
Battling Bias: How Librarians Can Help Systematic Reviewers

MICC 2024
Zagreb, Croatia
4th June 2024

Michael Fanning




Programme

1. What is bias?
2. Why is battling bias important?
3. How can librarians help battle bias?
4. What resources are available to them?
 - Guides & Handbooks
 - Repositories of systematic reviews
5. Positioning the librarians' contribution.

1. What is bias?

Definition

Dictionary
Definitions from [Oxford Languages](#) · [Learn more](#)

 **bias**
/ˈbiːəs/

noun

- inclination or prejudice for or against one person or group, especially in a way considered to be unfair.
"there was evidence of **bias against** foreign applicants"

Similar: [prejudice](#) [partiality](#) [partisanship](#) [favouritism](#) [unfairness](#) ▼

- STATISTICS**
a systematic distortion of a statistical result due to a factor not allowed for in its derivation.

verb

- cause to feel or show inclination or prejudice for or against someone or something.
"the search results are biased by the specific queries used"


Similar: [prejudice](#) [influence](#) [colour](#) [sway](#) [weight](#) [predispose](#) [distort](#) ▼

- STATISTICS**
distort (a statistical result); introduce bias into (a method of sampling, measurement, analysis, etc.).

1. What is bias?

Definition

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 **bias**
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2. **STATISTICS**
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verb

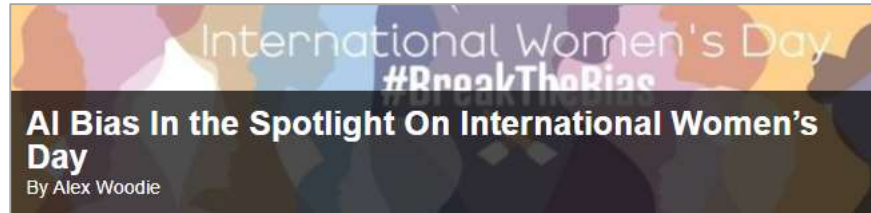
1. cause to feel or show inclination or prejudice for or against someone or something.
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Similar: [prejudice](#) [influence](#) [colour](#) [sway](#) [weight](#) [predispose](#) [distort](#) ▼

2. **STATISTICS**
distort (a statistical result); introduce bias into (a method of sampling, measurement, analysis, etc.).

1. What is bias?

Examples: Generative AI



Generative AI bias may be far worse than we thought. Here's what it'll take to fix it

Opinion By Allisa James published May 8, 2024

AI has a serious bias issue



4 biases that leave under-represented groups out of GenAI-assisted journalism

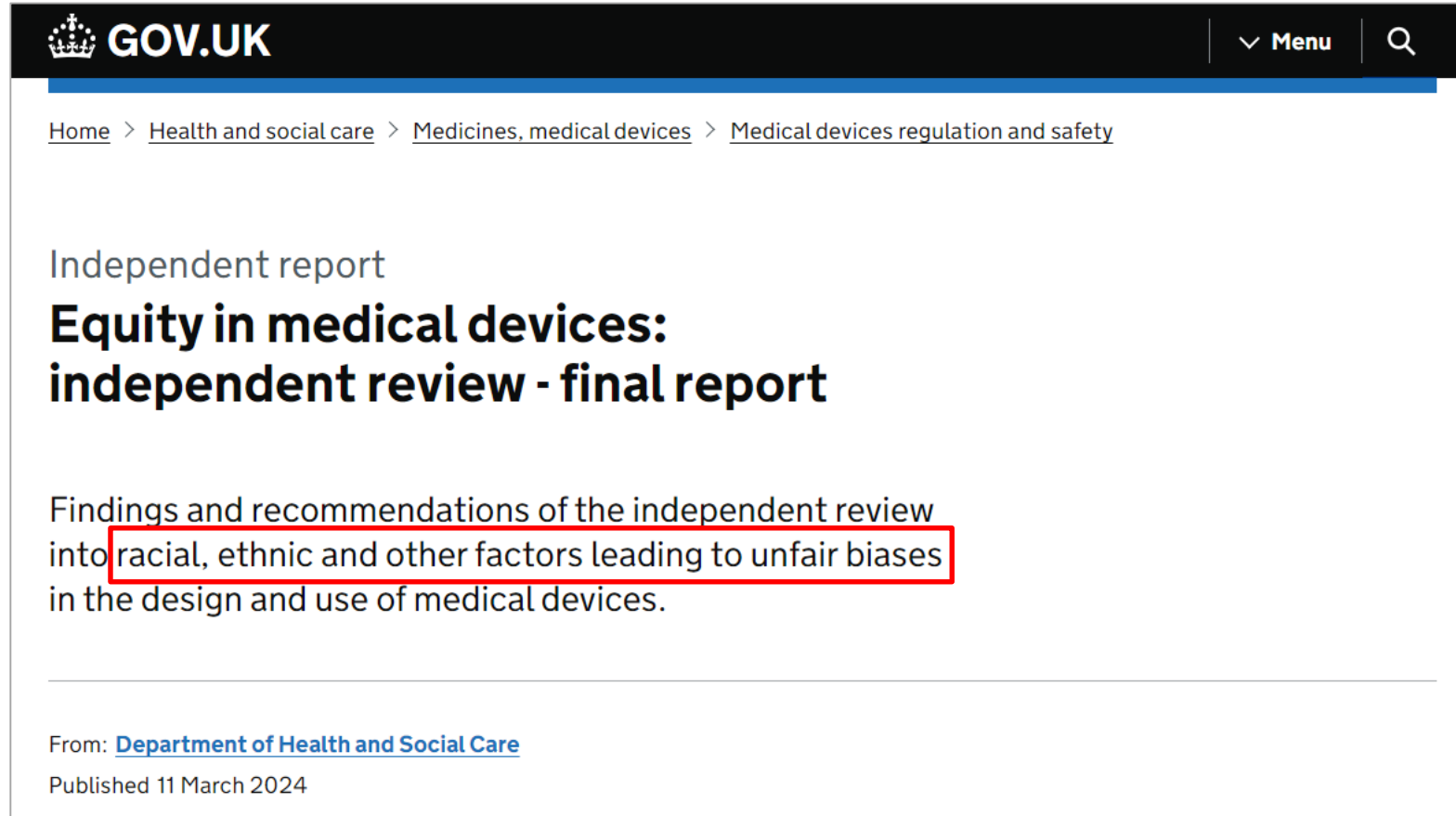
by *Luba Kassova* ·
Feb 26, 2024 in *Diversity and Inclusion*

