

# Glossary

**Age-standardized rate** An age-standardized rate is a weighted average of the age-specific rates, where the weights are the proportions of a standard population in the corresponding age groups (q.v.). The potential confounding effect of age is removed when comparing age-standardized rates computed using the same standard population.

**Age weights** Factor specifying the relative value of a year of healthy life lived at different ages. The DALY can incorporate non-uniform age weights which give less weight to years of life lived in early childhood and at older ages (see Chapter 5).

**AIDS: Acquired Immunodeficiency Syndrome** Disease due to infection with the human immunodeficiency virus (HIV).

**BMI: Body mass index** A measure of underweight and overweight calculated as weight (kg) divided by height squared ( $m^2$ ).

**Case Fatality Rate** The proportion of cases of a disease or injury that die as a result of their disease or injury over a specified time period.

**CHD: Coronary heart disease** Synonymous with ischemic heart disease (q.v.).

**Childhood-cluster diseases** GBD (q.v.) cause group including the following vaccine-preventable diseases of childhood: pertussis, poliomyelitis, diphtheria, measles and tetanus.

**CODMOD: Cause of death model** A statistical model for the prediction of the broad distribution of causes of death based on observed historical data on the relationships between cause distributions, and overall levels of mortality and per-capita income (see Chapter 3).

**Comorbidity** Presence of more than one disease or health condition in an individual at a given time.

**COPD: Chronic obstructive pulmonary disease** Lung diseases that persistently obstruct bronchial airflow. COPD mainly involves two related diseases—chronic bronchitis and emphysema. COPD is also called chronic obstructive lung disease. Asthma is not included in COPD, as the obstruction to

bronchial airflow is usually reversible and between asthma episodes the flow of air through the airways is usually good.

**CVD: Cardiovascular disease** Cardiovascular disease covers a wide array of disorders, including diseases of the cardiac muscle and of the vascular system supplying the heart, brain, and other vital organs. The most common manifestations of CVD are ischemic heart disease, congestive heart failure, and stroke. CVD is used here as an abbreviation for cardiovascular disease, not cerebrovascular disease (q.v.)

**DALY: Disability Adjusted Life Year** A measure of the gap in healthy years of life lived by a population as compared with a normative standard. More formally, DALYs are a time based measure which adds together years of life lost due to premature mortality with the equivalent number of years of life lived with disability or illness.

**DFLE: Disability-free life expectancy** A form of HE (q.v.) which gives a weight of 1 to states of health with no disability above an explicit or implicit threshold and a weight of 0 to states of health with any level of disability above that threshold.

**DBP: Diastolic blood pressure**

**Demography** The study of population size, growth and age structure, and of the forces (fertility, mortality, migration) that lead to population change.

**Disability** Restriction or lack of ability (resulting from an impairment or health condition) to perform an activity in the manner or within the range considered normal. Although the word “disability” is widely used, the ICF (q.v.) uses this term only as a broad umbrella term for capacity and performance in activity/participation domains. The GBD (q.v.) used the term disability, as in the DALY (q.v.), as a synonym for health states (q.v.) less than full health (q.v.). Disability is also commonly used to refer only to long-standing limitations in carrying out activities of daily living.

**Disability weight** Measure of the relative valuations of a health state on an interval scale. In the GBD (q.v.), health state valuations lie between 0 (full health q.v.) and 1 (states

equivalent to death). The disability weight quantifies judgments about overall levels of health associated with different health states (q.v.), not judgments on the relative values of lives lived, persons, or of overall well-being, quality of life or utility. The GBD disability weights are intended to reflect average global valuations.

**Discounting** Process applied to costs, benefits, and outcomes based on the concept that there is preference for money or health in the present relative to the future.

**DisMod** An epidemiological disease model linking populations exposed to risk of disease with incident cases, prevalent cases, case fatality and the duration of time lived with a disease or injury, including its sequelae.

**DSP** Disease Surveillance Points System run by the Chinese Centre for Disease Control and Prevention for the surveillance of mortality and morbidity.

**Epidemiological transition** The process whereby major communicable diseases and conditions of poverty (e.g. malnutrition) are progressively replaced by non-communicable diseases such as cancers and CVD.

**Epidemiology** The study of the occurrence and causes of disease and injury in populations.

**Full health** Health state (q.v.) characterized by optimal levels of functioning or capacity in all the important domains of health, and freedom from any type of illness or disease. The “optimal” levels of functioning are defined as those levels above which further gains would not (in general) be regarded as improvements in health. States of exceptional functioning above these levels are thus considered to be talents or exceptional abilities, not higher states of health.

**Garbage codes** ICD codes (q.v.) for ill-defined or residual categories of major disease groups (e.g. cardiovascular diseases) that do not provide meaningful information on underlying disease or injury causes of death. Examples include ill-defined primary site of cancer and atherosclerosis.

**GBD: Global burden of disease** A comprehensive demographic and epidemiological framework to estimate health gaps (q.v.) for an extensive set of disease and injury causes, and for major risk factors, using all available mortality and health data and methods to ensure internal consistency and comparability of estimates. In the first global burden of disease study, Murray and Lopez estimated health gaps using DALYs (q.v.) for eight regions of the world in 1990. This book presents updated estimates for the year 2001 for the world and for World Bank regions.

