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## The IJA System for Systematic Reviews: “The Whys and Hows”

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All of us are recipients of health care, and most of IJA readers also provide health/audiological services. As patients and providers we expect that the service being rendered stands on a solid scientific base. Nowadays, with the expansion of publications and communication channels, we hear a lot about evidence-based practice (EBP) and systematic reviews. These terms have become commonplace, however, evidence being presented to support effectiveness can range from a “success story” based on a single example, to high quality evidence involving formalized testing in carefully conducted experimental designs. Such inconsistency can become an obstacle for *real* evidence-based practice. The International Society of Audiology and this journal have a proud history of supporting evidence-based practice. We therefore felt it was time to express our understanding of the matter, to renew the IJA’s commitment to evidence-based audiology, and to update IJA guidelines to authors. In this editorial, we cover new processes being adopted to help IJA contributing authors in the preparation of systematic reviews, which are a cornerstone of EBP. For a broader review of EBP in audiology readers should consider the text book on this topic by Wong and Hickson (2012).

Systematic reviews, are the most important type of review because they are central to Evidence Based Practice (EBP) (Grant and Booth, 2009; CRD, 2012, Manchikanti, 2008); when possible, systematic reviews can include the meta-analysis of studies as well. The purpose of systematic reviews is to identify, evaluate and summarize the findings of all relevant individual studies using well defined strategies, thereby making the most valid

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As always, as IJA Associate Editors, we look forward to *hearing* from you.

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information on a given topic available to decision-makers. Their appeal is increasing because they have been shown to facilitate decisions when large amounts of information exist and/or variations in methodology make it hard to determine which results are the most reliable. They are used not only in clinical practice but also to inform health policy decisions. When carried out well, they provide reliable estimates about the effects of interventions so that conclusions are defensible. In addition, systematic reviews can also demonstrate where knowledge is lacking which can then be used to guide future research.

Not all reviews qualify as being systematic; there are other types of reviews—for information on this topic see Grant and Booth (2009). Systematic reviews *must* include (Khan et al., 2003; Gough, Thomas and Oliver, 2012);

- a structured, rigorous approach which includes a clearly defined question,
- identification of relevant studies,
- assessment of study quality, and,
- synthesis of evidence through an explicit methodology designed to minimize bias.

It is important to note that henceforth when the manuscript is submitted as a systematic review, IJA editors will expect the submission to meet the requirements listed above. Transparency about the search strategies and choice of material included is not sufficient for naming a review “systematic” as eligibility criteria always involve judgment. The IJA expects contributing authors to use strategies designed to address that potential source of bias in a systematic review (Higgins and Green, 2011). This can be accomplished by performing a quality or risk of bias assessment of the individual studies being reviewed (Khan et al., 2003). In addition, we require that the authors assess the overall quality of the evidence across multiple domains, including risk of bias (study limitations from an internal validity perspective), precision (sample size, effect size), consistency (direction and magnitude of effect), and generalizability (AHRQ, 2002; IOM, 2011). Tools that evaluate quality are usually called “Critical Appraisal Checklists” and there are many available that can help in the evaluation of the risk of bias of included studies and in the assessment of the strength of inferences drawn from them (Higgins and Green, 2011; Kmet, Lee and Cook, 2004; Wong and Hickson, 2012). The selection of a Critical Appraisal Checklist should be based on the topic, scope and context of the review. Different instruments for study quality appraisal have been themselves evaluated, and the reader might find the papers by Crowe and colleagues helpful when selecting such an instrument (Crowe and Sheppard, 2011a, b; Crowe, Sheppard and Campbell, 2011, 2012).

Although reviews of quantitative studies are by far the most common, systematic reviews of qualitative studies can also be undertaken. The Cochrane Handbook includes Chapter 20 on Qualitative Research and this is a good starting point <http://handbook.cochrane.org/>. Critical Appraisal Checklists appropriate for qualitative studies are also available (Lockwood, Munn and Porritt, 2015; Hannes, Lockwood and Pearson, 2010).

The inclusion of a statement regarding the overall quality of the evidence is highly recommended. Authors should examine the approach developed by the Grading of

Recommendations, Assessment, Development and Evaluations (GRADE) Working Group, which is widely seen as the most effective method of linking evidence-quality evaluations to clinical recommendations (<http://clinicalevidence.bmj.com/x/set/static/ebm/learn/665072.html>). Besides the consideration of available knowledge, gaps in findings and areas for further research should also be identified. Whenever possible, authors should link these information to evidence based practice, from the perspective of a clinician.

Guidelines also exist to improve the clarity and uniformity of the reporting of systematic reviews that help not only manuscript development but also its peer-review (Smetana et al., 2012). The IJA now suggests that submissions of systematic reviews be accompanied by a completed Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram checklist (<http://www.prisma-statement.org/>; see updated Instructions for authors on the IJA website <http://www.mc.manuscriptcentral.com/tija>). This checklist, however, offers limited guidance toward planning and conducting a systematic review and meta-analysis. For that, we recommend that authors use the Cochrane's regularly updated, detailed handbook for authors of systematic reviews, available at <http://handbook.cochrane.org>. While developed for authors of Cochrane reviews, the handbook is freely available and has been a helpful resource for other authors of systematic reviews.

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