CEU screening programme: Overview of common errors & good practice in Cochrane intervention reviews

Since September 2013, the CEU has been responsible for pre-publication screening of new intervention reviews. Based on these experiences this resource has been compiled to draw attention to the most prominent challenges faced by authors and editors in the production of Cochrane Reviews. Where possible it also identifies how they might be addressed.

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Section of the review	***Common error***	***Good practice***
Global	Unclear or misleading title.	Clear link between the review title and review question.
	In empty reviews, too much prominence can be given to findings from ineligible studies, or extrapolation of positive results from other reviews.	Emphasis on the lack of evidence to address the review question and acknowledgement of any ongoing studies.
	Inconsistent messages across conclusions, PLS, Discussion & implications for practice & research.	Using information from SoF tables to develop abstracts, PLS, Effects of interventions, Discussion (especially quality of evidence) and conclusions.
Abstract main results	Primary outcomes and harms under-reported, often with emphasis on positive secondary endpoints.	Reporting main outcomes of interest irrespective of the strength of evidence. As a general approach, outcomes important enough to feature in the Summary of Findings table should be considered for the abstract and vice versa.
	Emphasis on whether the results are statistically significant or not.	Emphasis on magnitude and precision of the estimated effect.
	No or little leverage of SoF table information in results or conclusions leading to inconsistent interpretation.	Describing quality of evidence as high/moderate/low/very low as indicated from GRADE ratings

Section of the review	***Common error***	***Good practice***
Abstract conclusions	Repetition between results & conclusions. Conclusions which are written in the past tense may be at a high risk of simply repeating the results.	
Plain Language Summary	Describing imprecise results as equivalent to 'no effect', 'no difference', 'equally effective' or 'safe'.	Emphasis on uncertainty in effects rather than dichotomising effects as being present or absent: '*We are uncertain as to whether the intervention has an important effect on [outcome] because the results are imprecise'* *'Adverse events were rare'.*
Background	Lack of clarity as to importance of review question. Existence of relevant studies on its own is not sufficient, e.g. *'We are conducting this systematic review because there are a number of studies in the area'*	*'We are conducting this systematic review to e.g.: explore uncertainty arising from conflicting results in a number of studies in this area/ controversy arising from a policy/regulatory decision.'*
Eligibility criteria	Introduction of eligibility criteria which were not declared in the protocol and may introduce bias, e.g. Exclusion of studies on the basis of availability of outcome data	Acknowledging changes to eligibility criteria or methods implemented in the Differences between protocol and review. The comparison of review versions function in Archie can be used to detect any changes between the published protocols and the draft review.
Search methods	Inadequate or unclear search	

Section of the review	*Common error*	*Good practice*
Assessment of risk of bias in included studies	Not addressing the risk of performance bias because participants and personnel cannot be blinded for certain interventions.	
Summary of Findings tables	No information included in the methods as to how GRADE has been used.	Summarising methods used to rate the quality of evidence given in Data collection & analysis section.
	Very little information given on outcomes selected and prioritised for SoF table.	Including the subset of outcomes prioritised for GRADE assessment and SoF table as a list in the review (either given under Types of outcomes or alongside GRADE methods).
	Quality of evidence rating that is unexplained, or that appears to be limited to risk of bias in the presence of clear inconsistency or imprecision.	Clear explanation for downgrading decisions, with a reference to the consideration (e.g. risk of bias or imprecision) and the number of levels downgraded.
	Wording that associates the quality of evidence with statistical significance e.g. "moderate quality evidence of no statistical significance"	Emphasis on quality of evidence and estimate of effect: 'effect of the intervention was uncertain due to imprecision (moderate quality evidence).'

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Effects of interventions (cont.)	Lack of statistical significance mistaken for lack of an effect and too much emphasis on the presence of an effect where results are statistically significant.	Emphasis on size, precision and clinical significance of effect. Incorporation of GRADE ratings can help to contextualise the numerical results and reduce the reliance on reporting statistical significance. *'The estimated risk ratio for [outcome] was 0.92 (95% CI 0.78 to 1.32), 12 studies, 1437 participants). We rated this as high quality evidence since the confidence intervals do not include a clinically important difference of X%.'* *'Compared with control the difference in quality of life scores with intervention was 3.2 [units] higher with intervention (95% CI 1.2 to 5.2; 11 studies, 1365 participants). We downgraded the quality of evidence from high to moderate due to inconsistency in the direction and magnitude of effects across the studies (I square 65%).'*
Discussion: Summary of main results	Information repeated from results section (including numerical results).	Broad descriptive summary. Rather than repeating results, brief narration of headline results: *'Evidence from 13 studies in 876 people contributing data to the primary outcomes of this review showed that [intervention] given for between 8 and 16 weeks reduced symptoms, physiological markers of disease and hospital admission. The impact on quality of life was less certain and we found moderate quality evidence of an increased risk of harms associated with treatment.'* This sets the context for the rest of the discussion section.

