A research program on rapid reviews: where should we venture next?

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Competing Interests

- I have no conflicts of interest to declare

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Webinar objectives

- To differentiate between rapid reviews and systematic reviews
- To delineate a research program on rapid reviews and generate ideas for additional methods research
- To describe recommendations on the conduct of rapid reviews from the WHO Alliance Guide to Rapid Reviews

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INTRODUCTION

What is a systematic review?

"A systematic review uses systematic and explicit methods to identify, select, critically appraise, and extract and analyze data from relevant research"

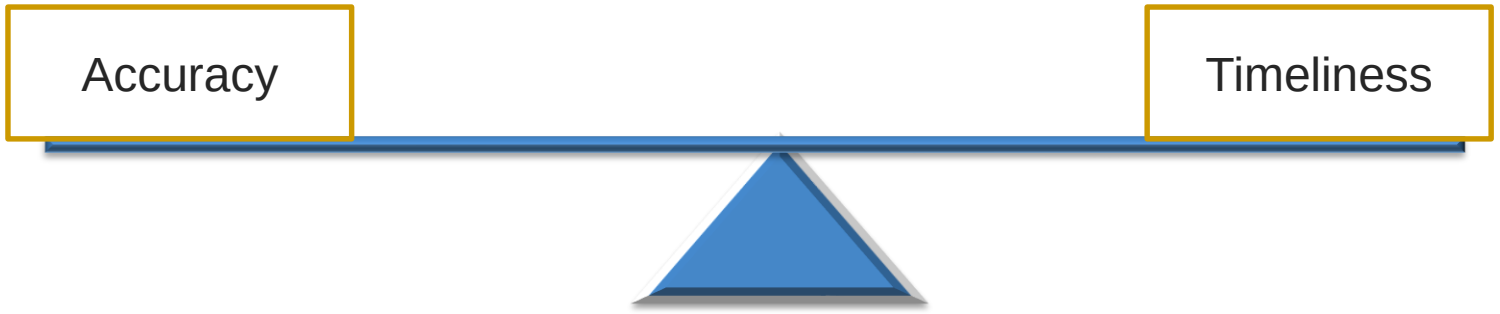
(Higgins & Green 2011)

THE COCHRANE COLLABORATION®

It takes substantial resources to produce a high quality systematic review:

>12 months and $100,000

(Petticrew 2006)



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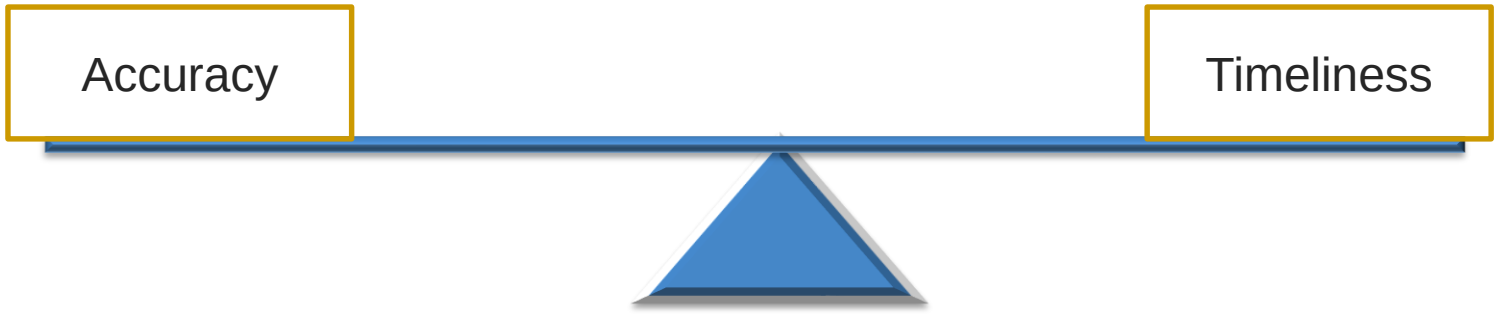
What is a rapid review?

Rapid reviews are a form of knowledge synthesis in which components of the systematic review process are methodologically tailored to produce information in a timely manner for decision-making

(Khangura et al 2012; Kelly et al 2017)

Rapid reviews are produced, on average, over 3 months and cost $25,000 (Jayakumar 2015)



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RAPID REVIEW RESEARCH PROGRAM

Tricco *et al. BMC Medicine* (2015) 13:224
DOI 10.1186/s12916-015-0465-6

BMC Medicine

RESEARCH ARTICLE Open Access

A scoping review of rapid review methods

Andrea C. Tricco[1,2], Jesmin Antony[1], Wasifa Zarin[1], Lisa Strifler[1,3], Marco Ghassemi[1], John Ivory[1], Laure Perrier[3], Brian Hutton[4], David Moher[4] and Sharon E. Straus[1,5*]

Objective:

- To examine rapid review approaches, guidance, impact, and comparisons through a scoping review

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- Currently, there is no established definition for rapid review

*"streamlined traditional systematic review methods to synthesize evidence in a **shorter timeframe**"* (Ganann et al 2010)

*"a streamlined approach to synthesizing evidence , typically for **informing emergent decisions** faced by decision-makers"* (Khangura et al 2012)

*"fluid and flexible based on **decision-makers' needs**, and an organization's definition of 'rapid', since the definition impacts both the **timelines** and the conduct of the evidence synthesis"* (Polisena et al 2015)

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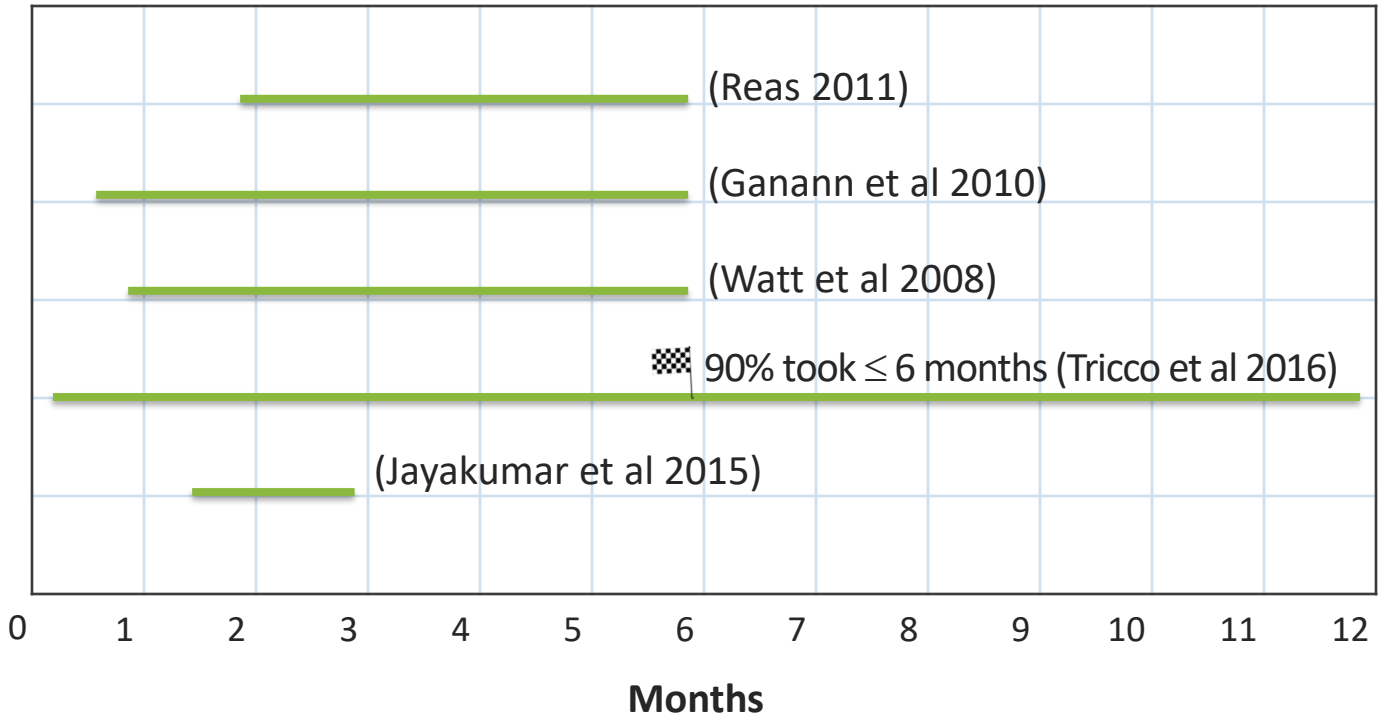
Production times

