

How to measure health?



Health is a multi-dimensional concept that is very often measured by e.g. absence of physical pain, by physical well-being or satisfactory social functioning.

Because of multi-dimensionality, there isn't either any single standard measurement tool for health status for individuals or population groups. However, **health indicators are essential tools for evaluating, planning, priority setting and identifying public health needs at regional, national or global level.**

Health is usually measured by:

- **Individual level**

- observer (e.g., a physician)
- assessed by asking the person to report his/her health perceptions

- **Population level**

- determined by aggregating data collected on individuals
- the health of an individual is easier to define than the health of a population
- In the absence of comprehensive or absolute measures of the health of a population, the average lifespan, the prevalence of preventable diseases or deaths, and availability of health services serve as indicators of health status

Measures of public's health

Data can be collected in many ways; from national census, health facility registers, sentinel systems, demographic surveillance sites, national household sample surveys or civil registration. All have their own weaknesses and strengths.

Morbidity

Morbidity is an **incidence of ill health**. It is the number of cases of a particular disease occurring in a single year per a specified population unit, as x cases per 1000. It also may be calculated on the basis of age groups, sex, occupation, or other population unit.

Data for morbidity indicators are collected e.g. from health facilities or household surveys.

There are three types of morbidity indicators:

- 1. Incidence** = total number of current cases in a certain population at specific time point
- 2. Prevalence** = number of new cases occurring in a certain population during a set of time interval (a year)
- 3. Case fatality** = number of deaths among observed new cases

Mortality

Numbers and rates of deaths have been used already for centuries to measure burden and to compare the impact of diseases.

Death Rate = Number of deaths in the population during a specified time period / the number of persons in the population during the specified time period. In addition to death rate, The most used mortality indicators are **childhood mortality indicators** (perinatal, neonatal, infant and under five mortality), maternal mortality indicators and life expectancy at birth.

- **Perinatal mortality rate** = The annual number of deaths from 28wks to 7 days after birth per 1000 live births
- **Neonatal mortality rate** = The annual number of deaths at 0 to 28 days of age per 1000 live births
- **Infant mortality rate** = The annual number of children less than 1 year old who die per 1000 live births
- **Under 5 mortality rate** = The annual number of children less than 5 years old who die per 1000 live births

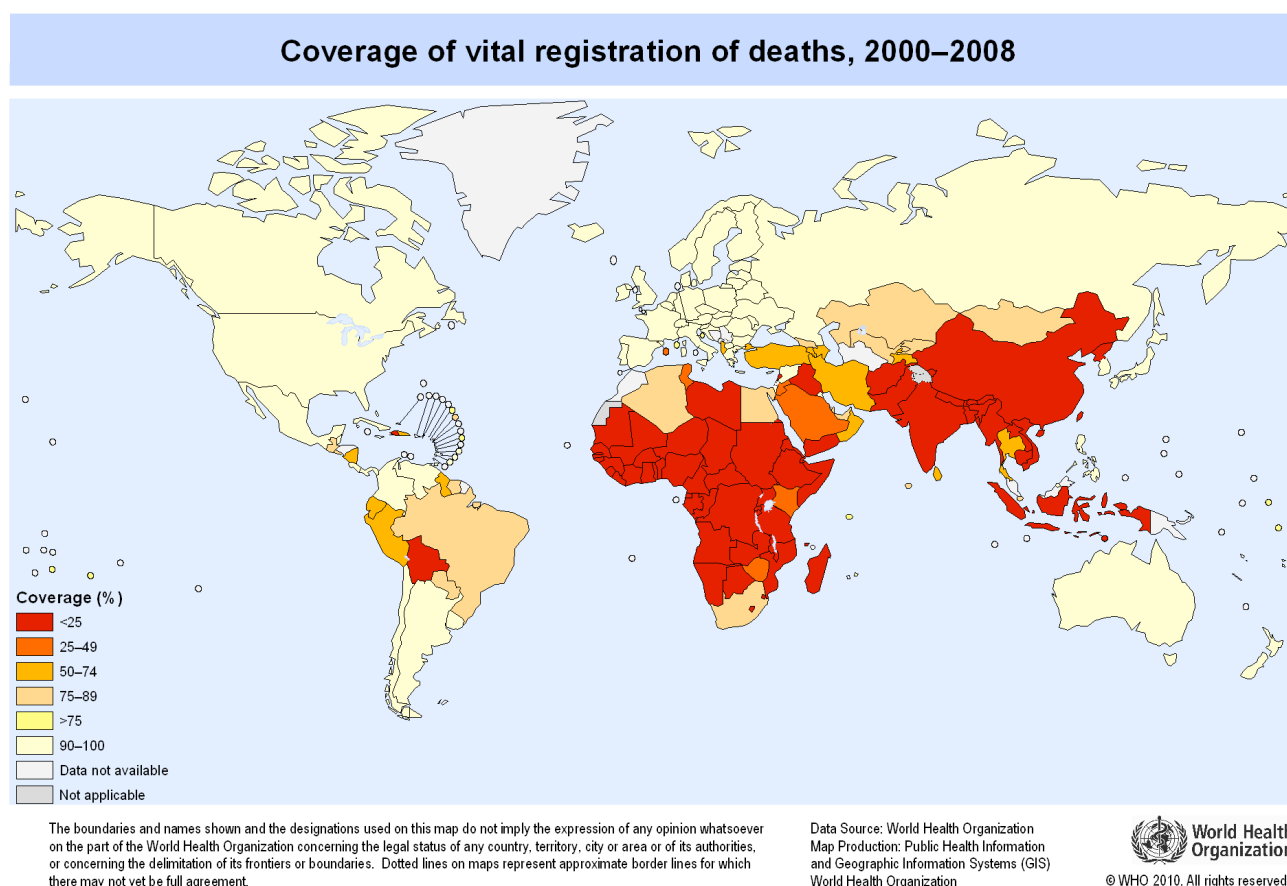
The infant mortality rate is a widely used indicator of a population's health status because of its association with e.g. education and availability of health services.

Registration of deaths

The preferred data source for mortality is death registration with medically certified cause. However, many deaths are not registered. If no death registration, household surveys and censuses can provide information on rates and trends of mortality.

- For example in many African countries most births happen at home. **Births are seldom registered** and also **many infant deaths are never recorded**. As much as 40% of all births in the world are left unrecorded. Same happens with **adult death registration** in places where no medical care or diagnostics are available. As you can see in the map below, deaths are well registered in European and American countries but no in most of the African and South-African countries.

Coverage of vital registration of deaths



Source: WHO. GIS. 2010.

Other indicators

In addition to mortality and morbidity rates, there are also plenty of other indicators used in health research.

Examples of useful indicators suitable for working with SDH-related questions:

- **Social indicators:** Adult literacy rate (male and/or female, >14-year olds) %, percentage of people who have access to clean water
- **Health systems indicators:** Proportion of attended deliveries, Vaccination coverage, % of people with access to health care, Contraceptive use, Number of health care personnel per population
- **Economy indicators:** Gross domestic product (GDP) / capita, Health spending (USD / capita)
- **Demographic indicators:** Population growth rate: % increase in population in a year, General fertility rate: births per 1000 women at 15-49 years of age in a year, Crude death rate: deaths per 1000 inhabitants in a year
- **Anthropometrical indicators:** Weight for height, Height for age, BMI
- **Indicators of nutritional status:** Proportion of babies with low birth weight (<2.5 kg at birth) of all births x 100%, Proportion of under 5-year-old children malnourished