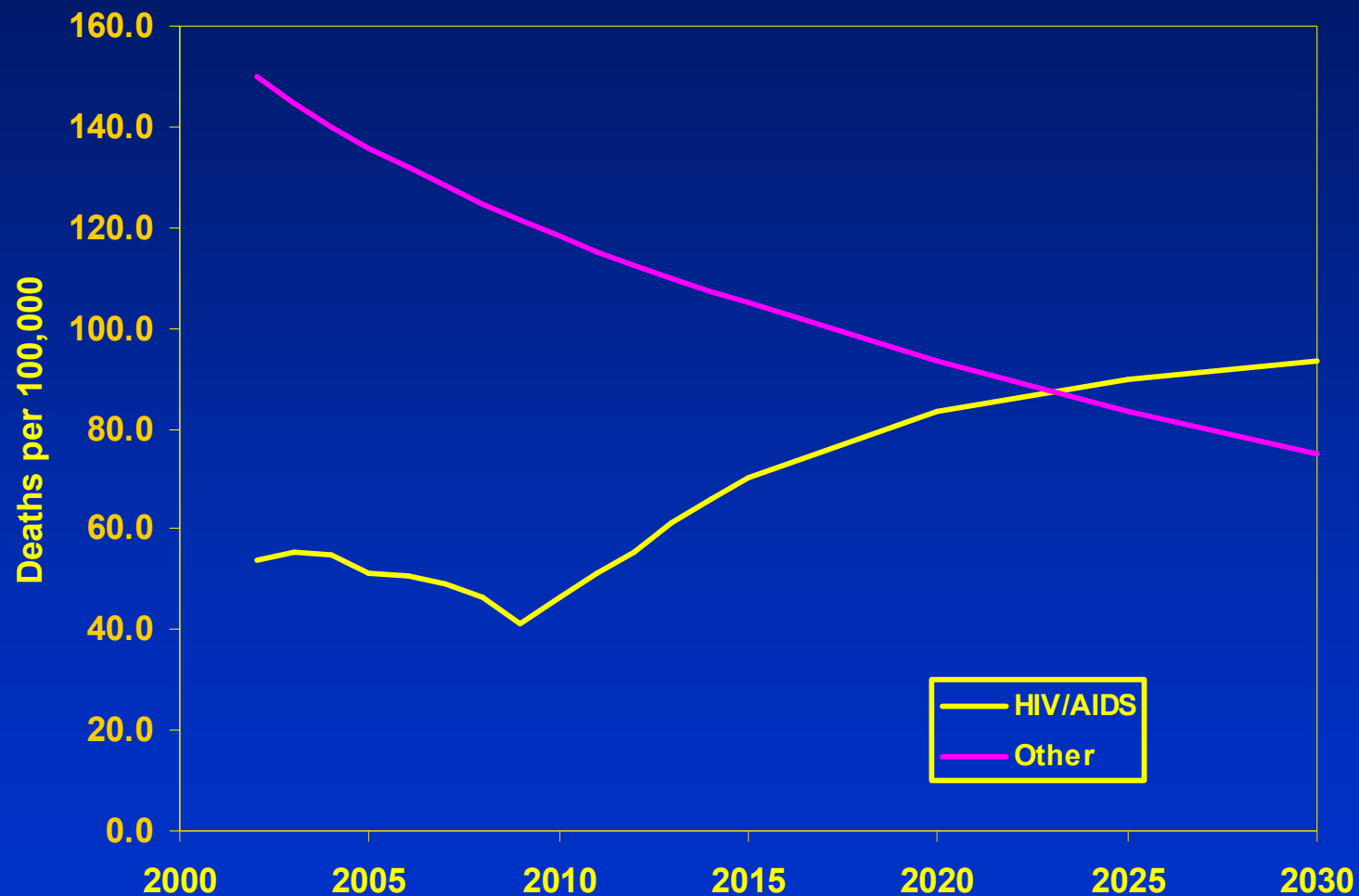
- **GBD 1990 methodology (Murray and Lopez 1996) with updated data inputs and some modifications**
- **Historical death registration data for 106 countries :1950 -2002**
- **Cause-specific mortality trends modelled in terms of GDP/capita, adult education, smoking intensity and time (proxy for technology improvements)**
- **Projections to 2015 use World Bank forecasts for GDP growth, WHO projections for other covariates**
- **Projected from GBD 2002 base**



