Reporting guidelines for systematic reviews

Iveta Simera

The EQUATOR Network workshop
31 October 2013, WHO, Geneva

Different types of reviews

- Narrative (overviews)
- Systematic reviews
  - Meta-analysis
  - Different types of studies:
    - Experimental (RCTs)
    - Observational
    - Qualitative research
      - Determines the choice of a reporting guideline

Key characteristics of SR

- Focused well defined research question
- Clearly stated title and objectives
- Comprehensive strategy for identification of all relevant studies (published & unpublished)
- Explicit (and justified) predefined inclusion & exclusion criteria
- Critical appraisal of studies
- Clear analysis of the results of eligible studies
  - Quantitative (meta-analysis)
  - Qualitative
- Structured report

Reporting guideline - EQUATOR

Search for reporting guidelines

Browse for reporting guidelines by selecting one or more of these drop-downs:

Study type: Systematic reviews/Me... and Clinical area: Please select... and Section of report: Please select...

Or search with free text

Search Reporting Guidelines

Start again | Help

Displaying 14 reporting guidelines found.

Key reporting guidelines, shaded green, are displayed first. Show the most recently added records first.

1. PRISMA-Equity 2012 Extension: Reporting Guidelines for Systematic Reviews with a Focus on Health Equity
2. PRISMA for Abstracts: Reporting Systematic Reviews in Journal and Conference Abstracts
3. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement
4. Finding What Works in Health Care: Standards for Systematic Reviews. Chapter 5 – Standards for Reporting Systematic Reviews
5. Systematic Reviews. CRD's guidance for undertaking reviews in health care
6. The HuGENet™ HuGE Review Handbook, version 1.0. Guidelines for systematic review and meta-analysis of gene disease association studies
7. Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0
8. Collaborative Approach to Meta Analysis and Review of Animal Data from Experimental Studies

Key reporting guidelines

CONSORT	Full Record | Checklist | Flow Diagram
STROBE	Full Record | Checklist
PRISMA	Full Record | Checklist | Flow Diagram
STARD	Full Record | Checklist | Flow Diagram
COREQ	Full Record
ENTREQ	Full Record
SQUIRE	Full Record | Checklist
CHEERS	Full Record | Checklist
CARE	Full Record | Checklist
SAMPL	Full Record

Translations

Some reporting guidelines are also available in languages other than English. Find out more in our Translations section.

About the Library

For information about Library scope and content, identification of reporting guidelines and inclusion/exclusion criteria please visit About the Library.

Visit our Help page for information about searching for reporting guidelines and for general information about using our website.

Our full catalogue of reporting guidelines is available to download as a PDF: Reporting Guideline Catalogue August 2013.

Library index

- Search for reporting guidelines
- Reporting guidelines under development
- Translations of reporting guidelines
- Guidance on scientific writing
- Guidance developed by editorial groups

Examples of guidelines

Meta-analysis of Observational Studies in Epidemiology
A Proposal for Reporting

Donna F. Stroup, PhD, MSc; Jesse A. Berlin, ScD; Sally C. Morton, PhD; Ingram Olkin, PhD; G. David Williamson, PhD; Drummond Rennie, MD; David Moher, MSc; Betsy J. Becker, PhD; Theresa Ann Sipe, PhD; Stephen B. Thacker, MD, MSc; for the Meta-analysis Of Observational Studies in Epidemiology (MOOSE) Group

JAMA. 2000;283(15):2008-2012. doi:10.1001/jama.283.15.2008. Text Size: A A A

Tong *et al. BMC Medical Research Methodology* 2012, 12:181
http://www.biomedcentral.com/1471-2288/12/181

BMC Medical Research Methodology

CORRESPONDENCE Open Access

Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ

Allison Tong[1,2*†], Kate Flemming[3†], Elizabeth McInnes[4†], Sandy Oliver[5] and Jonathan Craig[1,2]

Abstract

Background: The syntheses of multiple qualitative studies can pull together data across different contexts, generate new theoretical or conceptual models, identify research gaps, and provide evidence for the development, implementation and evaluation of health interventions. This study aims to develop a framework for reporting the synthesis of qualitative health research.

Methods: We conducted a comprehensive search for guidance and reviews relevant to the synthesis of qualitative research, methodology papers, and published syntheses of qualitative health research in MEDLINE, Embase, CINAHL and relevant organisational websites to May 2011. Initial items were generated inductively from guides to synthesizing qualitative health research. The preliminary checklist was piloted against forty published syntheses of qualitative research, purposively selected to capture a range of year of publication, methods and methodologies, and health topics. We removed items that were duplicated, impractical to assess, and rephrased items for clarity.

