PaPaS Author Guidance: Preparing an Abstract

The abstract is one of the most important sections of any review. It is the first, and often the only, part of a review many people will read. It is crucial that the abstract accurately and succinctly summarises the key information in a review in a clear and accessible way.

While it may seem at face value to be a simple process, writing a clear abstract can be a challenge. This guidance aims to clearly present **what must go into a Cochrane abstract,** and to **suggest some tips** for how to go about this process.

First, you must **follow the MECIR standards closely.** This will ensure your abstract is an excellent summary of your review. We have provided these guidelines from page 7 of this document but they can also be found in the right hand panel in RevMan. **Please follow these guidelines.**

In addition, the editorial unit at PaPaS has developed the following list of **hints and tips** that we have found useful in our efforts to produce high quality abstracts. **Following these guidelines will reduce editorial feedback on your review and make the process quicker.**

We also provide a good practice example on page 4.

General

1. The proposed word limit for Cochrane abstracts is 700 words. It can be difficult to write within those limits from the beginning, particularly for complex reviews with multiple interventions, outcomes, or comparisons.

2. Start by writing the abstract to meet the MECIR standards and then consider what can be edited to meet the word limit. If there is a clear need to exceed the word limit then the word limit can be flexible (up to 1000).

3. Consider following the structure of recently published PaPaS abstracts as a template for presentation. These can be found here. This will ensure consistency between all our reviews.

4. Use the Summary of Findings table(s) as a guide, and to ensure that abstract and Summary of Findings consistently report the same key outcomes/comparisons.

Abstract results

5. Use paragraphs to separate topics (for example paragraph 1 - describe searches and search results, paragraph 2 - include a summary of the risk of bias assessments, paragraph 3 - the results for the primary outcome etc.).

6. If there is more than one type/class of intervention, consider separating the results section by intervention type using subheadings.

7. **Outcomes:** Be clear in describing your outcomes. For example, if the outcome is *pain*, clearly define what the parameter of pain is and how it is measured (e.g., *our primary outcome was at least 50% pain intensity reduction at 12 weeks or longer, assessed using a 0-10 visual analogue scale, 0 = no pain*).

8. Results should be presented for all primary and secondary outcomes even if that means saying that there were no results available. Note that you probably need to give a statistical outcome with comparison (X intervention compared with Y comparator) (RR or RD, for instance, with 95% Confidence Intervals), some measure of magnitude (NNT or equivalent, with 95% Confidence Intervals), the number of studies and participants, GRADE and reasons for grading.

9. Ensure that the results regarding adverse events are clearly represented. If there are no data for adverse events, please state this.

10. **Statistics:** Standardised mean differences (SMD) are difficult to interpret because they are essentially unit-less. Consider if it is possible to estimate what that SMD might mean on a relevant scale (for guidance see the Cochrane Handbook section 12.6).

11. Weighted mean differences (WMDs) must have units clearly reported (and preferably an explanation – which direction is better, what is the clinically important difference?)

12. Avoid referring to statistical significance. Instead the focus should be on the magnitude and precision of the estimated effect and its likely clinical importance (this is true of all sections of the review). Instead of saying 'no (statistically) significant difference', it is preferable to report 'no evidence of a difference'.

13. **Direction of benefit**: Be clear in describing whether results favour the intervention or not (e.g., *X drug was beneficial at reducing pain intensity in people with Y condition*).

14. Report the comparison for all reported results. If intervention A reduced pain intensity, what did it reduce it compared to, and when?

15. **GRADE:** Results reporting should also clearly report the quality of the evidence/ level of uncertainty (GRADE assessment) for all key outcomes for all relevant comparisons.

16. **Interpreting findings:** Be careful when there are no data. Statements that interventions are ineffective are incorrect in this circumstance. Absence of evidence **is not** evidence of absence, so usually it is more accurate to state that you did not find evidence for a benefit of the intervention.

17. If there is low quality of evidence, cautious language (e.g., 'may') should be used (see Table 1 below from the Cochrane Consumers and Communication guidance).

Table 1: How to decide on standard statements to describe the results

Level (quality) of evidence	Important benefit or harm	Less important benefit or harm	No important benefit/harm or null effect
High	improves*	improves slightly	little or no difference in [outcome]
Moderate	probably improves	probably improves slightly	probably little or no difference in [outcome]
Low	may improve	may improve slightly	may have little or no difference in [outcome]**
Very low	We are uncertain whether [intervention] improves [outcome]***		
No events or rare events	Use comments in SoF table in a plainer language or summarise the results		
No studies	No studies were found that looked at [outcome]		

*** Substitute the appropriate verb for 'improves' throughout the table, depending on the results: for example, 'increases', 'reduces', 'leads to', 'prevents'**
**** This can also be worded as 'may lead to similar [outcome]'**
***** There is a debate about whether results which are rated as 'very low quality' should present numbers or not. Both approaches are currently used.**

Abstract Conclusions

18. Conclusions in the abstract should match those in the main text of the review. Do not introduce any new concepts or interpretations in the abstract.

