**Title that succinctly summarises the review question: a systematic review and meta-analysis**

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**Funding**

There was no source of funding

**Conflict of interest statement**

All authors declare that they have no conflicts of interest

**Data availability**

Many journals require that you state whether your data is available on request (including data collection forms, extracted data, analyses (including code)).

[Corresponding author name (& post-nominals)]

[Corresponding author affiliation]

[Date of submission]

[Name]

Editor-in-chief

[Journal]

[Journal correspondence address]

Dear Dr [Name],

Thank you for considering our manuscript entitled [title of manuscript] for publication in [Journal name].

In our systematic review [+/- meta-analysis] we investigated whether [Population] showed any difference in [Outcome] following [Intervention] compared to [Controls]. We found that there [was/was no] significant difference in [Outcome] and that [meaning for future clinical practice or research]

I can confirm that this manuscript is the original work of the authors, and the final version has been agreed by all authors. This manuscript is not submitted elsewhere.

We hope you agree that our study will be of interest to your readership. We look forward to hearing from you.

[Signature]

[name of Corresponding author]

**Abstract**

**Background**

* This sentence is about what the disease/situation is and why it’s important.
* This sentence describes what is *unknown*.
* This sentence is the aim of the current systematic review.

**Methods**

* A systematic review and meta-analysis was undertaken in order to investigate [describe PICO-based research question].
* State the registration number (i.e. with PROSPERO)
* State the inclusion/exclusion criteria, the search sources and the date of the last search.
* State the methods used for risk of bias and quality assessments.
* State how you synthesised the data (meta-analysis +/- narrative) and how you measured effects (e.g. Risk Ratio and 95% confidence intervals for quantitative analysis).

**Results**

* There were [insert total number] of studies included, with [number] of patients. The average age was [mean age] and N (%) were male.
* Add further descriptors here (and add risk of bias / quality assessments if relevant).
* Report the main outcomes. If you used meta-analysis, report the summary estimate with 95% confidence interval and *p*-value.

**Conclusions**

* Summarise the main finding in one sentence.
* Another sentence for implications; state what this means for current practice, and/or what further work is warranted/justified.

**Introduction**

*What is the disease/condition/problem you are writing about and why is it important?*

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| --- |
| [Insert Disease] affects N people per year and causes Y [REF]. |

*What is the known about this disease/condition/problem and the intervention already*

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| --- |
| Write 2-3 sentences about what is already known [REF].  This part sets you up to then declare what evidence is missing that you will be filling in. |

*Why is it important to do this review*

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| Write one sentence about how further evidence is required in the current topic (that must then lead on to the aims of this study).  Make sure to mention any previous systematic reviews that have already been done, and why your one is needed. |

*Research question and objectives of the current study*

|  |
| --- |
| Explicitly state the research question in the context of the PICO.  State the objectives (how you sought to answer this question) |

**Methods (suggested subheadings below)**

**Study design and registration**

* A systematic review (+/- meta-analysis) was undertaken and reported in accordance with PRISMA guidelines [REF].
* Prior to data collection, the review was registered with PROSPERO (reference number 000000000) and the protocol is available at: link or ref.

**Search strategy**

* Specify all the study characteristic for eligibility in the review (including study design, settings and period of follow up).
* Include language restrictions and whether you are searching ‘grey’ literature, with justifications for any restrictions.
* Specify search terms and strategies with terms linked to the PICO statement, and all sources searched (e.g. PubMed, Goole Scholar etc).
* State whether registries or individuals were contacted for material.
* State that you hand-searched reference lists of included and potential studies of interest for further included studies.
* Consider including an example of your search in supplementary material.

**Study selection**

* Say how many researchers searched through studies at each stage of the search, and how disagreements were settled.
* This should sound systematic, with screening of titles and abstracts, followed by screening of full texts until a final list was obtained.
* What software was used and how.

