HEALTHY LIFE EXPECTANCY AT BIRTH		
Health	**Mortality and morbidity**	

1. INDICATOR

(a) Name: Healthy Life Expectancy at Birth.

(b) Brief Definition: The average equivalent number of years of full health that a newborn could expect to live, if he or she were to pass through life subject to the age-specific death rates and ill-health rates of a given period.

(c) Unit of Measurement: Years of life.

(d) Placement in the CSD Indicator Set: Health/Mortality.

2. POLICY RELEVANCE

(a) Purpose: Measures how many equivalent years of full health on average a new-born baby is expected to have, given current age-specific mortality, morbidity and disability risks. Healthy life expectancy at birth is an indicator of health conditions, including the impacts of mortality and morbidity.

(b) Relevance to Sustainable/Unsustainable Development (theme/sub-theme): Healthy life expectancy (HALE) provides a summary of overall health conditions for a population, which are in turn an integral part of development. The ICPD Programme of Action highlights the need to reduce disparities in mortality and morbidity among countries and between socio-economic and ethnic groups. It identifies the health effects of environmental degradation and exposure to hazardous substances in the work-place as issues of increasing concern. While communicable diseases such as HIV/AIDS, tuberculosis and malaria continue to cause substantial loss of health and mortality in developing countries, particularly African countries, non-communicable diseases and injuries are responsible for more than half of all lost years of healthy life in developing as well as developed countries. HALE thus provides a more complete picture of the impact of morbidity and mortality on populations, than simple life expectancy alone.

(c) International Conventions and Agreements: The World Health Organization has published HALE estimates for Member States as part of WHO's regular annual reporting on the health for Member States (World Health Reports from 2000 to 2004). Apart from general aspirational statements, HALE has not been specifically used in international conventions or agreements to date.

(d) International Targets/Recommended Standards: See above.

(e) Linkages to Other Indicators: This indicator reflects many social, economic, and environmental influences. It is closely related to other demographic variables,

particularly life expectancy at birth, and it is related to human health and the environment as well as economic indicators.

3. METHODOLOGICAL DESCRIPTION

(a) Underlying Definitions and Concepts: Calculation of healthy life expectancy at birth is based on age-specific death rates for a particular calendar period together with severity-adjusted health state prevalences by age.

(b) Measurement Methods: The World Health Organization has developed methods for calculation of HALE that combine standard life table information on mortality together with age-sex-specific prevalence data for health states using Sullivan's method . Since comparable health state prevalence data are not available for all countries, a four-stage strategy has been used by WHO:

1. Data from the WHO Global Burden of Disease (GBD) study are used to estimate severity-adjusted prevalence by age and sex for all countries.
2. Data from the WHO Multi-Country Survey Study (MCSS) are used to make independent estimates of severity-adjusted prevalence by age and sex for survey countries.
3. Prevalence for all countries is calculated based on GBD and MCSS estimates.
4. Life tables constructed by WHO are used with Sullivan's method to compute HALE for countries

More detailed information on the methods are provided by Mathers et al (Mathers et al. 2004; Mathers, Murray, and Salomon 2002). A number of countries have also carried out HALE calculations based on either population survey data or national burden of disease analyses.

(c) Limitations of the Indicator: Health expectancy estimates based on self-reported health status information are generally not comparable across countries due to differences in survey instruments and cultural differences in reporting of health(Romieu and Robine 1994). Comparability problems with self-report health status data relate not only to differences in survey design and methods, but more fundamentally to unmeasured differences in expectations and norms for health ref. Even when reliability and within population validity have reached acceptable levels, the meaning that different populations attach to the labels used for each of the response categories, such as mild, moderate or severe, in self-reported questions can vary greatly. In order to improve the methodological and empirical basis for the measurement of population health, WHO has initiated a data collection strategy with Member States consisting of household and/or postal or telephone surveys in representative samples of the general populations using a standardised instrument together with new statistical methods for adjusting self-reported health measures to comparable scales (Ustun et al. 2003b). Healthy life expectancy estimates for all countries are based on a mix of survey data for some countries (with its own uncertainty due to sampling and systematic biases) and analyses of disability prevalence in the Global Burden of Disease project, which draws on a wide range of epidemiological and demographic data of varying degrees of uncertainty. These methods are not easily replicated for single national estimates.

