

EPIDEMIOLOGY FORMULAS

NULL HYPOTHESIS

		REALITY	
		H_1	H_0
STUDY RESULTS SUPPORT	H_1	Power ($1 - \beta$)	α Type I error
	H_0	β Type II error	Correct

Stating that there is an effect when none exists: False positive error

Stating that there is not an effect when one does exist: False negative error

H_0 = Null Hypothesis
 H_1 = Alternative Hypothesis

QUANTIFYING RISK

		DISEASE	
		+	-
RISK FACTOR OF INTERVENTION	+	a	b
	-	c	d

NUMBER NEEDED TO HARM

$$NNH = \frac{1}{AR}$$

NUMBER NEEDED TO TREAT

$$NNT = \frac{1}{ARR}$$

ATTRIBUTABLE RISK

$$AR = \frac{a}{a + b} - \frac{c}{c + d}$$

ODDS RATIO

$$OR = \frac{a/c}{b/d} = \frac{ad}{bc}$$

RELATIVE RISK

$$RR = \frac{a/(a + b)}{c/(c + d)}$$

ABSOLUTE RISK REDUCTION

$$ARR = \frac{c}{c + d} - \frac{a}{a + b}$$

EPIDEMIOLOGY FORMULAS

SENSITIVITY, SPECIFICITY & PREDICTIVE VALUES

	Disease +	Disease -	Total
Test +	TP	FP	$TP / (TP + FP) =$ POSITIVE PREDICTIVE VALUE (PPV)
Test -	FN	TN	$TN / (FN + TN) =$ NEGATIVE PREDICTIVE VALUE (NPV)
Total	$TP / (TP + FN) =$ SENSITIVITY	$TN / (FP + TN) =$ SPECIFICITY	TOTAL POPULATION

TYPES OF STUDIES