Tackling Bias, Inequality, Lack of Privacy – New WHO Guidelines on AI Ethics and Governance are Released

Digital Health 19/01/2024 • Zuzanna Stawiska

1. What is bias?

Examples: Medical Devices




The screenshot shows a GOV.UK page with a black header containing the GOV.UK logo, a 'Menu' dropdown, and a search icon. Below the header is a breadcrumb trail: Home > Health and social care > Medicines, medical devices > Medical devices regulation and safety. The main content area features the title 'Independent report' followed by the main heading 'Equity in medical devices: independent review - final report'. Below this is a sub-heading: 'Findings and recommendations of the independent review into racial, ethnic and other factors leading to unfair biases in the design and use of medical devices.' The phrase 'racial, ethnic and other factors leading to unfair biases' is highlighted with a red rectangular box. At the bottom of the page, it states 'From: Department of Health and Social Care' and 'Published 11 March 2024'.

<https://www.gov.uk/government/publications/equity-in-medical-devices-independent-review-final-report>

1. What is bias?

Definition: Statistical View

Dictionary
Definitions from [Oxford Languages](#) · [Learn more](#)

 **bias**
/ˈbiːəs/

noun

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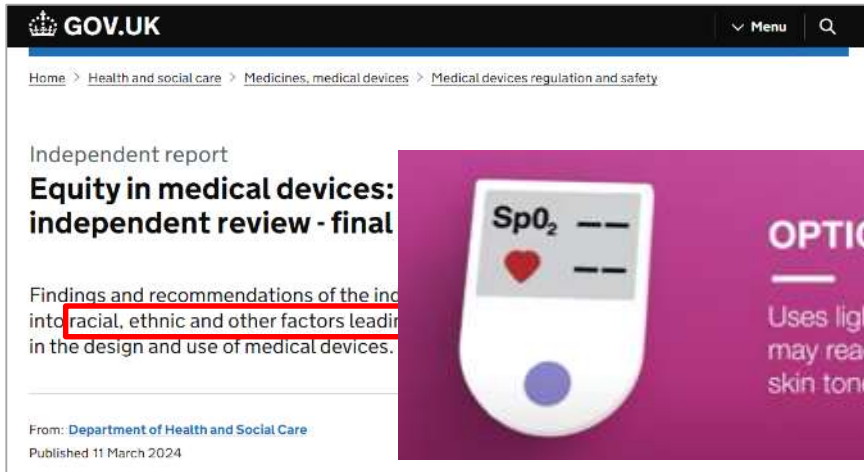
- cause to feel or show inclination or prejudice for or against someone or something.
"the search results are biased by the specific queries used"

Similar: [prejudice](#) [influence](#) [colour](#) [sway](#) [weight](#) [predispose](#) [distort](#) ▼

- STATISTICS**
distort (a statistical result); introduce bias into (a method of sampling, measurement, analysis, etc.).



2. Why is it important?



Negative Patient Outcomes

- May produce misleading readings when used on people with darker skin tones
- Algorithms can disadvantage women, ethnic groups and poorer social groups
- Potential for less accurate results for people of non-European descent

3. How can librarians help battle bias?

Be There: 3 x 'S'

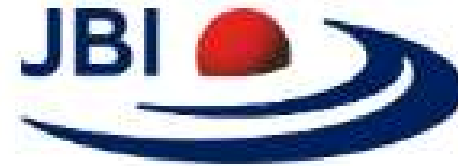
- ✓ Spread knowledge and awareness
- ✓ Show and flag tools and resources
- ✓ Support and critique SR methods(*)

