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

A WORKSHOP FOR ACADEMIC EDITORS

Research Triangle Park, 29-31 May 2019

Introductory Matters

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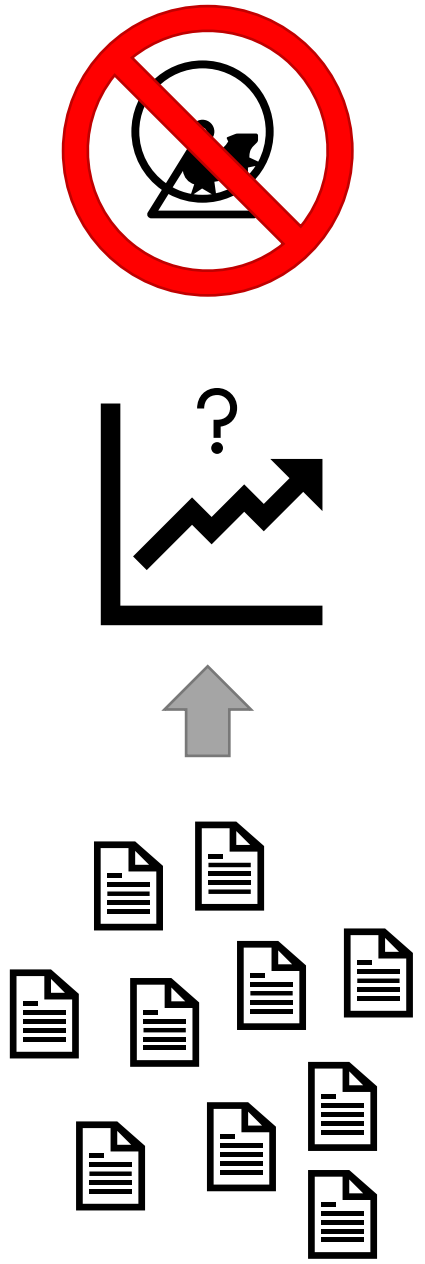
What is a systematic review?

