

## Unit 6: Epidemiology

### A. Rates

The study of the spread and control of disease 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	rate	= the number of <u>births</u> in a <b>population</b> (group of people)
death (mortality)		= the number of <u>deaths</u> in a population
case fatality		= the number of <u>deaths</u> from a <u>specific disease</u>
survival		= the number of patients still alive after treatment for a specific disease

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

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

Other words used to talk about frequency:

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

### B. Incidence and Prevalence

The **prevalence** of a disease is the number of people in a population who have the disease at a specific time. The **incidence** of a disease is the number of new cases of the disease at a specific 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 a disease in a specific group 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 the carcinogen in fumes from frying), it may be simply because professional cooks smoke more than average. In other words, smoking might **confound** the association with cooking.

### D. Complete the sentences. Look at A and B 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 specific period is the \_\_\_\_\_ rate.
3. The proportion of patients who are still alive five years after treatment is the \_\_\_\_\_ rate.
4. The proportion of babies born in a specific period is the \_\_\_\_\_ rate.

5. Ten percent of the population have recurrent rhinitis at any time. This is the \_\_\_\_\_.
6. Every year, (0.5-1.0 %) develop the condition. This is \_\_\_\_\_.

**E. Complete the text, using the correct grammatical form of each word.**

**Incidence of Lung Cancer**

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

Country	Incidence (per 100,000)	
	Males	Females
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 males than in females. The (2) \_\_\_\_\_ incidence among males was in China where 67.5 males per 100,000 were diagnosed with lung cancer in the period. In females, however, lung cancer was less (3) \_\_\_\_\_ in China than in the USA and Canada.

The (4) \_\_\_\_\_ incidence in both males and females 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 is the result of an effective education campaign.

**F. Find the preposition that can be used to make word combinations with the words in the box. The use the correct forms of the words to complete the sentences.**

affected	association	incidence	lead	rare
----------	-------------	-----------	------	------

1. Recent surveys showed that the \_\_\_\_\_ of 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 \_\_\_\_\_ in people of Northern European origins.
5. Men and women soldiers are equally \_\_\_\_\_ post-traumatic stress disorder.

Reference:

Professional English in Use, Medicine, (2007) pages 96-97.

Student ID: \_\_\_\_\_ Name: \_\_\_\_\_ Section \_\_\_\_\_ No. \_\_\_\_\_

Summary of Incidence Rates of Hepato Cellular Carcinoma (HCC) for Males and Females  
in different countries of Asia Pacific Region (per 10,000 Persons)

Country	Incidence (per 10,000)	
	Men	Women
China	58.0	22.0
Hong Kong	29.9	8.3
India	3.0	1.8
Japan	8.0	6.0
Korea	45.0	33.6
Malaysia	3.6.0	1.6
Philippines	13.4	4.8
Singapore	7.1	1.5
Taiwan	53.0	21.0
Thailand	33.4	12.3

**Directions:** From to the table above, create 3 sentences from each given word.

1. highest

1.1 .....

1.2 .....

1.3 .....

2. lowest

2.1 .....

2.2 .....

2.3 .....

3. more common

3.1 .....

3.2 .....

3.3 .....

4. less common

4.1 .....

4.2 .....

4.3 .....

5. rare

5.1 .....

5.2 .....

5.3 .....