

Cochrane's work on living evidence synthesis

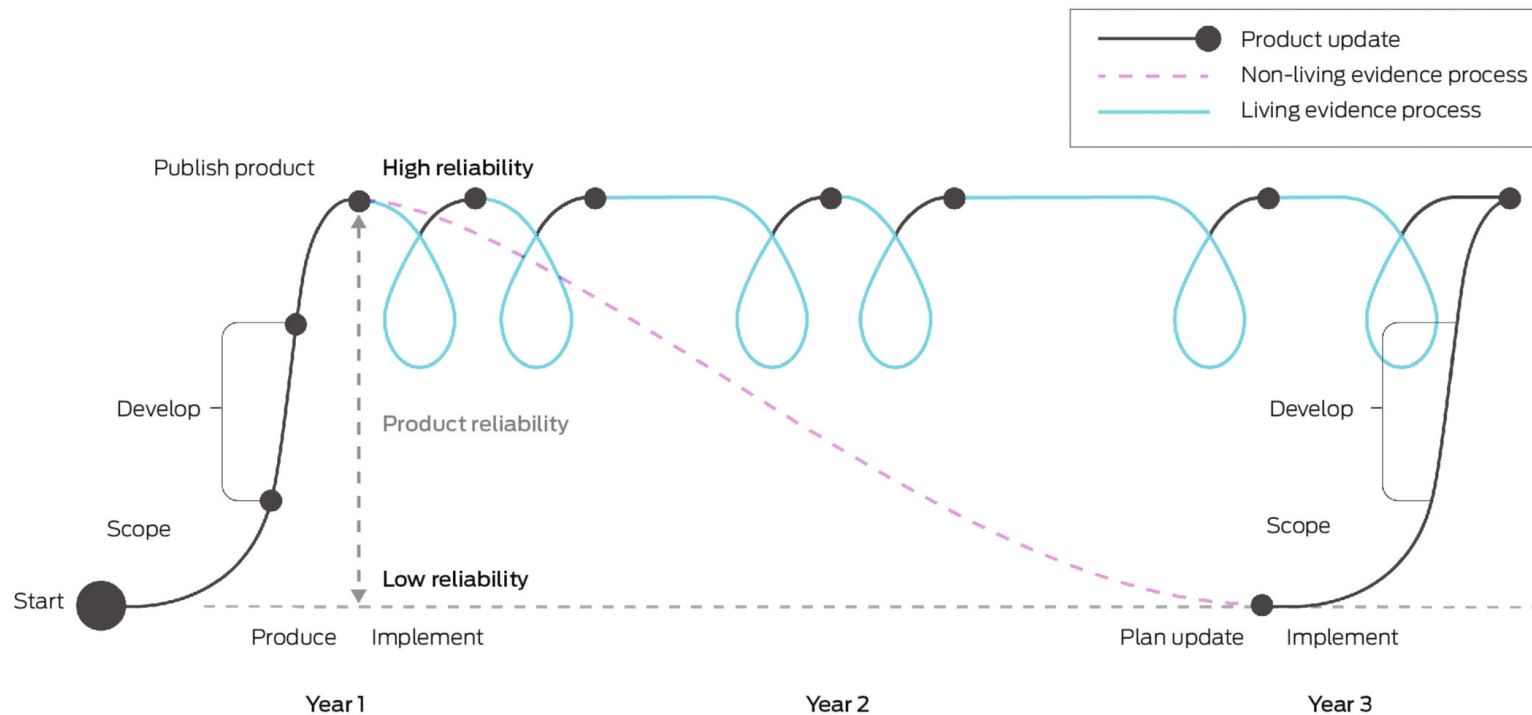
Toby Laserson, Deputy Editor in Chief of The Cochrane Library

NIHR ESGs Best Practice Working Group on Living Evidence Synthesis, 14th May 2026

How can evidence synthesis have impact?