19. Cross-check that the presented data match those found in the Summary of Findings tables and in the main text of the results section.

Cochrane Pain, Palliative and Supportive Care

Example: Botulinum toxins for the prevention of migraine in adults[i]

Abstract

Background

Migraine occurs in around 15% of adults and is ranked as the seventh most disabling disease amongst all diseases globally. In spite of the best acute treatments and prophylactic medication, many people suffer prolonged and frequent attacks which have a major impact on their quality of life. Chronic migraine is defined as 15 or more days of headache per month, at least eight of those days being migraine. People with episodic migraine have fewer than 15 headache days per month. Botulinum toxin type A has been licensed in some countries for chronic migraine treatment, due to the results of just two trials.

Objectives

To assess the effects of botulinum toxins versus placebo or active treatment for the prevention or reduction in frequency of chronic or episodic migraine in adults.

Objectives are identical to those in the body of the review.

Search methods

We identified relevant clinical trials through electronic searches of Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE & MEDLINE in Process, Embase, clinicaltrials.gov and World Health Organisation International clinical trials registry (from date of inception to December 2017 for each). We examined reference lists of included trials and relevant review articles and carried out citation searches on key publications. We sent correspondence to major manufacturers of botulinum toxin products.

Includes dates of the search, & databases and trial registries

Selection criteria

Randomised, double-blind, controlled trials of botulinum toxin (any sero-type) injections into the head and neck for prophylaxis of chronic or episodic migraine in adults. Eligible comparators were placebo, alternative prophylactic agent or different dose of botulinum toxin.

Includes comparators

Data collection and analysis

Two review authors independently selected studies and extracted data. For continuous outcomes we used mean change data when available. For dichotomous data we calculated risk ratios (RRs). We used data from the 12 week follow up time-point after the final round of treatment. We assessed the evidence using GRADE and created two 'Summary of findings' tables.

GRADE is mentioned

Main results

We found 90 articles describing 28 unique trials (4190 participants) which were eligible for inclusion in this review. The longest treatment duration was three rounds of injections with three months between treatments, so we could not analyse long term treatment safety and efficacy. Many studies failed to provide adequate details to allow critical appraisal of their methods. We judged most studies (21 out of 28) as high risk of bias for size (fewer than 50 participants per trial arm).

Summary of findings presented in first paragraph; studies (n), participants (n).

Comment made about risk of bias

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Botulinum toxin was compared with placebo in 23 trials. For our primary outcome, reduction in number of migraine days per month, in the chronic migraine population, the result was -3.1 days (95% CI -4.7 to -1.4, low quality evidence) in favour of botulinum toxin treatment from four trials of 1497 participants. This was reduced to -2 days (95% CI -2.8 to -1.1, two trials, 1384 participants; moderate quality of evidence) when we removed small trials to take into account potential small study bias. A single trial of people with episodic migraine (N = 418) showed no significant between group difference for this outcome measure (P = 0.49).

Comparison is clear.

Primary and secondary outcomes included, with GRADE judgements

Secondary efficacy measures for this comparison were inconsistent. We saw a reduction in number of headache days per month of -1.9 days (95% CI -2.7 to -1.0, 2 trials, N = 1384, high quality evidence) in favour of botulinum toxin treatment but data for number of migraine attacks from six trials of both chronic and episodic migraine participants (N = 2004) showed no significant between group difference (P = 0.30, low quality evidence). A reduction in severity of migraine, rated during clinical visits, on a 10 cm visual analogue scale (VAS) of 3.3 cm (95% CI -4.2 to -2.5, very low quality evidence) in favour of botulinum toxin treatment came from just four small trials (N = 209); better reporting of this outcome measure from the additional eight trials who recorded it may have improved our confidence in the pooled estimate. Global assessment measures and quality of life measures were poorly reported and it was not possible to carry out statistical analysis of these outcome measures. Analysis of adverse event data showed an increase in the relative risk with treatment with botulinum toxin over placebo 30% (RR 1.3, 95% CI 1.1 to 1.5, moderate quality evidence). For every 100 participants 60 experienced an adverse event in the botulinum toxin group compared with 47 in the placebo group.