Wong *et al. BMC Medicine* 2013, 11:21
http://www.biomedcentral.com/1741-7015/11/21

BMC Medicine

GUIDELINE Open Access

RAMESES publication standards: realist syntheses

Wong *et al. BMC Medicine* 2013, 11:20
http://www.biomedcentral.com/1741-7015/11/20

BMC Medicine

GUIDELINE Open Access

RAMESES publication standards: meta-narrative reviews

Geoff Wong[1*], Trish Greenhalgh[1], Gill Westhorp[2], Jeanette Buckingham[3] and Ray Pawson[4]

Abstract

Background: Meta-narrative review is one of an emerging meth... method systematic review. A meta-narrative review seeks to illu... the contrasting and complementary ways in which researchers ... previous publication standards exist for the reporting of meta-n... developed as part of the RAMESES (Realist And Meta-narrative E...

RESEARCH METHODS & REPORTING

Meta-analysis of individual participant data: rationale, conduct, and reporting

Richard D Riley,[1] Paul C Lambert,[2] Ghada Abo-Zaid[3]

The use of individual participant data instead of aggregate data in meta-analyses has many potential advantages, both statistically and clinically. **Richard D Riley and colleagues** describe the rationale for an individual participant data meta-analysis and outline how to conduct this type of study

PRISMA Statement

- Preferred Reporting Items for Systematic Reviews and Meta-Analyses
- Reporting of systematic reviews and meta-analyses that evaluate healthcare interventions
- Update of QUOROM; Published in 2007
- Consists of a 27 item checklist and a flow diagram
- Includes long explanatory document

PRISMA

TRANSPARENT REPORTING of SYSTEMATIC REVIEWS and META-ANALYSES

Home | News | The PRISMA Statement | History | Endorsing PRISMA

The PRISMA Statement

The aim of the PRISMA Statement is to help authors report a wide array of systematic reviews to assess the benefits and harms of a health care intervention. PRISMA focuses on ways in which authors can ensure the transparent and complete reporting of systematic reviews and meta-analyses.

We have adopted the definitions of systematic review and meta-analysis used by the Cochrane Collaboration [9]. A systematic review is a review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyze data from the studies that are included in the review. Statistical methods (meta-analysis) may or may not be used to analyze and summarize the results of the included studies. Meta-analysis refers to the use of statistical techniques in a systematic review to integrate the results of included studies.

- Download a full-text copy of the PRISMA Statement here
- Download a full-text copy of the PRISMA Statement in Spanish here

The PRISMA Statement consists of a checklist and a flow diagram, and is intended to be accompanied by the PRISMA Explanation and Elaboration document.

The PRISMA Checklist

Please note that the published PRISMA checklists contain an error in the wording for Item 21. The item should read: "Present the main results of the review. If meta-analyses are done, include for each, confidence intervals and measures of consistency" in accordance with the text in the Explanation and Elaboration document.

The 27 checklist items pertain to the content of a systematic review and meta-analysis, which include the title, abstract, methods, results, discussion and funding.