4. What resources are available to them?

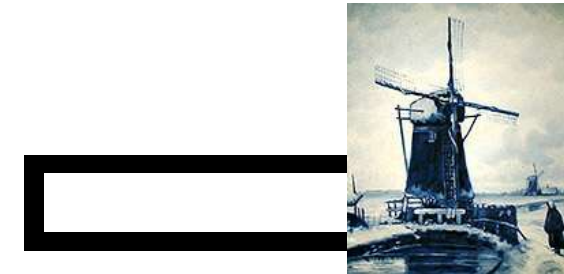
Guides & Handbooks



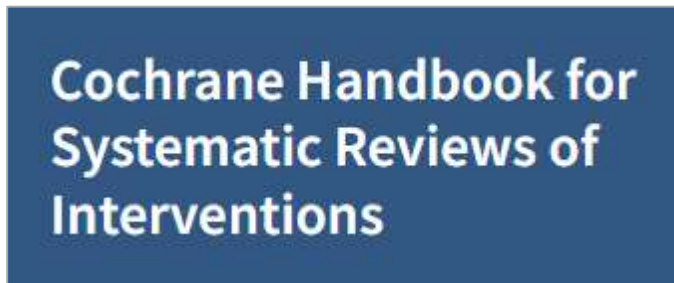
Cochrane Database of Systematic Reviews



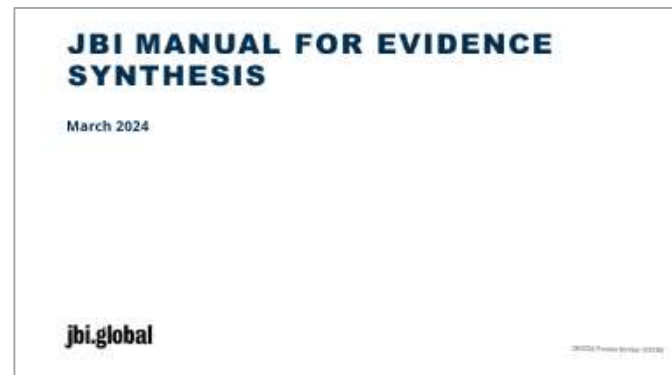
JBI EBP Database



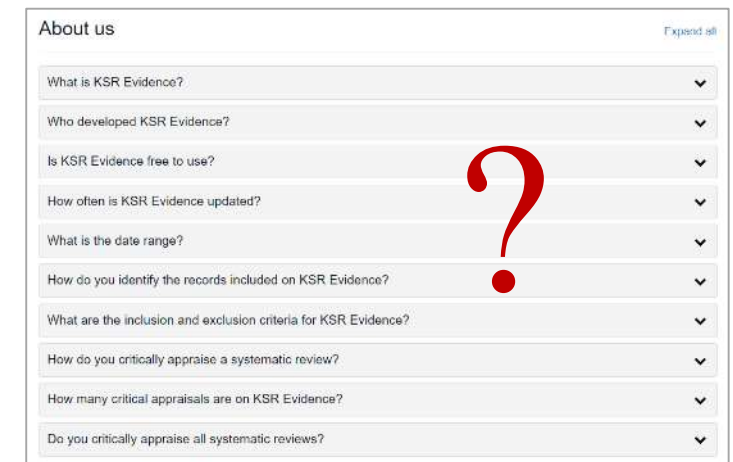
KSR Evidence Database



Online & (some) PDF



Online & PDF



Online only

4. What resources are available to them?



Version 6.4, 2023

Senior Editors: Julian Higgins¹, James Thomas²

Associate Editors: Jacqueline Chandler³, Miranda Cumpston^{4,5}, Tianjing Li⁶, Matthew Page⁴, Vivian Welch⁷

Part 1: About Cochrane Reviews

- I. [Introduction](#)
- II. [Planning a Cochrane Review](#)
- III. [Reporting the review](#)
- IV. [Updating the review](#)
- V. [Overviews of Reviews](#)

Part 2: Core methods

1. [Starting a review](#)
2. [Determining the scope and questions](#)
3. [Inclusion criteria & grouping for synthesis](#)
4. [Searching & selecting studies](#)
5. [Collecting data](#)
6. [Effect measures](#)
7. [Bias and conflicts of interest](#)
8. [Risk of bias in randomized trials](#)
9. [Preparing for synthesis](#)
10. [Meta-analyses](#)
11. [Network meta-analyses](#)
12. [Synthesis using other methods](#)
13. [Bias due to missing results](#)
14. ['Summary of findings' tables & GRADE](#)
15. [Interpreting results](#)

Part 3: Specific perspectives in reviews

16. [Equity](#)
17. [Intervention complexity](#)
18. [Patient-reported outcomes](#)
19. [Adverse effects](#)
20. [Economic evidence](#)
21. [Qualitative evidence](#)

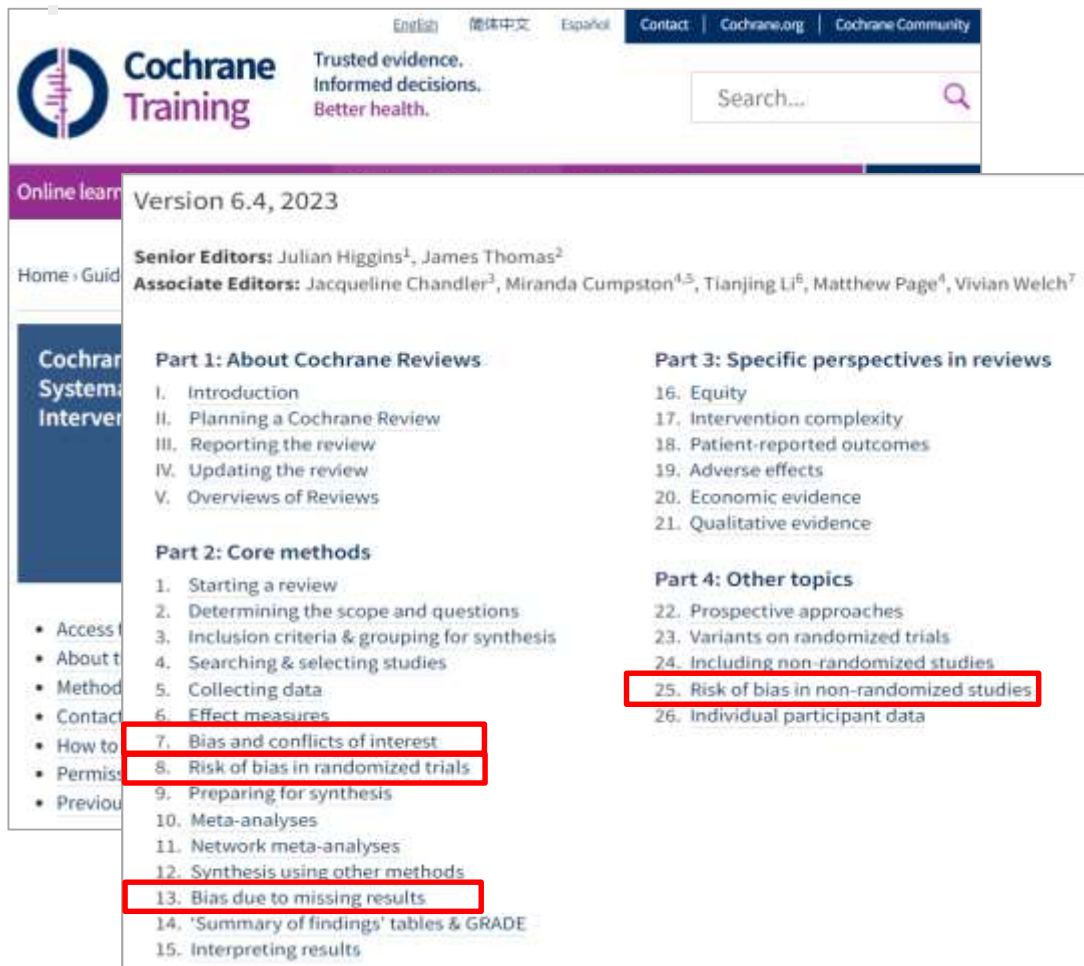
Part 4: Other topics

22. [Prospective approaches](#)
23. [Variants on randomized trials](#)
24. [Including non-randomized studies](#)
25. [Risk of bias in non-randomized studies](#)
26. [Individual participant data](#)