Living versus standard



Chakraborty et al. (2024), Living evidence syntheses: the emerging opportunity to increase evidence-informed health policy in Australia. *Med J Aust*, 221: 122-125. <https://doi.org/10.5694/mja2.52368>

*“Evidence is inherently uncertain,
dynamic, complex,
contestable, and rarely
complete”*

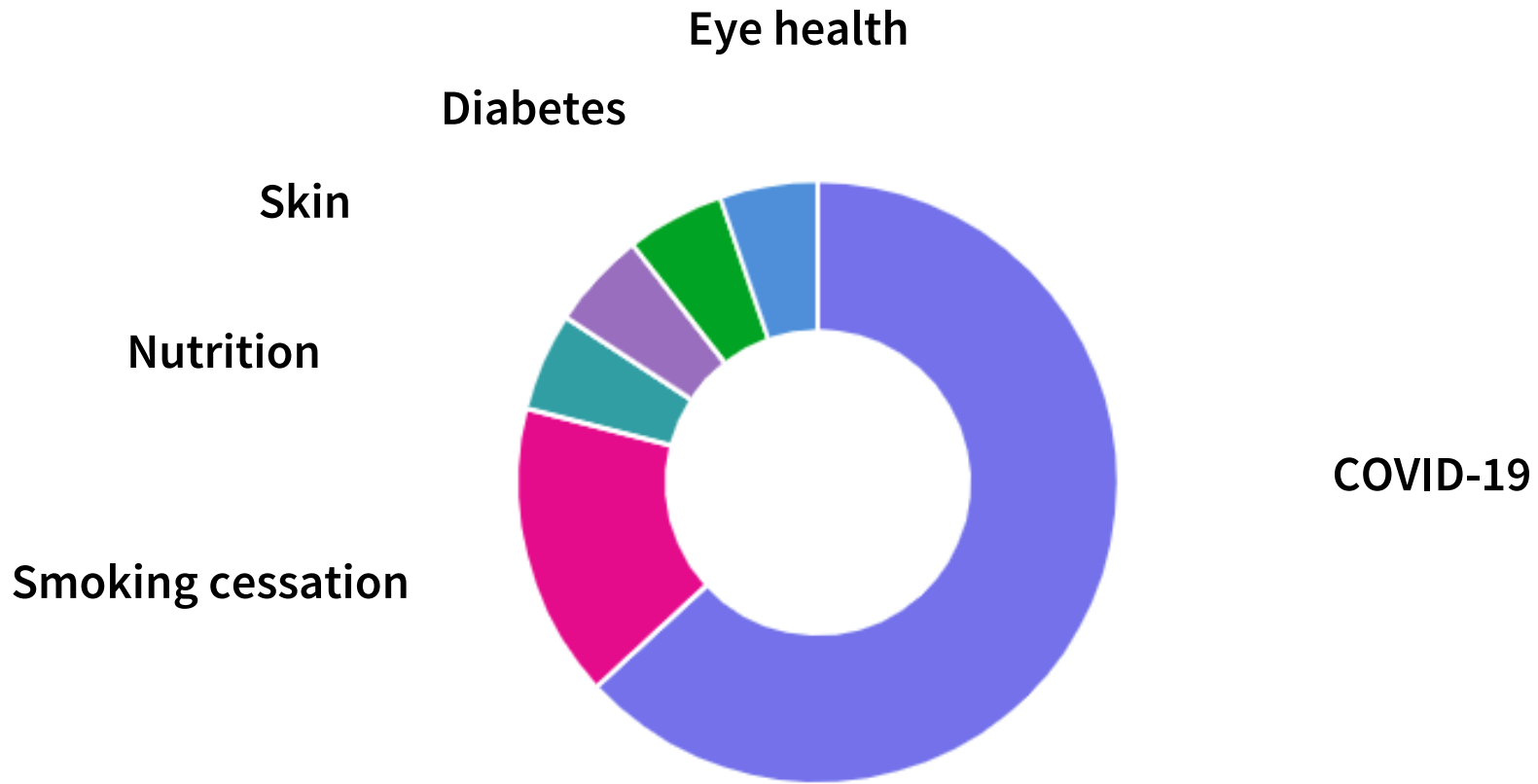
Lomas, J; Culyer T et. al

Conceptualizing & Combining Evidence For Health System
Guidance; CHSRF, May 2005

Perfect fit? COVID 19 & criteria for when to do LSR

1. Question of particular importance to decision-makers
2. Uncertainty in existing evidence base
3. Emerging evidence likely to impact on interpretation

