LSR Network webinar

Practical experiences of teams piloting LSRs

The AUB GRADE center experience

Elie Akl
Lara Kahale

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American University of Beirut (AUB), Lebanon

Outline

- Why do LSRs?
- What conducting LSRs has involved?
- What have been the challenges?
- What are the suggestions for conducting LSRs?

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Journal of Clinical Epidemiology ■ (2017) ■

Journal of Clinical Epidemiology

REVIEW ARTICLE

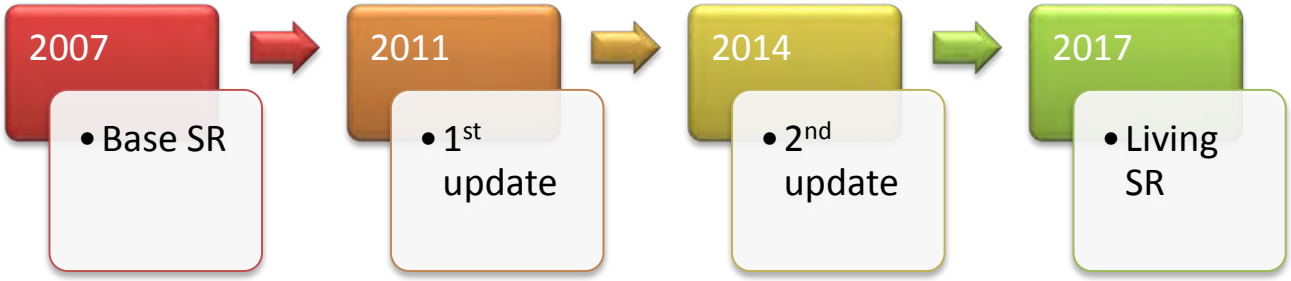
Living systematic review: 1. Introduction—the why, what, when, and how

Julian H. Elliott[a,b,*], Anneliese Synnot[a,c], Tari Turner[a], Mark Simmonds[d], Elie A. Akl[e,f,g], Steve McDonald[a], Georgia Salanti[h], Joerg Meerpohl[i], Harriet MacLehose[j], John Hilton[j], David Tovey[j], Ian Shemilt[k], James Thomas[k], on behalf of the Living Systematic Review Network

Box 1 Living systematic reviews

- A systematic review that is continually updated, incorporating relevant new evidence as it becomes available
- An approach to review updating, not a formal review methodology
- Can be applied to any type of review
- Uses standard systematic review methods
- Explicit and a priori commitment to a predetermined frequency of search and review updating

Updating 6 Cochrane SRs on the topic “anticoagulation in patients with cancer”



Parenteral anticoagulation in ambulatory patients with cancer.

Akl EA, Kahale LA, Ballout RA, Barba M, Yosuico VE, van Doormaal FF, Middeldorp S, Bryant A, Schünemann H.

Cochrane Database Syst Rev. 2014 Dec 10;(12):CD006652. doi: 10.1002/14651858.CD006652.pub4. Review. Update in: Cochrane Database Syst Rev. 2017 Sep 11;9:CD006652.

PMID: 25491949

Similar articles

Oral anticoagulation in patients with cancer who have no therapeutic or prophylactic indication for anticoagulation.

Akl EA, **Kahale L**, Terrenato I, Neumann I, Yosuico VE, Barba M, Sperati F, Schünemann H.

Cochrane Database Syst Rev. 2014 Jul 1;(7):CD006466. doi: 10.1002/14651858.CD006466.pub5. Review. Update in: Cochrane Database Syst Rev. 2017 Dec 29;12 :CD006466.

PMID: 24980743

Similar articles

Anticoagulation for people with cancer and central venous catheters.

Akl EA, Ramly EP, Kahale LA, Yosuico VE, Barba M, Sperati F, Cook D, Schünemann H.

Cochrane Database Syst Rev. 2014 Oct 15;(10):CD006468. doi: 10.1002/14651858.CD006468.pub5. Review.

PMID: 25318061

Similar articles

Low molecular weight heparin versus unfractionated heparin for perioperative thromboprophylaxis in patients with cancer.

Akl EA, **Kahale L**, Sperati F, Neumann I, Labedi N, Terrenato I, Barba M, Sempos EV, Muti P, Cook D Schünemann H.

Cochrane Database Syst Rev. 2014 Jun 26;(6):CD009447. doi: 10.1002/14651858.CD009447.pub2. Review.

PMID: 24966161

Similar articles

Anticoagulation for the initial treatment of venous thromboembolism in patients with cancer.