- 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

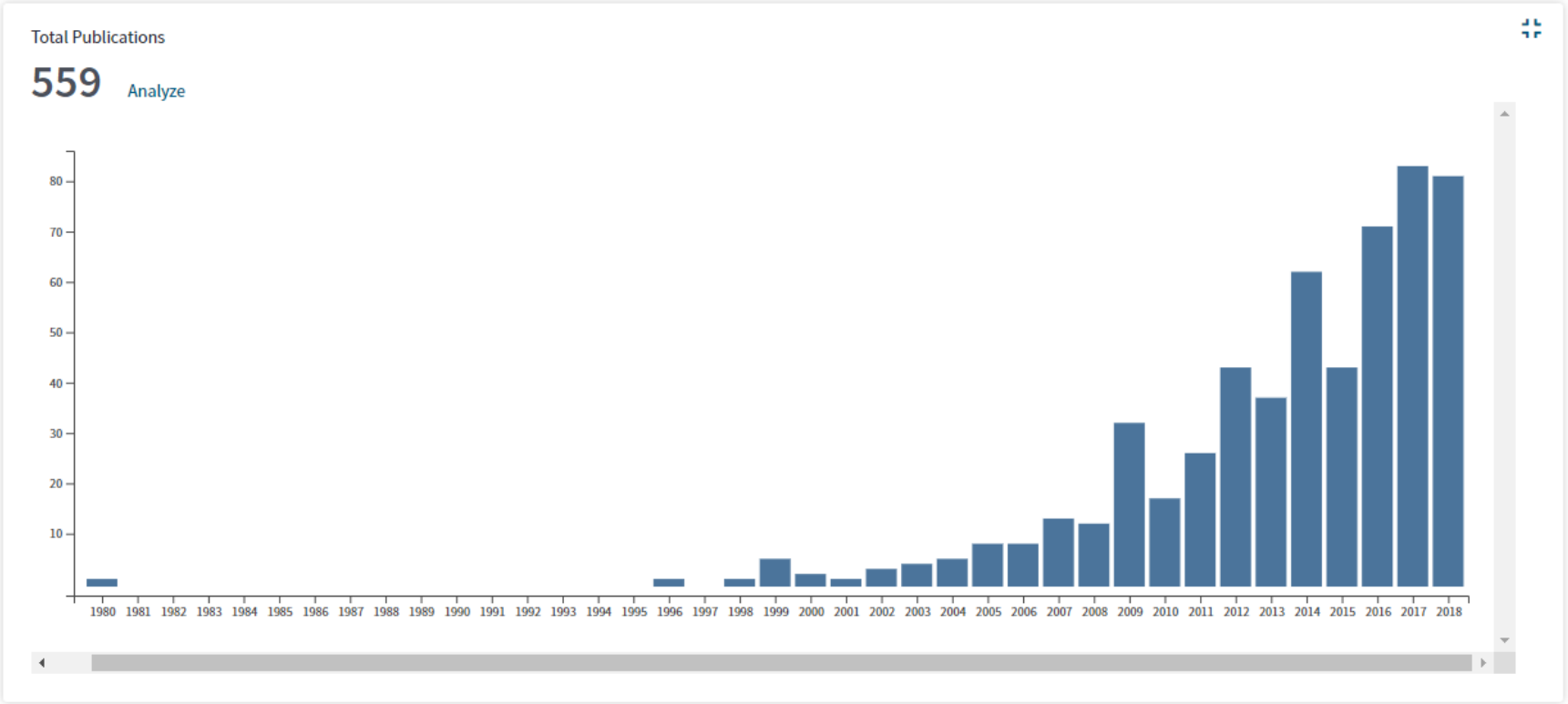


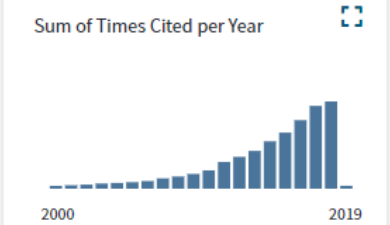
Sources of bias in evidence reviews

- 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





h-index

65

Average citations per item

25.76

Sum of Times Cited

14,401

Without self citations

14,250

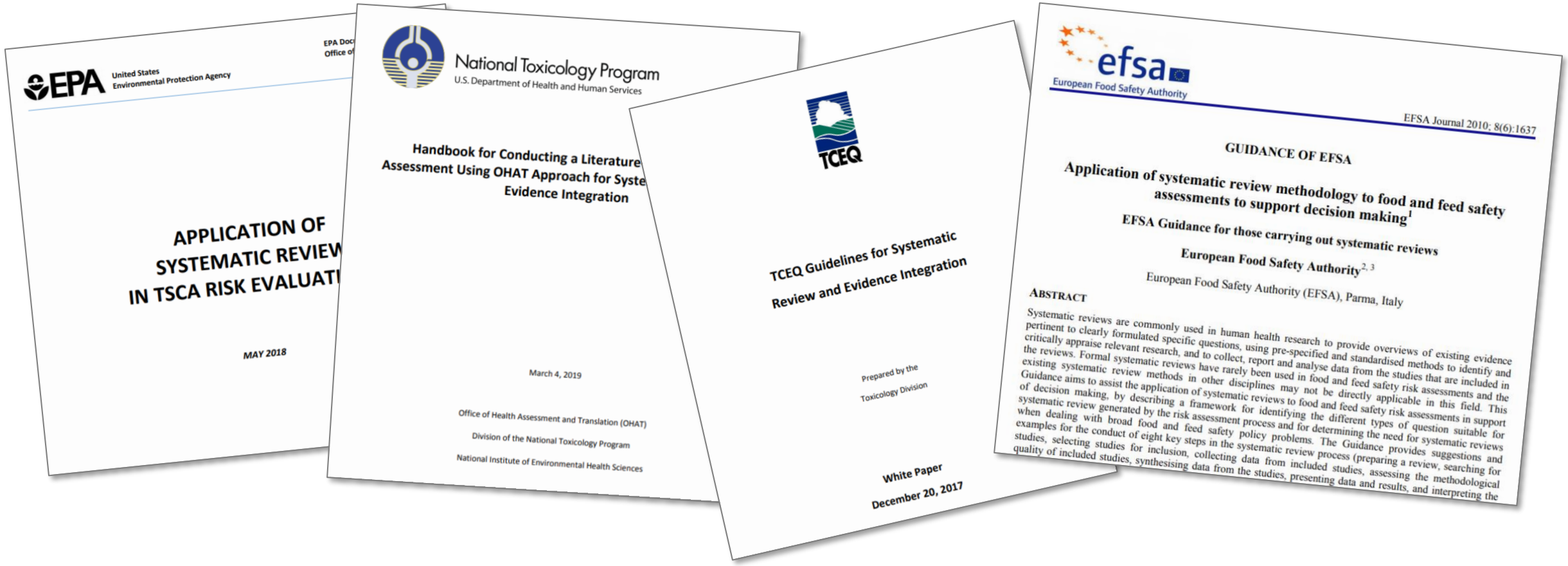
Citing articles

13,271 Analyze

Without self citations

13,172 Analyze

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
- Website for documentation: http://bit.ly/EWS2019

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