LSRs: topic coverage



LSRs: review type

Network Meta-Analysis

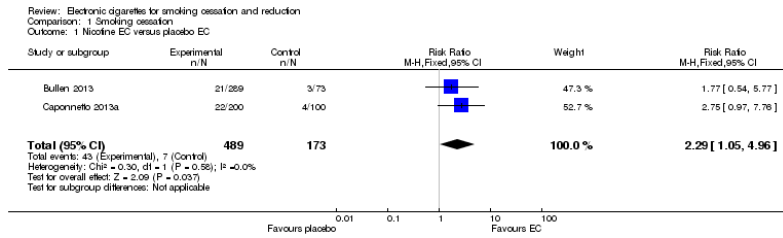
Diagnostic test
accuracy



Intervention

Case study: electronic cigarettes

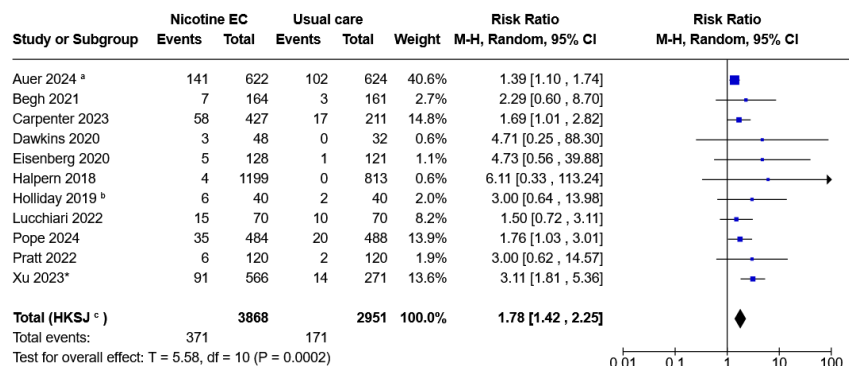
2 studies included in quantitative synthesis (meta-analysis)



Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk ¹	Corresponding risk				
	Control	Electronic cigarettes				
Cessation: Nicotine EC versus placebo EC ² assessed with exhaled CO Follow-up: 6 - 12 months	40 per 1000	93 per 1000 (42 to 201)	RR 2.29 (1.05 to 4.96)	662 (2 studies)	⊕⊕⊕⊕ low ^{3,4}	Only RCTs reported here. Some cohort data also available (see full review) but only RCTs provide efficacy data

2024 large increase in studies

↓
88 included studies
59 ongoing studies



Outcomes	Anticipated absolute effects* (95% CI)		Relative effect (95% CI)	N° of participants (studies)	Certainty of the evidence (GRADE)
	Events with behavioural support only/no support	Events with nicotine EC			
Smoking cessation at 6+ months	Study population		RR 1.78 (1.42 to 2.25)	6819 (11 RCTs)	⊕⊕⊕⊕ LOW ^a
Preferentially assessed using biochemical validation	4 per 100	7 per 100 (6 to 9)			

Certainty of evidence for cessation outcome for comparison with behavioural support/no support upgraded from very low to low

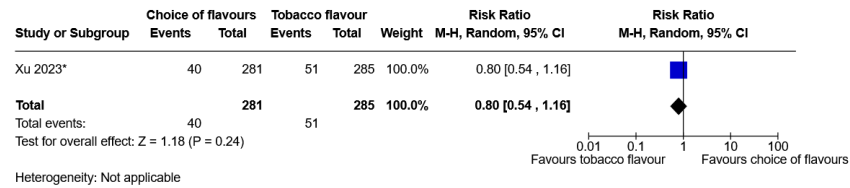
2025 (Jan)

90 included studies
64 ongoing studies

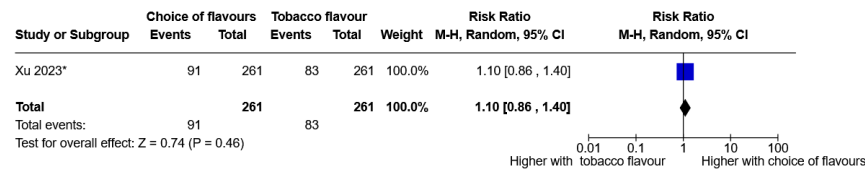
2025 (Nov)

104 included studies
66 ongoing studies

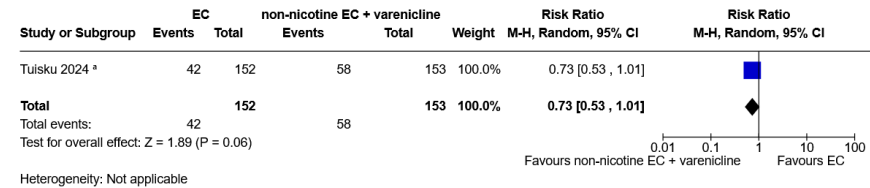
Analysis 10.1: Smoking cessation



Analysis 10.2: Product use at 6+ months



Main conclusions remain unchanged. Update triggered as first study comparing flavours and reporting abstinence at six months or longer was published (results inconclusive).