Akl EA, **Kahale L**, Neumann I, Barba M, Sperati F, Terrenato I, Muti P, Schünemann H.

Cochrane Database Syst Rev. 2014 Jun 19;(6):CD006649. doi: 10.1002/14651858.CD006649.pub6. Review. Update in: Cochrane Database Syst Rev. 2018 Jan 24;1:CD006649.

PMID: 24945634

Similar articles

Anticoagulation for the long-term treatment of venous thromboembolism in patients with cancer.

Akl EA, **Kahale L**, Barba M, Neumann I, Labedi N, Terrenato I, Sperati F, Muti P, Schünemann H.

Cochrane Database Syst Rev. 2014 Jul 8;(7):CD006650. doi: 10.1002/14651858.CD006650.pub4. Review.

PMID: 25004410

Similar articles

Cochrane Database of Systematic Reviews

Parenteral anticoagulation in ambulatory patients with cancer

New search | Review | Intervention

Elie A Akl ✉, Lara A Kahale, Maram B Hakoum, Charbel F Matar, Francesca Sperati, Maddalena Barba, Victor E D Yosuico, Irene Terrenato, Anneliese Synnot, Holger Schünemann

First published: 11 September 2017

Editorial Group: Cochrane Gynaecological, Neuro-oncology and Orphan Cancer Group

DOI: 10.1002/14651858.CD006652.pub5 View/save citation

Cited by (CrossRef): 0 articles Last updated 12 September 2017

Editorial note:This is a living systematic review. Living systematic reviews offer a new approach to review updating in which the review is continually updated, incorporating relevant new evidence, as it becomes available. Please refer to the Cochrane Database of Systematic Reviews for the current status of this review.

Outline

- **Why do LSRs?**
- What conducting LSRs has involved?
- What have been the challenges?
- What are the suggestions for conducting LSRs?

When to do a LSR

1. The review question in a particular priority for decision making

Living systematic review approach: Following the publication of this current 2017 update of the review, we will maintain it as a living systematic review. This means we will be continually running the searches and rapidly incorporating any newly identified evidence (for more information about the living systematic review approach being piloted by Cochrane, see Appendix 1). We believe a living systematic review approach is appropriate for this review for four reasons. First, the review addresses an important topic for clinical practice; patients with cancer have a relatively high rate of VTE, up to 17.7% (Ay 2010). In addition, the occurrence of VTE is associated with a 2.3 increased risk of death in patients with breast and non-small cell lung cancer (NSCLC), 2.5 times lengthening of hospital stay among patients with lung cancer, and 50% higher total cost for patients with lung cancer (Chew 2008, Chew 2007; Connolly 2012). Second, there remains uncertainty in the existing evidence base; the 2014 update of this systematic review found a potential subgroup effect on all-cause mortality at one year, with a possible higher reduction in mortality among patients with small cell lung cancer (SCLC) compared to other types of cancer. Third, we are aware of several recently published and ongoing trials in this area that will be important to incorporate in a timely manner. Fourth, we are planning to use this living systematic review as the basis of a living recommendation in a clinical practice guideline with the American Society of Hematology (Akl 2017). For more information about the living systematic review approach being piloted by Cochane, see Appendix 2.

