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## Summary of Epidemiologic Measures of Occurrence

	Prevalence	Risk	Rate	Odds
<b>Abbreviation</b>	P	R	IR	O
<b>Synonyms</b>	Prevalence proportion	Cumulative incidence Incidence proportion	Incidence rate Incidence density	Incidence odds
<b>Interpretation in words</b>	Proportion of the population living with a health condition (or history of a condition) at a specific point or period in time	Proportion of the population who developed the health condition over the specified amount of follow-up time	Proportion of the population who developed the health condition per unit of time at risk over the specified amount of follow-up time	Ratio of cases to non-cases [For EO - ratio of exposed to unexposed]
<b>Sub-types</b>	Period prevalence Point prevalence			Prevalence odds (PO) Exposure odds (EO)
<b>Numerator</b>	Prevalent cases	Incident cases	Incident cases	Cases (incident or prevalent - depends on study design) [For EO - Exposed]
<b>Denominator</b>	Total study population at point of inquiry (either an average over a period of time or at a specific point)	Total at-risk study population at baseline	Total person-time at-risk	Non-cases (controls) [For EO - Non-exposed]
<b>Denominator includes diseased subjects?</b>	Yes	No - all subject must be free of disease at baseline	No - all subject must be free of disease at baseline	No for most odds Yes for EO
<b>Formula</b> (2x2 table abbreviations)	$(a+c)/(a+b+c+d)$	$(a+c)/(a+b+c+d)$	$(a+c)/(\text{total person-time at risk})$	Odds: $(a+c)/(b+d)$ EO: $(a+b)/(c+d)$
<b>Units</b>	Cases per person	Cases per person (must report time period of follow-up)	Cases per person-time	NONE
<b>Range</b>	0 - 1	0 - 1	0 - infinity	0 - infinity
<b>Common scaling factor</b>	Percent	Per 100 (%); 1,000; 10,000; or 100,000 population	Per 1,000; 10,000; or 100,000 person-years	Not scaled
<b>Common study designs where this measure is used</b>	Cross-sectional Cohort (at baseline or for non-outcome variables) Ecologic (group-level)	Cohort Experimental Ecologic (group-level)	Cohort Experimental Ecologic (group-level)	Case-control Cross-sectional (PO) Cohort Experimental Ecologic (group-level)
<b>Associated measures</b>	Prevalence ratio Prevalence difference	Risk ratio Risk difference	Rate ratio Rate difference	Odds ratio
<b>Requires prospective observation to ascertain incident cases?</b>	No	Yes	Yes	No for odds with prevalent cases Yes for odds with incident cases

<b>2x2 Table</b>	Diseased	Non-diseased
Exposed	a	b
Unexposed	c	d



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Ricchetti-Masterson K, Lopes B, Yeatts KB. Summary of Epidemiologic Measures. UNC Gillings School of Global Public Health 2/14.  
References: EPID 710 and 718 Course Lectures (2009-13) UNC CH Dept of Epidemiology