Main conclusions remain unchanged. Update triggered as first study comparing nicotine EC with non-nicotine EC and varenicline reporting abstinence at six months or longer was published (results inconclusive).

Why SR teams need to be like Janus



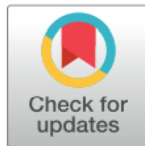


A framework for prospective, adaptive meta-analysis (FAME) of aggregate data from randomised trials

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Abstract

Background

The vast majority of systematic reviews are planned retrospectively, once most eligible trials have completed and reported, and are based on aggregate data that can be extracted from publications. Prior knowledge of trial results can introduce bias into both review and meta-analysis methods, and the omission of unpublished data can lead to reporting biases. We present a collaborative framework for prospective, adaptive meta-analysis (FAME) of aggregate data to provide results that are less prone to bias. Also, with FAME, we monitor how evidence from trials is accumulating, to anticipate the earliest opportunity for a potentially definitive meta-analysis.

OPEN ACCESS

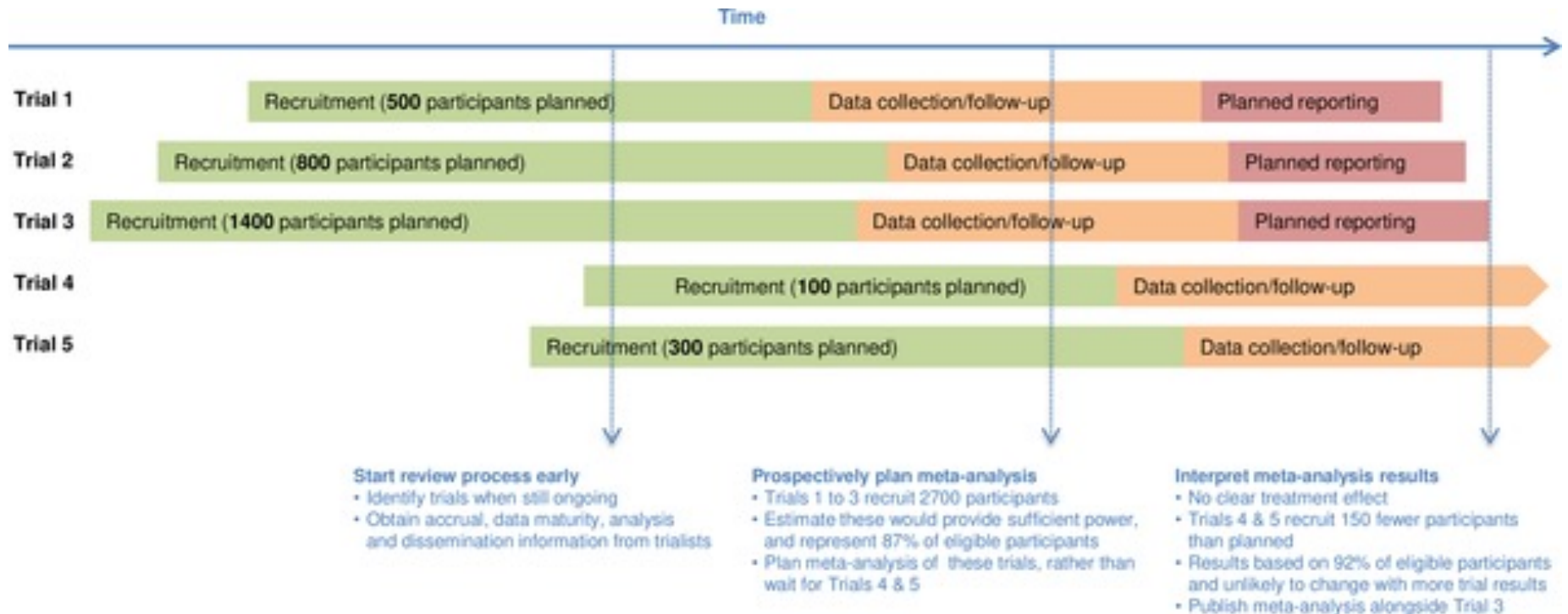
Citation: Tierney JF, Fisher DJ, Vale CL, Burdett S, Rydzewska LH, Rogozińska E, et al. (2021) A framework for prospective, adaptive meta-analysis (FAME) of aggregate data from randomised trials. *PLoS Med* 18(5): e1003629. <https://doi.org/10.1371/journal.pmed.1003629>