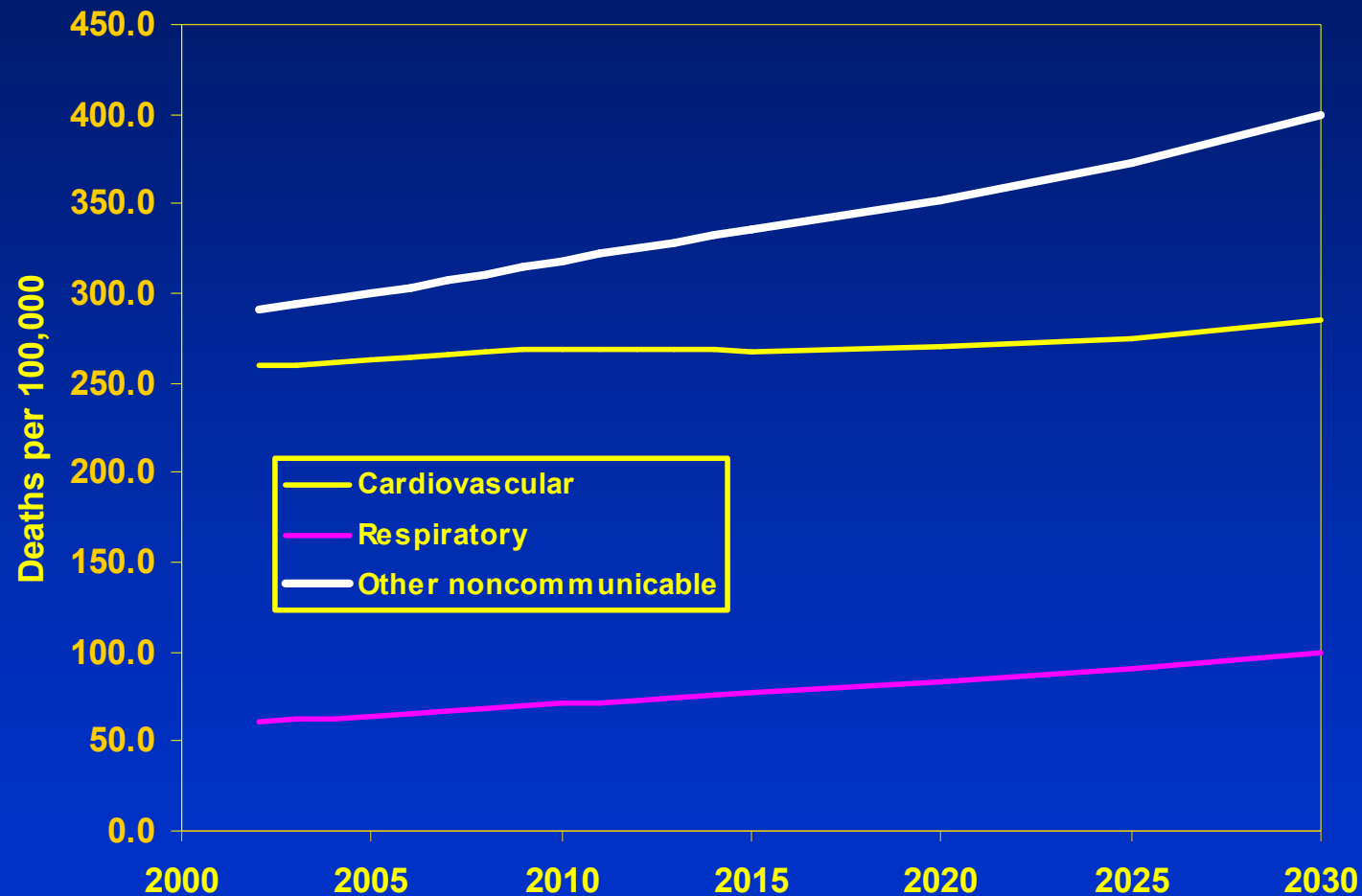
Cause ^b	Persons, All ages			
	World 2005	World 2015	low income 2005	low income 2015
<i>Population (millions)</i>	6 442	7 103	5 495	6 127
TOTAL Deaths (millions)	58.0	63.0	49.9	54.1
I. Communicable diseases, maternal and perinatal conditions and nutritional deficiencies	17.3	15.8	16.7	15.3
Infectious and parasitic diseases	10.4	10.2	10.2	10.0
HIV/AIDS	3.0	4.3	3.0	4.3
II. Noncommunicable conditions	35.4	41.2	28.3	33.3
Malignant neoplasms	7.6	9.0	5.4	6.7
Trachea/bronchus/lung cancers	1.3	1.7	0.9	1.2
Diabetes mellitus	1.1	1.7	0.9	1.3
Cardiovascular diseases	17.5	19.7	14.5	16.4
Respiratory diseases	4.1	5.3	3.5	4.7
III. Injuries	5.4	6.0	4.9	5.5
Unintentional	3.7	4.1	3.4	3.7
Intentional	1.7	1.9	1.6	1.8



