Babylon **U**niversity – **C**ollege **O**f **M**edicine
    Department of Community Medicine

Lectures in Community Medicine
For 4th Stage Students
*By **Dr. Hassan Baiee***
2010 – 2011

Lecture 1
Epidemiology

Epidemiology:
- The word epidemiology means literally "studies among people".
- Sir John Snow is the father of modern epidemiology.
- Epidemiology is the science of information not data.

Definition:
The study of distribution and determinants of health related states or events in specialized population and the application of the study to control of health problems.

Uses of epidemiology:
1. Identify the aetiology or the cause of the disease and the risk factor that increases a person's risk for a disease.
2. To determine the extent of a disease found in the community. What is the burden of a disease in the community; this is critical for planning health services.
3. Study the natural history and prognosis of the disease.
4. To evaluate new preventive and therapeutic measures and new modes of health care delivering.
5. To provide the foundation for the developing public policy and regulating decisions related to environmental problems.
   Are high levels of atmospheric or a particular matter a cause of acute or chronic health effects in human population? Which occupation is associated with increased risk of disease in workers and what type of relation is required?

Descriptive epidemiology:

Study the occurrence and distribution of the disease (health events) in term of:
- o Person   who?
- o Place   where?
- o Time   when?

Or characterize factors related to host agent environment.

In analytical epidemiology we go beyond simple description and we attempt to analyze the reason and test the hypothesis.

Achievements in epidemiology:

Small pox elimination:

Epidemiology played a central role by providing information about the distribution of cases and the model, mechanism and the level of transmission by mapping outbreaks of the disease and by evaluating control measures.

AIDS:

The acquired immune deficiency syndrome (AIDS) was first identified as a distinct disease entity in 1981 in USA, by April 1992 484184 cases had been reported, some 45% in USA, 13% in Europe, 30% in Africa and 12% in Asia and other cases.

The number of cases is likely to be much higher than those reported, the true extent of the problem is indicated by the number of people with AIDS–related conditions and the number infected with the causative human immune deficiency virus (HIV).

Rheumatic fever and rheumatic heart disease:

Rheumatic fever and rheumatic heart disease are associated with poverty and in particular with poor housing and overcrowding, both of which favor the spread of streptococcal upper respiratory tract infections.

In many developed countries, the decline in rheumatic fever started in the beginning of the twentieth century, long before the introduction of effective drugs such as sulphonamides and penicillin.

Today, the disease has almost disappeared from the developed countries although pockets of relatively high incidence still exist among socially and economically disadvantaged groups.

In many developing countries rheumatic heart disease is one of the most common forms of heart disease.

Epidemiology has contributed to our understanding of the cause of rheumatic fever and rheumatic heart disease and to the development of methods for prevention of rheumatic heart disease. Epidemiological studies had also heightened the role of social and economic factors that contribute to outbreaks of rheumatic fever and to the spread of streptococcal throat infection.

High blood pressure:
High blood pressure (hypertension) is an important health problem in both developed and developing countries, up to 20% of people aged 35 – 65 years have hypertension in societies as diverse as USA and parts of china.
Epidemiology has defined the extent of the problem, established the natural history of the condition and the health consequences of the untreated hypertension, demonstrated the value of treatment and helped to determine the most appropriate blood pressure at which treatment should begin.

Methyl mercury poisoning:
In the 1950 mercury compound were released with the water discharge from the factory in Minemata, Japan into small bay, this lead to accumulation of methyl mercury in the fish causing severe poisoning in the people who ate them.
Epidemiology played a crucial role in identifying the cause and in control of what was one of the first reported epidemics of non-communicable disease caused by environmental pollution.

Community diagnosis

Defined as pattern of disease in community described in term of the important factors which influence this pattern. The diagnosis is based on collection of relevant data such as:
1. Age and sex.
2. The distribution by social group.
3. Vital statistics such as birth rate and death rate.
4. The incidence and prevalence of important diseases in the area.

Community diagnosis refers to identification and qualification of health problems in the community in term of morbidity and mortality rates and ratio, and identification of risk groups.
We can lay down priority in prevention and control we can evaluate its severity. This can be new knowledge of disease causation and prevention.

Sources of Epidemiological Information

1. Hospital Inpatient Records:
Analysis of hospital records can provide high quality information on the most important causes of major illness in a community, but for them to be useful as indicator of the health status of the whole population.
Allowance must be made for the strong tendency for inpatients to come from among people living near the hospital the wealthier and the better education in some countries. Many seriously ill patients never reach a hospital if they live far away.

2. Disease Notification
Notification systems are restricted to a selected list of important diseases which may differ from one country to another.

3. Work Places and Schools:
Provide data on absence due to sickness as well as results of any periodic examination. Schools can provide data on absence due to sickness or screening programs by school health services.

4. Social Survey
Special survey and research studies are required in the circumstances when diseases under recognized (low incidence and prevalence) or the illness does not produce clear symptoms and signs (schistosomiasis, malnutrition).

5. Outpatient Clinic Records:
Diagnoses are frequently given in term of chief complaint or symptoms, attitudes are given in term of total visits rather than by new visit.
People attended for immunization and other preventive services may be recorded together with those who have come because they are ill. The information suffers from selected biases similar to those seen in hospital records.

6. Death Registration
This can be useful in countries and areas where a high proportion of deaths are registered. In many countries the fact and causes of death are recorded on standard death certificates, which also carry information on age, sex, date of birth and place of residence etc…
The data are opened to various source of error, the usefulness of data depend on many factors including the completeness of records and the accuracy with which the underlying cause of death are assigned.
Internationally agreed classification procedures which are given in international classification of disease (ICD) which revised at regular intervals to take account of the emergency of new diseases and changes criteria of established disease are used for coding cause of death.