Epidemiology

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- **Epidemiology** is a word derived from epidemic, which is translated from Greek that means (upon the people), epi= upon, demos= people and logy=science.

  So the epidemiology was concerned with investigation, control and prevention of epidemics.

- Epidemiology based on two fundamental assumptions:

1. Human disease does not occur randomly.
2. Human disease has etiologic and preventive factors.

- **The comprehensive definition of epidemiology** is 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 measured by incidence and prevalence.
- **Distribution**: by ensuring the following questions: who – person, where – place, when – time, followed by why and how.

- **Determinants**: causes and factors influence increasing or decreasing the disease frequency or distribution.
- Also **Host factors**: susceptibility of the person to get the disease as sex, age, genetic, nutrition and immunological state.
- And **Environmental factors**: as family size, family composition, crowding and climate.

- **History of Epidemiology:**
- **Hippocrates** (400 years B.C.) is considered as the father of epidemiology, by his statement concerning the field of studies: ((Who ever wish to investigate disease properly, should consider : the season of the year, winds, location, mode of living and type of work)).
- So it's as old as medicine, also it has passed the era of evil spirits in the causation of the disease.
- **Islamic era**: stressed on the personal hygiene to control the spread of infection.
- **John Snow**: considered as the father of modern epidemiology, a British physician formulated and tested the hypothesis concerning the origin of an epidemic of cholera in London 1853.
- AIDS discovery was also by epidemiology.

Fields of Application of Epidemiology:

1. Study of infectious diseases.
2. Study of non communicable diseases.
3. Study of accidents.
4. The MHC and family planning.
5. Mental diseases.
6. Nutritional diseases.
7. The iatrogenic diseases (e.g. thalidomide).
8. Health education.
9. Planning of health administration.

Uses of Epidemiology:

1. Historical study: getting better or worse by time.
2. Community diagnosis: the actual health problem in the community, nature, impact and diagnosis.
3. Completing the clinical picture.
4. Evaluation of signs and symptoms of disease.
5. Individual risk and chances.
6. Search for the risk factors.
7. Identification of syndromes in identical diseases into more than one category e.g. Hepatitis A&B, Leukemia lymphatic and myeloid.
8. Clinical decision analysis about the best management of patients.
9. Working of health services: effectiveness & efficiency of health services for future needs.

The Comparison between Clinical and Epidemiological Approach:

Subject	Clinical	epidemiological
Etiology	Cause of disease in individual.	Causes of spread of disease.
Unit of study	Case or cases.	Define a population at risk.
Diagnosis	In an individual.	Magnitude in the community.
Therapy	Recovery.	Control and eradication.

- **The Epidemiological Sequence:**

1. Observation.
2. Counting cases.
3. Relating cases of the population at risk.
4. Making comparisons.
5. Putting hypothesis.
6. Testing the hypothesis.
7. Scientific inferences.
8. Conducting experimental studies.
9. Intervention and evaluation.

- **Community Medicine:**

Can be defined as the combination of sciences, skills and beliefs that are directed to the maintenance and improvement of people's health.

- **Modern Medicine includes:**
- **Curative Medicine**: it's the treatment of a disease by the use of a drug. Which produces a reaction that neutralize the disease (removal of the disease from the patient rather than from the mass.
- **Preventive Medicine**: It's a branch of medicine distinct from public health applied to healthy people, concerned with preventing physical, mental and emotional disease and injury by actions affecting large number of people. So it deals with prevention and health promotion through (vaccine, antisera, quarantine, nutrition and through screening for the disease).

Concept of Health:

- Health is a state of complete physical, mental and social well being and NOT merely absence of the disease (WHO).
- **Health:** it is state of dynamic equilibrium between man and his environment.

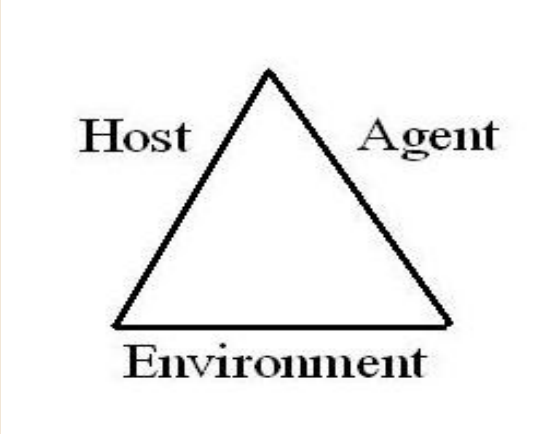
Concept of Disease:

It is maladjustment or disequilibrium between man and his environment.

- **Natural history of the disease:**

1. **Pre-pathogenesis phase**: the period before the onset of the disease in man, it involves by the epidemiological trial (agent, host and environment).
2. **Pathogenesis phase**: it begins with entry of disease agents to the human host, the time between entry of the agent and appearance of clinical signs and symptoms is called incubation period.

- **Epidemiological Trial**



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