
G-I-N Conference 2015
Amsterdam, The Netherlands | 7-10 October 2015
Technologies That Improve Systematic Reviews: Rapid Reviews Lose Their Appeal
A joint project between
Guidelines International Network
Consortium of Dutch G-I-N Members
Sandra Zelman Lewis, PhD

Disclosure of Interests (last 3 years)

Sandra Zelman Lewis, PhD

I certify that, to the best of my knowledge, no aspect of my current personal or professional situation might reasonably be expected to affect significantly my views on the subject on which I am presenting, other than the following:

I am the Chief Guidelines Officer, Doctor Evidence, LLC

President, EBQ Consulting, LLC

I speak publicly on this topic at conferences and other venues

Technologies That Improve Systematic Reviews: Rapid Reviews Lose Their Appeal

Background

Context

Best Practices

Lessons for guideline developers, adapters, implementers, and other users

Background

- ↑ Demand for rapid reviews (RRs):
  - Budget pressures
  - Resource constraints (personnel)
  - Requirements for accelerated timelines
- ↓ Confidence in results:
  - RRs take liberties in their processes
  - Make trade-offs, cut corners
  - No standardized methodology
  - Comprehensiveness compromised
  - Some RRs are narratives only, without analyses
  - Even proposing, ""only the most relevant material (determined subjectively by the reviewer) is extracted and presented."[1]

1. Khangura S, Konnyu K, Cushman R, Grimshaw J, Moher D. Evidence summaries: the evolution of a rapid review approach. *Systematic Reviews.* 2012;1(10):1-9.

Requirements for Good Evidence Reviews

- Systematic
- Objective
- With uncompromised validity
- No interjected biases[2,3]

Researchers advise considering RRs interim guidance until thorough SRs can be performed.[4]

2. Schünemann HJ, Moja L. Reviews: Rapid! Rapid! Rapid! …and systematic. *Systematic Reviews.* 2015;4(4).
3. Hartling L, Guise JM, Kato E, et.al. *EPC Methods: An Exploration of Methods and Context for the Production of Rapid Reviews. Research White Paper (Prepared by the Scientific Resource Center under Contract No. 290-2012-00004-C.) AHRQ Publication No. 15-EHC008-EF.* Rockville, MD. http://www.effectivehealthcare.ahrq.gov/reports/final.cfm.2015.
4. National Collaborating Centre for Methods and Tools. Methods: Synthesis 1. Rapid reviews: Methods and implications. [fact sheet]. Hamilton, ON: National Collaborating Centre for Methods and Tools. http://www.nccmt.ca/pubs/Methods_Synthesis1.pdf.

Today's Context

Technologies provide:

- Efficiencies of time and resources
- Scalable/updatable
- Transparencies of data and methods
- Without compromising:
  - Integrity
  - Quality
  - Comprehensiveness
  - Reliability[3]

Range:

- Fabricated collages of software products
  - Importing and exporting
  - Tools without support
- Sleek integrated solutions for dynamically updatable SRs

3. Hartling L, Guise JM, Kato E, et.al. *EPC Methods: An Exploration of Methods and Context for the Production of Rapid Reviews. Research White Paper (Prepared by the Scientific Resource Center under Contract No. 290-2012-00004-C.) AHRQ Publication No. 15-EHC008-EF.* Rockville, MD. http://www.effectivehealthcare.ahrq.gov/reports/final.cfm.2015.

Today's Best Practices

Digital technologies feature:

- High quality with transparent data and methods
- Time-efficient
- Human-oversight and software-assisted (OCR) data extractions
  - Electronic data capture from tables, graphs, charts (natural language processing more manual from narratives)
  - Near pristine, error-free quality
  - **Digitized data from all primary studies for analyses and ease of updating (only way to keep SRs updatable)**
  - Enriched statistical analytic capabilities
- Integrated functionalities for an end-to-end solution
  - Negates need for imports/exports
  - Eliminates data corruption
- Synonym management, after extraction
  - Combine like terms as appropriate for specific PICO
  - Maintain unique terms as appropriate

Today's Best Practices

Benefits of digitized data:

- Maintain currency as new evidence is published
  - Ease of updating
  - Efficiency: within days
  - Without requiring *de novo* reviews for each update
  - Living guidelines made possible
- Quality assessments
  - Study level
  - By outcome across studies