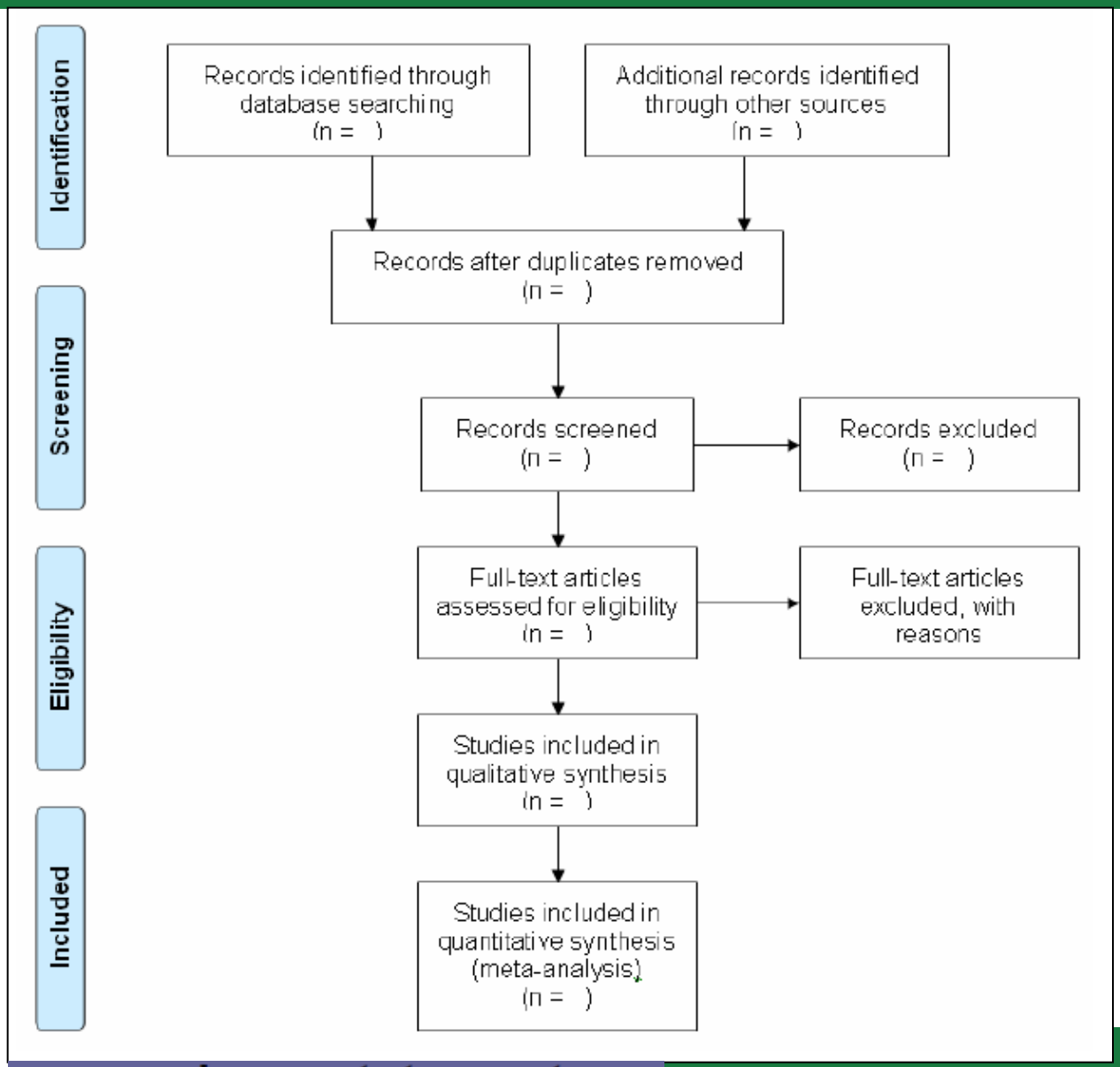
PRISMA 2009 Checklist

Section/topic	#	Checklist item
TITLE		
Title	1	Identify the report as a systematic review, meta-analysis, or both.
ABSTRACT		
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.
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., Web 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 (i.e., 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., I^2) for each meta-analysis.

PRISMA 2009 Checklist (2)

Section/topic	#	Checklist item
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), if done, indicating which were pre-specified.
RESULTS		
Study selection	17	Give 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: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).
Additional analysis	23	Give 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 sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.

PRISMA 2009 Flow diagram



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

www.prisma-statement.org

PRISMA explanation & elaboration paper

- Explanation and rationale for reporting of suggested information (items)
- Examples of good reporting
- Relevant data about how this information is reported presently

Long but recommend to read to avoid basic mistakes in SR reports!

Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gøtzsche P, Ioannidis JPA, Clarke M, Devereaux PJ, Kleijnen J, Moher D, the PRISMA Group. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration.

- PLoS Med 2009 6(7): e1000100
- Annals of Internal Medicine 2009;151:w65-w94
- BMJ 2009; 339:b2700.
- Journal of Clinical Epidemiology 2009; PMID: 19631507

PRISMA extensions (1)

OPEN ACCESS Freely available online

PLOS | MEDICINE

Guidelines and Guidance

PRISMA-Equity 2012 Extension: Reporting Guidelines for Systematic Reviews with a Focus on Health Equity

Vivian Welch[1]*, Mark Petticrew[2], Peter Tugwell[1,3], David Moher[1], Jennifer O'Neill[4], Elizabeth Waters[5], Howard White[6], the PRISMA-Equity Bellagio group[¶]