- Although reduced production time is considered a key feature of rapid review, a wide range of timeframes are reported in the literature



Systematic reviews take >12 months to complete

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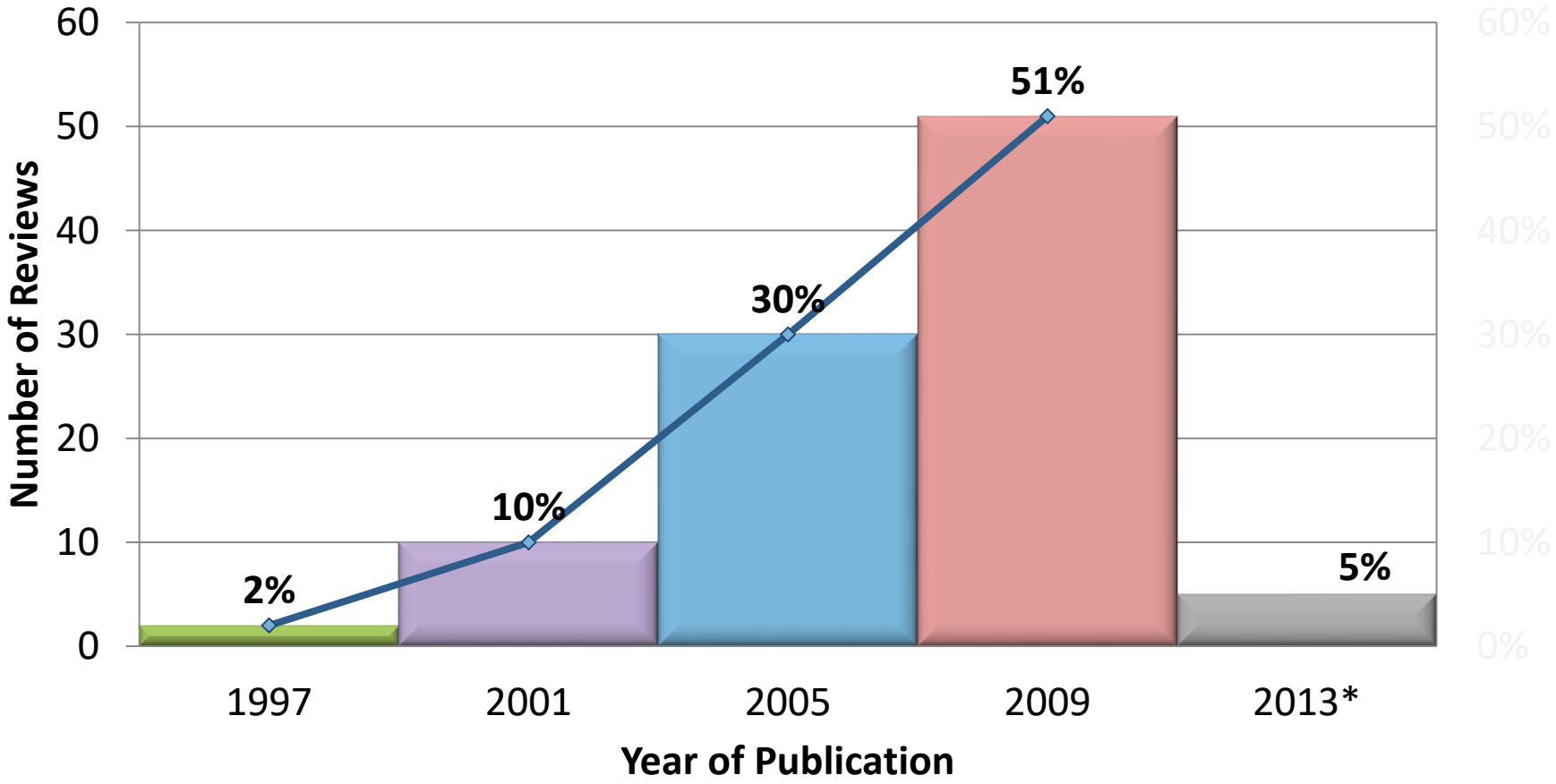
Publication trend