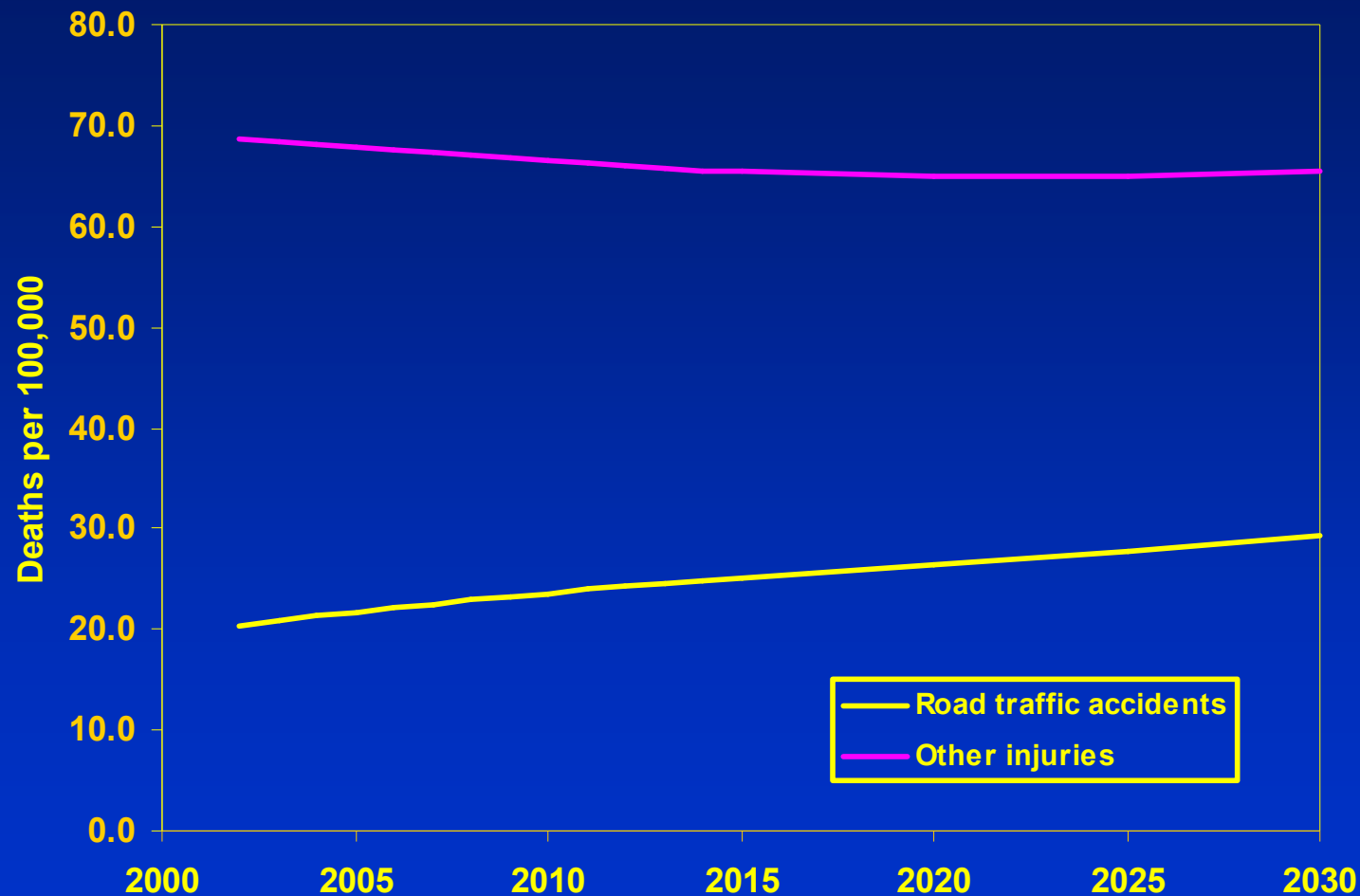
Projected trends in death rates 2002-2030: Communicable diseases