<https://training.cochrane.org/handbook>

4. What resources are available to them?

Cochrane
Definitio
n



The screenshot shows the Cochrane Training handbook website. The header includes the Cochrane logo, the text "Trusted evidence. Informed decisions. Better health.", and a search bar. The main content area is titled "Version 6.4, 2023" and lists "Senior Editors" and "Associate Editors". Below this is a table of contents with four parts:

- Part 1: About Cochrane Reviews**
 - I. Introduction
 - II. Planning a Cochrane Review
 - III. Reporting the review
 - IV. Updating the review
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- Part 2: Core methods**
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 24. Including non-randomized studies
 25. Risk of bias in non-randomized studies
 26. Individual participant data

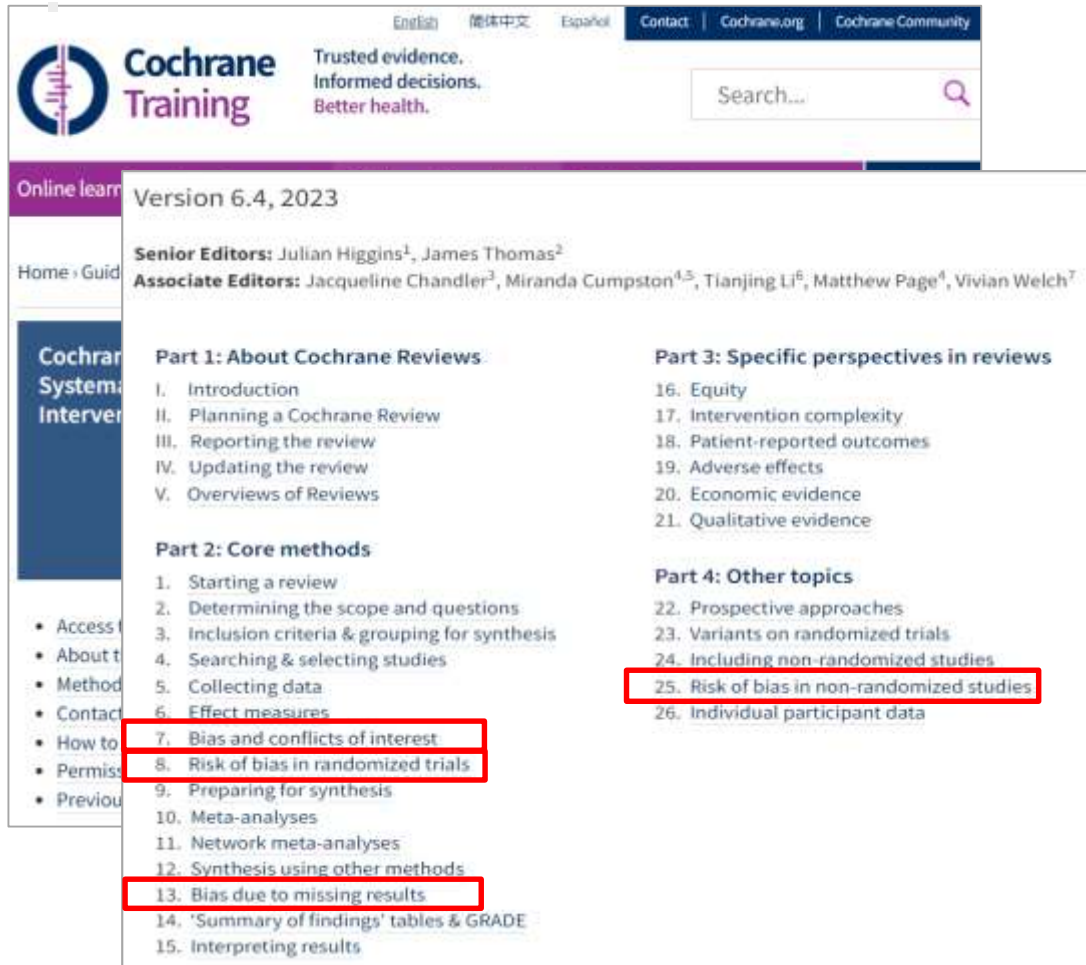
Items 7, 8, 13, and 25 are highlighted with red boxes in the original image.

“7.1 Introduction#section-7-1

Cochrane Reviews seek to minimize bias. We define bias as a **systematic error**, or deviation from the truth, in results. Biases can lead to under-estimation or over-estimation of the true intervention effect and can vary in magnitude: some are small (and trivial compared with the observed effect) and some are substantial (so that an apparent finding may be due entirely to bias).”

