

Measuring Health

Health Data

- Incidence and prevalence
- Mortality rates:
 - Crude and standardized
- Life expectancy
- Potential years of life lost
- Survival curves

The Scope of Health Measures

- The medical model of health defined and measured health in terms of low rates of adverse health events.
- Early measures of population health were based on rates of “the five Ds” : death, disease, disability, discomfort, or distress.
- Note that the five Ds form a spectrum, from objective, numerical measures to more subjective, qualitative indicators, and also from those that are routinely collected (death certificates) to those that are available only from a research study (e.g., survey questions on feelings of distress).

Incidence and Prevalence

- Incidence, or the number of new cases that occur in a given time period, is useful for acute conditions,
- prevalence (the total number of cases in the population) applies more to chronic diseases.
- Causal analyses study incident cases; prevalence is useful in estimating need for health services. For example, we assess the incidence of road traffic injuries under different conditions when looking for ways to prevent them; we assess the prevalence of long-term disability due to road traffic injuries when planning rehabilitation services.
- Incidence is a measure of the speed at which new events (such as deaths or cases of disease) arise in a population during a fixed time. It may be measured as a frequency count, or as a proportion of the population at risk, or as a rate per unit of time.

Mortality Rates

- Infant mortality rate (IMR)
- The infant mortality rate is the total number of deaths in a given year of children less than one year old, divided by the number of live births in the same year, multiplied by 1,000.
- Because infant mortality is strongly influenced by environmental factors and the quality of health care, the IMR is often quoted as a useful indicator of the level of community health, especially in poorer countries. However, because of the rarity of infant death in developed countries, it is useful only in large populations as chance variation can make rates unstable in small populations

Life expectancy

- Life expectancy at birth is an estimate of the expected number of years to be lived by a newborn based on current age-specific mortality rates.
- Life expectancy is a statistical abstraction—after all, we will have to wait a lifetime to find out how long babies born today will actually live (and many of us will not be around to collect the data!).
- Life expectancy forms a summary indicator of health that can be compared across countries. In Canada in 2021, life expectancy was 84.7 years for females and 80.6 years for males, placing us close to Australia and just behind Japan.