

Appendix 1 - Scoring rules

Definitions:

I. Study Outcome measures

1. Primary outcome: an outcome that is defined by the authors of each article as a “primary outcome.”
 - a. Explicit primary outcome: the outcome(s) identified by the authors as “primary.”
 - b. Implicit primary outcome: an outcome that is implied to be the primary outcome by the authors as it is: the only outcome for which data is presented; the variable upon which power and study size calculations are based; or the sole focus of the results section. In cases where multiple outcomes were measured but none is explicitly or implicitly (per the above) defined as the primary outcome all outcomes were characterized as implicit primary outcomes.
2. Continuous primary outcome: a primary outcome that has five or more possible states at the level of the unit of analysis (e.g., Visual Analog Scale score, number correct on a five question verbal test, change in height or weight).

II. The Percentages

The percentage of data reported in each article is the primary outcome measure for this research. In general, each percentage is the ratio of data presented to data available. The matrices below illustrate the 18 different percentages that could be

calculated (9 cells x 2 different methods for calculating the denominator for each). The 3 rows represent different levels of expectation regarding what kinds of outcomes are considered. The 3 columns are different levels of expectation regarding the reporting of covariates. Definitions of each column and row appear below.

The Percentages

A. Denominators based on the number of individuals whose outcome was measured.

		Handling of Covariates		
		Lenient	Authors'	Stringent
Outcomes Scored	Best	Best-Lenient	This fraction will not be used	This fraction will not be used.
	Basic	Basic-Lenient	Basic-Authors'	This fraction will not be used.
	Design-based	Design-Lenient	This fraction will not be used	Design-Stringent

B. Denominators based on 100 individuals per study limb

		Handling of Covariates		
		Lenient	Authors'	Stringent
Outcomes Scored	Best	Best-Lenient-100	This fraction will not be used	This fraction will not be used.
	Basic	Basic-Lenient-100	Basic-Authors'-100	This fraction will not be used.
	Design-based	Design-Lenient-100	This fraction will not be used	Design-Stringent-100

1. Definitions of Columns and Rows

A. Rows - (Outcomes)

- a. Best: only the continuous primary outcome which is most completely reported is scored.
- b. Basic: all explicitly and implicitly defined continuous primary outcomes are scored.
- c. Design-based: In addition to all continuous primary outcomes being scored, articles are scored on whether they provide information on outcomes that are specifically related to the study design. For example, a before and after study has 3 bits of information for each outcome on each individual, a pre-value, a post-value and a difference. The expectation would be that the authors present at least two of these (since the 3rd can be calculated from the other two).

B. Columns (covariates)

- a. Lenient: There is no consideration of covariates
- b. Authors': Scoring is based on the expectation that all covariates specifically mentioned by the authors as important will be presented.
- c. Stringent: Scoring is based on the expectation that all covariates all covariates included in those mentioned by the authors *and* those listed in the trial's "Table 1" will be presented.

2. Methods for calculating numerators

A. The following elements are included in all numerators:

Element	Example/Explanation
<u>1. At the level of the patient</u>	
Individual patients' values	Patient 33 lost 22 lbs.
<u>2. At the level of the study limb</u>	
Measures of central tendency	1 point given per limb for each measure (mean, median, mode)
Measures of variance	1 point given per limb for the reporting of a measure of variance (variance, SD, or CI)
Number of individuals (N)	1 point given per limb for each N measure (mean, median, mode)
Each summary statistic	1 point given per limb for each percentile stated in text or table or represented in a boxplot [e.g. 25th & 75th percentiles and the, upper and lower adjacent values (the whiskers)]. One point per limb also given for each binary representation of the outcome [e.g. % of subjects whose VAS was < 10mm]
<u>3. At the level of differences between limbs</u>	
Measures of central tendency	No points are given unless the means (medians, modes) for each limb are not mentioned (in which case 1 point would be given for each difference). This is because difference values can easily be calculated from the by-limb values.
Measures of variance	1 point given for the reporting of a measure of variance (variance, SD, or CI) of the difference between limbs

B. The following additional elements are included when study-design features are considered:

All items in Table A.	For studies with repeated measures, all elements are scored for each time point.
Linkages	If data are presented in a way that links measurements taken at different times for each individual then that linkage is considered a data point. For example, in a before/after study that shows a scatterplot of before and after values for N individuals, the numerator would include $3*(N)$ as there are N 'before' measurements, N 'after' measurements, and N linkages. For studies that depict more than two time points at the level of the individual, only 1 point is given per linkage (if there were three time points it would be scored as $4*N$).

C. The following additional elements are included when covariate features are considered:

Each covariate	Is scored per the rules in Table A.
Linkages	If data are presented in a way that links the covariate to an outcome measure for each individual then that linkage is considered a data point. For example, if a scatterplot shows each individual's outcome versus a covariate for N individuals, the numerator would include $3*(N)$ as there are N outcome measurements, N covariate measurements, and N linkages. Each comparison of a covariate and an outcome is scored at $3N$.

D. Additional rules for calculating numerators:

- a. The numerator may not be larger than the denominator. If a value is reported for each individual in the study then the numerator is set to the denominator and additional information (means, SDs) are ignored.
- b. The numerator is calculated separately for each outcome and values are summed.
- c. If data are presented for subgroups, then the elements of the above tables are counted for each subgroup.
- d. Test statistics and p-values are not considered data and are not counted.

3. Methods for calculating denominators:

a. Choice of N:

- i. Actual N: The number of subjects whose data are available is the N for each variable.
- ii. 100: The number of subjects is scored as 100 for each limb regardless of the actual number. This adjustment is done so that larger studies are not penalized for having more subjects (a mean and CI presented for a 10 person limb would score $2/10=20\%$, the same presented for a 1000 person limb would score $2/1000=.2\%$). Both would score 2% using this denominator.

- b. Regardless of which N is used, the denominator reflects the total amount of data that could be presented based on that N.

c. Rules for each fraction denominator

Class	Rule (N)	Rule (100)	Explanation
Best-Lenient	Total N	100 * # of limbs	1 data point per patient for the best reported outcome
Basic-Lenient	Total N for all outcomes	100 * # of limbs * # of outcomes	1 data point per patient for each outcome
Basic-Authors'	Total N for all outcomes * ((2* # of author covariates)+1)	100 * # of limbs * # of outcomes * ((2* # of author covariates)+1)	Includes expected linkage between covariates and outcomes
Design-Lenient	N * # of outcomes * (# of timepoints per outcome + 1)	100 * # of limbs * (# of timepoints per outcome + 1)	Includes expected linkage between time points within individuals
Design-Stringent	N * # of outcomes * (# of timepoints per outcome + 1) * ((2* # of covariates)+1)	100 * # of limbs * (# of timepoints per outcome + 1) * ((2* # of covariates)+1)	Includes expected linkage between time points within individuals and all covariates and outcomes

4. Additional rules for calculating fractions

A. Fractions are calculated as the 100* the appropriate numerator/the appropriate denominator.

B. When calculating fractions based on the N=100 per limb, if the per limb N is < 100 and the numerator is ≥ the actual denominator then the fraction is scored at 100%. In other words, if the outcome is fully reported it achieves 100% regardless of study size.