Meta-Analysis Data Collection Guide

Before extracting data from studies, it is important to meet with a statistician to go over the goals of the meta-analysis.

0. Before you Begin

- Use the ***PICO Framework***
  - *P- Population: Group of individuals that could be included in studies*
  - *I - Intervention: Treatment, therapy or exposure being investigated*
  - *C - Comparison: Including one arm studies, clinical trials, cohort studies, etc.*
  - *O - Outcome: Measured results of the intervention*

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1. Study Information

- Make sure that you record the study title, authors, and an identifier (PMID, DOI, etc.)
- Include a column with a shorthand title with the primary author and year (i.e. Smith J 2025)
- If multiple groups from the same study are being used, put each on a separate line
- Make a column for the number of subjects (N) for each study
- Make a column to identify study design

2. Outcome Types

Continuous/Numeric:

- Each subject/ participant has a numerical value
  - Pain Score, % Weight Lost, Length of Stay, etc.
- Mean and standard deviation: record each of these when available
  - If these are not available record as many of the following that are available:
    - Median
    - Minimum and Maximum
    - Interquartile range (IQR), 25^{th} and 75^{th} percentiles
    - 95% Confidence Interval
- Mean ≠ Median
- Standard Deviation ≠ Standard Error

Pre vs. Post Change

- Ideally record the mean change (Post – Pre) and the standard deviation of the change
- Often authors do not provide the standard deviation of the change, however, this can be estimated if the pre and post standard deviations are available

Categorical:

- Usually a yes/no response for each patient
    - Readmission, mortality, complications
- Record the total number (n) of subjects having the outcome (not the percentage)

3. General Guidelines

- Try to ensure that every cell only contains one piece of data
    - Put different measures (mean, standard deviation) in separate columns
    - Have a separate line for each subgroup
    - Insert > Comment (if using Excel) or add a separate column called *Notes* to denote atypical features of studies

- Denote if different units are used for continuous outcomes
    - 0-10 Pain Scale vs. 0-100 etc.
    - Weight in pounds vs. Kilograms
- Outcomes should be measuring similar outcomes if different scales are used
- Prioritize a few outcomes that are reported across many studies instead of many outcomes that are sparsely reported