Comparisons with alternative oral prophylactic medications were studied in three trials. Meta-analyses were not possible for number of migraine days, number of headache days or number of migraine attacks due to insufficient data, but individually trials reported no significant differences between groups for a variety of efficacy measures. The global impression of disease measured using Migraine Disability Assessment (MIDAS) scores were reported from two trials which showed no statistically significant difference between groups. Compared with oral treatments, botulinum toxin showed no significant between group difference in the risk of experiencing an adverse event (2 trials , N = 114, very low quality evidence). The relative risk reduction (RRR) for withdrawing from botulinum toxin due to adverse events compared with the alternative prophylactic agent was 72% (P = 0.02, 2 trials, N = 119).

Adverse events reported

There were insufficient data available for the comparison of different doses.

Lack of available data is clearly stated

The quality of the evidence assessed using GRADE methods was varied but mostly very low; the primary outcome measure was low and very low quality evidence for the placebo and active control comparisons respectively. Small trial size, high risk of bias and unexplained heterogeneity were common reasons for downgrading the quality of the evidence.

GRADE judgement summary included

Authors' conclusions

Conclusions do not overstate the findings of the review.

In chronic migraine, botulinum toxin type A shows a 2 day improvement in number of migraine days per month compared with placebo treatment. Adverse events were experienced by 60/100 participants in the treated group compared with 47/100 in the placebo group, all were non-serious. We did not identify any evidence to support or refute the use of botulinum toxin in episodic migraine. The proportion of eligible trials contributing data to each meta-analysis was low due to poor reporting. Better reporting of outcome measures in published trials would provide more robust meta-analyses from which to draw conclusions.

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Pain, Palliative and Supportive Care

Abstract MECIR Standards

Cochrane has developed a comprehensive list of Methodological Expectations of Cochrane Intervention Reviews (the MECIR standards). This is the best place to start when considering what should be included in an abstract (for reviews and updates). The current MECIR standards for abstracts (http://community.cochrane.org/mecir-manual) are listed below.

	Standard	**Rationale and elaboration**	**Resources**
R3	*Writing the Abstract*	***Mandatory***	
	Prepare a structured Abstract to provide a succinct summary of the review. In the interests of brevity it is highly desirable for authors to provide an Abstract of less than 700 words, and it should be no more than 1000 words in length.	Abstracts are a prominent, publicly accessible summary of the review that need to stand alone. They should convey key information about the review question and its findings, and be informative to readers.	
R4	*Abstract, Background*	***Mandatory***	
	Summarize the rationale and context of the review.		See *Handbook* 11.8
R5	*Abstract, Objectives*	***Mandatory***	
	State the main objective(s), preferably in a single concise sentence.	The objective(s) should be expressed in terms that relate to the population(s), intervention comparison(s) and, where appropriate, outcomes of interest.	See *Handbook* 11.8
R6	*Abstract, Search Methods*	***Mandatory***	
	Provide the date of the last search from which records were evaluated and that any studies identified were incorporated into	Abstracts should aim to give readers brief, but key, information about the comprehensiveness of the search and the currency of the information summarized by the review.	

	the review, and an indication of the databases and other sources searched.	The Abstract must include the month and year of the set of searches up to which the conclusions of the review are valid. This date should reflect the date of the most recent set of searches from which all records have been screened for relevance and any studies meeting the eligibility criteria have been fully incorporated into the review (studies may be awaiting classification if, for example, the review authors are awaiting translation or clarification from authors or sponsors). Abstracts do not need to report on recent repeat or 'catch-up' searches whose results have not been fully incorporated into the review. However, discretion should be applied if such searches identify a large body of evidence, the absence of which may affect the reliability of the conclusions. The amount of information regarding the search should be indicative of the process rather than provide specific details. In the interests of brevity certain details regarding the overall process may need to be moved to the full text of the review. Example: "CENTRAL, MEDLINE, Embase, five other databases and three trials registers were searched on [date] together with reference checking, citation searching and contact with study authors to identify additional studies".	
R7	*Abstract, Selection criteria*	***Mandatory***	
	Summarize eligibility criteria of the review, including information on study design, population and comparison.	Any extensions to eligibility criteria to address adverse effects, economic issues or qualitative research should be mentioned.	

R8	*Abstract, Data collection and analysis*	***Mandatory***	
	Summarize any noteworthy methods for selecting studies, collecting data, evaluating risk of bias and synthesizing findings. For many reviews it may be sufficient to state "We used standard methodological procedures expected by Cochrane."	This section of the Abstract should indicate the rigour of the methods that underpin the results reported subsequently in the Abstract. It does not need to replicate the detailed description of the methods given in the main text of the review. Details of how many people were involved in the screening process and collection of information about any included studies are not necessary in the Abstract. Key statistical methods may be given if not clear from the results that follow. The Abstract should prioritize the disclosure of non-standard approaches. For example, rather than disclosing all domains applied in the assessment of bias, notable variations on the standard approach should be given, such as use of non-standard tools.	
R9	*Abstract, Main results: number of studies and participants*	***Mandatory***	
	Report the number of included studies and participants.	The total number of included studies should be stated. It might be appropriate to provide numbers of studies and participants for specific comparisons and main outcomes if the amount of evidence differs substantially from the total. Numbers of participants *analysed* should generally be presented in preference to numbers *recruited* (e.g. randomized); it is important to be clear which numbers are being reported. For some types of data there may be preferable alternatives to the number of participants (e.g. person-years of follow-up, number of limbs).	