Outcomes

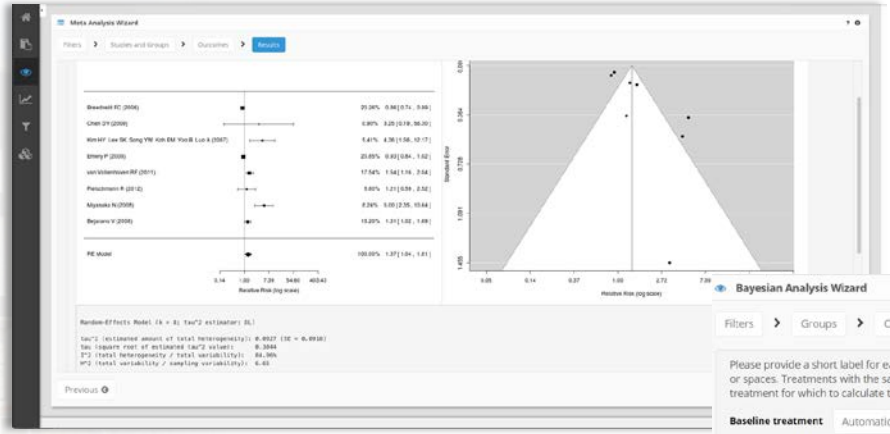
		Methotrexate / Adalimumab (N = 268)	Methotrexate / Placebo (N = 257)	P-Value
ACR, 20	0 yr / 1 yr	196 (73)	162 (63)	0.022
	0 yr / 2 yr	185 (69)	144 (56)	0.002
ACR, 50	0 yr / 1 yr	166 (62)	118 (46)	< 0.001
	0 yr / 2 yr	158 (59)	111 (43)	< 0.001
ACR, 70	0 yr / 1 yr	123 (46)	72 (28)	< 0.001
	0 yr / 2 yr	126 (47)	72 (28)	< 0.001
ACR, 90	0 yr / 1 yr	64 (24)	33 (13)	< 0.001
	0 yr / 2 yr	72 (27)	33 (13)	< 0.001
Adverse Event, Any	0 yr / 2 yr	262 (97.8)	245 (95.3)	
Adverse Event, Severe, PPY		18.5 100 person-years	15.9 100 person-years	
Cancer, PPY		0.4 100 person-years	0.9 100 person-years	
Cancer, Any	0 yr / 2 yr	2 (0.7)	4 (1.6)	
Cancer, Breast	0 yr / 2 yr	0 (0)	1 (0.4)	

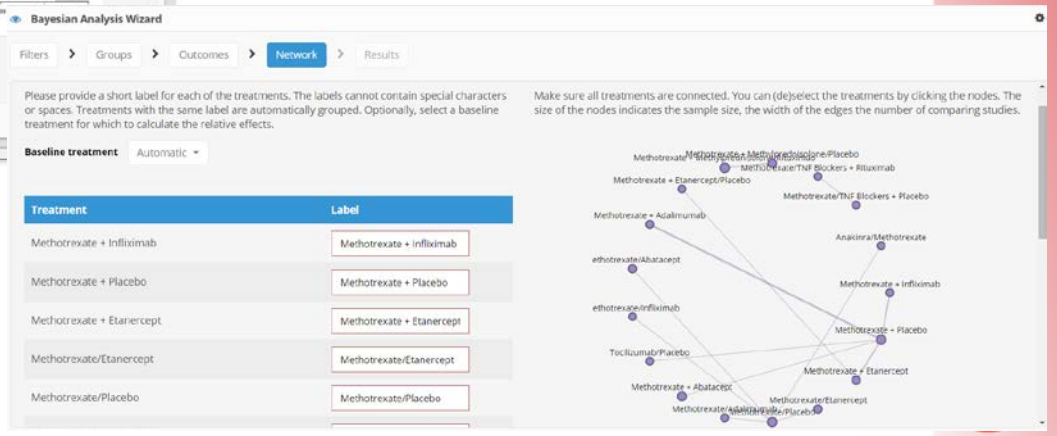
A joint project between

Today's Best Practices

Benefits of digitized data:

