

**What are the formulas used by Hooked on Evidence to calculate measures of treatment effectiveness?**

### **Continuous outcomes**

#### **Absolute Mean Difference (AMD)**

$$AMD = |\bar{x}_1 - \bar{x}_2|$$

#### **Standardized Mean Difference (SMD)**

SMD = AMD/pooled standard deviation

$$\text{where the pooled standard deviation} = \sqrt{\frac{(SD_1^2 * (n_1 - 1)) + (SD_2^2 * (n_2 - 1))}{n_1 + n_2 - 2}}$$

95% Confidence Interval for the SMD

$$95\% \text{ CI} = SMD \pm 1.96 \sqrt{\frac{(n_1 + n_2)}{(n_1 * n_2)} + \frac{SMD^2}{2 * (n_1 + n_2)}}$$

Formulas from: Hedges LV, Olkin I. *Statistical Methods for Meta-Analysis*. Academic Press: San Diego. 1985.

### **Dichotomous Outcomes**

#### **Odds Ratio (OR)**

$$OR = \frac{ad}{bc}$$

Where a = number of subjects in the treatment group with the outcome  
b = number of subjects in the treatment group without the outcome  
c = number of subjects in the comparison group with the outcome  
d = number of subjects in the comparison group without the outcome

95% Confidence Interval for the OR

$$95\% \text{ CI} = OR \exp \pm 1.96 \sqrt{\frac{1}{a} + \frac{1}{b} + \frac{1}{c} + \frac{1}{d}}$$

## Risk Ratio

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

$$95\% \text{ CI for the RR} = RR \exp \pm 1.96 \sqrt{\frac{1 - (a / (a+b))}{a} + \frac{1 - (c / (c+d))}{c}}$$

## Number Needed to Treat (NNT)

$$NNT = \frac{1}{\left| \frac{a}{a+b} - \frac{c}{c+d} \right|}$$

Formulas for OR and RR from: Greenberg RS et al. *Medical Epidemiology. Third edition*. McGraw Hill: New York. 2001.

For more information on NNT: Dalton GW, Keating JL. Number needed to treat: a statistic relevant for physical therapists. *Phys Ther*. 2000;80:1214-1219.

Hooked on Evidence FAQ

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