**Course Title: Teaching Methodology & Community medicine**

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Topics:

**Q1: How will you conduct “Cohort study” Explain it with Example.**

Cohort studies are a type of medical research used to investigate the causes of disease & to establish links b/w risk factors & health outcomes.

**Conducting a Cohort study:**

 There are five main steps in conducting a cohort study.

1. **Select Cohort population:**

 All participants (both exposed & unexposed) in a cohort study must be at risk of developing the outcome. Controls should be similar to the exposed in all important aspects. Except for the lack of exposure, this will reveal the background rate of the outcome in the community for common exposures (e.g. smoking ) a general population cohort is good as it enable internal comparisons of exposure status and the population can be motivational & easy to follow up for rare exposures.

1. **Measure exposure to risk factors:**

 Cohort studies should have a clear unambiguous definition of the exposure at the outset measurement can consist of records, environmental monitoring, lifestyle, questionnaire or a clinical / biochemical / molecular measurement.

1. **Follow up:**

 This is a challenge. Drop outs affect the study’s validity. Drop outs are not random events if the likelihood of dropping out is related to the exposure & outcome, then bias can result for example, if people are suffering side effects from a particular drug. They may drop out &so the drug may look better than it actually is to optimize follow up, try to get a stable population motivate them & do regular contacting &tracing.

1. **Measure disease outcome:**

 Outcomes must be defined in advance and should be clear, specific and measurable outcome can be measured with records, interview or examination.

1. **Estimate disease risk associated with exposure:**

 Risk can be measured with relative risk (a measure of the extent to which those exposed to a risk factor are likely to get the disease compared with the non-exposed group) absolute risk (this is the incidence rate for a group exposed to a risk factor) attributable risk (this is the difference in the incidence of a disease b/w the exposed and non-exposed groups).

**Example:**

 One famous example of a cohort study is the nurses, healthy study a large, long, drumming analysis of women’s health originally set up in consequences of the use of oral contraceptives.

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**Q2: How will you conduct “Case Control Study” Explain it with Example**.

# Ans: A case control study is a type of observational study in which two existing groups differing in outcome are identified & compared on the basis of some supposed causal attribute case control studies are often used to identify factors that may contribute to a medical condition by comparing subjects who have that condition / disease (the cases) with patients who do not have the condition /disease but are otherwise similar (controls).

**Five main steps have conducting a case –control study:**

1. Selection of case & controls
2. Matching
3. Measurement of exposure
4. Analysis and interpretation
5. Bias
6. **Selection of case:**
	* Diagnostic criteria
* Single hospital
* Network of hospitals
* Eligibility criteria
* Incident cases
* Prevalent cases
* Sources of cases
* Hospitals
* General population

**Selection of controls:**

* Controls must be free from disease under study
* Must be similar to the cases except for the disease under study
* Selection of controls is the most difficult
* Sources of controls

-Hospitals

-Relatives

-Neighborhood

-General population

1. **Matching:**

 Matching is a process in which we select controls in such a way that they are similar to cases with regard to certain pertinent variables (eg. Age) which are known to influence the outcome of disease & which if not adequately matched for comparability could distort or confound the results.

Matching types:

* Group matching (Frequency matching)
* Pair matching ( Individual matching)
1. **Measurement of exposure:**
* Interviews
* Questionnaires
* Past record

-Hospital records

-Employment records

**4) Analysis**

* Find out
	+ - Exposure rates among cases & controls to suspected factor
		- Estimation of disease risk associated with exposure (Odds Ratio)

**5) Bias in case control studies:**

* Bias due to confounding
* Selection bias
* Survivorship bias
* Healthy worker effect
* Memory or recall bias
* Berkesnian bias
* Interviewers

**Example of case control study:**

A **case**-**control study** is a retrospective **study** that looks back in time to find the relative risk between a specific exposure (e.g. second hand tobacco smoke) and an outcome (e.g. cancer). A **control** group of people who do not have the disease or who did not experience the event is used for comparison.