Chapter 5 Introduction to Study Design

Open session 04/08/25
04/015/25 mid term exam
04/22/2025 project work time
04/29/2025 presentation

5.1 Introduction to Etiologic Research

Epi Hypotheses

1. Studies should address defined research hypothesis or research question
2. Hypotheses must be based o nsound causal mechanisms in specfic terms that can be tested
3. Hypotheses are refinement as new information becomes available

Hypothesis Statement

Needs a broad question that you want answer
Selected elements of an epi research question

1. Source Population
2. Exposure variable
3. Disease variable
4. Confounding variables
5. Dose response
6. Time response sample size

Variable Yaz Example

Confounders

Ethnics: Studying Human Subjects

Institutional review board review if humans who engage are protected.
Informed Consent is important
The Belmont Report is a guideline for human case study
Casualties are bad
Data Safety Monitoring Board checks if outcomes are good or bad, or outweighs goal

Equipoise

Equipoise is balanced doubt
Cannot expose a participate to harm, like smoking
Cannot withhold known benefit to subjects

Selected Study Design Elements

Referent Group Only judge effects of an exposure relative to the baseline determined by referent or control group

Experimentation

How was exposure assigned?
Experimental study is a assignment or
Observational study classify

Unit of Observation

Longitudinal v X-Sectional

Longitudinal follows a group over time

Chapter 7

7.1 Introduction

Needs cohort study
Classify as exposed or non-exposed
Retro spective cohort studies

Correlation does not equal causation
Cross section studies cannot conclude causality
Birth Cohort mimics birth cohorts

Corhot studies
Classify exposed and non exposed
Follow them over time
compare risk or rate of disease

Chapter 8

Longitudinal refers to time line
Case-Control
Comparing diseased and non diseased
Looking at groups of people and check their history
Case control studies are always retreospective

Idefnitfy cases in source population
Select random non cases form same source population
Check what exposure was or reason

R_0 not avaiable, so odds are used in case control studies

Source Population A Seattle Area HMO
175 Histologically confirmed prostate cancer cases, must be clinically confirmed
258 Similar aged men selected at random for source population (controls)

Exposure

Identifying Cases

Incidence cases are preferred
Prevalent cases
Sources of cases
Typically control population seruvellances or valid ways such as hospitals, death cert, health records, pharmacy
Maximum efficiency of 1 control to 1 case

Good Information

Quality of study depends on garbage in garbage out
Gather information for cases and controls in identical manners, blinded review is best to avoid bias
Data collection forms
It should be done simply
Data should be collected consistently