**Group I causes** Major disease and injury cause group used in GBD (q.v.). Includes communicable, maternal, perinatal and nutritional conditions. These are causes which are characteristically common in populations who have not yet completed the epidemiological transition (q.v.).

**Group II causes** Major disease and injury cause group used in GBD (q.v.). Comprises non-communicable diseases, including malignant neoplasms, cardiovascular diseases, chronic respiratory diseases, digestive, musculoskeletal and genitourinary conditions, as well as mental disorders and neurological conditions.

**Group III causes** Major disease and injury cause group used in GBD (q.v.). Includes unintentional and intentional injuries.

**HALE: Health-adjusted life expectancy** Any of a number of summary measures which use explicit weights to combine health expectancies for a set of discrete health states into a single indicator of the expectation of equivalent years of good health. Also referred to as ‘Healthy life expectancy’.

**HE: Health expectancy** Generic term for summary measures of population health which estimate the expectation of years of life lived in various health states.

**Healthy life expectancy** Synonym for HALE (q.v.) or Health-adjusted life expectancy.

**Health state** Health state refers to an individual’s levels of functioning within a set of health domains such as mobility, cognition, pain, emotional functioning, self-care, etc. More specifically, in terms of ICF (q.v.) concepts, health state is defined as the capacities of an individual in all important domains of health, where such domains may include domains of body structure and function, and domains of activities/participation. Health states do not include risk factors, diseases, prognosis or the impact of health states on overall quality of life, well-being or satisfaction.

**Health status** A general term referring to all aspects of the health of individuals or populations. Usually understood to include mortality risks, diseases, health states (q.v.), impairments and disability. May also include some risk factors or prognosis information.

**High income** Category in the World Bank income grouping of countries used for countries with Gross National Income (GNI) per capita of US\$9,206 or more (exchange rate adjusted currencies) in 2001. See Table 3A-3 for list of countries included.

**HIV** Acronym for the Human Immunodeficiency Virus, the cause of AIDS (acquired immunodeficiency syndrome).

**Ideal health** Synonymous with full health (q.v.).

**Incidence** New cases of disease or injury occurring in a specified population in a given time period.

**Incidence rate** New cases of disease or injury occurring per unit of population, per unit time.

**ICD: International Statistical Classification of Diseases and Related Health Problems** A classification of diseases and other causes of mortality prepared by the World Health

Organization since 1948, periodically revised as necessary. The current tenth revision was issued in 1992 to come into effect on 1 January 1993. The ICD is a member of the WHO family of international classifications.

**ICF: International Classification of Functioning, Disability and Health** A classification of body structures and functions (impairments) and activities/participation domains (performance and capacity). The ICF was endorsed by the WHO World Health Assembly in 2001 as a successor to the 1980 International Classification of Impairment, Disability and Handicap (ICIDH). The ICF is a member of the WHO family of international classifications.

**IHD: Ischemic heart disease** Any of a number of heart conditions in which heart muscle is damaged or works inefficiently because of an absence or relative deficiency of its blood supply; most often caused by atherosclerosis, it includes angina pectoris, acute myocardial infarction (heart attack), chronic ischemic heart disease and sudden death. The term coronary heart disease is synonymous with IHD.

**Life expectancy** The average number of years of life expected to be lived by individuals who survive to a specific age. See also: Period life expectancy.

**Logit transformation** A mathematical function that transforms a variable such as probability of death into another functional form, characterized by asymptotic values.

**Low- and middle-income** Category in the World Bank income grouping of countries used for countries with Gross National Income (GNI) per capita of less than US\$9,206 in 2001 (exchange rate adjusted currencies). See Table 3A-3 for list of countries included.

**MONICA Study** The MONICA (MONItoring Cardiovascular disease) Study was an international research project coordinated by the World Health Organization from the mid-1980s to the mid-1990s in which teams from 38 populations in 21 countries studied heart disease, stroke and risk factors in their populations.

**Neonatal period** Persons under the age of 28 days are in the neonatal period. The neonatal period is itself divided into the early neonatal period, age less than 7 days, and the remaining late neonatal period.

**PAF: population attributable fraction** Proportional reduction in disease or injury that would occur if population exposure to a risk factor or group of risk factors were reduced to an alternative distribution.

**Perinatal deaths** Includes stillbirths and neonatal deaths from any cause, including tetanus and congenital malformations. The perinatal period includes the period from 27 weeks of gestation to 28 days of life.

**Perinatal causes or conditions** The cause category *Perinatal causes* refers to the ICD cause group “Conditions arising in the perinatal period”. Deaths from these causes (primarily low birth weight and birth trauma/ asphyxia) may occur at any age, but are largely confined to the perinatal period.

**Period life expectancy** A summary measure of a population’s mortality that measures the expectation of years of life lived by a fictitious birth cohort assuming that at each age the cohort experiences the age-specific mortality rates observed in the real population during a specified time period (such as a given calendar year). See also: life expectancy.