<https://training.cochrane.org/handbook>

4. What resources are available to them?

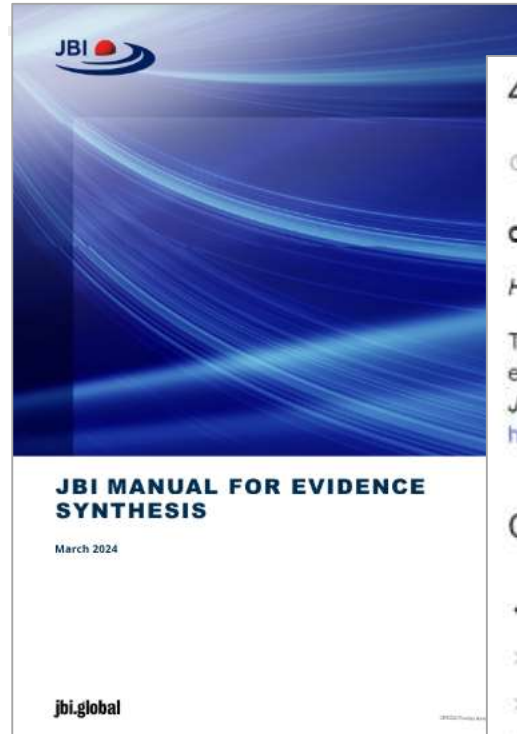


Cochrane Risk of Bias Tool (RoB)

- ✓ Released in 2008 with amendments in 2011
- ✓ Based on a single concept: risk of bias
- ✓ Domain or component-based approach
- ✓ Consideration based on theory and evidence
- ✓ Requires judgement and must be transparent
- ✓ Risk of bias assessments are 'low', 'high', 'unclear'
- ✓ Reasons for the assessment need to be given
- ✓ Now superseded by RoB 2, mandatory for RCTs

<https://training.cochrane.org/handbook>

4. What resources are available to them?



4. Systematic reviews of effectiveness

© Last updated 27 March, 2024 • 1 min read

Catalin Tufanaru, Zachary Munn, Edoardo Aromataris, Jared Campbell, Lisa Hopp

How to cite:

Tufanaru C, Munn Z, Aromataris E, Campbell J, Hopp L. Systematic reviews of effectiveness (2020). Aromataris E, Lockwood C, Porritt K, Pilla B, Jordan Z, editors. *JBI Manual for Evidence Synthesis*. JBI; 2024. Available from: <https://synthesismanual.jbi.global>. <https://doi.org/10.46658/JBIMES-24-03>

Contents

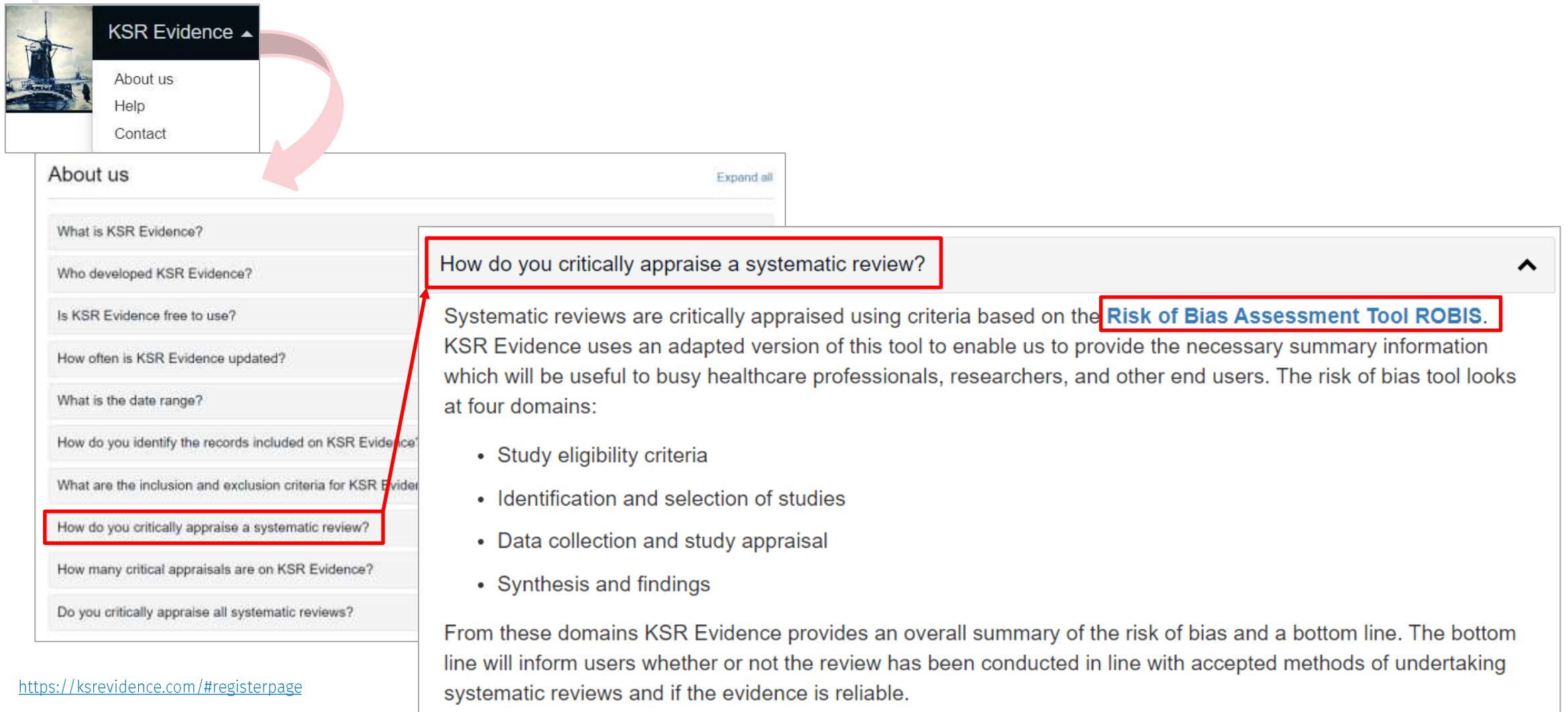
- 4.1 Introduction to quantitative evidence and evidence-based practice
- > 4.2 Development of a protocol for a systematic review of effectiveness evidence
- > 4.3 Meta-analysis
- > 4.4 Systematic review of effectiveness
- 4.5 Chapter References
- Appendix 4.1: JBI Critical appraisal checklist for randomized controlled trials
- Appendix 4.2: Discussion of JBI appraisal criteria for randomized controlled trials
- Appendix 4.3: JBI Critical appraisal Checklist for Quasi-Experimental Studies (non-randomized experimental studies)
- Appendix 4.4: Discussion of JBI appraisal criteria for Quasi-Experimental Studies (non-randomized experimental studies)
- Systematic Reviews of Effectiveness Resources

The revised JBI critical appraisal tool for the assessment of risk of bias for randomized controlled trials

Barker et al 2023

JBI recently began the process of updating and revising its suite of critical appraisal tools to ensure that these tools remain compatible with recent developments within risk of bias science. Following a rigorous development process led by the JBI Effectiveness Methodology Group, this paper presents the revised critical appraisal tool for the assessment of risk of bias for randomized controlled trials.