Projected trends in death rates 2002-2030: Noncommunicable diseases

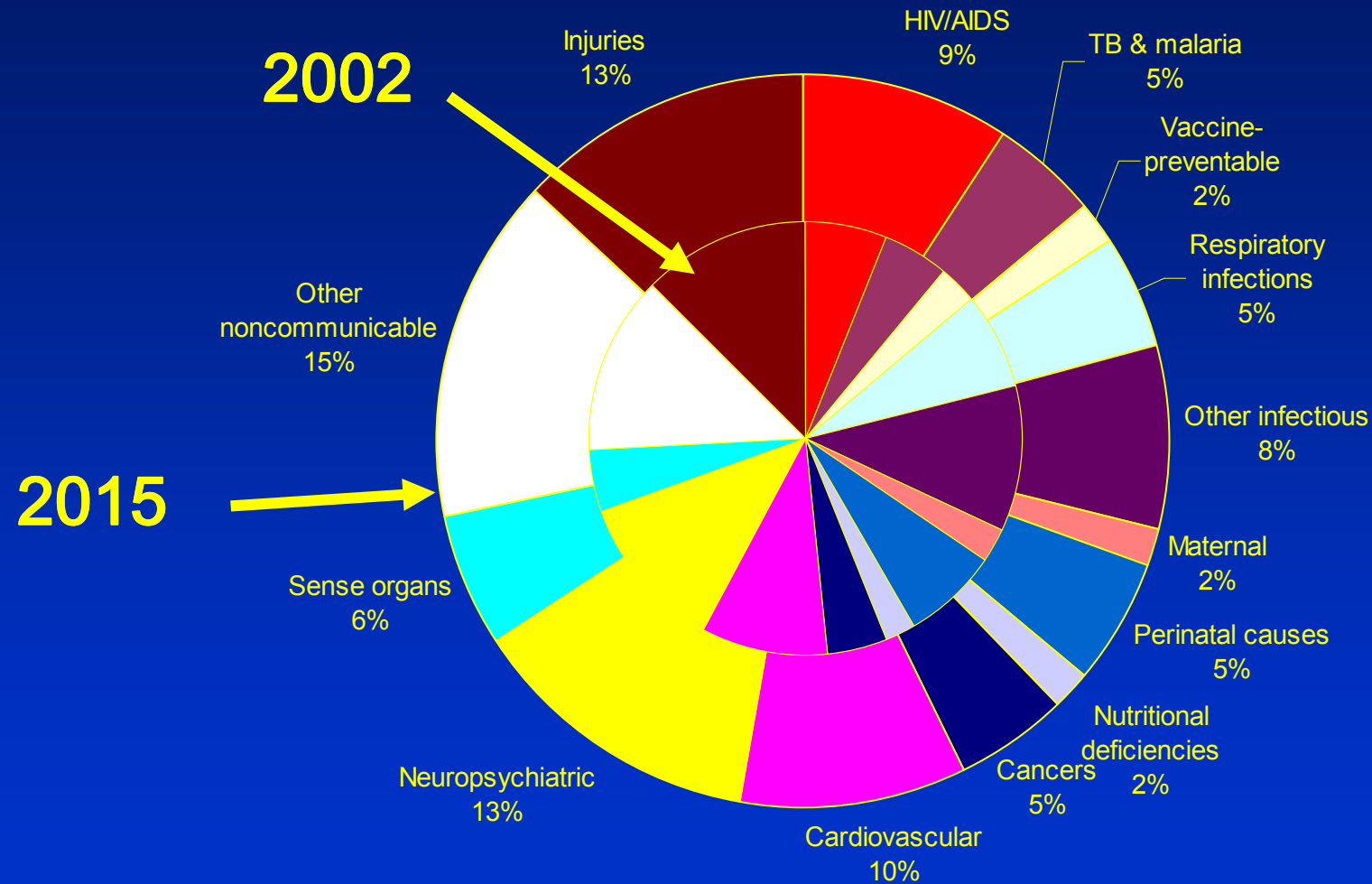


Projected trends in death rates 2002-2030: Injuries



Major causes of burden of disease, 2002 and 2015 low and middle income countries

Total population 6.1 billion, total DALYs 1.4 billion



Leading causes of burden 2015

	2015	2002
1 HIV/AIDS	8.8%	4.7%
2 Unipolar depressive disorders	5.2%	3.4%
3 Perinatal conditions	5.0%	5.9%
4 Ischaemic heart disease	4.3%	5.5%
5 Lower respiratory infections	4.2%	5.6%
6 Cerebrovascular disease	3.5%	4.7%
7 Road traffic accidents	3.2%	2.3%
8 Other unintentional injuries	3.2%	3.2%
9 Chronic obstructive pulmonary disease	2.8%	2.5%
10 Diarrhoeal diseases	2.6%	3.9%



Conclusions

- Over the next decade, population ageing and the epidemiological transition will increase the importance of noncommunicable diseases in LMI countries
- HIV/AIDS epidemic is projected to continue to grow, despite increased access to anti-retroviral drugs.
- Tobacco epidemic will result in increased burden for cancers and chronic respiratory diseases in LMI countries
- Projected trends for overweight and obesity will result in increasing diabetes burden
- Chronic disease risk factors are responsible for increasing proportions of burden of disease in LMI countries, other risk factors such as malnutrition and unsafe water and sanitation will become less important with projected economic growth