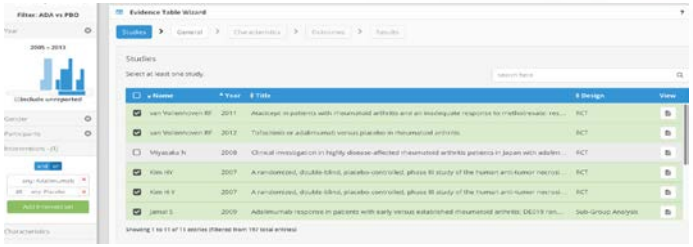
- Facilitate complex state-of-the-art analyses
  - Meta analyses: direct, indirect, Bayesian NMAs
  - Sensitivity analyses
  - Subgroup analyses





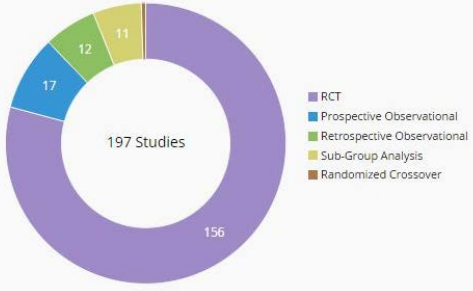
#GIN2015
@GINConference

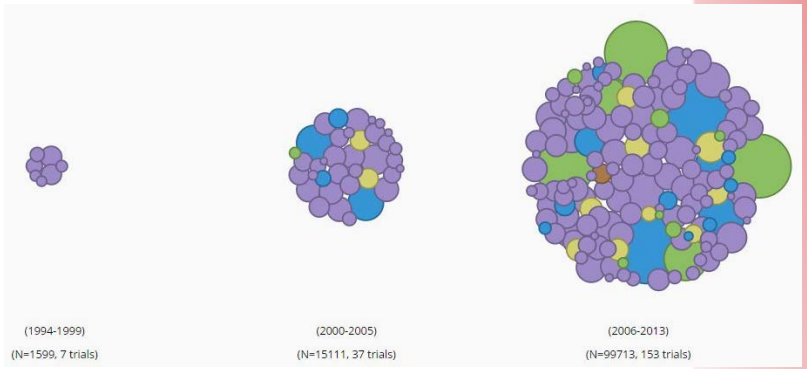
Today's Best Practices



Benefits of digitized data:

- Sophisticated visualizations
  - Evidence tables
  - Frequency reports: characteristics and outcomes across studies
  - Refined image presentations
    - Transform in real time to
    - Display study characteristics by year of publication, PICO elements, or any chosen descriptor





Lessons Learned

To maximize the value and benefits of digital technologies:

- Volunteers workflow changes
  - Traditional approach: Without dedicated staff resources, the review could take 6 months or more.
  - New Technology approach: Use volunteer's expertise more and burden them with the tedious work less
  - Clinical and methods experts collaborating on protocol prep (*eg,* PICOTSS and analyses plans)
  - Post-publication: Volunteers should be COI-approved and ready for updating in case of potential monitored literature alerts

Lessons Learned

To maximize the value and benefits of digital technologies:

- Staffing workflow changes
  - Same volume of staff to coordinate more guidelines
    - Reduced burden, tedious work
    - Time efficiencies move project more quickly
  - Arrange COI-approved panel in advance (maintain for future updates)
  - Anticipate possible literature monitoring alerts

Lessons Learned

To maximize the value and benefits of digital technologies:

- Budget with forethought
  - Anticipate access fees and project-specific costs
    - Variable based on volume of literature, number of studies screened in (in some programs, *eg,* GROWTH, pre-digitized studies provided to members free), and potential need for methodology services)
  - Budget for updates based on literature alerts/preliminary analyses
- Leadership
  - Innovative leaders
    - Knowledgeable about technology solutions, able to discuss
    - Prepared to enter into collaborative arrangements (MOUs) with other guideline-developing organizations

Lessons Learned

Properly configured technology-assisted SRs have

- Maximum rigor
- Reliability
- Accuracy
- Scalability
- But can be completed in a fraction of the time of standard reviews

Therefore, short-cut rapid reviews are no longer necessary.

Allows more time to engage all stakeholders, incorporate qualitative evidence, and formulate recommendations.

With advanced knowledge management, reviews and guidelines can be quickly and easily updated and kept living.

Sandra Zelman Lewis, PhD
slewis@doctorevidence.com

A joint project between

Thank you for your attention!