



شكر الله  
على نعمه





**Community Medicine Dept.  
Epidemiology**

**3/10/2016**

**Assist. Prof.**

**Dr. Waleed Arif Tawfiq**

**Lecture 1-**

**General Epidemiology**



## **Objectives**

**By the end of the lecture, students will have an idea about;**

- **Definition of epidemiology**
- **Fundamentals behind studying epidemiology**
- **Components of epidemiology**
- **Definition evolution**
- **History of epidemiology**
- **Fields of epidemiology**
- **Define Epidemic, Endemic, Pandemic**

# Epidemiology

**We can study health and disease by observing their effects on individuals, by laboratory investigation of experimental animals, and by measuring the distribution of health problems in population. The third method is epidemiology.**

# Epidemiology

**Epidemiology is a word derived from epidemic which is translated from Greek that mean “ upon the people”**

**Epi = upon**

**Demos = people**

**Logy = science**

**The word reminds us that the first concern of the epidemiologist was investigate, control and prevent epidemics.**

# Epidemiology based on 2 fundamental assumptions

1. A human disease does not occur at random.
2. A human disease has aetiologic and preventive factors that can be identified through systematic investigations of human population.





## Definition

**This leads directly to a useful and comprehensive definition of Epidemiology (The study of the frequency, distribution and determinants of health phenomena in human population).**



# Frequency;



is the quantity of occurrence of disease or any other health phenomena, by Incidence & Prevalence for example.



**Distribution;**



**by answering the following questions:**

**Who → Person**

**Where → Place**

**When → Time**

**These also followed by the questions  
Why, How**

# **Determinants;**

cause , and factors influence risk increasing or decreasing the disease frequency or disease distribution:



## **Determinants include;**

- 1-Host factors that determine the susceptibility of person to get the disease e.g. age, sex, genetic, nutrition, immunological state.**
- 2-Environmental factors that determine host exposure to specific agents e.g. family composition, family size, crowding, climate).**

## Epidemiology contributions

A unique contribution of this discipline is that epidemiological studies are conducted on human populations, as basic laboratory and researches using experimental animals may be of no direct relevant to humans. e.g. research on the toxic effect of certain chemicals on the skin of the human by using the skin of animals (Guinea pigs) which in spite of resemblance it have differences from human skin (hairy skin of pig) but the results conducted will give us an introductory information to the effect on human being.

## **Epidemiology contributions;**

Epidemiology has often provided information long before the basic mechanism of a particular disease was understood e.g. AIDS. Epidemiology was the first science that discovered that AIDS is contagious, that it is mainly STD, mainly among homosexuals and i.v. addicts hence a blood-borne infection, long before the discovery of its viral origin.

## **Epidemiology contributions;**

**Example on the epidemiological findings led to the judgment of the relation between smoking and cancer (study on the doctors in Britain) years before there was any clear understanding of alteration in DNA by initiators or promoters of cancer.**

## **Epidemiological process**

Epidemiological process start by making begins with a suspicion concerning the possible influence of particular factors on the occurrence of a disease. This suspicion may arise from clinical practice, from laboratory research or even from a theoretic speculations and leads to the formulation of a specific hypothesis. This hypothesis is going to be tested through epidemiological studies.

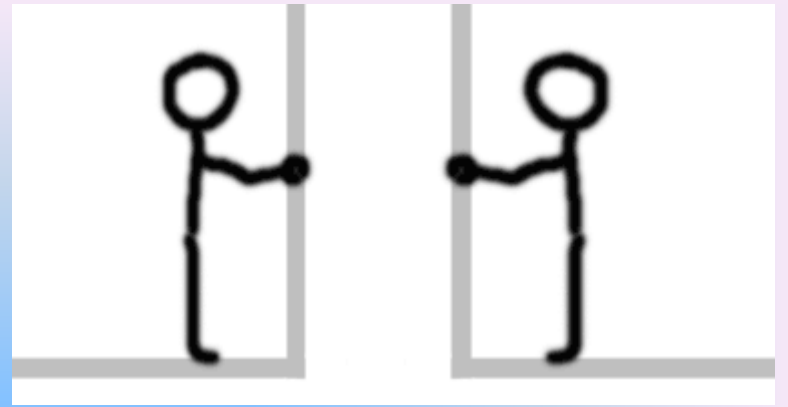


## **History of Epidemiology:**

Epidemiology was originally defined as the scientific study of epidemics.

Recently the definition has been broadened to recognize the application of epidemiology to the control and prevention of health problems.

**History;**



**It is as old as medicine itself.**

**In the same way it has passed the era of evil spirits in the causation of diseases.**

## History;

Hippocrates (400 BC) is considered as the father of Epidemiology. He has this statement concerning the field of epidemiologic studies of:

*(Whoever wishes to investigate disease properly should proceed thus in the first place to consider;*

- *The seasons of the year.*
- *Winds.*
- *Location.*
- *Mode of living.*
- *Type of work)*

**History;**

**Islamic era; stressed on the personal hygiene to control the spread of infection.**

# History

John snow " The Father of Modern Epidemiology "; British physician formulated and tested a hypothesis concerning the origin of an epidemic of cholera in London 1853-1854. He observed that death rates from cholera were particularly high in the areas of London that were supplied with water by different water companies that take their water from Themes river at area nearer to the sewage point of the city (water pollution is the cause before discovering the cause of cholera).

## **Evolution of definition;**

**Epidemiology was defined as the branch of medical sciences which treats of epidemics (Parkin, 1873).**

**Frost (1927); the science of mass phenomena of infectious disease...which represent the leading cause of death at that time.**

**The study of disease, any disease, as a mass phenomenon (Greenwood, 1934).**

## **Evolution of definition;**

**Mac Mahon (1970); the study of the distribution and determinant of disease frequency.**

**Sartwell (1975); the study of the dynamics of health phenomena in human population.**



# **Epidemiology**

**Epidemiology is the study of the frequency, distribution and determinants of health-related states and events in specified populations and the application of this study for the control of health problems.**

## **Fields of application of Epidemiology:**

- The study of infectious disease was the main concern.
- The study of non-communicable diseases.
- The study of accidents.
- The MCH & Family planning.
- The iatrogenic diseases (Thalidomide congenital mal.)
- Mental diseases.
- Nutritional diseases.
- Health education.
- Health planning & Health administration.

Thank You

Thank You  
Thank You