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Publishing Systematic Reviews in Ophthalmology: New Guidance for Authors

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Systematic reviews are valuable because they collect and critically assess all evidence that fits prespecified criteria to answer a clinical question, which may relate to the cause, diagnosis, prognosis, prevention, or treatment of various diseases and conditions. A systematic review may contain a meta-analysis, which uses statistical methods to combine results from similar but independent studies. Systematic reviews and meta-analyses are proliferating in the literature because of increasing reliance on them for health care practice and policy. In vision research alone, approximately 1000 such publications had been identified as of March 2012, of which approximately 60 were published in *Ophthalmology.*[1] In 2012, this journal received more than 40 systematic review submissions.

However, not all systematic reviews are conducted and reported rigorously. For instance, we have observed application, and possible perpetuation, of inappropriate statistical methods among systematic reviews on glaucoma drugs[2] and deficient methodology in a large proportion of glaucoma and age-related macular degeneration systematic reviews.[3,4] Furthermore, systematic reviews on related or identical topics have been conducted by author teams with no rationale for duplicating the efforts or perhaps unintentionally, leading to "avoidable wasteful research."[2,5]

Ophthalmology has a long history of providing evidence-based clinical information and is committed to ensuring that the systematic reviews it publishes are trustworthy.[6] A member of the editorial board is responsible for managing systematic reviews and we have updated the *Journal's* "Guide for Authors" to include specific instructions for preparing such manuscripts (online Appendix; available at http://aaojournal.org). In developing these guidelines, which also should serve as a useful reference for peer reviewers, we have adhered to several recent standards in conducting and reporting systematic reviews published by well-respected groups and organizations.[7–10] Transparent, accurate, and complete reporting will ultimately help our readers to determine the scientific validity and applicability of a systematic review.

In addition to the specifics outlined in the "Guide for Authors," the following criteria are relevant to the consideration, evaluation, and acceptance of systematic reviews and meta-analyses in *Ophthalmology.* First, authors are expected to identify all existing systematic reviews on related or identical topics within the past several years and justify why a new review is needed (e.g., new evidence that changes the conclusion or limitations in the

previous reviews). A manuscript is unlikely to be considered for publication if the same or a substantially overlapping body of literature is used to reach a similar conclusion as in a previously published systematic review. Authors are encouraged to pursue high-priority topics evaluating patient-centered outcomes where clinical uncertainty exists.

Second, because conducting a comprehensive literature search lays the foundation for a high-quality systematic review, we ask the authors to provide the exact and complete search strategy (or strategies) used for at least 1 database in an appendix with sufficient detail to permit replication by other investigators. Working with a trained informationist, as recommended by the Institute of Medicine, will increase the likelihood of a successful comprehensive search.[7] Peer review will increasingly require the expertise of informationists who have experience in designing and executing searches for systematic reviews.

Third, authors should provide a thoughtful qualitative synthesis by analyzing the nature, strengths, and weaknesses of the body of evidence. Such an analysis helps readers develop a deeper understanding of how an intervention might be working (or not) or whether a true association exists, for whom, and under what circumstances.[7] A qualitative synthesis, not to be confused with assessing the risk of bias of included studies or with synthesis of qualitative data (e.g., data from a focus group discussion), is far richer and more valuable than a factual description of data and tables. We direct authors to Standard 4.2 of the Institute of Medicine's Standards for Systematic Reviews for detailed guidance.[7]

Fourth, authors are expected to follow appropriate reporting guidelines, for example, Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) for systematic reviews of randomized controlled trials and Meta-analysis Of Observational Studies in Epidemiology (MOOSE) for systematic reviews of observational studies.[11,12] A complete list of guidelines for reporting can be found at the Enhancing the QUAlity and Transparency Of health Research (EQUATOR) network's website (http://www.equator-network.org/resource-centre/library-of-health-research-reporting/; accessed August 13, 2013).

Fifth, because the outcomes of medical care increasingly are scrutinized in relation to the costs required to achieve such outcomes, authors should include financial analyses in their investigations whenever possible. Systematic reviews and meta-analyses can be powerful tools to improve the quality and value of health care.

Lastly, we will consider co-publishing Cochrane systematic reviews. In such cases, authors should inform the editorial office in the cover letter accompanying their submission of their intent to co-publish a Cochrane review and explicitly refer to the Cochrane systematic review in the manuscript. It is the authors' responsibility to acquire and submit necessary permissions from the publisher of the corresponding Cochrane systematic review.

The *Journal's* updated guidance relating to systematic reviews aim to encourage authors to investigate important clinical questions that matter to patients, improve the rigor and transparency of such studies, and facilitate the application of proper and standardized methodology. The ultimate goal is to enhance evidence-based practice and improve patient care.[13]

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