Certainty of evidence

- System for assessing quality of evidence of a body of evidence based on
  - study design
  - criteria for downgrading/upgrading

GRADE quality of evidence

Definition: The degree of confidence in an estimate of effect.

High (++++)	We are very confident that the true effect lies close to that of the estimate of the effect.
Moderate (+++)	We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
Low (++)	Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect.
Very low (+)	We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of the effect.

Risk of bias (-/--)

- Risk of bias:
  Limitations in study design and execution with relevance to given outcome, based on quality appraisal of individual studies

- Indicators of risk of bias
  - Moderate or high risk of bias across most studies
  - etc.

- Lower quality of evidence
  - -1 if serious limitations in study design and execution
  - -2 if very serious limitations in study design and execution

Inconsistency (-/--)

- Consistency:
  Similarity of estimates of effect across studies

- Indicators of inconsistency
  - Differences in direction of effect
  - Variation in size of effect
  - Large I^2 value
  - etc.
- Distinguish between
  - **explained** heterogeneity (e.g. population, intervention, outcome)
  - **unexplained** heterogeneity

- Lower quality of evidence
  - -1 if large unexplained inconsistency
  - -2 if very large unexplained inconsistency

Indirectness (-/--)

- Directness:
  Extent to which populations, interventions, comparisons and outcomes are similar to those of interest

- Indicators of indirectness
  - Very different populations (e.g. age, sex, illness)
  - Surrogate outcomes
  - No direct comparisons
  - etc.

- Lower quality of evidence
  - -1 if serious uncertainty about directness
  - -2 if very serious uncertainty about directness

Imprecision (-/--)

- Precision:
  Is a consequence of sample size and number of events

- Indicators of imprecision
  - Small population (sparse data)
  - Small number of events
  - Wide confidence intervals around pooled effect (e.g. including RR=1)
  - etc.

- Lower quality of evidence
  - -1 if imprecise or sparse data
  - -2 if very imprecise or sparse data

Publication bias (-/--)

- Publication bias:
  Systematic under- or overestimate of effect due to selective publication of studies

- Indicators of publication bias
  - Small studies
  - Industry-sponsored studies
  - Asymmetric funnel plot
  - etc.

- Lower quality of evidence
  - -1 if publication bias is strongly suspected
  - -2 if publication bias is very strongly suspected

Three factors for upgrading

- Large or very large effects are less likely to be spurious
  - +1 if relative risk reduction ≤ 0.5 or risk ratio ≥ 2
  - +2 if relative risk reduction ≤ 0.8 or risk ratio ≥ 5
- Evidence of dose-response gradient
  - +1 if dose-response gradient observed
- If effect observed: All plausible residual confounding and biases would have reduced effect
  If no effect observed: All plausible residual confounding and biases would have increased the effect
  - +1 if appropriate direction of residual confounding and biases

