

Epidemiology

A

Rates

The study of the spread and control of diseases in the community (**epidemiology**) requires analysis of **frequency** – the number of times something occurs in a particular period. We talk about frequency using word combinations with **rate**:

birth death (mortality) case fatality survival	} rate	= the number of births in a population (group of people)
		= the number of deaths in a population
		= the number of deaths from a particular disease
		= the number of patients still alive after treatment for a particular disease

The birth rate in Singapore is 10.2 per 1,000 population.

The infant mortality rate in Singapore is 3.0 per 1,000 live births.

Other words used to talk about frequency:

Malaria is	common	in many developing countries.
	uncommon rare	in developed countries.

B

Incidence and prevalence

The **prevalence** of a disease is the number of people in a population who have the disease at a particular time. The **incidence** of the disease is the number of new cases of the disease during a particular time.

The incidence of malaria is	high	in many developing countries.
	low	in developed countries.

The incidence of HIV infection is **highest** in sub-Saharan Africa.

The incidence of HIV infection is **lowest** in the Caribbean.

Note: You don't say 'The incidence of malaria is common.'

The incidences of a disease in different groups are often compared.

Rheumatoid arthritis is **more common** in females **than** in males.

Rheumatoid arthritis is **less common** in males **than** in females.

Men and women are **equally affected by** restless leg syndrome.

C

Association and causation

Studying the incidence of disease in particular groups of people can lead to the discovery of **causation** – what makes it occur. For example, the high incidence of lung cancer among cigarette smokers suggests that smoking is a **causative factor** in the development of lung cancer. However, care must be taken not to assume every **association between** a disease and a measured variable is **causative**. To say there is an association between two things simply means that they occur together in a certain situation. For example, several studies have indicated high rates of lung cancer in cooks. Although this could be a consequence of their work (perhaps caused by carcinogens in fumes from frying), it may be simply because professional cooks smoke more than the average. In other words, smoking might **confound** the association with cooking.

44.1 Complete the sentences. Look at A and B opposite to help you.

- 1 The proportion of episodes of illness that end fatally is the rate.
- 2 The proportion of people who die in a particular period is the rate.
- 3 The proportion of babies born in a particular period is the rate.
- 4 The proportion of patients who are still alive five years after treatment is the five-year rate.
- 5 Ten per cent of the population have perennial rhinitis at any time. This is the
- 6 Every year, 0.5–1.0% develop the condition. This is the

44.2 Complete the text, using the correct grammatical form of each word. Look at the table and at A, B and C opposite to help you.

Incidence of lung cancer

(Surveillance and Risk Assessment Division, CCDP, Health Canada)

Country	Incidence (per 100,000)	
	Men	Women
China	67.5	26.6
Canada	59.1	30.8
USA	55.7	33.5
UK	51.2	22.0
Japan	44.6	13.3
Sweden	22.0	12.9
India	12.1	3.8

In all countries, lung cancer was (1) in men than in women. The (2) incidence among men was in China where 67.5 men per 100,000 were diagnosed with lung cancer in the period. In women, however, lung cancer was less (3) in China than in the USA and Canada. The (4) incidence in both men and women was in India. Sweden also had a fairly (5) incidence in both sexes. Lung cancer is probably (6) in India for cultural and economic reasons, whereas in Sweden it is the result of an effective health education campaign.

44.3 Find prepositions in A, B and C opposite that can be used to make word combinations with the words in the box. Then use the correct forms of the words to complete the sentences.

affected	association	incidence	lead	rare
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- 1 Recent surveys showed that the HIV cases had come down in the southern states of India.
- 2 Epidemiologic data suggest an obesity and depression, but further studies are needed.
- 3 Appropriate preventive measures should a reduction in the mortality rate.
- 4 Thalassaemia is people of Northern European origin.
- 5 Male and female soldiers are equally post-traumatic stress disorder.

Over to you



Which diseases have the highest incidence in your country? What is the commonest cause of death in men and in women?