*Until February 2013

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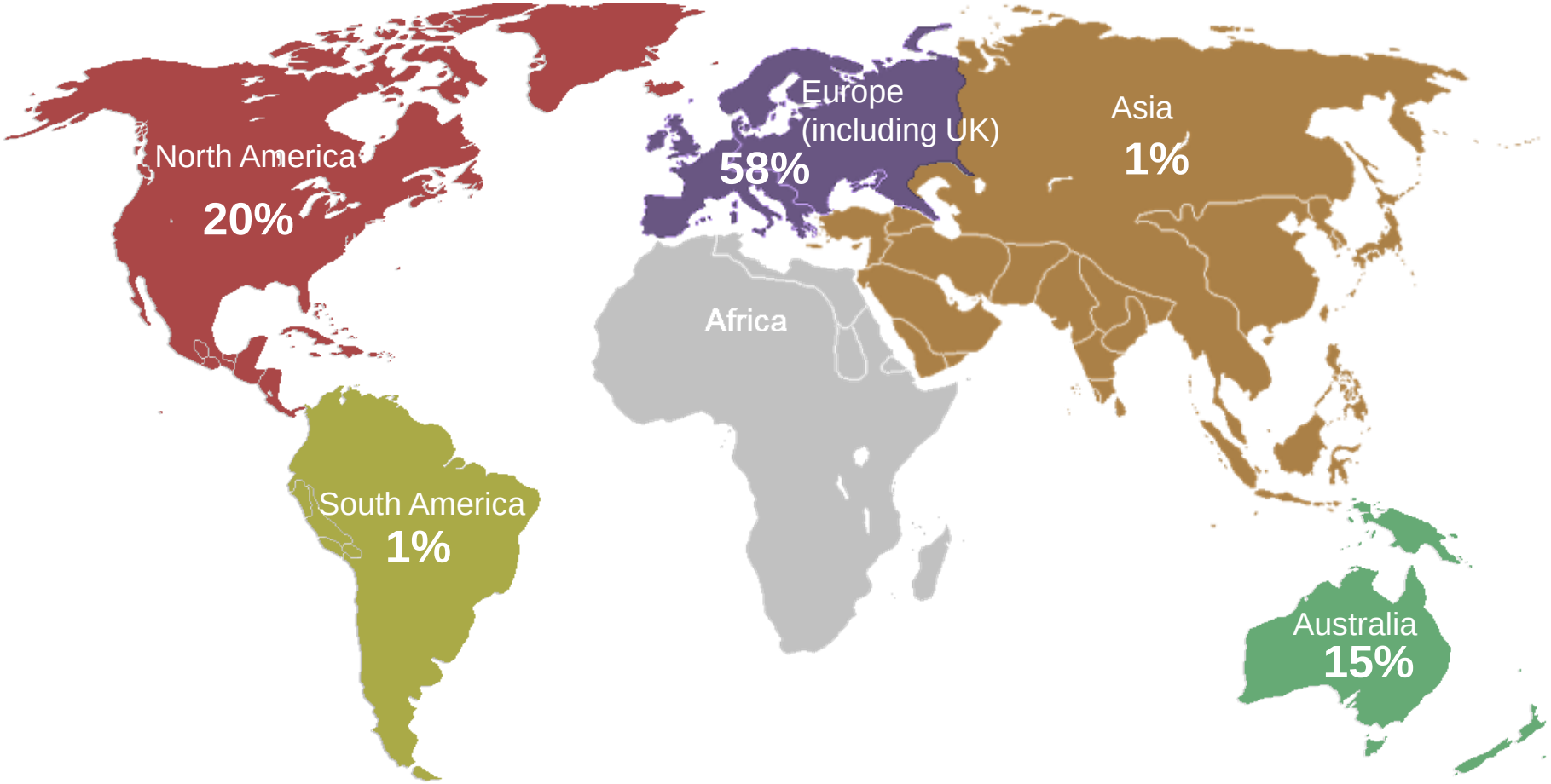
Geographic distribution of publications



**3% Multiple Continents; 2% Not reported*

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ELSEVIER

CrossMark

Journal of Clinical Epidemiology 70 (2016) 61–67

Journal of Clinical Epidemiology

An international survey and modified Delphi approach revealed numerous rapid review methods

Andrea C. Tricco[a,b], Wasifa Zarin[a], Jesmin Antony[a], Brian Hutton[c], David Moher[c], Diana Sherifali[d], Sharon E. Straus[a,e,*]

Objectives:

- To solicit experiences with rapid reviews from rapid review producers
- To conduct a consensus-building exercise to select a rapid review approach that will be prospectively tested in a reliability study

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Results of most frequent streamlined approach

Review Stage	Most frequent streamlined approach	Count (%)
Identifying relevant studies	Used previous review(s) as a starting point	79 (92)
Limitations on search strategy	Limited review by date of publication	75 (88)
Study selection	Screening conducted by ONE reviewer only	68 (85)
Data abstraction	Data abstraction performed by ONE reviewer only	67 (84)
Quality (risk of bias) appraisal process	Risk of bias assessed by ONE reviewer only	68 (86)
Synthesis	Narrative summary	75 (90)

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Summary of ranking results by approach

Rapid review Approach	Feasibility	Timeliness	Comprehensiveness	Risk of Bias
Approach 1	1st	2nd	5th	1st
Approach 2	2nd	1st	6th	6th
Approach 3	3rd	3rd	4th	3rd
Approach 4	4th	4th	3rd	5th
Approach 5	5th	5th	1st	4th

*Ranked based on the distribution of "very" and "extremely" on the 7-point Likert scale, except Risk of Bias was ranked on distribution of “not at all” and “very”

☑ **Search >1 database, published studies only, both date and language limitations, one reviewer screens, one person abstracts data and assesses risk of bias, and another verifies**

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Journal of Clinical Epidemiology 96 (2018) 23–34

Journal of Clinical Epidemiology

REVIEW

A retrospective comparison of systematic reviews with same-topic rapid reviews

Emily Reynen[a], Reid Robson[b], John Ivory[b], Jeremiah Hwee[c], Sharon E. Straus[b,d], Ba' Pham[b], Andrea C. Tricco[b,c,*]

Objectives:

- To compare rapid reviews (RRs) to same-topic systematic reviews (SRs) for methods, studies included, and conclusions

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Retrospective Assessment of Rapid Reviews

Methods

- Updated literature search of our scoping review *(Tricco 2015)* in Medline, Embase, and the Cochrane Library
- 2 independent reviewers screened citations to identify pairs of systematic reviews and rapid reviews on the same topic
- 2 independent reviewers abstracted data (objectives, characteristics, PICOS, methods, comprehensiveness, results, conclusions, quality using AMSTAR)
- Descriptive synthesis was conducted

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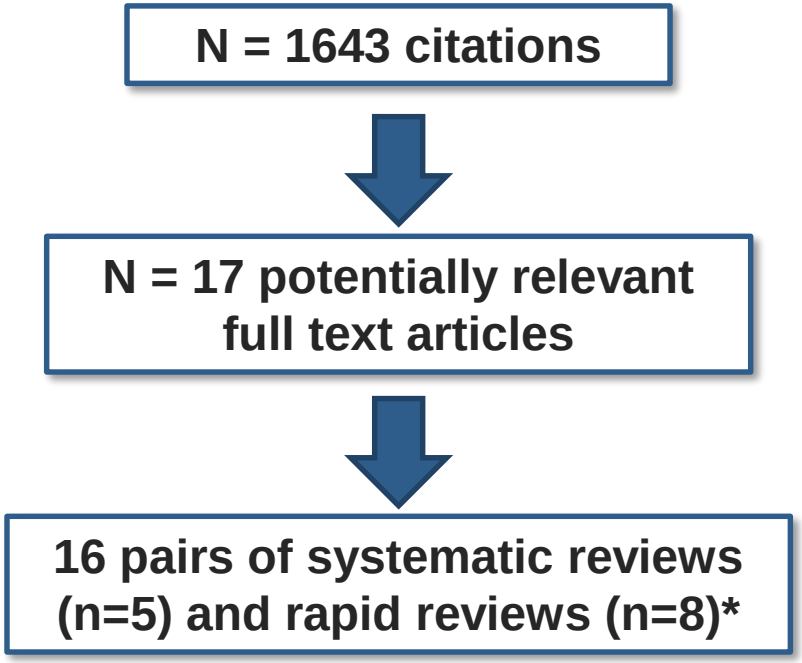
Retrospective Assessment of Rapid Reviews