1 Ottawa Hospital Research Institute, Ottawa, Canada, 2 London School of Hygiene & Tropical Medicine, London, United Kingdom, 3 Department of Medicine, University of Ottawa, Ottawa, Canada, 4 University of Ottawa, Institute of Population Health, Ottawa, Canada, 5 University of Melbourne, McCaughey Centre, Melbourne School of Population Health, Melbourne, Australia, 6 International Initiative for Impact Evaluation (3ie), Washington, D.C., United States of America

Introduction

Health equity and social determinants of health remain high on international and national agendas. Recently, the report of the World Conference on Social Determinants of Health (October 2011) recognized the need for increased availability of data on inequities in health and resource allocation [1]. The Global Symposium on Health Systems Research in 2010 also considered equity to be of fundamental importance [2]. Despite such global commitment, there continues to be a dearth of evidence on the effects of policies on health equity [3].

Health equity is defined as the absence of avoidable and unfair inequalities in health [4]. The moral judgment of fairness involves an ethical debate about freedom, capabilities, and opportunities with consideration of context [5]. Rigorous scientific measurement and evaluation of the effects of policies on health equity is necessary to meet the goals of the World Health Organization Commission on Social Determinants of Health (WHO CSDH). Studies of the average effects of interventions, which control for confounding across individual and population-level characteristics, hide their impact on health equity. Using average effects to guide policy may even result in increases in health inequalities despite good intentions, as shown by an assessment of the impacts of country-level efforts in child health [6]. Well-designed, scientific

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Testing the PRISMA-Equity 2012 Reporting Guideline: the Perspectives of Systematic Review Authors

Belinda J. Burford[1*], Vivian Welch[2,3], Elizabeth Waters[1], Peter Tugwell[2], David Moher[4], Jennifer O'Neill[2], Tracey Koehlmoos[5], Mark Petticrew[6]

1 Cochrane Public Health Group and Jack Brockhoff Child Health and Wellbeing Program, Melbourne School of Population and Global Health, the University of Melbourne, Melbourne, Victoria, Australia, 2 Ottawa Hospital Research Institute, University of Ottawa, Ottawa, Canada, 3 Elizabeth Bruyere Research Institute, University of Ottawa, Ottawa, Canada, 4 Clinical Epidemiology Program, Ottawa Hospital Research Institute, Ottawa, Canada, Department of Epidemiology & Community Medicine, University of Ottawa, Ottawa, Canada, 5 Centre for Equity & Health Systems, International Centre for Diarrhoeal Disease Research (ICDDRB), Dhaka, Bangladesh, Dhaka, 6 Department of Social and Environmental Health Research, London School of Hygiene and Tropical Medicine, London, United Kingdom

Abstract

Reporting guidelines can be used to encourage standardised and comprehensive reporting of health research. In light of the global commitment to health equity, we have previously developed and published a reporting guideline for equity-focused systematic reviews (PRISMA-E 2012). The objectives of this study were to explore the utility of the equity extension items included in PRISMA-E 2012 from a systematic review author perspective, including facilitators and barriers to its use. This will assist in designing dissemination and knowledge translation strategies. We conducted a survey of systematic review authors to expose them to the new items in PRISMA-E 2012, establish the extent to which they had historically addressed those items in their own reviews, and gather feedback on the usefulness of the new items. Data were analysed using Microsoft Excel 2008 and Stata (version 11.2 for Mac). Of 151 respondents completing the survey, 18.5% (95% CI: 12.7% to 25.7%) had not heard of the PRISMA statement before, although 83.4% (95% CI: 77.5% to 89.3%) indicated that they plan to use PRISMA-E 2012 in the future, depending on the focus of their review. Most (68.9%; 95% CI: 60.8% to 76.2%) thought that using PRISMA-E 2012 would lead them to conduct their reviews differently. Important facilitators to using PRISMA-E 2012 identified by respondents were journal endorsement and incorporation of the elements of the guideline into systematic review software. Barriers identified were lack of time, word limits and the availability of equity data in primary research. This study has been the first to 'road-test' the new PRISMA-E 2012 reporting guideline and the findings are encouraging. They confirm the acceptability and potential utility of the guideline to assist review authors in reporting on equity in their reviews. The uptake and impact of PRISMA-E 2012 over time on design, conduct and reporting of primary research and systematic reviews should continue to be examined.

