Epidemiology. 1

from epidemic

- **Epidemiology** (old science, made slow progress to the start 20th century) and evolved rapidly in last few decades.
  - among
  - people
  - study

- **Epidemiology Definition:** (range from Hipocratte to the present day)
  1. Th Branch of medical science which treats epidemics.
  2. The science of the mass Phenomena of infectious diseases.
  3. The study of distruption and determinates of disease.
  4. The study of the distrubtion and determinants of health related states or events in specified population and the application of this study to the control of health Problem (John. M. Last - 1988)
  5. The basic science of Preventive and social medicine.

↳ All definitions have a common 3 component:
1. studies of disease frequency.
2. studies of the distrubtion.
3. studies of the determinants.

(consequence ramification)

- **The results of epidemiology study:**
  1. Disease Distrubtion.
  2. causation
  3. Therepy Prevention.
  4. health and health related events.

Father of epidemiology is John Snow

And entered the most exciting Phase of evolution by:

- identifying risk factor of chronic disease.
- evaluating treatment modalities. and health services.

↳ **which provided new opportunities: in**

prevention, treatment, planning, effectiveness and efficiency of heath services.

• The basic differences between epidemiology and clinical medicine.

Epidemiology	Clinical medicine
• The unit of study is population or population at risk	• The unit of study is case or cases
• The epidemiologist concern with disease pattern in the entire population	• The Physician concern with disease in the individual patient.
• epidemiology concerned with both sick and healthy people. (concerned with population from which the cases are derived)	• clinicans are interested in cases with disease
• epidemiologist in interested in the relation ship between cases and Population in the form of rate.	• the Physician seeks a diagnosis from which he derives prognosis and Perscribes treatments
• The investigator goes out to the community to find persons experiences the disease or have the suspected factor.	• The patient go to the doctor
• The subject matter epidemiologist is conceptual can only by symbolized in the form tables and graph.	• The subject matters the clinican s perceived by techniques like clinical and labratory examinations include post mortem reports.
• epidemiology confronted (deal with) data derived from particular epidemological study. (identify a particular source of infection) ① (mode of spread) ② (aetiological factor) ③. ↳ in order to : ① determine a future trend. ② specific control measure ③ evalute the outcome of instituted prevention and therabutic measures ④ Provide feed back to health care administrator.	• clinical medicine based on biomedical concepts with concern for refining (improve) the techniques of diagnosis and treatment at individual level.

• Both are closely related, co existent and mutually helpful
(But they are not antagonistic)

* epidemiological investigation ⇝ need clinical medicine to know how the disease in question can be identified among individuals.

* clinical medicine ⇝ need the knowledge of prevelence, aetiology and prognosis from epidemiological research for the diagnosis and management of patients and their families.

* infectious disease epidemiology :

- Studying of communicable disease.
- discovery of new infections
- the change in the Pattern of communicable disease.
- chronic disease may have infective origin.
  (TB, malignancy, human papilloma virus, hepatitis B and C, HIV)

Why we need epidemiology to prevent and control infectious disease?

→ Because the development of vaccines and antibiotics was not followed by the dissaperance of infectious disease.

* **Health :** is the State of complete Physical, mental and social well being and not merely the absence of disease of infirmity.

* **Disease :** is any deviation from normal health.
  - infectious : infection followed by signs and syptoms.
  - non-infectious : not caused by microbiological agent (nutritional, allergic, ...)

* **infection :**
  - The entry, development and multiplication of an infectious agent in the body of man or animals.
  - The body response to defend itself against the invader either in form of an immune response or disease.

(an infection doesn't always cause illness)

→ The outcome of infection depend on : (أوسيف)

① host resistance (immunity) ② Microbes characters (invasiveness, toxicity, virulence)

* Levels of infection :

- colonization (ex: S.aureus in skin and nasopharynx)
- latent infection (ex. TB)
- Subclinical (inapparent infection) (ex. polio)
- Clinical or manifest infection.