



## NUMBERS GLOSSARY

All examples are based on the following scenario:

In a randomized trial, 200 adults were given either DRUG or placebo for 5 years. Here's what happened:

	UNEXPOSED Placebo (100 adults)	EXPOSED DRUG (100 adults)
Died during study	30	10

MEASURE	DEFINITION	EXAMPLE
<b>Absolute risk</b> Analogy: Price Absolute risk ( <i>unexposed</i> ) is the <i>regular</i> price. Absolute risk ( <i>exposed</i> ) is the <i>sales</i> price.	$\frac{\text{Number who had outcome}}{\text{Number who could have had outcome}}$	<b>Absolute risk</b> (DRUG group) = $\frac{10}{100} = 0.10 = 10\%$ <b>Absolute risk</b> (Placebo group) = $\frac{30}{100} = 0.30 = 30\%$ Over 5 years, <b>10%</b> of adults in the DRUG group died compared to <b>30%</b> in the placebo group.
<b>Absolute risk reduction (ARR)</b> "percentage points lower" Analogy: Savings from a sale. Subtract the sales price from the regular price.	$\text{Absolute risk (unexposed)} - \text{Absolute risk (exposed)}$	<b>Absolute risk reduction</b> = $30\% - 10\% = 20\%$ = <b>20 in 100</b> Over 5 years, DRUG lowered the chance of dying by <b>20 percentage points</b> compared to placebo: 10% vs. 30% If for 5 years, <b>100 adults took DRUG</b> instead of placebo, <b>20 fewer</b> would die.
<b>Number needed to treat (NNT)</b>	$\frac{1}{\text{Absolute risk reduction}}$	<b>Number needed to treat</b> = $\frac{1}{20\%} = \frac{1}{0.20} = 5$ <b>5 adults</b> would have to take DRUG for five years to prevent <b>1 death</b> .
<b>Relative risk (RR)</b>	$\frac{\text{Absolute risk (exposed)}}{\text{Absolute risk (unexposed)}}$	<b>Relative Risk</b> = $\frac{10\%}{30\%} = \frac{0.1}{0.3} = 0.33$ Over 5 years, the chance of dying for the DRUG group was <b>one third (or 0.33 times)</b> that of the placebo group: 10% vs. 30%.
<b>Relative risk reduction (RRR)</b> "% lower" Analogy: "% off" for the sale ("67% off regular price")	$1 - \text{Relative risk}$	<b>Relative risk reduction</b> = $1 - 0.33 = 0.67$ or <b>67%</b> Over 5 years, DRUG lowered the chance of dying by <b>67 percent (or two-thirds)</b> compared to placebo: 10% vs. 30%.

**BOTTOM LINE** Always report absolute risks for each group (no matter what other numbers are used)  
 For all risks, you need to be clear about 3 things: exactly what the outcome is (e.g. having a heart attack), over what time period the outcome occurred (e.g. 5 years) and in whom (e.g. adults with diabetes).