Published: May 6, 2021

6 principles of FAME

1. Start review before trials report results
2. Liaise with trialists to get picture of eligible studies
3. Assess earliest possible timing for analysis
4. Register or publish protocol before trials produce results
5. Interpret meta-analysis in light of available and unavailable data
6. Assess value of updating meta-analysis

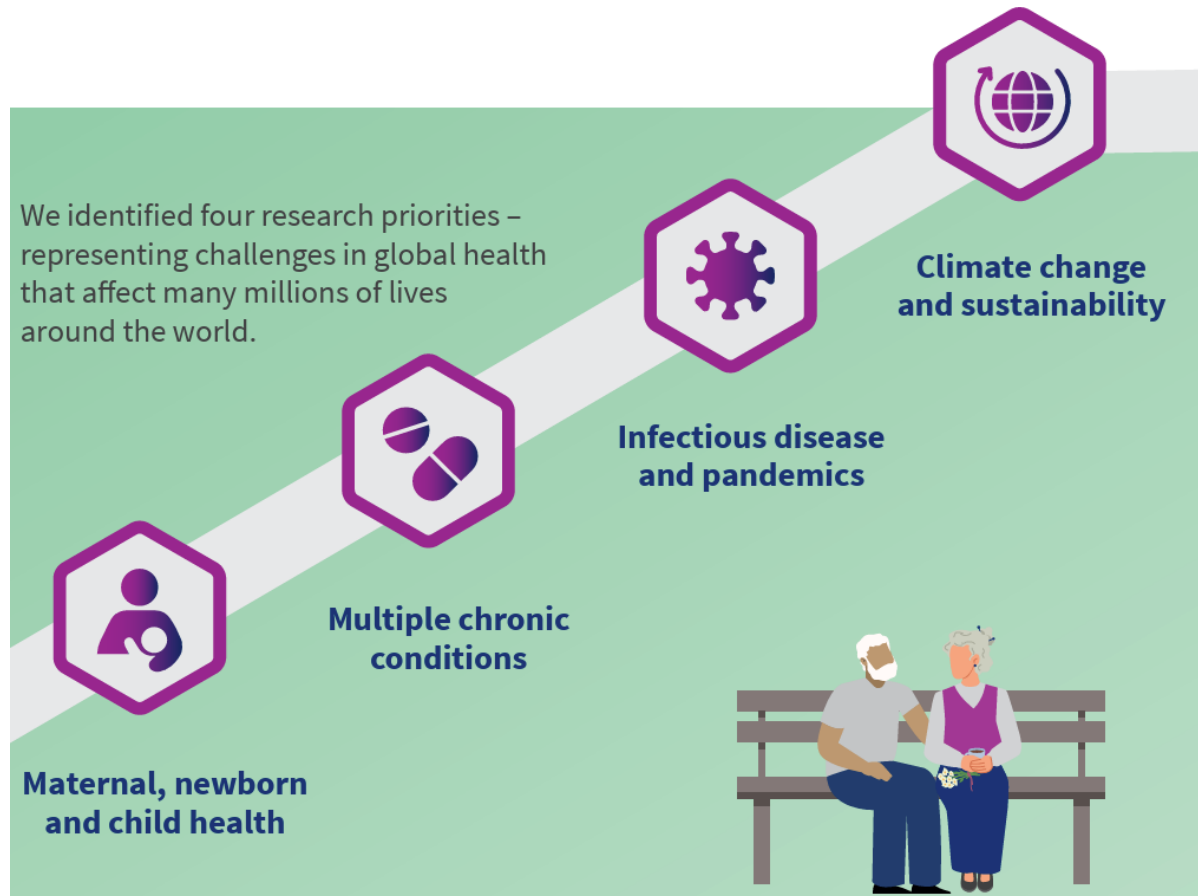
Visualising the application of FAME to a hypothetical systematic review of 5 randomised trials



Tierney JF, Fisher DJ, Vale CL, Burdett S, Rydzewska LH, et al. (2021) A framework for prospective, adaptive meta-analysis (FAME) of aggregate data from randomised trials. PLOS Medicine 18(5): e1003629. <https://doi.org/10.1371/journal.pmed.1003629>
<https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003629>



Case study: Dengue transmission



			Outcomes						
			Entomological outcomes				Epidemiological outcomes		
			Aquatic stage population reduction	Adult population reduction	Container index	Breteau index	House index	Virologically confirmed dengue case incidence	Dengue cases
Intervention type	Environmental	Identification, assessment and/or enclos...							
		Basic sanitation – moving open-air sewage...							
		Waste management and urban cleaning poli...							

