

HAS251 STUDY NOTES

To increase **believability**:

- It can be anything to get closer to the truth about the relationship between study factor and outcome factor. Reducing any of the biases – selection, measurement, recall bias, **attrition** (loss to follow up bias) etc.
- Increase validity of **measurement bias** by using monitoring technology
- **Selection bias**, where they are recruited from, do people actually have the condition/unequal symptoms

Feasible (most feasible)

- Study design that will give the highest quality of evidence - given the evidence/conditions/parameters provided in the question
- The highest level/quality of evidence that can be obtained given the research question (take into account: time, ethics of particular research question)

Ideal (most ideal)

- Best and highest quality of evidence – from the answers provided
- Most ideal out of all study designs

WEEK 1 – Introduction to Epidemiology

The WHO definition of Epidemiology – “Epidemiology is the study of the distribution and determinants of health-related states or events (including disease), and the application of this study to the control of diseases and other health problems”

- Getting as close to the truth as possible

Social epidemiology – “The study of the social distribution and social determinants of health, that is, both specific features of, and pathways by which, societal conditions affect health”

Descriptive epidemiology – describing disease by events in time, place, person. It looks to characterise disease or health states e.g. what is the magnitude or burden of disease, is it increasing or decreasing over time

Analytical epidemiology – this branch examines relationships between variables, answers hypotheses e.g. Is eating a big mac once a day related to changes in the incidence of type 2 diabetes mellitus

Epidemiology Toolbox:

- Very clear research question
- Robust and appropriate research methodology to answer research question
- Measure what you intend to measure
- As close to the truth as possible
- Know the limits of the results

WEEK 2 – Measuring Disease Burden

- **Incidence** – Incidence is the rate of new (or newly diagnosed) cases of the disease. It is reported as the number of new cases occurring within a period of time.
- **Prevalence** – Prevalence represents the burden of disease in a community – how many people have that disease. By preventing death of disease, this increases the prevalence (people living with the disease).
- **PICO** – Population, Intervention, Comparison, Outcome
- Calculating prevalence and incidence:
 - **Prevalence** = All cases / Population at risk
 - **Incidence** = new cases / Population at risk
- **Study factor** – exposure present (or absent)
- **Outcome factor** – outcome of a study is a broad term for any defined disease, state of health, health-related event or death

WEEK 3 – Observational Studies 1

Descriptive Studies – generate hypotheses, answer what, who, where and when – in relation to outcome. They are observational studies which describe the patterns of disease occurrence in relation to variables such as person, place and time. They are often the first step or initial enquiry into a new topic, event, disease or condition.

- Case report
- Case series
- Cross-sectional

Analytical Studies – test hypotheses, answer why and how. Measure the hypotheses, answer why exposure and outcome. Include a comparison group. Describes the relationship between study factor and outcome. Quantify the association between exposures and outcomes and to test hypotheses about casual relationships. Measures of association

- Cohort study
- Case control study
- **Case Reports:**
 - *Strengths:*
 - Looks at **single case** (thus a detailed approach)
 - May help in identification of **new trends or diseases**
 - May identify rare manifestations of a disease/condition
 - *Weaknesses:*
 - Cases may not be generalizable
 - Not based on systematic studies
 - Causes or associations may have other explanations.
- **Case Series:**
 - *Strengths:*
 - Looks at a **collection of individual cases**
 - May help in identification of **new trends or diseases**
 - May identify rare manifestations of a disease/condition
 - *Weaknesses:*
 - Cases may not be generalisable
 - Not based on systematic studies
 - Causes or associations may have other explanations