Preliminary results: study flow



**** Reviews were published between 2002-2010***

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Retrospective Assessment of Rapid Reviews

Preliminary results: systematic reviews vs. rapid reviews

Systematic Reviews	Rapid Reviews
# study selection (using ≥ 2 reviewers/1 reviewer & 1 verifier): 10	# study selection (using ≥ 2 reviewers/1 reviewer & 1 verifier): 3
# data abstraction (using ≥ 2 reviewers/1 reviewer & 1 verifier): 13	# data abstraction (using ≥ 2 reviewers/1 reviewer & 1 verifier): 4
# of included studies (range): 5-14	# of included studies (range): 2-24
Mean AMSTAR score (range): 4.8 (1-9)	Mean AMSTAR score (range): 2 (0-4)

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Retrospective Assessment of Rapid Reviews

Discussion

- Quality of reporting higher for systematic reviews compared to rapid reviews
- Comprehensiveness greater for systematic reviews compared to rapid reviews
- AMSTAR scores higher for systematic reviews compared to rapid reviews

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Systematic Prospective Assessment of Rapid Knowledge Synthesis (SPARKS) Study

Objectives:

- To prospectively evaluate pairs of rapid reviews and systematic reviews on the same review topics with respect to their results, step-specific process outcomes and usability

  1. Evaluate the reliability of conclusions, meta-analysis results of clinical benefits and harms, and implications to inform decisions
  2. Compare step-specific process outcomes (e.g., hours spent on tasks and costs)
  3. Compare feasibility, timeliness, comprehensiveness, fit-to-purpose, and perceived risk of bias from the broad perspectives of end-users of the rapid reviews and systematic reviews

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SPARKS Study

Methods

- Collaboration between 3 Canadian systematic review centers
- For each systematic review that a center is conducting, another center will be randomized to conduct a rapid review, continuing until 25 rapid reviews and 25 systematic reviews are conducted
- Will compare the conclusions, meta-analysis results of clinical benefits and harms, implications to inform decision-making, step-specific process outcomes, including hours spent on tasks
- Adjusted kappa coefficients will be calculated to measure agreement

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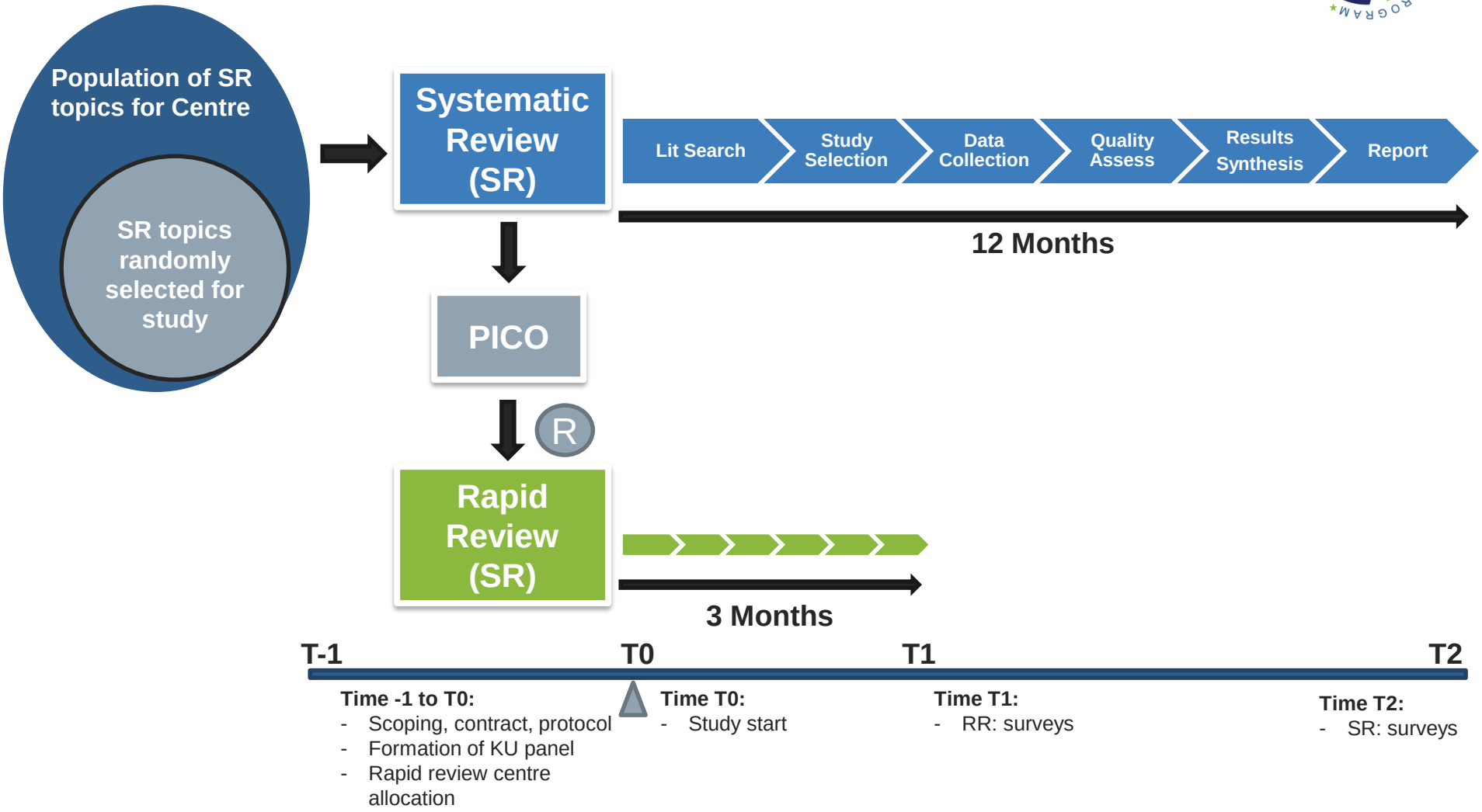
SPARKS Study Methods Figure



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Additional research on rapid reviews

- PRISMA extension on rapid reviews
- Survey of rapid review methods manuals
- Updated sample of rapid reviews
- Automation methods for reviews
- Diagnostic rapid reviews
- Identifying and prioritizing methodological uncertainties (questions) in rapid reviews (in partnership with HRB-TMRN)

What other research should we do on rapid reviews?

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Two rapid review programs in Canada

- The Canadian government has invested in 2 rapid review programs:
  1. Drug safety and effectiveness network
  2. Strategic Patient Oriented Research (SPOR) Evidence Alliance
- Some of the questions we are answering:
  - Can twitter be used to detect harms from medications?
  - What is the influence of doctors who consult for private companies on their prescribing practice?
  - What is the impact of full service family health teams on the health of the population?