Prioritised set of interventions & outcomes

Intervention	Outcome domain	No. of primary studies (NRSIs; RCTs)	No. of high- or moderate-quality evidence syntheses	Evidence availability status
Community education	Behavioural outcomes	148 (116; 32)	1	Primary studies with evidence syntheses
	Entomological outcomes	93 (63; 30)	2	Primary studies with evidence syntheses
	Epidemiological outcomes	34 (20; 14)	2	Primary studies with evidence syntheses
	Implementation outcomes	25 (19; 6)	0	Synthesis gap
	Adverse effects	1 (1; 0)	0	Minimal evidence
Adult vector interventions	Entomological outcomes	119 (69; 50)	2 (more than 9 years old)	Synthesis gap
	Epidemiological outcomes	62 (31; 31)	3 (more than 9 years old; except for <i>Wolbachia</i>)	Synthesis gap
	Behavioural outcomes	26 (15; 11)	0	Synthesis gap
	Implementation outcomes	23 (10; 13)	1 (only for <i>Wolbachia</i>)	Synthesis gap
	Adverse effects	11 (6; 5)	1 (only for <i>Wolbachia</i>)	Synthesis gap
Aquatic-stage interventions	Entomological outcomes	102 (77; 25)	1 (more than 9 years old; except for <i>Wolbachia</i>)	Synthesis gap
	Epidemiological outcomes	28 (18; 10)	1 (more than 9 years old; except for <i>Wolbachia</i>)	Synthesis gap
	Behavioural outcomes	24 (12; 12)	0	Synthesis gap
	Implementation outcomes	10 (5; 5)	0	Synthesis gap
	Adverse effects	10 (10; 0)	0	Synthesis gap

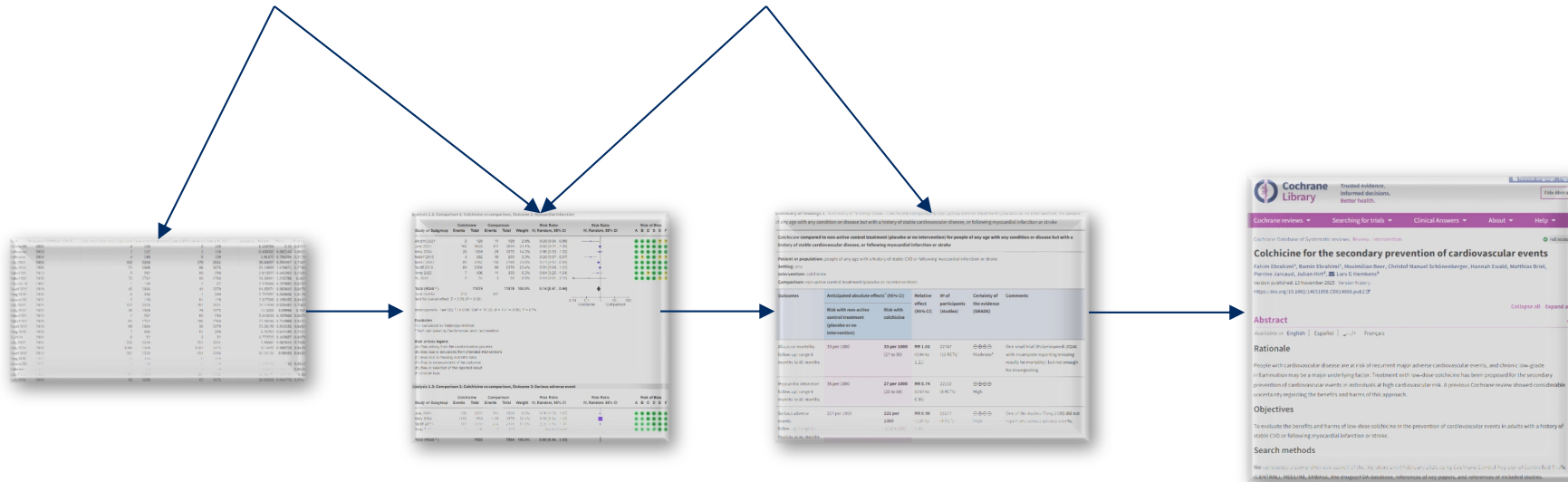


Is publishing compatible with accumulating evidence?



Researchers, data scientists, policy makers

Guideline development groups, regulatory bodies





Thank you