4. What resources are available to them?



KSR Evidence

- About us
- Help
- Contact

About us

Expand all

What is KSR Evidence?

Who developed KSR Evidence?

Is KSR Evidence free to use?

How often is KSR Evidence updated?

What is the date range?

How do you identify the records included on KSR Evidence?

What are the inclusion and exclusion criteria for KSR Evidence?

How do you critically appraise a systematic review?

How many critical appraisals are on KSR Evidence?

Do you critically appraise all systematic reviews?

How do you critically appraise a systematic review?

Systematic reviews are critically appraised using criteria based on the **Risk of Bias Assessment Tool ROBIS**. KSR Evidence uses an adapted version of this tool to enable us to provide the necessary summary information which will be useful to busy healthcare professionals, researchers, and other end users. The risk of bias tool looks at four domains:

- Study eligibility criteria
- Identification and selection of studies
- Data collection and study appraisal
- Synthesis and findings

From these domains KSR Evidence provides an overall summary of the risk of bias and a bottom line. The bottom line will inform users whether or not the review has been conducted in line with accepted methods of undertaking systematic reviews and if the evidence is reliable.

<https://ksrevidence.com/#registerpage>

4. What resources are available to them?

Repositories of SRs



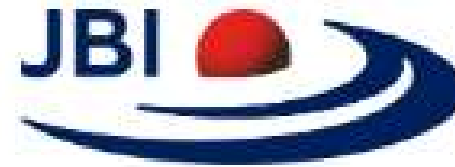
Cochrane Database of Systematic Reviews

Type of Records:

- Bibliographic
- Full-text

Number of Records:

- Total: 12,240



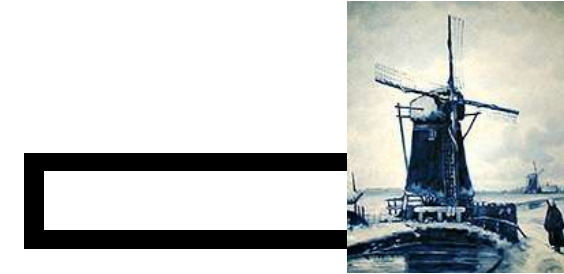
JBI EBP Database

Type of Records:

- Bibliographic
- Full-text

Number of Records:

- Total: 7,842



KSR Evidence Database

Type of Records:

- Bibliographic
- RoB Assessment

Number of Records:

- Total: 287,356

4. What resources are available to them?

Cochrane



Cochrane Database of Systematic Reviews

- ✓ Systematic reviews, meta-analyses, protocols
- ✓ Based on Cochrane methodologies and tools
- ✓ Focuses on RCT drug-based interventions
- ✓ Regarded as systematic review 'gold standard'

<input type="checkbox"/>	# ▲	Searches	Results	Type
		^ docz.dz.	307438	
<input checked="" type="checkbox"/>	1	<u>EBM Reviews - Cochrane Database of Systematic Reviews <2005 to May 29, 2024></u>	12240	
		<u>EB Health - KSR Evidence <2015 to 2024 Week 22></u>	287356	Advanced
		<u>JBIP Database <Current to May 22, 2024></u>	7842	

4. What resources are available to them?

Cochrane Example

The image shows a screenshot of a Cochrane review article page. Several elements are highlighted with red and green boxes:

- Red boxes:**
 - Table of Contents
 - Abstract Reference
 - Complete Reference
 - Find Similar
 - Find Citing Articles
 - EBM Full Text
 - Translate Abstract
 - Tools
- Green boxes:**
 - Potential biases in the review process
 - Assessment of risk of bias in included studies
 - Appendix 6. Risk of bias tool
 - 1. Sequence generation (checking for possible selection bias). Was the allocation sequence adequately generated?
 - 2. Allocation concealment (checking for possible selection bias). Was allocation adequately concealed?

The page content includes the title "Continuous positive airway pressure (CPAP) for apnoea of prematurity", authors "Ho, Jacqueline J. Zakarija-Grkovic, Irena. Lok, Wen Jia. Lim, Eunice. Subramaniam, Prema. Leong, Jen Jen.", and a list of keywords. The "Tools" menu is open, showing options like "Article as PDF (490)", "Cite", "Print Preview", "Email Jumpstart", "Email PDF Jumpstart", "Email Article Text", "Save Article Text", "+ My Projects", "Export All Images", "+ Annotate", "Find Citing Articles", "Find Similar", and "Comments & Criticism". The "Outline" section lists various parts of the review, including "Abstract", "Version first published online", "Issue first published", "Issue protocol first published", "Plain language summary", "Summary of findings", "Background", "Description of the condition", "Description of the intervention", "How the intervention might work", "Why it is important to do this review", "Objectives", "Methods", "Criteria for considering studies for this review", "Search methods for identification of studies", "Data collection and analysis", and "Data extraction and management".

Search: Ovid / CDSR/ 00075320-100000000-12069.an.

4. What resources are available to them?

JBI



JBI EBP
Database

- ✓ Systematic reviews, meta-analyses, protocols
- ✓ Based on JBI methodologies and tools
- ✓ Focuses on 'point of care' interventions
- ✓ Covers a variety of systematic review types

<input type="checkbox"/>	# ▲	Searches	Results	Type
		^ docz.dz.	307438	
<input checked="" type="checkbox"/>	1	<u>JBI EBP Database <Current to May 22, 2024></u>	7842	Advanced
		<u>EB Health - KSR Evidence <2015 to 2024 Week 22></u>	287356	
		<u>EBM Reviews - Cochrane Database of Systematic Reviews <2005 to May 29, 2024></u>	12240	

4. What resources are available to them?

JBIE
Example

Interventions to change clinicians related to suicide prevention care in the emergency department: a scoping review

Shin, Hwayeon Danielle; Cassidy, Christine; Wong, Helen; Campbell, Leslie Anne; Drake, Emily K.; Dorey, Rachel; Kang, Hyelee; Curran, Janet A.