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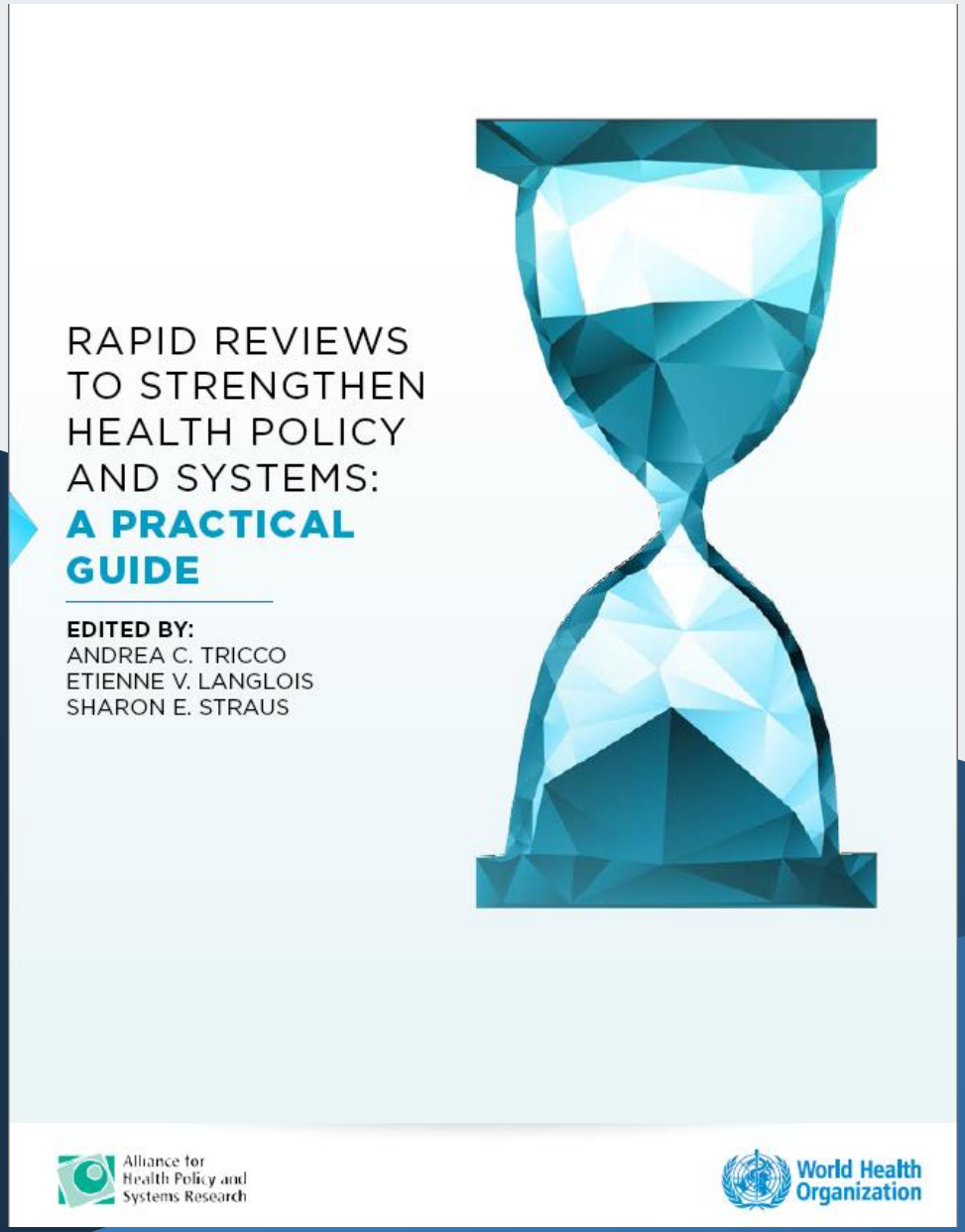
RAPID REVIEWS TO STRENGTHEN HEALTH POLICY AND SYSTEMS:
A PRACTICAL GUIDE
EDITED BY:
ANDREA C. TRICCO
ETIENNE V. LANGLOIS
SHARON E. STRAUS
Alliance for Health Policy and Systems Research
World Health Organization

PRACTICAL GUIDANCE FROM OUR GUIDE FROM SELECTED CHAPTERS

CHAPTER 2: PERFORMING RAPID REVIEWS

Valerie J. King, Chantelle Garritty, Adrienne Stevens, Barbara Nussbaumer-Streit, Lisa Hartling, Curtis S. Harrod, Jeanne-Marie Guise, Chris Kamel

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KEY MESSAGE #1: Engage stakeholders

Early and continuing engagement with the research requester is essential for focusing the rapid review and ensuring that it is appropriate to the needs of stakeholders

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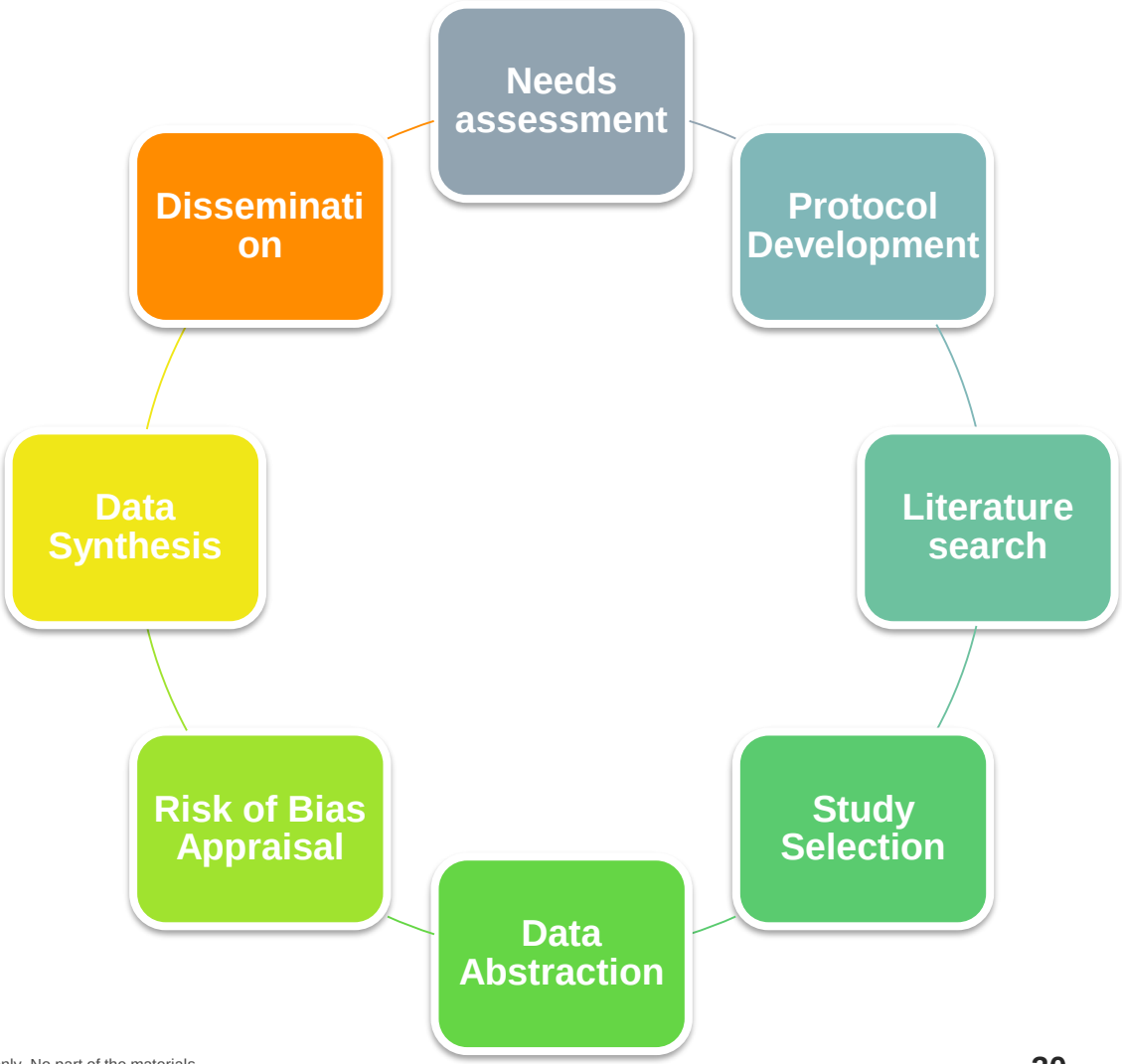
KEY MESSAGE #2: Streamline research process

