Summary of Epidemiologic Measures for Screening

	Sensitivity	Specificity	Positive Predictive Value	Negative Predictive Value
Abbreviation	Sn	Sp	PPV	NPV
Synonyms			Positive Value Predictive	Negative Value Predictive
Interpretation in words	Proportion of people with condition who test positive	Proportion of people without condition who test negative	Proportion of people with a positive test result who actually have the condition	Proportion of people with a negative test result who do not have the condition
Numerator	True positives	True negatives	True positives	True negatives
Denominator	Cases	Non-cases	Positive tests	Negative tests
Formula (2x2 table abbreviations)	a/(a+c)	d/(b+d)	a/(a+b)	d/(c+d)
Units	NONE	NONE	NONE	NONE
Range	0 - 1	0 - 1	0 - 1	0 - 1
Common scaling factor	Percent	Percent	Percent	Percent
Common study designs where this measure is used	Screening development trials	Screening development trials	Screening development trials	Screening development trials
Associated measures				

2x2 Table (Screening)	Diseased	Non-diseased
Test Positive	a	b
Test Negative	c	d

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Summary of Epidemiologic Measures of Association

	Prevalence Ratio	Prevalence Difference	Risk Ratio	Risk Difference
Abbreviation	PR	PD	RR	RD
Synonyms			Relative risk (imprecise terminology - don't use)	Attributable risk
Interpretation in words	Those who were exposed had [PR] times the prevalence of [outcome] compared to those who were unexposed.	Among those who were exposed, the prevalence of [outcome] was [PD] higher [or lower] than among those who were unexposed	Those who were exposed had [RR] times the risk of [outcome] compared to those who were unexposed over [timeframe] years of follow-up	Among those who were exposed, the risk of [outcome] was [RD] higher [or lower] than among those who were unexposed over [timeframe] years of follow-up
Informal interpretation in words	Exposed were [PR] times as likely to have the outcome compared to unexposed		Exposed were [RR] times as likely to develop the outcome compared to unexposed over [timeframe] years of follow-up	
Sub-types				
Numerator*	Prevalence among exposed	Prevalence among exposed *[First component of the difference calculation (not a numerator)]	Risk among exposed	Risk among exposed *[First component of the difference calculation (not a numerator)[
Denominator*	Prevalence among unexposed	Prevalence among unexposed *[Second component of the difference calculation (not a denominator)]	Risk among unexposed	Risk among unexposed *[Second component of the difference calculation (not a denominator)]
Formula (2x2 table abbreviations)	(a/(a+b))/(c/(c+d))	(a/(a+b))–(c/(c+d))	(a/(a+b))/(c/(c+d))	(a/(a+b))–(c/(c+d))
Units	NONE	Cases per person	NONE (must report time period of follow-up)	Cases per person (must report time period of follow-up)
Range	0 - infinity	-1 - 1	0 - infinity	-1 - 1
Common scaling factor	Not scaled	Percent	Not scaled	Per 100 (%); 1,000; 10,000; or 100,000 population
Common study designs where this measure is used	Cross-sectional Cohort (at baseline or for non-outcome variables) Ecologic	Cross-sectional Cohort (at baseline or for non-outcome variables) Ecologic	Cohort Experimental Ecologic	Cohort Experimental Ecologic
Associated measures	Prevalence	Prevalence	Risk	Risk

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

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Summary of Epidemiologic Measures of Association

	Rate Ratio	Rate Difference	Odds Ratio
Abbreviation	IRR	IRD	OR
Synonyms	Relative risk (imprecise terminology - don't use)		Relative risk (imprecise terminology - don't use)
Interpretation in words	Those who were exposed had [IRR] times the rate of [outcome] compared to those who were unexposed	Among those who were exposed, the rate of [outcome] was [IRD] higher [or lower] than among those who were unexposed	Those who were exposed had [OR] times the odds of [outcome] compared to those who were unexposed
Informal interpretation in words			Exposed had [OR] times the odds to develop [for incident cases] or have [for prevalent cases] the outcome compared to unexposed
Sub-types			Prevalence odds ratio (POR) Exposure odds ratio (EOR)
Numerator*	Rate among exposed	Rate among exposed *[First component of the difference calculation (not a numerator)]	Odds of being a case among exposed [for EOR - odds of exposure among cases]
Denominator*	Rate among unexposed	Rate among unexposed *[Second component of the difference calculation (not a denominator)]	Odds of being a case among unexposed [for EOR - odds of exposure among controls]
Formula (2x2 table abbreviations)	(a/person-time at risk in exposed)/(c/person-time at risk in unexposed)	(a/person-time at risk in exposed)–(c/person-time at risk in unexposed)	(a*d)/(b*c)
Units	NONE	Cases per person-time	NONE
Range	0 - infinity	-infinity - infinity	0 - infinity
Common scaling factor	Not scaled	Per 1,000; 10,000; or 100,000 person-years	Not scaled
Common study designs where this measure is used	Cohort Experimental Ecologic	Cohort Experimental Ecologic	Case-control (EOR) Cross-sectional (POR) Cohort Experimental Ecologic
Associated measures	Rate	Rate	Odds

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

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Summary of Epidemiologic Measures of Occurrence

	Prevalence	Risk	Rate	Odds
Abbreviation	P	R	IR	O
Synonyms	Prevalence proportion	Cumulative incidence Incidence proportion	Incidence rate Incidence density	Incidence odds
Interpretation in words	Proportion of the population living with a health condition (or history of a condition) at at 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]
Sub-types	Period prevalence Point prevalence			Prevalence odds (PO) Exposure odds (EO)
Numerator	Prevalent cases	Incident cases	Incident cases	Cases (incident or prevalent - depends on study design) [For EO - Exposed]
Denominator	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]
Denominator includes diseased subjects?	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
Formula (2x2 table abbreviations)	(a+c)/(a+b+c+d)	(a+c)/(a+b+c+d)	(a+c)/(total person-time at risk)	Odds:(a+c)/(b+d) [EO: (a+b)/(c+d)]
Units	Cases per person	Cases per person (must report time period of follow-up)	Cases per person-time	NONE
Range	0 - 1	0 - 1	0 - infinity	0 - infinity
Common scaling factor	Percent	Per 100 (%); 1,000; 10,000; or 100,000 population	Per 1,000; 10,000; or 100,000 person-years	Not scaled
Common study designs where this measure is used	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)
Associated measures	Prevalence ratio Prevalence difference	Risk ratio Risk difference	Rate ratio Rate difference	Odds ratio
Requires prospective observation to ascertain incident cases?	No	Yes	Yes	No for odds with prevalent cases Yes for odds with incident cases

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

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