	Measures Disease	Equation	Study design used in
Frequency	**Point Prevalence**	$\frac{\text{Number of } \textbf{current} \text{ (new and previous) cases during a specific } \textbf{point} \text{ in time}}{\textbf{Total} \text{ population at the same } \textbf{point} \text{ of time}}$ Multiply by a 100 if you want it in a % form	Cross Sectional (Survey)
	Period Prevalence	$\frac{\text{Number of } \textbf{current} \text{ cases during a specific } \textbf{period} \text{ of time}}{\textbf{Average} \text{ or } \textbf{mid-interval} \text{ population}}$ Multiply by a 100 if you want it in a % form	
	Incidence Proportion	$\frac{\text{Number of } \textbf{new} \text{ cases}}{\text{Total population } \textbf{at risk} \text{ at the beginning of the study}}$ **Population at risk**: A well defined population that is **free** of the disease at the beginning of the study and has certain characteristics that put them at risk for developing the disease. (People who had the disease at the beginning of the study should be subtracted from the denominator) Multiply by a 100 if you want it in a % form	Cohort & RCT
	Incidence Rate	$\frac{\text{Number of } \textbf{new} \text{ cases}}{\text{Total } \textbf{person time at risk} \text{ over the study period of time}}$ Multiply by a 100 if you want it in a % form	
Association	**Odds in Exposed**	$\frac{A}{B}$	
	Odds in Unexposed "Baseline odds"	$\frac{C}{D}$	
	Odds Ratio Measures the strength of association	$\frac{A / B}{C / D} = \frac{AD}{CB}$ **Interpretation if OR >1:** The odds of exposure among a **disease** is (odds ratio value) higher than **not diseased**. If odds ratio **=** 1 (**no** association between exposure and the outcome) , OR **>**1 (**positive** association) , OR <1 (**negative** association).	Case control & cross sectional
	Risk in Exposed	$\frac{A}{A + B}$	
	Risk in Unexposed "Baseline risk"	$\frac{C}{C + D}$	
	Relative Risk (Risk Ratio) **Doesn't** measure the magnitude of benefit	$\frac{A / A + B}{C / C + D}$ **Interpretation if RR > 1:** the risk of an outcome among **exposed** is (RR value) more times higher than **unexposed**. Relative risk **=**1 (**no difference**) , **<**1 (**reduced** the risk "protective"), **>**1 (**increased** the risk)	Retrospective cohort
	Absolute Risk Reduction (ARR) (Risk Difference) Measures the magnitude of benefit (For protective effect)	Risk in exposed (A/A+B) - Risk of unexposed (C/C+D) **Interpretation:** If (total) were exposed (ARR value) of the outcome can be **prevented** compared to unexposed. if ARR = **0** then there is **no** difference between experiment and the control.	RCT
	Relative Risk Reduction (RRR)	1 - Relative Risk **Interpretation:** using experiment treatment will relatively reduce the risk of having the outcome by (%) compared to control treatment. (It tells you how much the experiment treatment is reducing the chance of having outcome in **single treated patient**)	
	Number Needed to Treat (NNT)	1/ARR (risk in exposed - risk in unexposed) Number of persons who would have to receive an intervention for one to benefit.	
	Number Needed to Harm (NNH)		
Impact	**Attributable risk (AR)** (For risk factors)	= Risk difference (risk "incidence" of **exposed** - risk "incidence" of **unexposed**) When expressed as proportion: $\frac{\text{incidence rate in } \textbf{exposed} - \text{incidence rate in } \textbf{unexposed}}{\text{incidence rate in } \textbf{exposed}}$ Difference of disease rate in exposed and unexposed individuals. **Interpretation:** (AR value) of the outcome is attributed to the disease and can be prevented if the exposure factor is removed.	Cohort

	Equation	Notes
Attack Rate	$\frac{\text{People who got the outcome}}{\text{People who were exposed}}$ X 100	**Can't** be used in case control

		Outcome (Disease of interest)		**Total**
		Yes (Cases)	**No** (Controls)	
Exposure	**Yes**	A	B	A+B
	No	C	D	C+D
Total		A+C	B+D	N (Total of the sample)