Methods can be streamlined at all stages of the review process

A standardized set of methods for conducting rapid reviews does not exist, and the consequences of various streamlining choices for the validity of conclusions from a rapid review are uncertain



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KEY MESSAGE #3: Tailor methods to needs

Researchers need to make transparent methodological choices, informed by stakeholder input, to ensure that the evidence review is fit for its intended purpose

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KEY MESSAGE #4: Use information technologies

Information technologies can assist researchers in conducting rapid reviews by making various steps in the process more efficient

Examples: Abstrackr, OpenMeta, Covidence, etc.

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CHAPTER 3: IMPROVING QUALITY AND EFFICIENCY IN SELECTING, ABSTRACTING, AND APPRAISING STUDIES FOR RAPID REVIEWS

Ba' Pham, Reid C. Robson, Sonia M. Thomas, Jeremiah Hwee, Matthew J. Page, Andrea C. Tricco

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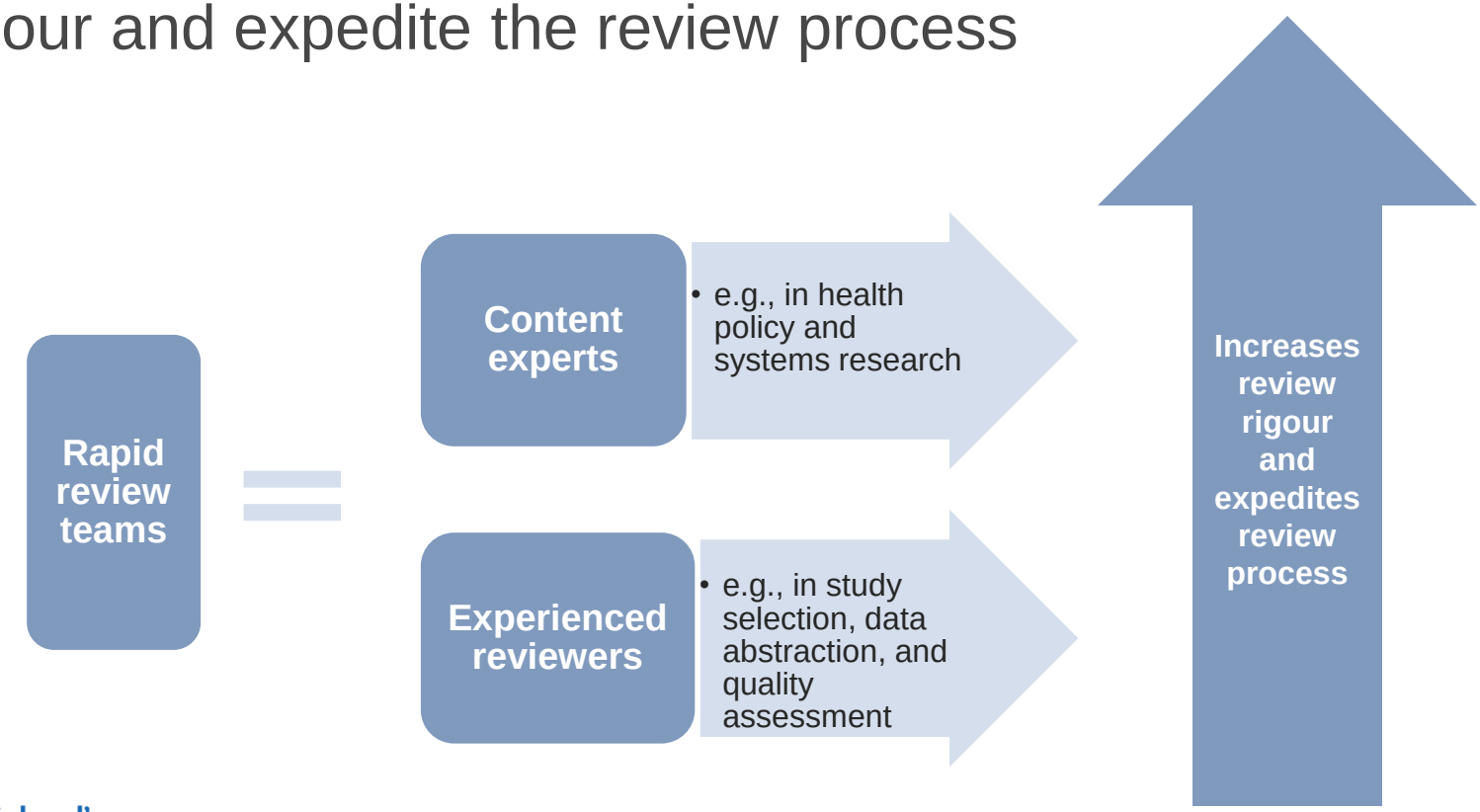
KEY MESSAGE #1: Engage experts

Rapid review teams should consider including content experts and experienced reviewers to increase review rigour and expedite the review process