Section of the review	*Common error*	*Good practice*
Discussion: Quality of the evidence	Restriction to statements already made under 'Risk of bias in included studies' without consideration of how other factors might impact on quality of evidence, such as imprecision, indirectness, inconsistency and publication bias. Very little usage of QoE ratings from SoF tables, downgrading decisions or GRADE process more generally.	Emphasis on how the GRADE considerations impact on findings of key outcome results; using information about other possible impacts on quality of evidence (i.e. imprecision, inconsistency, indirectness & publication bias); reference to and use of explanations for downgrading decisions contained in GRADE tables or SoF tables where applicable: *Although we judged the studies to be at varying risks of bias overall, the evidence for our main outcomes is drawn from studies at low risk of bias.* *We downgraded the quality of evidence to moderate for the main outcomes, due mainly to inconsistency or imprecision. Subgroup analyses did not provide a convincing explanation for observed variation between the results of the studies.*
Discussion: Potential biases in the review process	Tendency to emphasize implementation of protocol methods without consideration how decisions made during the review process might have affected the results.	A number of different factors can affect the implementation of protocol methods. These can be useful to draw on here: • Were any decisions made about the analysis or investigation of heterogeneity after seeing the data? • Might assumptions made about class or intensity of intervention (e.g. dose of drug, classification of behavioural interventions) be contested? • Consideration of specific ways in which the search process could have been limited, for example: challenges in optimising search terms/poor indexing of studies, limitations of databases used or grey literature sources accessed, restrictions on dates of search, and incomplete correspondence with study investigators or sponsors. • Were any relevant departures from protocol a potential source of bias?

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Discussion: Potential biases in the review process		• Were there any marginal decisions around the inclusion or exclusion of studies or use and analysis of data which could have impacted on the findings of the review, for example: clinical heterogeneity, variation in study design or delivery of intervention, prioritisation of data from multiple time-points, definition of subgroups, alternative definitions of outcome, use of adjusted as opposed to unadjusted data, outcome surrogacy?
	Confusion between limitations of studies found and limitations of systematic review process.	Use of 'Completeness & applicability of evidence' and 'Quality of the evidence' to present limitations of studies included in the review, and Potential biases in the review process to reflect on issues such as efforts to address reporting bias & other decisions made during review process.
Implications for practice	Prescriptive recommendations for practice, e.g. *Intervention should be given at a dose of...* *Intervention should be used for…* *Intervention should not be used....*	Emphasis on evidence being supportive rather than directive: *There is high quality evidence that intervention reduces/improves [important outcome]* *The evidence in our review demonstrates that Rx reduces X.../challenges the current practice of...* *Use of intervention is given only limited support based on evidence from our review…*

Section of the review	*Common error*	*Good practice*
Implications for practice	Implication that recommendations would have been made if sufficient evidence were available: *'We do not have sufficient evidence to recommend the use of…'*	Emphasis on how the findings of the review address the overall set of objectives: *'We do not have sufficient evidence to determine the effects of…'*
	Extrapolating positive or negative effects from other conditions (which may be unverifiable) and the use of evidence from outside the scope of the review, particularly in the context of a recommendation to treat. *'Although this review has not identified any eligible studies, this intervention is likely to be effective from related reviews in this area...'*	Acknowledgement of the limitations of the current state of the evidence and the clear avoidance of directing practice based on ineligible evidence of benefit or harm.
Implications for research	Stating that more research is needed without any description of the nature or scope of such research using the PICO framework.	Using key limitations described from Quality of evidence/Completeness & applicability into priorities for research
		Going beyond simple study design labels (i.e. more RCTs) to include consideration of what aspects of study are important, for example standardised definition of outcomes, better information about the nature of the interventions delivered.
		Drawing on any information already known about ongoing studies.
Differences between protocol and review	Under-reporting of changes to review methods from the protocol including eligibility criteria, changes to the definition of outcomes, promotion or demotion of primary and secondary outcomes or measures of treatment effect.	Acknowledgement of departures from protocol. The comparison of review versions function in Archie can be used to detect any changes between the published protocols and the draft review.