PRISMA extensions (2)

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Guidelines and Guidance

PRISMA for Abstracts: Reporting Systematic Reviews in Journal and Conference Abstracts

Elaine M. Beller[1]*, Paul P. Glasziou[1], Douglas G. Altman[2], Sally Hopewell[2,7], Hilda Bastian[3], Iain Chalmers[4], Peter C. Gøtzsche[5], Toby Lasserson[6], David Tovey[6], for the PRISMA for Abstracts Group[¶]

1 Centre for Research in Evidence-Based Practice, Bond University, Gold Coast, Australia, 2 Centre for Statistics in Medicine, University of Oxford, Oxford, United Kingdom, 3 National Center for Biotechnology Information, National Library of Medicine, Washington DC, United States of America, 4 James Lind Initiative, Oxford, United Kingdom, 5 Nordic Cochrane Centre, Copenhagen, Denmark, 6 Cochrane Editorial Unit, London, United Kingdom, 7 INSERM, Paris, France

Introduction

When readers screen the title of an article, and parts of its abstract, they try to determine whether or not to devote their scarce time to reading on. Some may be screening literature to identify the articles that are systematic reviews. Thus, the main function of an abstract of a systematic review should be to signal its systematic methodology. For most readers, the findings described in the abstract will also be key, either as the sole part of an article that will be read, or to determine whether reading the full text is required. Abstracts of systematic reviews are very important, as some readers cannot access the full paper, such that abstracts may be the only option for gleaning research results. This can be because of a pay wall, low Internet download capacity, or if the full article is only available in a language not understood by the reader. Readers in countries where English is not the primary language may have access to an abstract translated to their own language, but not to a translated full text. Conversely, a large proportion of systematic reviews are published by health technology agencies in non-English speaking countries [1], many of which provide only the abstract in English.

The predominance of the abstract in biomedical literature use is clear. Within queries to PubMed, most readers look only at titles; only half of searches result in any clicks on content [2]. The average number of titles clicked on to obtain the abstract or full text, even after retrieving several searches in a row, is less than five. Of those clicks, abstracts will be represented about 2.5 times more give more complete information, and facilitate the finding of information by the reader.

Despite the adoption of structured abstracts, studies of the quality of abstracts of clinical trials have demonstrated that improvement is needed [8,9], and a study of systematic review abstracts demonstrated that the direction of the effect or association could not be determined in one in four abstracts from the general and specialty medical literature [10]. The PRISMA Statement [11] gives some guidance for abstracts, closely linked to commonly used headings in structured abstracts. After observing that the quality of abstracts of systematic reviews is still poor [10], we decided to develop an extension to the PRISMA Statement to provide guidance on writing abstracts for systematic reviews. We also wanted to provide a checklist enabling the items suggested to fit into any set of headings mandated by a journal or conference submission.

Methods for Development of the Checklist

We established a steering committee (EMB, PPG, SH, DGA). In collaboration with the steering group of the PRISMA Statement [11], we used the Statement to inform our selection of potential items for the checklist of essential items that authors should consider when reporting the primary results of a systematic review in a journal or conference abstract. The committee generated a list of items from PRISMA and other sources of guidance and information on structured abstracts and abstract composition and reporting [7,11,12], which were found using a thorough search of the literature.

PRISMA extensions (3)

Table 1. The PRISMA for Abstracts Checklist.

TITLE	
1. Title:	Identify the report as a systematic review, meta-analysis, or both.
BACKGROUND	
2. Objectives:	The research question including components such as participants, interventions, comparators, and outcomes.
METHODS	
3. Eligibility criteria:	Study and report characteristics used as criteria for inclusion.
4. Information sources:	Key databases searched and search dates.
5. Risk of bias:	Methods of assessing risk of bias.
RESULTS	
6. Included studies:	Number and type of included studies and participants and relevant characteristics of studies.
7. Synthesis of results:	Results for main outcomes (benefits and harms), preferably indicating the number of studies and participants for each. If meta-analysis was done, include summary measures and confidence intervals.
8. Description of the effect:	Direction of the effect (i.e., which group is favoured) and size of the effect in terms meaningful to clinicians and patients.
DISCUSSION	
9. Strengths and Limitations of evidence:	Brief summary of strengths and limitations of evidence (e.g., inconsistency, imprecision, indirectness, or risk of bias, other supporting or conflicting evidence).
10. Interpretation:	General interpretation of the results and important implications.
OTHER	
11. Funding:	Primary source of funding for the review.
12. Registration:	Registration number and registry name.

Benefits of using RG

- "Can the use of reporting guidelines make the work of systematic reviewers and guideline developers better?"
  - **Yes**

- Better reporting of primary studies

- Better reporting of systematic reviews