Assuring the quality of systematic reviews published in toxicology and environmental health journals

A WORKSHOP FOR ACADEMIC EDITORS

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Introductory Matters

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What is a systematic review?

• A systematic review is a research project which tests a hypothesis using pre-existing evidence instead of conducting a novel experiment.

• In environmental health, they are usually aetiological – identifying relationships between environmental exposures and health outcomes.

• Consist of a set of procedures designed to minimise bias in results of the review.
Sources of bias in evidence reviews

- Comes from three sources:
  - limitations in design and conduct of included studies
  - global limitations of the evidence base, e.g. publication bias
  - what the researchers did when summarising the evidence
Six ways in which SRs seek to minimise bias

1. Unambiguous objectives appropriate to investigating the given research question
2. A search methodology which does not miss relevant evidence
3. Inclusion criteria and screening process which does not exclude relevant evidence
4. Critical appraisal of the included studies using a valid risk of bias instrument
5. Employment of appropriate quantitative and qualitative synthesis methods
6. Assessment of confidence in the evidence against a defined set of criteria
Powerful method of increasing importance
• WHO/ILO estimate of global burden of disease from occupational environmental exposures
• WHO Global Air Quality Guidelines
• US EPA IRIS assessments of health outcomes from phthalate exposures
Motivation for the workshop

1. In an interesting position: SRs show great promise for supporting evidence-based decision-making

2. They are difficult to do well, as multi-step projects employing multiple disciplines and challenging analytical approaches – therefore, also challenging to edit

3. Enough – but not too many – being published

4. Enough collective experience of SR in our own field to make sensible choices; good body of experience in other fields to learn from

5. In three days of putting our heads together, we can take a bigger chunk out of the problem much sooner than working separately and incrementally
Tour de Table

• Experienced environmental health SR practitioners
• Researchers who investigate and seek to improve research practices in the biomedical sciences
• Toxicology and environmental health journal editors
Objective

• To exchange knowledge about good practices in scientific publication, and develop an action-plan and road-map toward assuring the quality of systematic reviews published in environmental health and toxicology journals

• Systematic review promises a lot; let’s help deliver it
Planned Outputs

- Workshop report
- Action-plan
- Strategy paper
- Working group?
Workshop rules

• Chatham House - no attribution, safe space
• Be respectful, give each other time to talk, don’t hog the mic
• It’s about the editors
• In brainstorming, don’t worry if an idea isn’t exactly relevant – discussions are in triplicate, it all ends up in the bag
• Just work towards getting 5-6 ideas down for presentation at the end of each breakout
With thanks to the Organising Committee

• Katya Tsaioun (EBTC)
• Matthew Page (Monash University)
• Sally Darney & Windy Boyd (*Environmental Health Perspectives*)
• Elizabeth Radke-Farabaugh (US Environmental Protection Agency)
• Daniele Wikoff (EBTC, ToxStrategies, *Toxicological Sciences*)
And of course

• Our speakers
• Our systematic review practitioners
• Our editors
• And Camila, EBTC’s admin wizard