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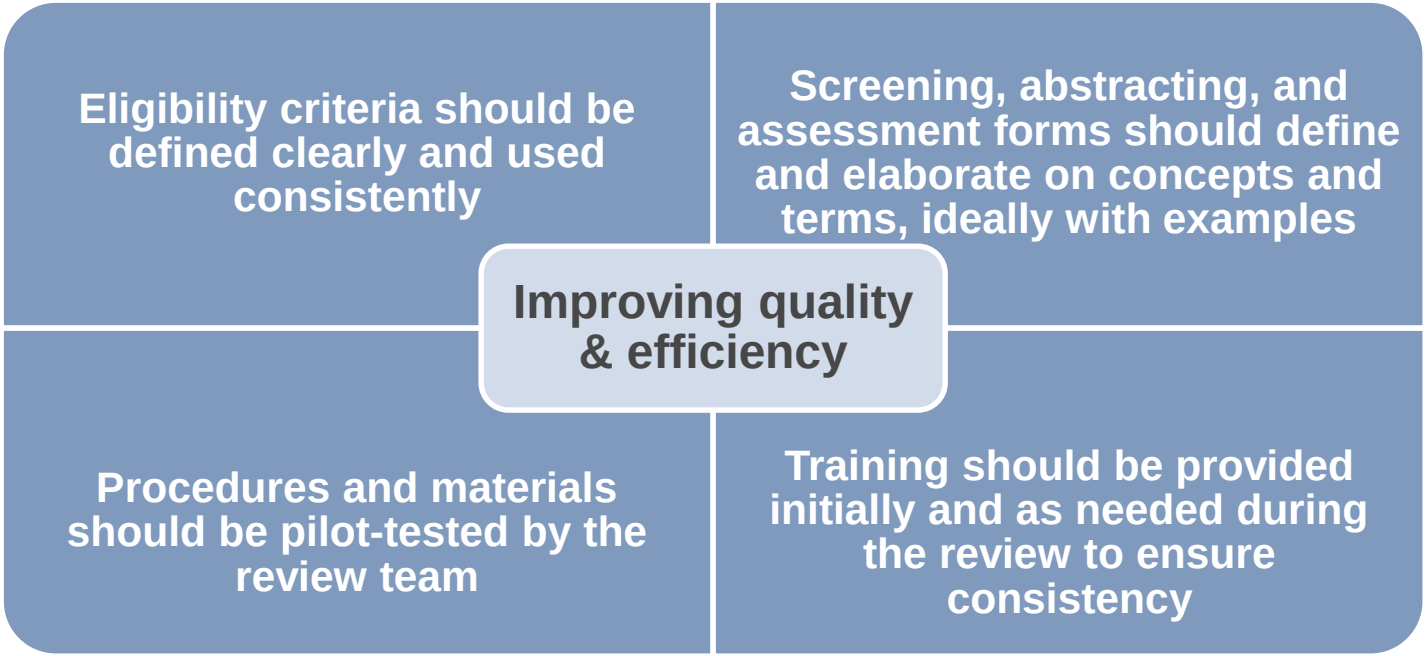
KEY MESSAGE #2: Increase efficiency

Well-defined eligibility criteria, explanation and elaboration forms, pilot-tests and reviewer training are recommended to support reviewers in study selection, data abstraction, and quality assessment



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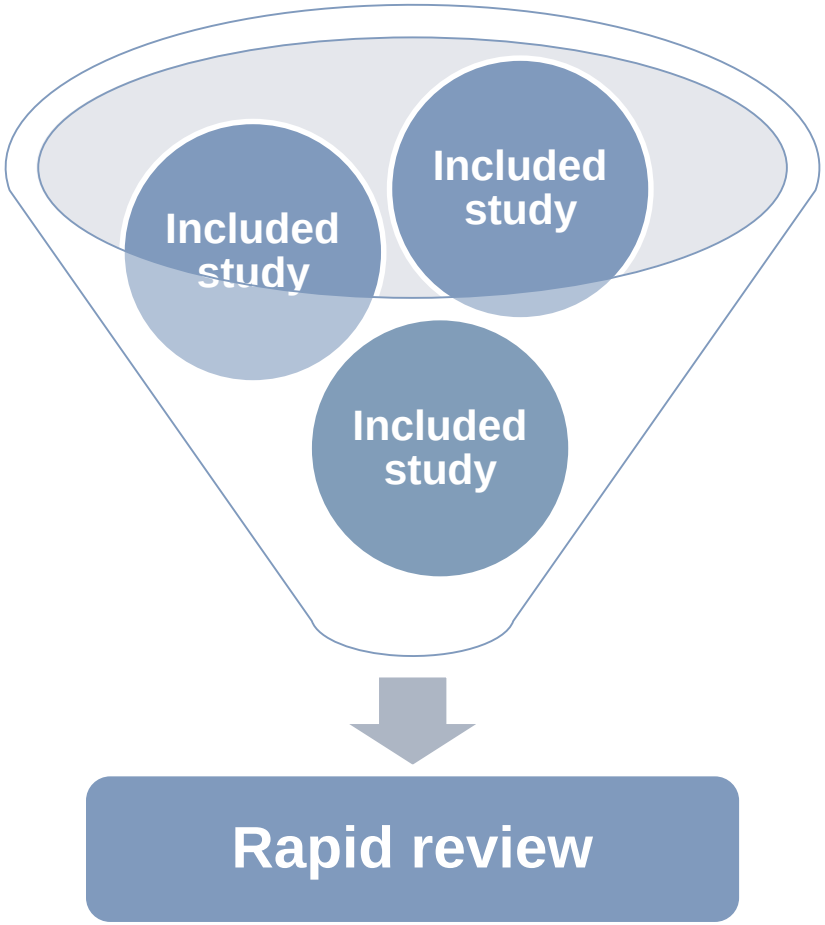
KEY MESSAGE #3: Engage authors

Authors of the studies included in the rapid review should be consulted to gather further information on methods conduct regarding study selection, data abstraction and quality assessment, if time allows



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CHAPTER 4: SELECTING RAPID REVIEW METHODS FOR COMPLEX QUESTIONS RELATED TO HEALTH POLICY AND SYSTEM IMPROVEMENTS

Sandy Oliver, Michael Wilson, G. J. Melendez-Torres, Mukdarut Bangpan, Kelly Dickson, Carol Vigurs