R10	*Abstract, Main results: study characteristics*	***Highly desirable***	
	Provide a brief description of key characteristics that will determine the applicability of the body of evidence (e.g. age, severity of condition, setting, study duration).	Summarizing the study characteristics will provide readers of the Abstract with important information about the applicability of the included studies. This is particularly important if the included studies reflect a subgroup of those eligible for inclusion in the review, for example, if the review intended to address the effects of interventions across all age groups, but included studies that only recruited adolescents.	
R11	*Abstract, Main results: bias assessment*	***Mandatory***	
	Provide a comment on the findings of the bias assessment.	The ‘ Risk of bias’ assessments are a key finding and form a fundamental part of the strength of the conclusions drawn in the review. If risks of bias differ substantially for different comparisons and outcomes, this should be mentioned.	
R12	*Abstract, Main results: findings*	***Mandatory***	
	Report findings for all important outcomes, irrespective of the strength and direction of the result, and of the availability of data.	Findings should typically include concise information about the size of effect and quality of evidence for the outcome (such as risk of bias, consistency of effect, imprecision, indirectness and publication bias), for example using GRADE. Outcomes reported in the Abstract should not be selected solely on the basis of the findings. In general, the same outcomes in the Abstract should be presented in the Plain language summary and ‘Summary of findings’ tables. If no studies measured the outcome, *then a comment should be made to that effect.*	Incorporating GRADE in Cochrane Reviews.

R13	*Abstract, Main results: adverse effects*	***Mandatory***	
	Ensure that any findings related to adverse effects are reported. If adverse effects data were sought, but availability of data was limited, this should be reported.	The Abstract of the review should aim to reflect a balanced summary of the benefits and harms of the intervention.	See *Handbook* 11.8
R14	*Abstract, Main results: format of numerical results*	***Mandatory***	
	Present summaries of statistical analyses in the same way as they are reported in the review and in a standard way, ensuring that readers will understand the direction of benefit and the measurement scale used, and that confidence intervals are included where appropriate.	The standard format for reporting the results of statistical analysis includes an indication of the summary measure, point estimate and confidence interval, e.g. odds ratio 0.75 (95% confidence interval 0.62 to 0.89).	
R15	*Abstract, Main results: interpretability of findings*	***Highly desirable***	
	Ensure that key findings are interpretable, or are re-expressed in an interpretable way. For instance, they might be re-expressed in absolute terms (e.g. assumed and corresponding risks, NNTBs, group means), and outcomes combined with a standardized scale (e.g. standardized mean difference) might be re-expressed in units that are more naturally understood.	Absolute effects provide a useful illustration of the likely impact of intervention, and are usually easier to understand than relative effects. Units expressed on a standardized scale reflect the effect estimate as the number of standard deviations. This is not intuitive to many readers who may be more familiar with specific scales. Any re-expressed findings must have been presented in the same way in the main text of the review (see previous standard).	
R16	*Abstract, Authors' conclusions*	***Mandatory***	
	State key conclusions drawn.	Authors' conclusions may include both implications for practice and implications for research. Care must be taken to	See *Handbook* 12.7.4

		avoid interpreting lack of evidence of effect as evidence of lack of effect. Recommendations for practice should be avoided.	See *Handbook* 11.8
R17	*Completeness of main review text*	***Mandatory***	
	Ensure that all findings reported in the Abstract and Plain language summary, including re-expressions of meta-analysis results, also appear in the main text of the review.		See *Handbook* 11.8, 11.9 Cochrane Training resource: Common errors - inconsistency & inaccuracy
R18	*Consistency of summary versions of the review*	***Mandatory***	
	Ensure that reporting of objectives, important outcomes, results, caveats and conclusions is consistent across the main text, the Abstract, the Plain language summary and the 'Summary of findings' table (if included).	Summary versions of the review should be written on the assumption that they are likely to be read in isolation from the rest of the review.	Cochrane Training resource: Common errors - inconsistency & inaccuracy

[i] Herd CP, Tomlinson CL, Rick C, Scotton WJ, Edwards J, Ives N, Clarke CE, Sinclair A. Botulinum toxins for the prevention of migraine in adults. Cochrane Database of Systematic Reviews 2018, Issue 6. Art. No.: CD011616. DOI: 10.1002/14651858.CD011616.pub2