**Systematic Reviews and Meta-Analyses (SRMAs)**

**Application of Knowledge: Critical Review of SRMAs**

**WORKSHEET**

This worksheet will help you to critically assess your SRMA and then perform an approximate GRADE assessment at the end in order to assess the confidence you can have in the overall estimate.

**\*\*NOTE:** please ensure that you do **NOT** have a **Network meta-analysis.** We are NOT covering this type of analysis**.**

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| **Question** | **Answer** |
| 1. Is your SRMA on clinical trials or on observational studies or specifically on cohort studies?

*Note: if your SRMA contains both, please select one for evaluate for this exercise.* |  |
| 1. Does your SRMA clearly indicate it includes both a systematic review and a meta-analysis?

(Note if your SRMA is not BOTH a systematic review and a meta-analysis, you will not be able to perform all the steps in the GRADE assessment at the end) |  |
| 1. What is the research question in your SRMA?

Make a note on the outcome you will follow in this exercise to assess the certainty of the evidence for. |  |
| 1. What were the characteristics of the included studies in your SRMA?

P (population)I (intervention)C (comparator)O (outcome)T (time)S (setting) |  |
| 1. Are (a priori or post-hoc) subgroup analyses mentioned in the methods of your SRMA?
 |  |
| 1. Did your SRMA follow any specific methods (e.g., Cochrane, PRISMA, etc.)?
 |  |
| 1. How many databases were used to conduct the search?

Were manual searches performed?Were the search terms comprehensive (i.e., search terms cover different ways of spelling the terms used, different ways to capture the topic of interest, etc.)?Were language restrictions placed? |  |
| 1. How many trial comparisons are in your SRMA? (If there are multiple outcomes, just pick one to follow through and assess the results for.)
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| 1. Make a note on the characteristics of the studies included in your SRMA and consider the generalizability of these included studies and whether they relate to the research question.

*E.g. what participant types were included (all types, only those free of chronic disease, only those with a history of cardiovascular disease, only those with diagnosed diabetes), were both men and women included, what were the age ranges of participants in the included studies,etc.* |  |
| 1. Did your SRMA perform an assessment of individual study quality/risk of bias assessment (e.g. Cochrane ROB tool, New Castle Ottawa Score, NHLBI tools, etc.)?
 |  |
| 1. Did your SRMA report mean differences (MDs), standardized mean differences (SMDs), relative risks (RRs) or other outcome measure?
 |  |
| 1. What is the primary result of your SRMA?

Was it significant?  |  |
| 1. What is the heterogeneity (I2) in the primary analysis of your SRMA (note P-value for heterogeneity)?
 |  |
| 1. Does your main analysis have substantial and significant heterogeneity (I2>50% and P<0.1)?
 |  |
| 1. If sensitivity and a priori subgroup analyses were performed, did any explain heterogeneity?

(You’ll need to read the results text to find this. In sensitivity tables and subgroup analyses figures, you will want to look for the residual heterogeneity and see if it is lower than in the main analysis and whether the p-value associated with it is now greater than 0.1.) |  |
| 1. If dose response analyses were performed, did they find any significant dose response gradients?
 |  |
| 1. Was individual study quality assessed in your SRMA (e.g. Cochrane ROB tool, New Castle Ottawa Score, NHLBI tools) (see Q#10)?

If yes, was there a lot of studies assessed as having HIGH risk of bias or low study quality? (e.g. with Cochrane ROB tool, does the summary figure have a lot of red? With New Castle Ottawa Score, were there a low of studies with a low score (e.g. <6)? With NHLBI tools, was there a high percentage of studies rated as low study quality?)If study quality/ROB subgroup assessments were performed, did they report any significant differences between those studies rated as high ROB/low quality versus those rated as low or unclear ROB/higher quality? |  |
| 1. Was publication bias conducted?

If performed, was it significant (significant Begg’s or Egger’s test)??If significant, was a method to address publication bias (e.g. trim and fill method) applied? If yes, what did it conclude? |  |

**Performing an approximate GRADE assessment:**

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| --- | --- | --- |
| **Questions** | **DOWNGRADE?***Based on your responses to the questions posed in the column to the left, would you downgrade the certainty of the evidence? Please indicate Yes or No for each factor assessed.* | **GRADE LEVEL** |
| **#1. Was your SRMA of trials or cohorts/observational studies?** (see Q#1 above)­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_If trials, start at HIGHIf cohorts, start at LOW |  |  |
| **#2. Individual Study Limitations (Risk of Bias)**Was a risk of bias assessment of individual study quality performed? (see Q#17 above)­­­If no, cannot assess GRADE.If Yes, was there a lot of High risk of bias ratings or were a high proportion of studies rated as low study quality? If Yes (i.e., high ROB found), then DOWNGRADE.If No (little to no high ROB and no significant ROB subgroups), then do NOT downgrade. |  |  |
| **#3. Inconsistency of Results**Was heterogeneity significant? (see Q#14 and 15 above)If no (not significant), do NOT downgrade.If yes, were sensitivity and a priori subgroup analyses performed? Did any of these analyses explain heterogeneity?If heterogeneity was significant and was explained, you may NOT need to downgrade.If heterogeneity was significant and was not explained, DOWNGRADE. |  |  |
| **#4. Indirectness of Evidence**Consider the generalizability of studies which were included in the SRMA. Do you feel the included studies directly answer the research question? (see Q#9 above)If yes, do NOT downgrade.If no, DOWNGRADE. |  |  |
| **#5 Imprecision** – too complex to cover today, skip. |  |  |
| **#6 Publication Bias** (see Q#18 above)Was publication bias performed? If no, cannot GRADE this section.If publication bias was performed and was NOT significant, do NOT downgrade.If publication bias was significant, DOWNGRADE, unless a method like trim and fill analyses demonstrated that there are no small study effects. |  |  |
| **#7 – Factors to rate “UP”** – will not be covered today (Note: not common that SRMAs of trials are upgraded) |  |  |
| **#8 What is the final GRADE based on your assessment of each of the domains above?** |  |  |

Thank you for participating! 😊