

## References

- Ezzati M, Lopez A, Vander Hoorn S, Rodgers A, Murray CJL, Comparative Risk Assessment Collaborative Group. Selected major risk factors and global regional burden of disease. *Lancet* 2002; 360(9343):1347-1360
- Mathers CD, Stein C, Ma Fat D, Rao C, Inoue M, Tomijima N et al. Global Burden of Disease 2000: Version 2 methods and results. GPE Discussion Paper No. 50. Geneva: World Health Organization, 2002.
- Murray CJ, Lopez AD. The Global Burden of Disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020. Cambridge, MA, Harvard School of Public Health, (Global Burden of Disease and Injury Series, vol. I), 1996.
- Murray CJ, Lopez AD. Global health statistics. Cambridge, MA, Harvard School of Public Health, (Global Burden of Disease and Injury Series, vol. II), 1996.
- Murray CJL, Lopez AD. Progress and directions in refining the global burden of disease approach: response to Williams. *Health Economics Dem* 2000; 9: 69-82.
- Salomon JA, Murray CJL. The epidemiologic transition revisited:compositional models for causes of death by age and sex. *Population and Development Review* 2002; 28(2):205-228
- World Health Organization. World Health Report 2002. Reducing Risks, Promoting Healthy Life. Geneva: WHO, 2002. ([www.who.int/whr](http://www.who.int/whr)).

### Further information on the WHO website

Version 1 and 2 estimates for 14 WHO subregions by cause, age and sex are available on the WHO website together with documentation of methods and sources at:

<http://www.who.int/evidence/bod>

## Key contacts

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Epidemiology and Burden of Disease  
World Health Organization  
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## The Global Burden of Disease

A response to the need for  
comprehensive, consistent and  
comparable global information on  
diseases and injuries

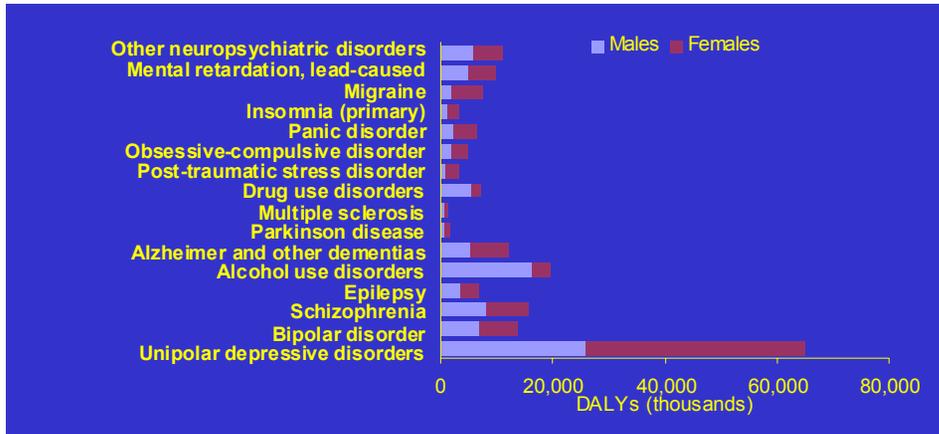


The WHO Global Burden of Disease 2000 study (GBD 2000) draws on a wide range of data sources to develop internally consistent estimates of incidence, health state prevalence, severity and duration, and mortality for over 130 major causes, for 17 sub-regions of the world. WHO program participation in the development and finalisation of these estimates ensures that estimates reflect all information and knowledge available to WHO. Version 2 estimates of incidence and point prevalence for selected major causes by sub-region were made available on the WHO website at [www.who.int/evidence/bod](http://www.who.int/evidence/bod) at the time of the release of the World Health Report 2002.

## Leading Causes of Mortality and Burden Preliminary estimates for 2000

Mortality		DALYs	
	%		%
• Ischaemic heart disease	13.7	• Lower respiratory infections	6.7
• Cerebrovascular disease	9.5	• HIV/AIDS	6.2
• Lower respiratory infections	6.4	• Perinatal conditions	6.2
• HIV/AIDS	4.2	• Diarrhoeal diseases	5.0
• COPD	4.2	• Depression	4.1
• Diarrhoeal diseases	4.1	• Ischaemic heart disease	4.1
• Perinatal conditions	4.0	• Cerebrovascular disease	3.5
• Tuberculosis	2.8	• Malaria	3.1
• Lung Cancer	2.3	• Road traffic accidents	2.8
• Road traffic accidents	2.2	• COPD	2.7

## Global burden of neuropsychiatric conditions by cause, 2000



The GBD 2000 seeks to use all available relevant data, to maximise the use of high quality population-based data, and, even for regions and causes where data are sparse, to use the available evidence and the best available methods to make inferences. Where the evidence is uncertain or incomplete, the GBD 2000 attempts to make the best possible inferences based on the knowledge base that is available. Internal consistency and transparency of methods and assumptions are crucial. To this end, the data sources, disease models, methods and assumptions used in the GBD 2000 are being progressively documented and released as drafts for discussion.

## Consistent estimates for incidence and prevalence

Global Incidence (millions)	Global prevalence (millions)
• Tuberculosis	7.6
• HIV infection	4.7
• AIDS	3.1
• Diarrhoeal diseases	4,371
• Measles	31.3
• Meningitis	0.7
• Hepatitis B and C	1.1
• Malaria	382.0
• Schistosomiasis	22.5
• Iodine deficiency	802.2
• Diabetes mellitus	156
• Major depressive episodes	121
• Bipolar affective disorder	27
• Schizophrenia	24
• Epilepsy (primary)	37
• Alzheimer and other dementias	37
• Migraine	303
• Hearing loss, adult onset	222
• COPD	341
• Osteoarthritis	139

## Disability-adjusted life years

One DALY represents the loss of one year of equivalent full health.

DALYs for a disease are the sum of the years of life lost due to premature mortality (YLL) in the population and the years lost due to disability (YLD) for incident cases of the health condition. The DALY is a *health gap* measure that extends the concept of potential years of life lost due to premature death (PYLL) to include equivalent years of 'healthy' life lost in states of less than full health, broadly termed disability.

## Background

In 1993 the Harvard School of Public Health in collaboration with The World Bank and WHO assessed the Global Burden of Disease. Aside from generating the most comprehensive and consistent set of estimates of mortality and morbidity by age, sex and region ever produced, GBD also introduced a new metric – disability adjusted life year (DALY) – to quantify the burden of disease. The World Health Organization is now undertaking a new assessment of the Global Burden of Disease (GBD) for the year 2000.

The specific objectives of GBD2000 are:

- to quantify the burden of premature mortality and disability by age, sex, and region for 135 major causes or groups of causes;
- to analyze the contribution to this burden of selected risk factors using a comparable framework; and
- to develop various projection scenarios of the burden of disease over the next 30 years.

## Proportion of DALYs attributable to Group I, II and III causes, by subregion, 2000