When to do a LSR

2. There is an important level of uncertainty in the existing evidence

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When to do a LSR

3. There is likely to be emerging evidence that will impact on the conclusions

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When to do a LSR

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REVIEW ARTICLE

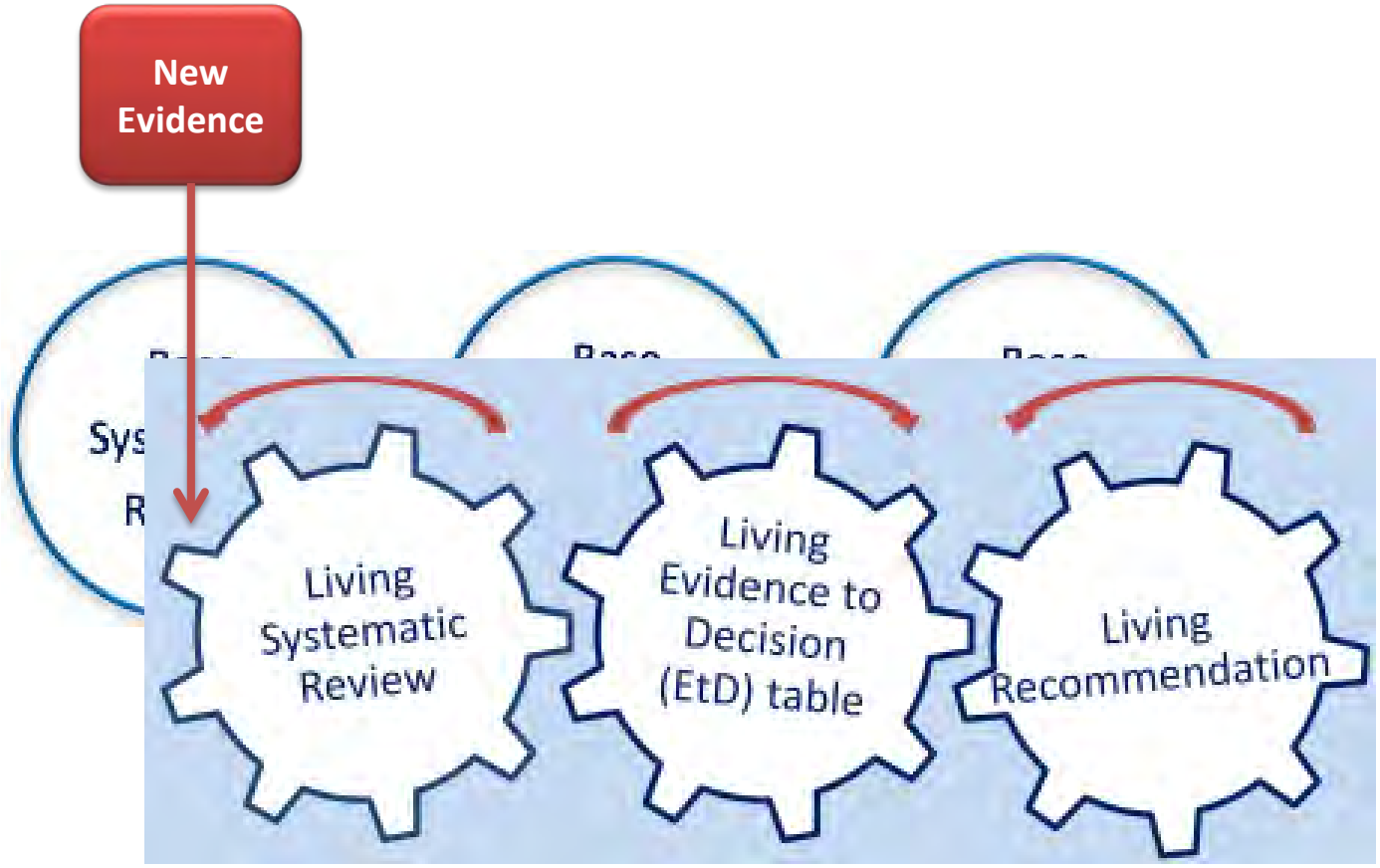
Living systematic reviews: 4. Living guideline recommendations

Elie A. Akl[a,*], Joerg J. Meerpohl[b], Julian Elliott[c], Lara A. Kahale[d], Holger J. Schünemann[e], on behalf of the Living Systematic Review Network

Surveillance Process

Base Process

Living Process



Outline

- Why do LSRs?
- **What conducting LSRs has involved?**
- What have been the challenges?
- What are the suggestions for conducting LSRs?

Conducting LSR

- Develop the “base” SR

- As soon as “base” SR is produced
  - ➢ Switch to the living mode

Conducting LSR

- Searching electronic databases

Electronic searches

The search was part of a comprehensive search for studies of anticoagulation in patients with cancer. We did not use language restrictions. We conducted comprehensive searches on 14 August 2017, following the original electronic searches in January 2007, February 2010, February 2013, and February 2016 (last major search). We electronically searched the following databases: the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE (starting 1946), and Embase (starting 1980; accessed via OVID) . The search strategies combined terms for anticoagulants, terms for cancer and a search filter for RCTs. We list the full search strategies for each of the electronic databases in Appendix 3, Appendix 4, and Appendix 5, respectively.

Living systematic review approach: Since the last major search in February 2016, we have been running searches monthly, using auto-alerts to deliver the monthly yield by email. We will incorporate new evidence rapidly after it is identified. This update of the systematic review is based on the findings of a literature search conducted in August 14, 2017. We will review search methods and strategies approximately yearly, to ensure they reflect any terminology changes in the topic area, or in the databases.