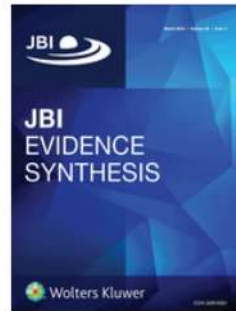
JBIE Evidence Synthesis. 20(3):788-846, March 2022

[SYSTEMATIC REVIEWS]

AN: JBIES-21-00149

Year of Publication
2022

Abstract Article as PDF (1493KB)



JBIE Evidence Synthesis

Issue: Volume 20(3), March 2022, p 788-846

Copyright: (C) 2022 JBI

Publication Type: [SYSTEMATIC REVIEWS: Emergency and Trauma: mental health]

DOI: 10.11124/JBIES-21-00149

ISSN: 2689-8381

Accession: 02174543-202203000-00004

Keywords: Suicide Prevention

Hide Cover

[SYSTEMATIC REVIEWS: Emergency and Trauma: mental health]

Interventions to change clinicians' behavior related to suicide prevention care in the emergency department: a scoping review

Shin, Hwayeon Danielle^{1,2}; Cassidy, Christine^{1,2}; Weeks, Lori E.^{1,2}; Campbell, Leslie Anne^{1,3}; Drake, Emily K.⁴; Wong, Helen⁴; Donnelly, Lauren^{1,5}; Dorey, Rachel^{1,5}; Kang, Hyelee¹; Curran, Janet A.^{1,2}

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⁴Faculty of Health, Dalhousie University, Halifax, NS, Canada

Tools

Article as PDF (1493KB)

Complete Reference

Abstract Reference

Cite

Print Preview

Email Jumpstart

Email PDF Jumpstart

Email Article Text

Save Article Text

+ My Projects

Export All Images to Powerpoint

+ Annotate

Find Citing Articles

About this Journal

Translate Abstract

Ovid Expert Searches

JBIE Topic Request

Outline

- ABSTRACT
- Introduction
- Review questions
- Inclusion criteria
 - Participants
 - Concept
 - Context
 - Types of sources
- Methods
 - Search strategy
 - Study/source of evidence selection
 - Assessment of methodological quality
 - Data extraction
 - Data analysis and presentation
 - Deviation from original protocol
- Results
 - Study/source of evidence inclusion
 - Methodological quality
 - Characteristics of included sources
 - Empirical studies
 - Interventions from the Google search
 - Review findings
 - Characteristics of interventions and intervention components (Question 1)
 - Suicide prevention categories
 - Mapping interventions on the Behaviour Change Wheel
 - Author-reported outcome measures (Question 2)
- Discussion

4. What resources are available to them?

KSR
Evidence



KSR Evidence
Database

- ✓ Systematic reviews, meta-analyses, HTA reports
- ✓ Methodologies etc. are those of the sources
- ✓ Focuses on risk of bias assessments (ROBIS)
- ✓ Comprehensive coverage from 2015 onwards

<input type="checkbox"/>	# ▲	Searches	Results	Type
		docz.dz.	307438	
<input checked="" type="checkbox"/>	1	<u>EB Health - KSR Evidence <2015 to 2024 Week 22></u>	287356	Advanced
		<u>EBM Reviews - Cochrane Database of Systematic Reviews <2005 to May 29, 2024></u>	12240	
		<u>EBI EBP Database <Current to May 22, 2024></u>	7842	

4. What resources are available to them?

Radiotherapy to regional nodes in early breast cancer: an individual patient data meta-analysis of 14 324 women in 16 trials

Early Breast Cancer Trialists' Collaborative Group (EBCTCG)

Lancet. 402(10416) 1991-2003, 2023.

[Journal Article]

Risk of Bias Assessment

Overall summary: Low risk of bias in the review

Domain four is rated at low risk of bias. The review objective is reflected in the summarised findings of the included studies and the review authors reported a balanced record of the analysed results without emphasising the statistical significance.

A. Did the interpretation of findings address all of the concerns identified in Domains 1 to 4? Probably yes

B. Was the relevance of identified studies to the reviews research question appropriately considered? Probably yes

C. Did the reviewers avoid emphasizing results on the basis of their statistical significance? Probably yes

Risk of bias in the review: Low

Abstract ▾ Cite + My Projects + Annotate

Unique Identifier: KSRA268554

PMID: <https://pubmed.ncbi.nlm.nih.gov/...>

Title: Radiotherapy to regional nodes in early breast cancer: an individual patient data meta-analysis of 14 324 women in 16 trials.

Author: Early Breast Cancer Trialists' Collaborative Group (EBCTCG)

Source: Lancet. 402(10416) 1991-2003, 2023.

Risk of Bias Assessment:

Overall summary: Low risk of bias in the review

Domain four is rated at low risk of bias. The review objective is reflected in the summarised findings of the included studies and the review authors reported a balanced record of the analysed results without emphasising the statistical significance.

A. Did the interpretation of findings address all of the concerns identified in Domains 1 to 4? Probably yes

B. Was the relevance of identified studies to the reviews research question appropriately considered? Probably yes

C. Did the reviewers avoid emphasizing results on the basis of their statistical significance? Probably yes

Risk of bias in the review: Low

Bottom Line:

The available evidence suggested that regional node radiotherapy played a significant role in reducing the risk of breast cancer recurrence and mortality. Across multiple trials, it was shown to decrease overall breast cancer recurrence and mortality rates by approximately 10%, with even greater reductions observed in cases of distant recurrence. Moreover, the therapy demonstrated a notable impact on overall mortality, with absolute gains in long-term survival. Importantly, those benefits were observed without adverse effects on non-breast cancer mortality or other health outcomes. Those findings underscored the importance of regional node radiotherapy in improving outcomes for individuals with breast cancer, highlighting its potential as a valuable treatment option in clinical practice.

