

**Editorial****Reviews of the literature: Expected standards**

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As the scientific literature grows, reviews are increasingly useful ways of summarising vast bodies of evidence or indeed of highlighting evidence gaps that may initiate new research. Increased emphasis on evidence based medicine has fuelled the demand for high quality evidence syntheses. Reviews of the literature can help to keep busy clinicians up to date and to arm policy makers with necessary knowledge for important decisions around patient care.

Due to the demand for reviews, a number of different types of literature review have emerged in recent years. A simple search of the dental literature in Web of Knowledge over the last year alone reveals a plethora of review types including systemic reviews, meta-analyses, critical reviews, narrative reviews, literature reviews, scoping reviews and qualitative systematic reviews. A number of examples from this range have been published in *Community Dental Health* in recent years including a systematic review of oral health related quality of life in cleft lip and/or palate patients (Antonarakis *et al.*, 2013) and a literature review of methods for assessing caries in epidemiological surveys (Agbaje *et al.*, 2012). In this edition alone, two reviews are featured, a narrative review of dentinal hypersensitivity (Cartwright, 2014) and a review of the literature on dietary advice provided by dental practitioners (Franki *et al.*, 2013).

The wide range of review types and ambiguity associated with some definitions may occasionally mean authors may risk mislabelling their review. Systematic reviews are perhaps the most clearly defined. The Cochrane Collaboration has named five key components of a systematic review:

1. clear set of objectives and eligibility criteria;
2. explicit and reproducible method;
3. a systematic search that could reasonably be assumed to identify all possible relevant records;
4. quality assessment of the included studies using an appropriate tool such as Risk of Bias and use of this assessment in interpretation of findings;
5. systematic presentation and synthesis of the characteristics and results of all included studies (Higgins and Green, 2011).

A meta-analysis may be a feature of a systematic review but it is not a necessary component. A meta-analysis constitutes a statistical synthesis of outcome data of included studies. Due to their robust methods, meta-analyses and systematic reviews are considered to provide the highest level of evidence in determining the efficacy of an intervention (Evans, 2003) and may be especially useful to clinicians and policy makers.

Systematic review methodology has been developed over the last 20 years primarily by the Cochrane Collaboration. Cochrane reviews are considered to be the 'gold standard' in systematic reviews. Cochrane reviews are precipitated by protocols, this helps to reduce reviewer bias, increase transparency and include a stage of peer review of the proposed review. Further attempts are made control for reviewer bias by independently duplicating key aspects of the review process such as title and abstract screening, data extraction and quality assessment. Cochrane reviews are known for often only including randomised controlled trials (RCTs) and excluding all other study designs; however inclusion criteria relating to study design is dependant on the subject area and research question. For example a review looking at the association of dental fluorosis and water fluoridation would include data from observational studies, as an RCT would not be an appropriate means of answering this question.

Systematic review methodology can incorporate observational studies and the Cochrane Collaboration has acknowledged this in the development of their non-randomised Risk of Bias tool. The tool focuses on issues of confounding (controlled for in RCTs through randomisation procedures).

However, systematic reviews are not always the most appropriate method to answer every review question. Systematic review questions are necessarily focused, often comparing a single intervention to a control group. Scoping reviews on the other hand deal with much broader questions. This is because the aim is to describe the extent of research in the area of interest rather than the state of it. Consequently, many do not include a quality assessment of the included studies. Scoping reviews may be of particular use for focusing a systematic review question but may also represent a research end in their own right.

Owing to it being a rather new type of review, there does not currently exist any strict guidance on the methods of scoping reviews. Levac and colleagues (2010) however have provided a helpful series of recommendations for the conduct of scoping reviews, drawing on pre-existing frameworks.

Other types of review have grown out of particular demands. Rapid reviews for example have been developed to provide answers in a much shorter space of time. There is however little agreement about what constitutes a rapid review, either in terms of how long it takes to complete or how it differs from other types of review (Harker and Kleijnen, 2012). Presumably there may be a trade off between

time and quality which could increase the possibility of bias in the findings of the review. Rapid reviews for example frequently only include English language studies because transcription can be very time consuming. Depending on the subject area, this could lead to the systematic exclusion of evidence. Reviews of qualitative or mixed methods studies have also become more popular and address questions that traditional review methods would be unable to.

However, reviews are only a valuable resource if they are methodologically robust and for this to be accurately judged, they must be comprehensively reported. This need, together with interest in strengthening standards of reporting generally has led to the development of reporting standards for reviews. Many academic journals insist upon such standards. Cochrane reviews are expected to conform to the standards set out by MECIR (methodological expectations of Cochrane Intervention Reviews; Chandler *et al.*, 2012). The PRISMA (preferred reporting standards for systematic reviews and meta-analyses; Liberati *et al.*, 2009) statement developed in 2009 updated the QUOROM (quality of reporting of meta-analyses) from 1999 and lays out appropriate reporting standards for other systematic reviews and meta-analyses. The PRISMA statement is a 27-item checklist which details what elements of the review process are essential components of the write-up ensuring transparency of reporting. Additionally, the statement recommends the inclusion of a flow diagram which illustrates the process of identifying records and screening them in and out of the review.

Reviews and meta-analyses of non-randomised studies should be reported to the standards set out in MOOSE (meta-analysis of observational studies in epidemiology; Stroup *et al.*, 2000). Reporting standards for reviews of qualitative studies is laid out in ENTREQ (enhancing transparency in reporting the synthesis of qualitative research; Tong *et al.*, 2012). There are as yet no reporting guidelines for scoping reviews or for rapid reviews. The Equator network ([www.equator-network.org](http://www.equator-network.org)) is an international 'watchdog' aimed at enhancing reporting of all types of health research and is an invaluable resource for locating and keeping up to date with current reporting guidelines.

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