Grading strength of a recommendation

GRADE strength of recommendation

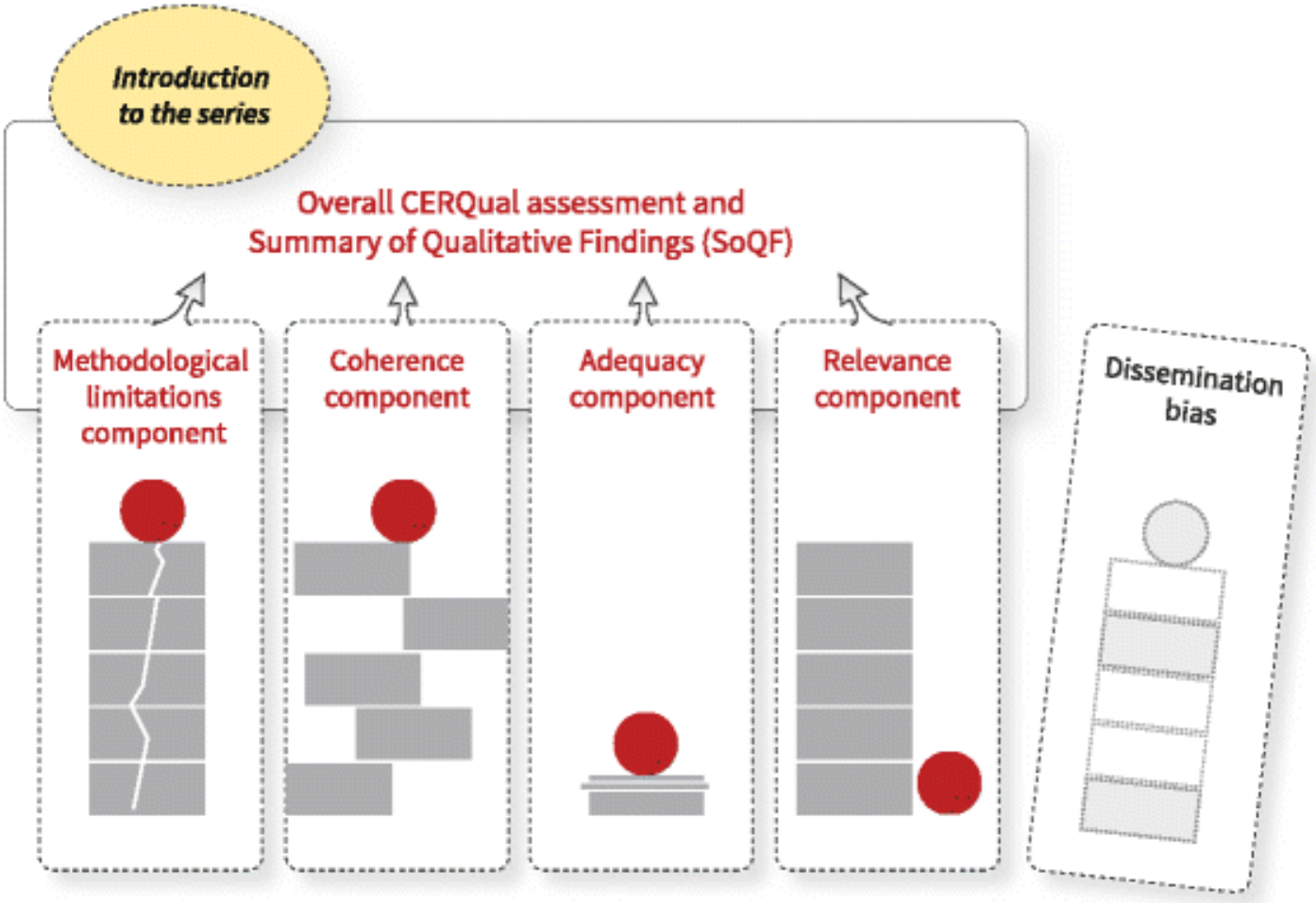
Definition: The degree of confidence that desirable effects of adherence to a recommendation outweigh undesirable effects.