**Postneonatal period** Persons between the age of 28 days and 1 year are in the postneonatal period.

**Prevalence** Actual number of cases of disease or injury present in a population at any particular moment in time.

**Probability of death** The chance that an individual, alive at age  $x$ , will be dead before his or her  $(x + n)^{\text{th}}$  birthday, usually written as  ${}_nq_x \cdot {}_5q_0$  denotes the probability that a newborn infant will die before his or her fifth birthday.

**PTO: person trade-off** A method for valuation of health states that asks respondents to choose between hypothetical interventions that offer health benefits to groups of individuals in different health states.

**QALY: Quality-adjusted life year** A measure of years of life lived (or gained through an intervention) adjusted for quality of life using health state preferences ranging between 0 (states equivalent to death) through to 1 (full health). QALYs were developed for the assessment of the cost-effectiveness of interventions in health economics. QALYs gained and DALYs averted through an intervention are calculated in very similar ways, and the main differences relate to the interpretation of the weights. Whereas the disability weights in the DALY quantify loss of health, the corresponding QALY weights are often interpreted in terms of well-being, quality of life, or utility.

**Risk Factor** A risk factor is an attribute or exposure which is causally associated with an increased probability of a disease or injury.

**RR: Relative risk** Relative risk is a measure of the strength of an association. It is calculated as a ratio of the risk of occurrence of a disease or death among two population groups, such as those exposed to a risk factor and those not exposed.

**SD: Standard deviation** A measure of the dispersion or spread of values of a variable (e.g. body weight) around a population mean value.

**Sensitivity analysis** Systematic investigation of the effects on estimates or outcomes of changes in data or parameter inputs or assumptions.

**Sequelae** The medical conditions that can occur among people who contract a disease or suffer an injury. The GBD (q.v.) focuses on disabling sequelae of diseases and injuries; these may remain present long after the initiating disease episode or injury event.

**Standard gamble (SG)** A method for valuation of health states based on the axioms of expected utility theory. The standard gamble asks respondents to make choices that weigh improvements in health against mortality risks.

**Standard Population** A population structure that is used to provide a constant age or covariate distribution, so that the age- and sex-specific rates within different populations can be applied to it and can be compared without confounding by the different age or covariate distributions of the populations.

**STD: Sexually transmitted disease** See: STI.

**STI: Sexually transmitted infection** An infection that can be transferred from one person to another through sexual contact. Among the sexually transmitted infections (STIs) are HIV/AIDS, chlamydia, genital herpes, gonorrhea and syphilis. The term “sexually transmitted infection (STI)” corresponds to the older term “sexually transmitted disease (STD)”.

**SMPH: Summary measures of population health** Indicators that summarize the health of a population into a single number. SMPH combine information about mortality and population health states. They may summarize either the average health level or health inequality for a population. The two main classes of summary measures are health expectancies (q.v.) and health gap measures, of which the DALY (q.v.) is the best-known example.

**Stillbirth** Stillbirth refers to the birth of a dead fetus weighing more than 1,000 grams up to 0.25 years (13 weeks) prior to the expected time of birth (corresponding to 27 weeks of gestational age).

**Stroke** Stroke is defined as a condition that results in a disruption of blood flow to a region of the brain causing irreversible “death” of brain tissue. There are two main types of stroke: hemorrhagic and ischemic stroke. Stroke is the main cause of mortality and burden for cerebrovascular disease (q.v.).

**Sullivan’s method** A method of calculating health expectancies using data on the current prevalence of health states in a population together with a period life table for the population.

**Theoretical-minimum-risk exposure distribution** The population distribution of exposure to a risk factor that would result in the lowest population disease burden.

**TTO: time trade-off** A method for valuation of health states that asks respondents to make hypothetical choices that weigh improvements in health against reduced longevity.

**Uncertainty analysis** Estimation of range or distribution of uncertainty in estimates based on an assessment of the uncertainty or confidence intervals for all data and parameter inputs. Uncertainty intervals should ideally include all sources of uncertainty, including those arising from systematic biases and measurement error. In contrast, generally reported confidence intervals are based solely on the variation observed in sample data.

**Visual analogue scale** A method for valuation of health states in which respondents are asked to directly assess health levels associated with different health states. Individuals place these on a 0 to 1 scale representing a continuum from health states considered equivalent to death through to full health (q.v.)

**Verbal autopsy** A method of inquiry to ascertain the likely cause of death in populations where vital registration of deaths is incomplete and unreliable. Relatives of the deceased are interviewed about symptoms and signs experienced by the deceased prior to death, from which a diagnosis of the probable cause of death is made.

**Vital registration** A system for the registration of vital events in a population, including births and deaths, with medical certification of the cause of death according to the rules and procedures of the ICD.

**YLD: Years Lived With Disability** The component of the DALY (q.v.) that measures lost years of healthy life through living in health states of less than full health (q.v.).

**YLL: Years of Life Lost** The component of the DALY (q.v.) that measures years of life lost due to premature mortality.