Conducting LSR

- Searching other resources

Searching other resources

We handsearched the conference proceedings of the American Society of Clinical Oncology (ASCO, starting with its first volume, 1982 up to August 2017) and of the American Society of Hematology (ASH, starting with its 2003 issue up to August 2017).We also searched ClinicalTrials.gov and WHO International Clinical Trials Registry Platform for ongoing studies. In addition, we reviewed the reference lists of papers included in this review and of other relevant systematic reviews. We used the 'related citation' feature in PubMed to identify additional articles and 'citation tracking' of included studies in Web of Science Core Collection.

Living systematic review approach: We will search the conference proceedings of ASCO and ASH soon after their publications, ClinicalTrials.gov, and WHO International Clinical Trials Registry Platform on a monthly basis. As an additional step, we will contact corresponding authors of ongoing studies as they are identified and ask them to advise when results are available. We will continue to review the reference lists for any prospectively identified studies, with running the 'related citation' for all included studies on a monthly basis. Also, we will contact the corresponding authors of any newly included studies for advice as to other relevant studies. We will conduct citation tracking of included studies in Web of Science Core Collection on an ongoing basis, using citation alerts in Web of Science Core Collection.

Conducting LSR

- Selecting studies

Selection of studies

Two review authors independently screened the titles and abstracts of identified articles for eligibility. We retrieved the full text of articles judged as potentially eligible by at least one review author. Two review authors then independently screened the full-text articles for eligibility using a standardized form with explicit inclusion and exclusion criteria. The two review authors resolved their disagreements by discussion or by consulting a third review author.

Living systematic review approach: For the monthly searches, we will immediately screen any new citations retrieved each month. As the first step of monthly screening, we will apply the machine learning classifier (RCT model) available in the Cochrane Register of Studies (CSR-Web; Wallace 2017). The classifier assigns a probability (from 0 to 100) to each citation for being a true RCT. For citations that are assigned a probability score of less than 10, the machine learning classifier currently has a specificity/recall of 99.987% (James Thomas, personal communication). For citations assigned a score from 10 to 100, we will screen them in duplicate and independently. Citations that score 9 or less will be screened by Cochrane Crowd (Cochrane Crowd). Any citations that are deemed to be potential RCTs by Cochrane Crowd will be returned to the authors for screening.

Conducting LSR

- Data analysis

Data synthesis

For time-to-event data, we pooled the log(HRs) using a random-effects model (DerSimonian 1986), and the generic inverse variance facility of RevMan 2014. For dichotomous data, we calculated the RR separately for each study. When analyzing data related to participants who were reported as not compliant, we attempted to adhere to the principles of intention-to-treat (ITT) analysis. We approached the issue of non-compliance independently from that of missing data (Alshurafa 2012). We then pooled the results of the different studies using a random-effects model. We assessed the certainty of evidence at the outcome level using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach (GRADE handbook).

Living systematic review approach: Whenever new evidence (studies, data or information) that meets the review inclusion criteria is identified, we will immediately assess risk of bias and extract the data and incorporate it in the synthesis, as appropriate. We will not adjust the meta-analyses to account for multiple testing given the methods related to frequent updating of meta-analyses are under development (Simmonds 2017).

Conducting LSR

Appendix 1. Living systematic review protocol

Appendix 1. Living systematic review protocol

The methods outlined below are specific to maintaining the review as a living systematic review in the Cochrane Library (Synnot 2017). They will be implemented immediately upon publication of this update. Core review methods, such as the criteria for considering studies in the review and assessment of risk of bias, are unchanged. As such, below we outline only those areas of the methods for which additional or different activities are planned or rules apply.

Search methods for identification of studies

We will re-run the majority of searches monthly. For electronic databases and other electronic sources (CENTRAL, MEDLINE, Embase), we have set up auto-alerts to deliver a monthly search yield by email. We will search the remaining resources (conference proceedings of the American Society of Clinical Oncology (ASCO); the American Society of Haematology (ASH); and clinicaltrials.gov) on a bi-yearly basis. For that purpose, we will note when these conference proceedings are published.

As additional steps to inform the living systematic review, we will contact corresponding authors of ongoing studies as they are identified and ask them to advise when results are available, and to share early or unpublished data. We will contact the corresponding authors of any newly included studies for advice as to other relevant studies. We will conduct citation tracking of included studies in Web of Science Core Collection on an ongoing basis. For that purpose, we have set up citation alerts in Web of Science Core Collection. We will manually screen the reference list of any newly included studies, and identified relevant guidelines and systematic reviews. Also, we will use the 'related citation' feature in PubMed to identify additional articles.

We will review search methods and strategies approximately yearly, to ensure they reflect any terminology changes in the topic area, or in the databases.