(d) Status of the Methodology: Developmental. Methods have been developed drawing on self-report survey data on functioning in core health domains (such as mobility, usual activities, affect, pain, cognition), and on estimated health state prevalences from burden of disease analysis using the Disability Adjusted Life Year (or DALY). Both of these approaches require relatively complex analyses and are data-demanding. A number of issues remain to be resolved around cross-population comparability, and methods for dealing with comorbidity in the DALY-based approach (King et al. 2003).

(e) Alternative Definitions/ Indicators: Other summary measures in common use include the Disability Free Life Expectancy (DFLE) and measures of health expectancy based on self-reported global health questions (with response categories such as excellent, very good, fair, poor). Both these forms of indicator suffer from intractable problems of cross-population comparability, and a level of arbitrariness in the choice of threshold for definition of poor health or disability. Additionally, such indicators are insensitive to differences in severity distribution of health or disability beyond the threshold. Both these indicators require less detailed data and analysis for their calculation than does HALE, and are reported by a number of organizations including OECD.

As with life expectancy, HALE may be calculated separately for males and females, or for both sexes combined. If the underlying data permit, HALE may also be calculated for subnational regions, or for other population subgroups. HALE can also be presented for particular ages after birth, and age 60 is a common choice for a second age to be reported.

4. ASSESSMENT OF DATA

(a) Data Needed to Compile the Indicator: Mortality data as required for calculation of period life expectancy together with comprehensive prevalence estimates for health states in the population and a health state valuation function to enable computation of equivalent years of full health lived at each age. Alternately, HALE may be calculated from DALY estimates for burden of disease by cause, age and sex. A prevalence-based analysis is normally required for the calculation of prevalence YLD (Years Lived with Disability) and a method for dealing with comorbidity.

(b) National and International Data Availability and Sources: Data on health states in populations have been collected by the World Health Organization in its Multicountry Study (Ustun et al 2003b) and in the World Health Survey in 2003-2004 (Ustun et al. 2003a).

(c) Data References: Estimates of healthy life expectancy at birth have been prepared for all WHO Member States and appear in the World Health Reports for years 2000 to 2004.

5. AGENCIES INVOLVED IN THE DEVELOPMENT OF THE INDICATOR

(a) Lead Agency: The lead agency is the World Health Organization. The contact point is the Coordinator, Country Health Information, Evidence and Information for Policy, fax no. (41 22) 7914328. (Mathers et al. 2003; Robine et al. 2003)

6. REFERENCES

(a) Readings:

1. King, G., C. J. L. Murray, J. A. Salomon, and A. Tandon. 2003. Enhancing the validity and cross-cultural comparability of measurement in survey research. American Political Science Review 93, no. 4:567-583.
2. Mathers, C. D., K. Iburg, J. Salomon, A. Tandon, S. Chatterji, B. Ustun, and C. J. L. Murray. 2004. Global patterns of healthy life expectancy in the year 2002. BMC Public Health 4, no. 1:66.
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5. Robine, J. M., C. Jagger, C. D. Mathers, E. M. Crimmins, and R. M. Suzman. 2003. Determining health expectancies. Chichester: John Wiley & Sons.
6. Romieu, I. and J. M. Robine. 1994. World atlas of health expectancy calculations. In Advances in health expectancies, edited by Mathers, C. D., J. McCallum, and J. M. Robine (Canberra: Australian Institute of Health and Welfare).
7. Ustun, T. B., S. Chatterji, A. Mechbal, Murray C.J.L, and WHS Collaborating Groups. 2003a. The World Health Surveys. In Health systems performance assessment: debates, methods and empiricism, edited by Murray, C. J. L and D. Evans (Geneva: World Health Organisation).
8. Ustun, T. B., S. Chatterji, M. Villanueva, L. Bendib, C. Celik, R. Sadana, N. Valentine, J. Ortiz, A Tandon, J Saloman, Y. Cao, J. Xie Wan, E. Ozaltin, C. D. Mathers, and Murray C.J.L. 2003b. The WHO Multicountry Household Survey Study on Health and Responsiveness 2000-2001. In Health systems performance assessment: debates, methods and empiricism, edited by Murray, C. J. L and D. Evans (Geneva: World Health Organisation).

(b) Internet sites:

Statistics are available at:
http://www.who.int/healthinfo/statistics/indhale/en/