



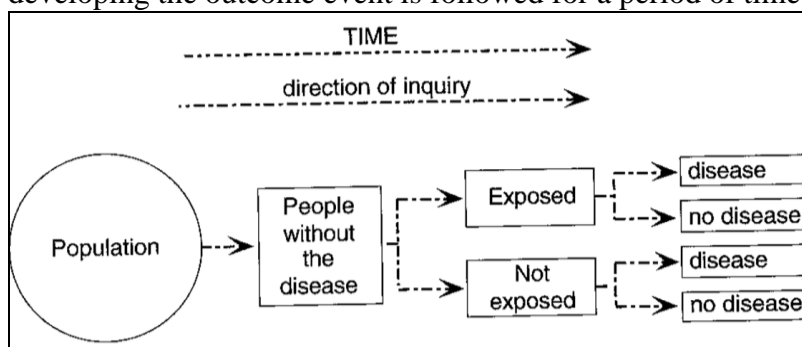
- Types of epidemiological study:

- **Observational studies:** in which there is no intervention (e.g. it allows nature to take its course and the investigator does not intervene). These studies are further classified into:

- ✓ Descriptive studies: they precede analytic studies and they are used to identify any health problems. In addition, they are concerned with characterizing the amount and distribution of disease within a population.
- ✓ Analytic studies: they are concerned with the determinants of a disease and include:

❖ *Cohort:*

- In this study, exposure is known for all subjects at the beginning of the follow-up period. Population at risk of developing the outcome event is followed for a period of time.



- Cohort study is of two types:

- ✚ Prospective (current): in which data on exposure are collected prior to the occurrence of disease and subjects are followed up over time to observe occurrence of a disease.
- ✚ Retrospective (historical): past exposure data are collected for a defined cohort using historical records.

- Advantages:

- ✚ Measuring incidence. Therefore, there is a direct estimate of the risk.
- ✚ A range of outcomes can be studied.
- ✚ Providing evidence about lag-time between exposure and disease.

- Disadvantages:

- ✚ Expensive.
- ✚ Not suitable for studying rare diseases.
- ✚ Selection bias.
- ✚ Large size.

❖ *Cross-sectional:*

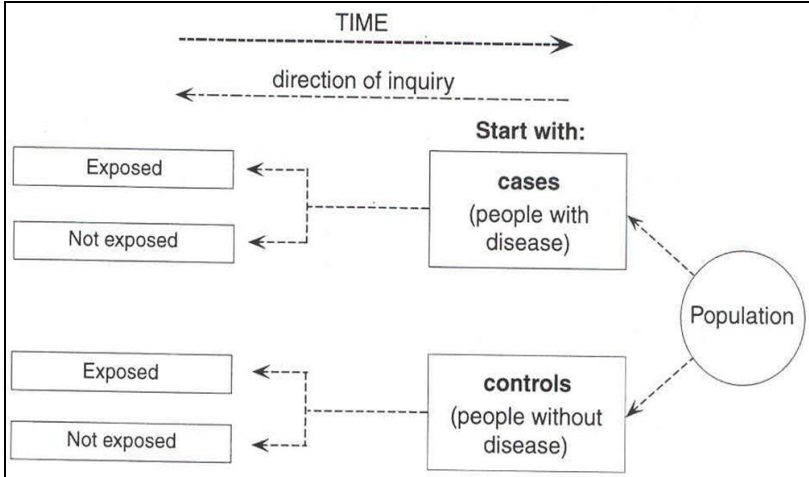
- It involves a health survey of a group of individuals in a specified population at an instant of time (في لحظة من الزمن).
- Used to: estimate the prevalence of a disease in a population.
- Advantages:
 - ✚ Inexpensive.
 - ✚ Can be completed within a short time frame.
 - ✚ Does not involve a follow-up period.
- Disadvantages:
 - ✚ Unable to determine if exposure preceded or resulted from the disease.



- ✚ Not appropriate for studying rare diseases or those with short duration.

❖ *Case-control:*

➤ It is a backward study which compares patients (those with a disease) with controls (persons who are free from the disease). In this study you compare the past exposure to 1 or more potential risk factors.



➤ Advantages:

- ✚ Inexpensive.
- ✚ Relatively a short study period.
- ✚ Used to study rare diseases.
- ✚ Used to investigate several potential etiological factors.

➤ Disadvantages:

- ✚ Inability to provide direct estimate of the risk.
- ✚ Susceptible to recall bias.
- ✚ Uncertainty of the exposure-disease relationship.

❖ *Echological (correlational)*

❖ *Case series.*

• **Experimental studies:** in which there is an attempt to change a variable in one or more group of people relevant to the outcome and they include:

- ✓ Field trials: in which subjects are free from the disease. Example: Salk vaccine field trial. This type of study is expensive.
- ✓ Community intervention trials: in which interventions are done on a community-wide basis (class rooms, residential building, army units... etc).

Water supply A	Water supply B
Observe occurrence of disease for a specific period of time	
Randomly assign intervention	
Add chloride	Do nothing
Dental caries	Dental caries

- ✓ Clinical trials: planned experiment which involves patients and is designed to elucidate the most appropriate treatment, new drug, new surgical procedure or alternative approach to patient management for future patients with a medical condition.



- ❖ *Randomized clinical trial*: it is the gold standard of clinical and epidemiological studies. They are intervention studies which choose a group of patients who are suitable for one or more type of drug intervention. Disadvantages include:
 - Cost (since large number of patients are needed with prolonged follow-up).