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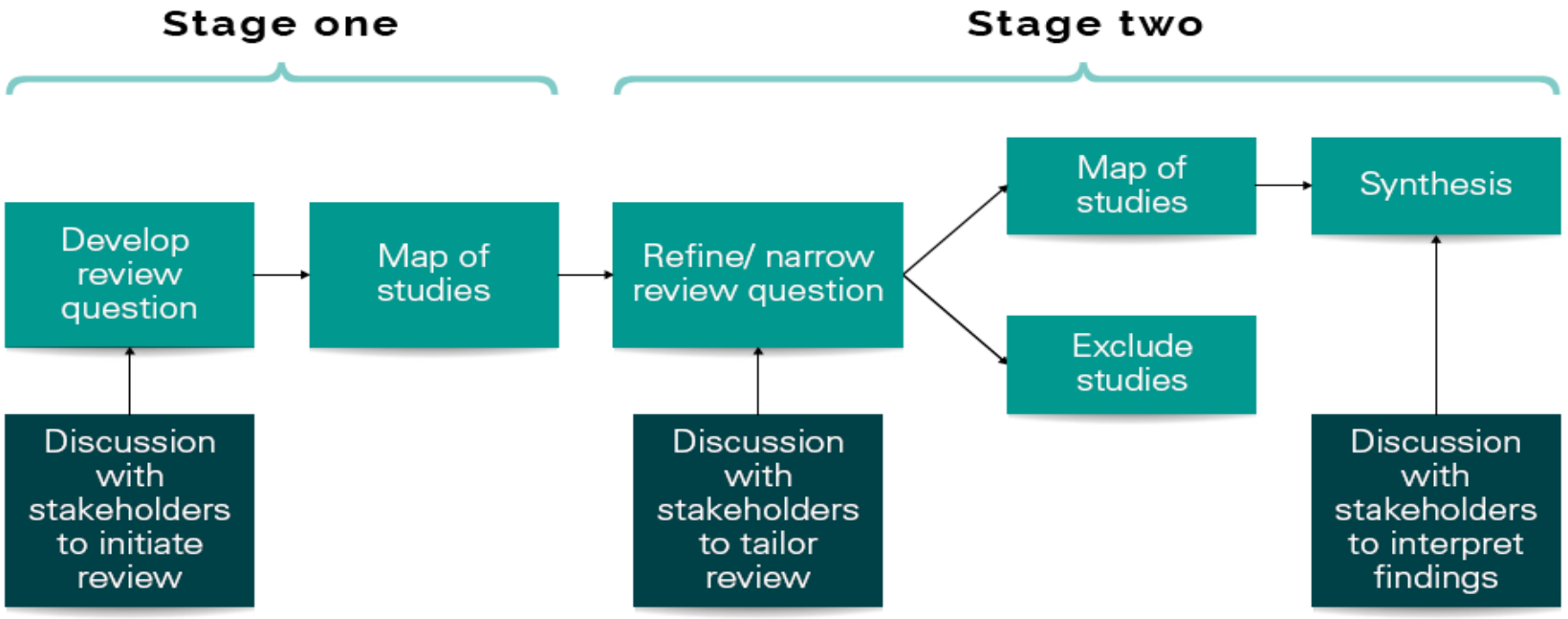
KEY MESSAGE #1: Use two-stage process

A two-stage process of first scoping the literature, then selecting a focus, is an effective approach for conducting health policy and systems reviews under time constraints



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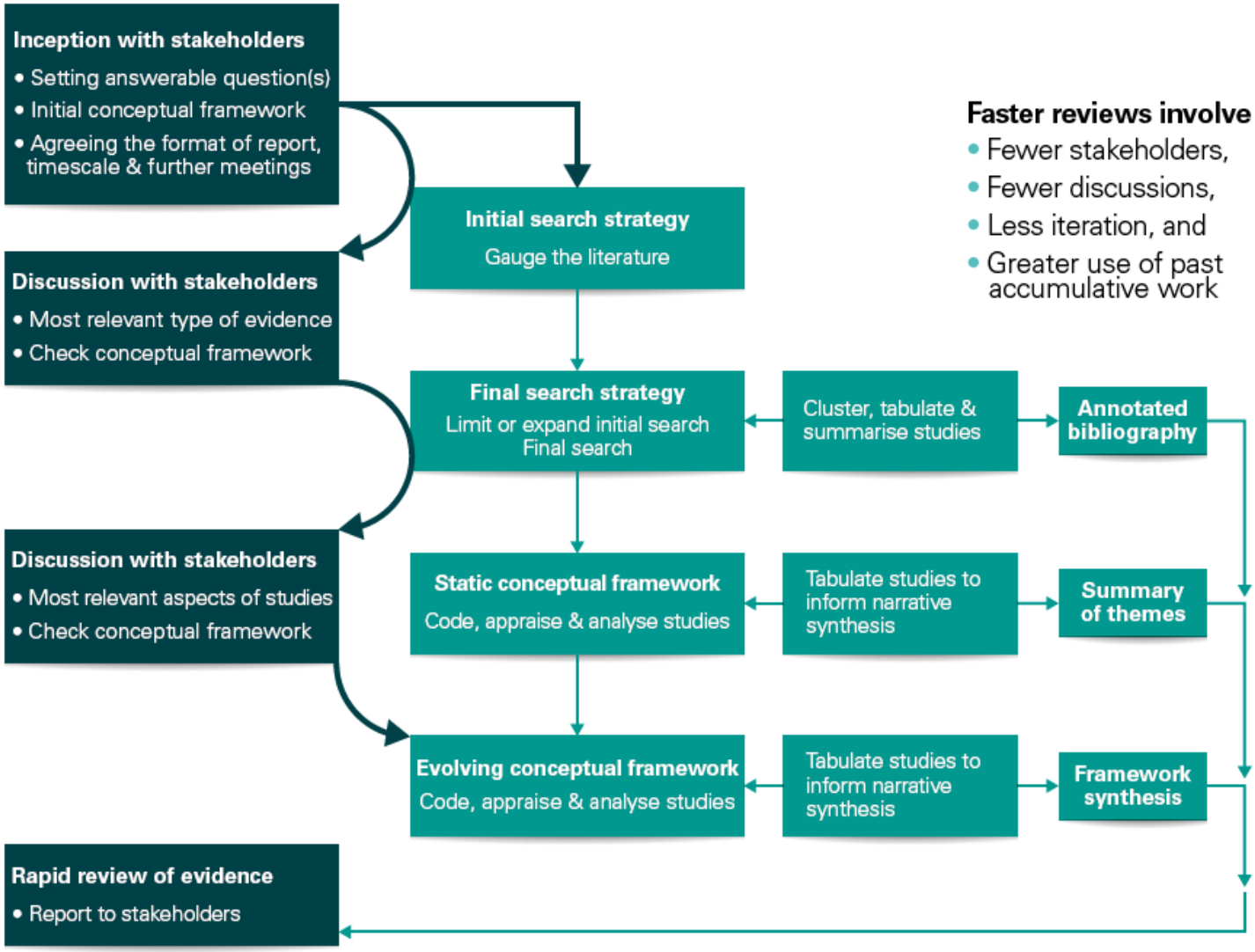
KEY MESSAGE #2: Use transdisciplinary collaboration



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KEY MESSAGE #3: Use rapid review frameworks

FASTER, LEAST SOPHISTICATED SYNTHESIS

FOCUSED QUESTIONS & SUB-QUESTIONS

Developed in discussion with stakeholders to guide a targeted, rapid search of the most relevant evidence

STATIC THEMATIC FRAMEWORKS

Applies existing frameworks reflecting acknowledged theory, policy, or practice

EVOLVING FRAMEWORKS

Initial framework can be borrowed from existing theories, or constructed in discussions between the review team and stakeholders

SLOWER, MOST SOPHISTICATED SYNTHESIS

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KEY MESSAGE #4: Use prior systematic reviews

REANALYSIS OF PRIMARY STUDIES FROM SYSTEMATIC REVIEWS

Questions related to complex interventions can be informed by a set of reviews, where the individual reviews address different intervention components

REVIEW-LEVEL SYNTHESIS

Results of the reviews themselves are of interest, but their component studies are not examined

UPDATES OF SYSTEMATIC REVIEWS

Existing systematic reviews can be supplemented by updating the literature searches

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- **Co-investigators:** Dr. Sharon Straus, Dr. David Moher, Dr. Brian Hutton, Dr. Diana Sherifali, Dr. Lisa Hartling, Dr. Tammy Clifford, Adrienne Stevens, Chantelle Garritty, Dr. Jemila Hamid

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QUESTIONS?