



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

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).