**Data collection**

* State how many researchers collected data, and how disagreements were settled.
* Report whether you needed to contact study authors for data, and how.
* Describe the software used (and any automation, if applicable).
* State clearly what data were recorded (in categories). This will include data regarding studies and data regarding patients. NB once you have written the Results, look at this section again and make sure it matches up perfectly.
* Describe how you dealt with missing data.

**Outcomes of interest**

* The primary outcome of interest was [insert primary outcome, which must match the PICO statement]. State whether this is categorical (e.g. binary) or continuous.
* The secondary outcomes included [list the secondary outcomes here]

**Risk of bias assessment**

* State how many researchers did the risk of bias assessment, and how disagreements were settled.
* State the tool and version that was used to asses risk of bias [REF]. If you have adapted the tool, then mention that here. Link for some tools: https://www.riskofbias.info/
* List the domains of importance in the tool you have used, and how these were assessed.

**Study quality assessment**

Similar to above, but for quality of evidence. Try using the GRADE system: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC428525/>

**Data analysis**

* Specify what effect measure you used for each outcome (e.g. odds ratio, risk ratio, mean difference); justify the choice of measure based on the interpretation of the data, and which techniques were used (e.g Mantel-Haenszel, inverse-variance)
* Describe how you identified heterogeneity (e.g. visual inspection of results or formal statistical test such as *I2*)
* Justify whether using fixed effects or random effects
* Describe how missing data were handled.
* Explain how you chose the studies for each outcomes analysis.
* Describe any subgroup analyses that you are about to report in the Results.
* Describe the statistical analysis software package and version [REF]. If you are doing meta-analysis, RevMan is quite good for this: https://training.cochrane.org/online-learning/core-software/revman
* Describe which types of tables and figures you are about to report in the Results

**Results**

**Study selection**

* Describe the flow of studies throughout your search from screening through to final included studies.
* Figure 1 should be here, and it should be your PRISMA flow diagram.
* If you think it adds value, you can mention some of the studies that were not included and why.

**Figure 1. PRISMA Flow diagram**

Find the template here:<http://www.prisma-statement.org/PRISMAStatement/FlowDiagram>

**Study characteristics**

First present the study characteristics, with the aid of a table (This should be Table 1). Include year, first author, location, type of study, interventions, follow up periods etc. Everything that is relevant about the studies you included. Don’t duplicate the table in the text but point out interesting things (like “all 26 included studies were from the USA”; and “there was only one RCT, and the remainder were observational cohort studies”).

**Patient characteristics**

Next you need to describe the patients in the included studies, along with a table (Table 2). Summarise these as if the patients belong to one big study (rather than individual studies). Include things like age, gender, disease, outcomes – whatever works for your PICO. Again, mention the in interesting things in the text (e.g. “99% of patients were female”; or “Three studies excluded patients with diabetes, and one excluded elderly patients”).

**Risk of bias assessments**

Here you need to describe the overall risk of bias in the studies and present a table with the assessments. Use one of the tools here:<https://www.riskofbias.info/>

This is either Table 3 or a supplementary material table. If you can, provide justification for your assessments in quotation marks in the relevant boxes.

**Quality of evidence**

Here you need to describe the overall quality of evidence in the studies and present a table with the assessments. This is either a Table in the main text or a supplementary material table. The GRADE system is widely used for this:<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC428525/>

**Outcomes**

* Now report each outcomes analysis and describe the risk of bias in the group of studies that you are presenting. Use your forest plots here as figures if you have done meta-analysis. In the main text present the overall effects, with 95% confidence intervals. This section should mirror the data analysis section of Methods.
* Report all the sensitivity analyses and subgroup analyses as well.
* If you were unable to do meta-analysis, and are instead presenting narrative synthesis, you still need to combine the relevant studies together as if they are one big study. This is much neater than just regurgitating the individual results for each of the included studies.