Details of Review:

Number of studies: 16

Number of participants: 14,324

Last search date: Not reported

Review type: Intervention

Objective: To assess the effects of regional lymph node radiotherapy on breast cancer recurrence and mortality in women with early breast cancer.

Population: Women with early breast cancer.

Interventions: Regional lymph node radiotherapy.

Comparator: No regional lymph node radiotherapy.

Outcome: Recurrence at any site, breast cancer mortality, non-breast-cancer mortality, and all-cause mortality.

Study design: Randomised controlled trials (RCTs).

Source: Ovid / EB Health – KSR Evidence / KSRA268554.ui.

4. What resources are available to them?

KSR Evidence Example 2

Searches:

- docz.dz.
- limit 1 to high [Risk of Bias]
- ("search strategy is not reported").af.

Outcomes:

1. Of the 287,356 documents in the database **KSR Evidence**, 31,277 (#2) have a risk of bias assessment: high, low or unclear.
2. The risk of bias assessment indicates whether or not a search strategy was provided or reported.
3. Of the 12,041 (100%) references that had no search strategy, **89%** were assessed as having a **high risk of bias**.

<input type="checkbox"/>	# ▲	Searches	Results
<input type="checkbox"/>	1	docz.dz.	287356
<input type="checkbox"/>	2	limit 1 to (high or low or unclear assessment)	31277
<input checked="" type="checkbox"/>	3	("search strategy is not reported" or "search strategy was not reported" or "search strategy not reported" or "search strategies were not reported" or "search strategy was not provided" or "review does not report a search strategy" or "review did not report a search strategy" or "article does not report the employed search strategy").af.	12041
<input type="checkbox"/>	4	limit 3 to unclear assessment	1098
<input type="checkbox"/>	5	limit 3 to low	193
<input checked="" type="checkbox"/>	6	limit 3 to high	10750
<input type="checkbox"/>	7	4 or 5 or 6	12041

5. Positioning the librarians' contribution?

Be There: 3 x 'S'

- ✓ Spread knowledge and awareness
- ✓ Show and flag tools and resources
- ✓ Support and critique SR methods(*)

3. Positioning the librarians' contribution!

Be There: 3 x 'S'



S

MICC 2017
*Librarians and Evidence-
Based Medical Practice:
An Ever Closer Union*

Michael Fanning,
Customer Success - Training Manager
7th June 2017



S



S



A Starting Point – Suggestion

...and with respect to systematic reviews
why not see and position yourselves as

Systematic Review Augmentors!



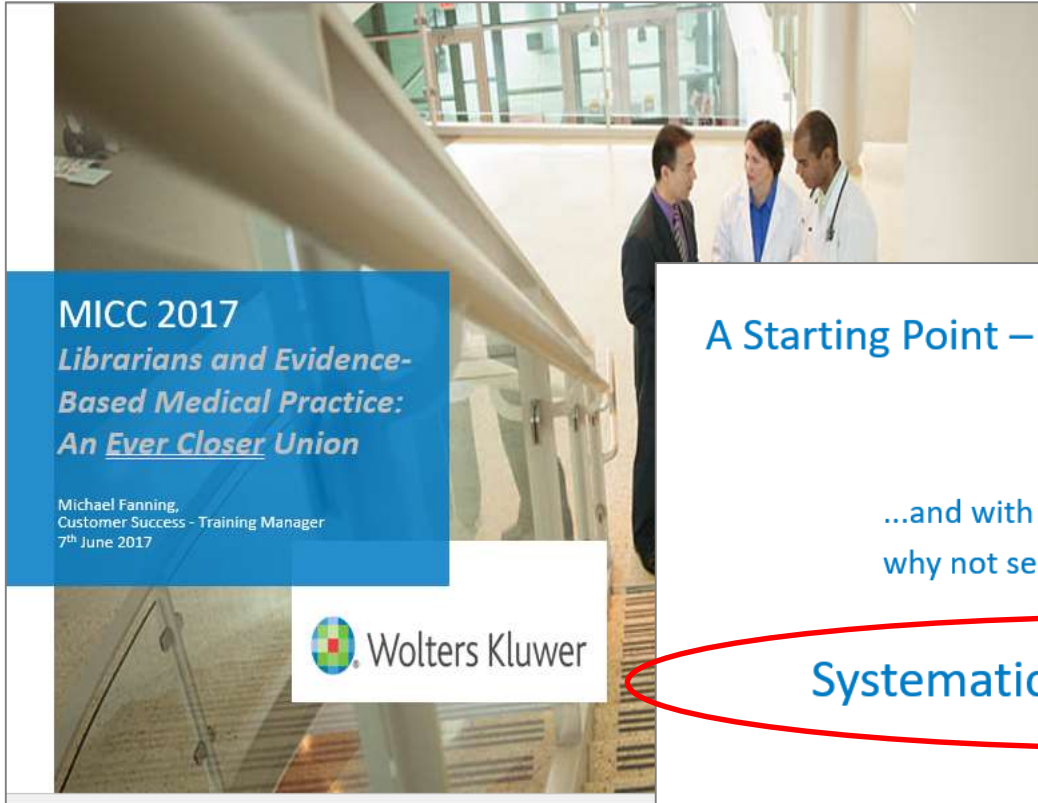
3. Positioning the librarians' contribution. Embrace AI Concepts



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S

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MICC 2017
*Librarians and Evidence-Based Medical Practice:
An Ever Closer Union*

Michael Fanning,
Customer Success - Training Manager
7th June 2017



A Starting Point – Suggestion

...and with respect to systematic reviews
why not see and position yourselves as

Systematic Review Augmentors!

or even

Human Copilot!



Thank you for listening!

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