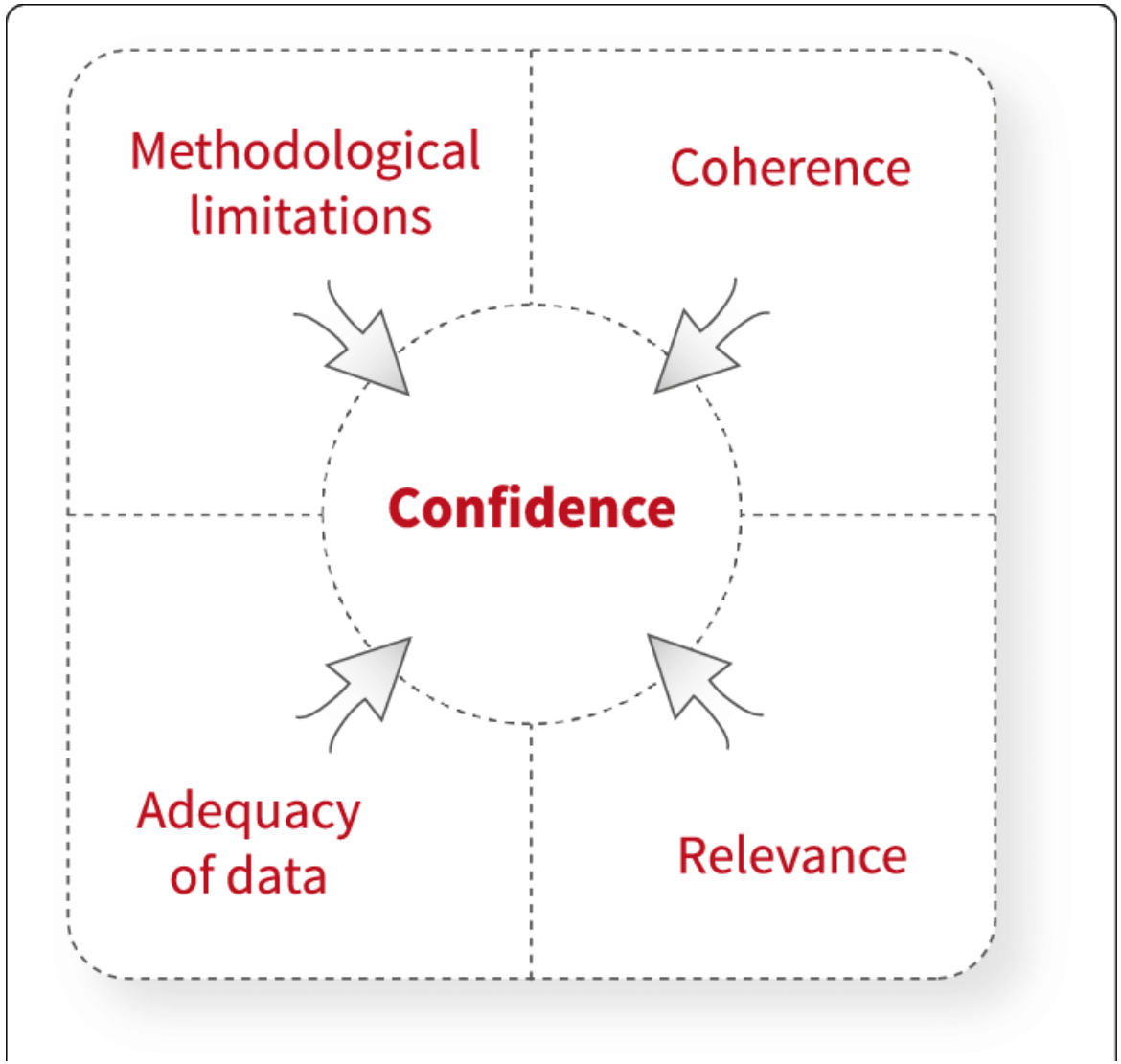
- **Strong** recommendation:
  The panel is confident that the desirable effects of adherence to a recommendation outweigh the undesirable effects.

- **Weak/ conditional/ discretionary** recommendation:
  The panel concludes that the desirable effects of adherence to a recommendation probably outweigh the undesirable effects, but is not confident.

Definitions of the components of the CERQual approach

Component	Definition
Methodological limitations	The extent to which there are concerns about the design or conduct of the primary studies that contributed evidence to an individual review finding
Coherence	An assessment of how clear and cogent the fit is between the data from the primary studies and a review finding that synthesises that data. By 'cogent', we mean well supported or compelling
Adequacy of data	An overall determination of the degree of richness and quantity of data supporting a review finding
Relevance	The extent to which the body of evidence from the primary studies supporting a review finding is applicable to the context (perspective or population, phenomenon of interest, setting) specified in the review question


Introduction to the series
Overall CERQual assessment and Summary of Qualitative Findings (SoQF)
Methodological limitations component
Coherence component
Adequacy component
Relevance component
Dissemination bias


Methodological limitations
Coherence
Confidence
Adequacy of data
Relevance

9- What conclusions did the authors reach about the study question?

- Are the questions posed in the study adequately addressed?
- Are the conclusions justified by the data?
- Do the authors extrapolate beyond the data?
- Are shortcomings of the study addressed and constructive suggestions given for future research?
- Is the conclusion convincing?

9- What conclusions did the authors reach about the study question?

- Conclusions should ensure that recommendations stated are suitable for the results attained within the capacity of the study.
- The authors should also concentrate on the limitations in the study and their effects on the outcomes and the proposed suggestions for future studies .