**Discussion**

*Paragraph 1: The main findings*

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| The first paragraph should first be a summary of the findings, and then put into context of the evidence deficit you highlighted in the Introduction. Have you filled the gap in evidence as you wanted to? |

*Paragraph 2-3: How do your results compare to the literature?*

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| --- |
| Compare your findings to the rest of the literature; in particular other systematic reviews, current guidelines, and any remaining gaps in the literature. Don’t go overboard with this. It is not a dissertation! Just stay focussed on your findings and where they ‘fit’ in the literature. |

*Paragraph 4: Limitations (insert a subtitle as below)*

**Limitations (or “Strengths and limitations”)**

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| --- |
| First list the limitations in the evidence in the review; was it all observational evidence? Was the risk of bias high or the quality low? Then list the limitations in your own review. Could you have missed some studies? Did you find some studies that had no full texts? Could some of the studies be overlapping each other? Were you unable to perform meta-analysis? |

*Paragraph 4: ‘So what?’ (conclusion or final paragraph of discussion, depending on journal style)*

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| This is a paragraph that wraps up what you found, what is means for current clinical practice, what is still unanswered, and what studies might be done in the future. |

**Acknowledgments**

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| This is often here but may need to go on the title page if it is anonymous peer-review.  Thank everyone who helped with your study but wasn’t eligible for authorship. Make sure they know you are acknowledging them because this is a requirement before their name is in print! |

**References**

These should all be checked so that the format is the one the journal requires.

All references need to be cited in the text in the order they appear.

Format examples from BMJ (these will vary according to journal):

***Journal article***

Koziol-Mclain J, Brand D, Morgan D, et al. Measuring injury risk factors: question reliability in a statewide sample. *Inj Prev* 2000;6:148–50.

***Abstract/supplement***

Roxburgh J, Cooke RA, Deverall P, et al. Haemodynamic function of the carbomedics bileaflet prosthesis [abstract]. *Br Heart J* 1995;73(Suppl 2):P37.

***Preprints***

Rostami A, Sepidarkish M, Leeflang M, et al. First snap-shot meta-analysis to estimate the prevalence of serum antibodies to SARS-CoV-2 in humans. MedRxiv 20185017 [Preprint]. September 02, 2020 [cited 2020 Sep 20] <https://doi.org/10.1101/2020.08.31.20185017>. [*More information about preprints >>*](https://authors.bmj.com/policies/preprints/)

***Electronic citations***

Websites are referenced with their URL and access date, and as much other information as is available. Access date is important as websites can be updated and URLs change. The “date accessed” can be later than the acceptance date of the paper, and it can be just the month accessed.

***Electronic journal articles***

Morse SS. Factors in the emergency of infectious diseases. *Emerg Infect Dis* 1995 Jan-Mar;1(1). www.cdc.gov/nciod/EID/vol1no1/morse.htm (accessed 5 Jun 1998).

***Electronic letters***

Bloggs J. Title of letter. *Journal name* Online [eLetter] Date of publication. url eg: Krishnamoorthy KM, Dash PK. Novel approach to transseptal puncture. *Heart* Online [eLetter] 18 September 2001. <http://heart.bmj.com/cgi/eletters/86/5/e11#EL1>

***Book***

Howland J. Preventing Automobile Injury: New Findings From Evaluative Research. Dover, MA: Auburn House Publishing Company 1988:163–96.

***Chapter in a book***

Nagin D. General deterrence: a review of the empirical evidence. In: Blumstein A, Cohen J, Nagin D, eds. Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates. Washington, DC: National Academy of Sciences 1978:95–139.

***Legal material***

Toxic substances Contro Act: Hearing on S776 Before the Subcommittee of the Environment of the Senate Comm. on Commerce, 94th Congress 1st September (1975).

***Law references***

The two main series of law reports, Weekly Law Reports (WLR) and All England Law Reports (All ER) have three volumes a year e.g. Robertson v Post Office [1974] 1 WLR 1176