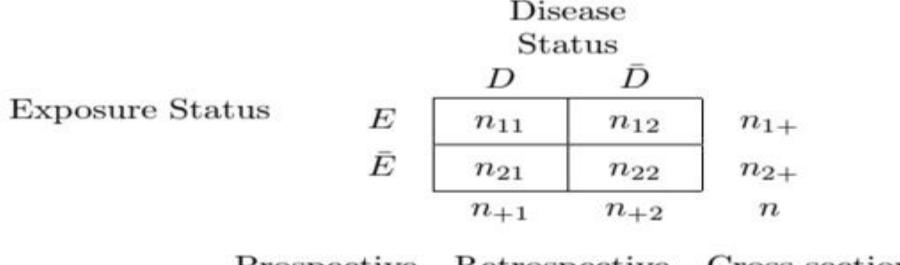
## Types of Observational Study

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**Prospective Study** (Clinical Trials, Cohort Studies): exposed and unexposed groups are identified and followed over time to compare incidence of disease.

Retrospective Study (Case-Control Study): diseased and disease-free subjects are identified and their exposure history investigated.

Cross-sectional Study: Sample of n subjects of unknown disease and exposure status is identified and disease status and prior exposure status are assessed simultaneously.



Row totals: fixed random random
Col. totals: random fixed random
Grand total: fixed fixed fixed fixed

## Longitudinal study:

A longitudinal study is an observational research method in which data is gathered for the same subjects repeatedly over a period of time. Longitudinal research projects can extend over years or even decades.

Case controls studies	Cohort studies	
Direction of inquiry from effect to cause	Direction of inquiry from cause to effect	
Starts with the disease	Starts with people exposed to the risk factor or suspected cause	
Usually the 1st approach to the testing of hypothesis, but also useful for exploratory studies	Reserved for the testing of precisely formulated hypothesis	
Fewer study subjects	Larger number of subjects	
Quick	Long follow-up, delayed results	
Suitable for rare diseases	Inappropriate when disease or exposure under investigation is rare	
Generally, yields only Odds ratio	Yields incidence rates, relative risk, attributable risk	
Cannot yield information about disease other than that under study	Can give information about more than one disease outcome	
Inexpensive HARBES, Epiden	Expensive	

## Longitudinal vs. cross-sectional studies

Comparators	Longitudinal	Cross-Sectional
Time / sequence	Several points in time – 'film strip'	One point in time – 'snap shot'
Sampling	Same sample	Different sample
Level of analysis	Change at the individual / hh level	Snapshot of a given point in time
Case examples	APRA tracker study	
	APRA WS1 two-wave panel study	APRA WS1 first wave panel study

	Longitudinal Method	Cross-sectional Method
Method	Repeated study of the same individuals over time to track developmental changes	Comparison of individuals from different age groups or developmental stages at the same time
Study plan	Study the same group of individuals at 20 years of age, at 40 years, and at 60 years	Study three groups of participants at the same time: a group of 20-year-olds, a second group of 40-year- olds, and a third group of 60-year-olds
Strengths and weaknesses	Permits study of the same individuals over time, but is costly, time-consuming, and may be limited in the generalizability of the find- ings beyond the original study group	Less costly and more efficient than longitudinal studies, but subject to unrecognized factors that may distinguish the groups (other than age) and cohort effects (differences between groups reflecting historical rather than developmental factors)