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Systematic review reporting guide

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Systematic reviews summarize the state of knowledge about a topic. They clarify both what is known and what needs further study and are used to stay up-to-date, to inform the development of advisory statements and clinical practice guidelines and to identify priorities for future research. They are typically 2,000-2,500 words in length - excluding the abstract, tables and references.

The *Canada Communicable Disease Report* (CCDR) endorses the widely-accepted reporting guideline, the Preferred Reporting Items of Systematic reviews and Meta-Analyses (PRISMA) (1). This guide was initially developed for health care interventions and has now been adapted for other uses (2, 3, 4).

Table 1 provides the PRISMA checklist. **Figure 1** illustrates a flow diagram that identifies how the initial number of studies identified during a literature search was pared down to the studies for review.

There are some additional considerations for systematic reviews on infectious disease topics. These include the need to consider differences across studies in laboratory methods used for the identification of infectious diseases, the presence or degree of antibiotic resistance and how case definitions were used to interpret laboratory results. Generic names are used to identify antibiotics or vaccines; brand names may be noted in brackets upon first use.

As with all submissions, check CCDR's Information for authors (published in January every year with the first issue of each new volume) for general manuscript preparation and submission requirements.

Table 1: PRISMA Checklist for systematic reviews

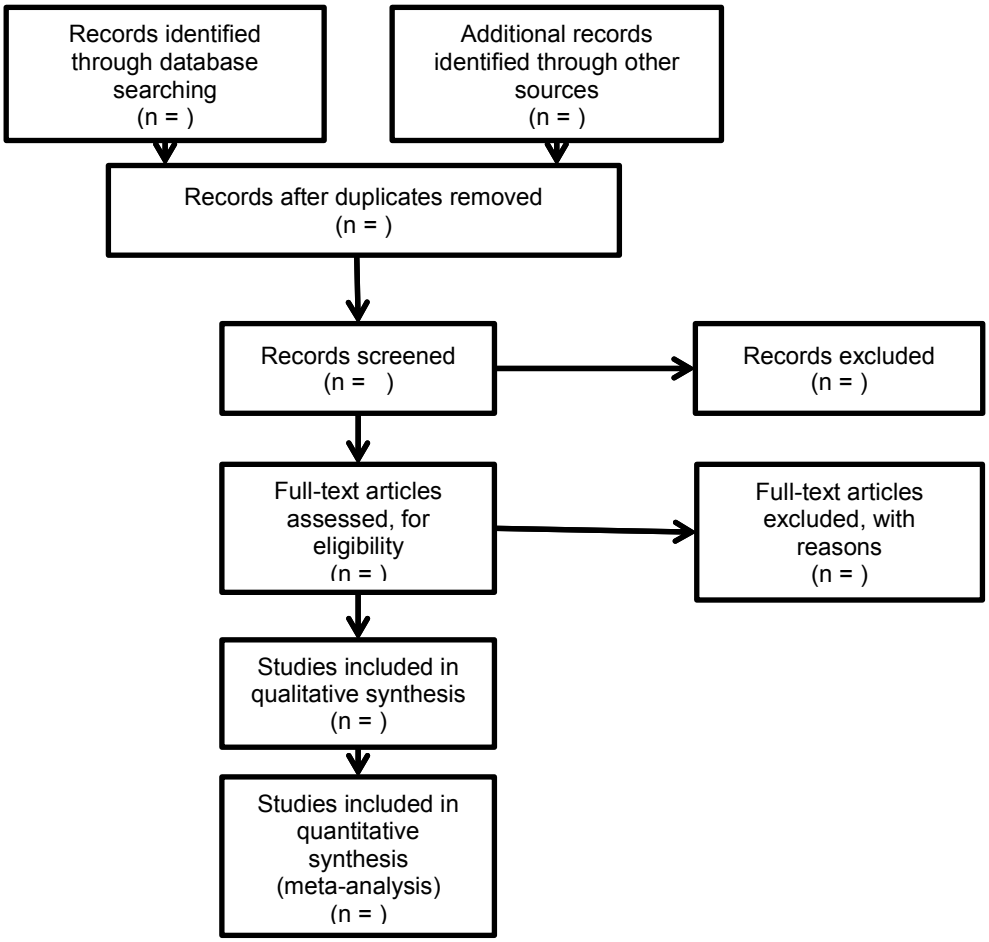
Reporting item	N°[1]	Description
Title		
Title	1	Identify the report as a systematic review, meta-analysis or both.
Abstract		
Structured summary	2	Provide a structured abstract including the following subheadings: Background; Objectives; Data sources; Study selection; Synthesis; Conclusions and, when applicable, systematic review registration number.[2]
Introduction		
Rationale	3	Describe the rationale for the review in the context of what is already known.
Objectives	4	Provide an explicit statement of questions being addressed with reference to Participants, Interventions, Comparisons, Outcomes and Study design (PICOS).
Methods		
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., website address) and, if available, provide registration information including registration number.
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.

Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.
Study selection	9	State the process for selecting studies (e.g., screening, eligibility, included in systematic review and, if applicable, included in the meta-analysis).
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level) and how this information is to be used in any data synthesis.
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I2) for each meta-analysis.
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression) and if done, indicate which were pre-specified.
Results		
Study selection	17	Provide numbers of studies screened, assessed for eligibility and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: simple summary data for each intervention group and effect estimates and confidence intervals, ideally with a forest plot.
Synthesis of results	21	Present the main results of the review. If meta-analyses are done, include for each, confidence intervals and measures of consistency.[3]
Risk of bias across studies	22	Present the results of any assessment of risk of bias across studies (see Item 15).
Additional analysis	23	Provide the results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).
Discussion		
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users and policy makers).
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias) and at review-level (e.g., incomplete retrieval of identified research, reporting bias).

Conclusions	26	Provide a general interpretation of the results in the context of other evidence and implications for future research.
Funding		
Funding	27	Describe the sources of funding for the systematic review and other support (e.g., supply of data) and role of funders for the systematic review.

[1] N^{O}: Number
[2] Description of the abstract has been modified for the Canada Communicable Disease Report (CCDR).
[3] Reflects correction as noted on: http://www.prisma-statement.org/statement.htm.

Figure 1: PRISMA 2009 flow diagram



References

(1) Moher D, Liberati A, Tetzlaff J, Altman DG, for the PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. BMJ. 2009;339:332-336.

(2) Welch V, Petticrew M, Tugwell P, Moher D, O'Neill J, Waters E, White H, PRISMA-Equity Bellagio Group. PRISMA-equity 2012 extension: Reporting guidelines for systematic reviews with a focus on health equity. PLoS Med. 2012;9(10):e1001333.

(3) Beller EM, Glasziou PP, Altman DG, Hopewell S, Bastian H, Chalmers I, Gøtzsche PC, Lasserson T, Tovey D, PRISMA for Abstracts Group. PRISMA for abstracts: Reporting systematic reviews in journal and conference abstracts. PLoS Med. 2013;10(4):e1001419.

(4) Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart LA. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. Syst Rev. 2015;4(1):1.