Selection of studies

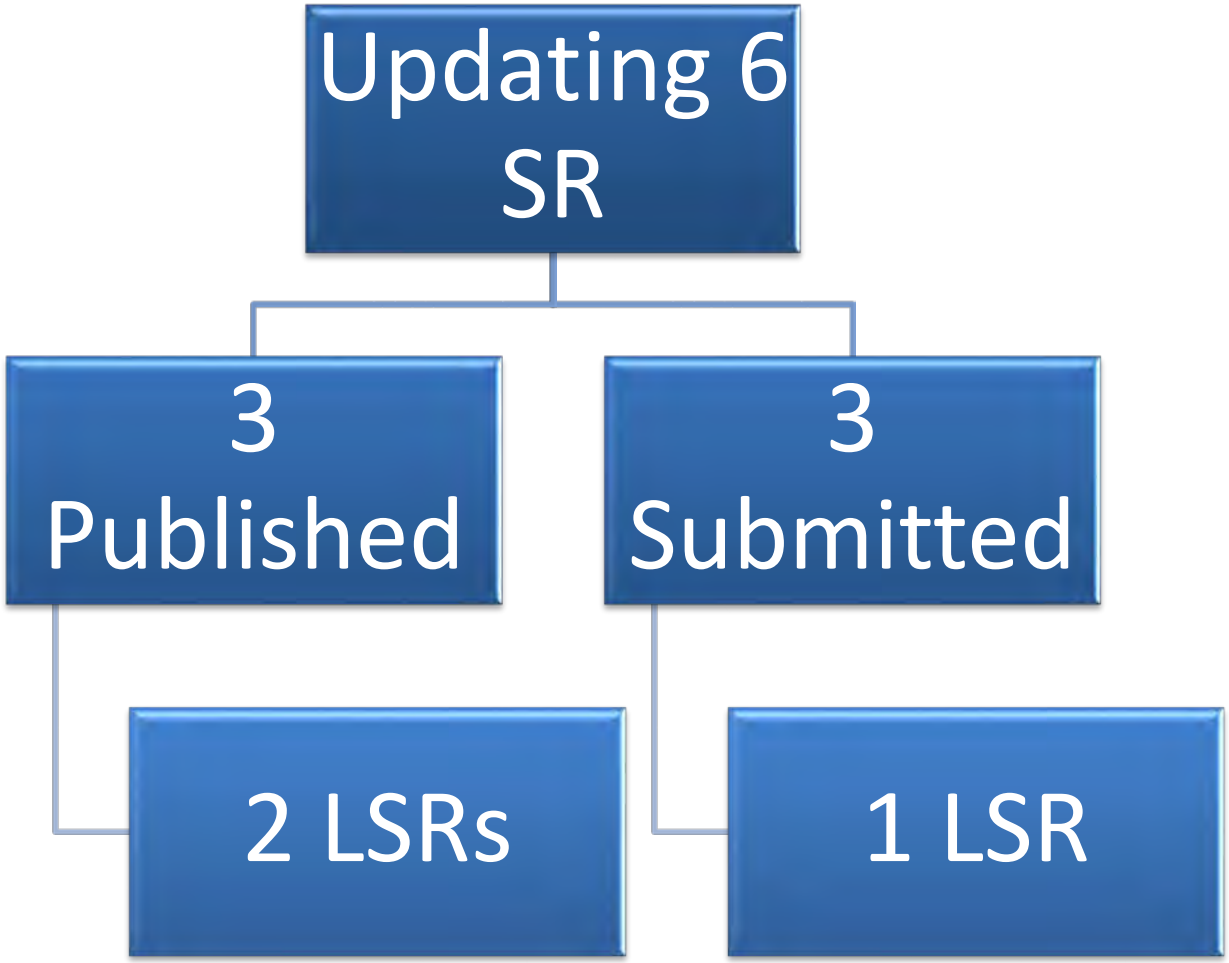
We will immediately screen any new citations retrieved by the monthly searches. As the first step of monthly screening, we will apply the machine learning classifier (RCT model) available in the Cochrane Register of Studies (CSR-Web; Wallace 2017). The classifier assigns a probability (from 0 to 100) to each citation for being a true RCT. For citations that are assigned a probability score of less than 10, the machine learning classifier currently has a specificity/recall of 99.987% (James Thomas, personal communication). For citations assigned a score from 10 to 100, we will screen them in duplicate and independently. Citations that score 9 or less will be screened by Cochrane Crowd (Cochrane Crowd). Any citations that are deemed to be potential RCTs by Cochrane Crowd will be returned to the authors for screening.

Data synthesis

Whenever new evidence (studies, data or information) that meets the review inclusion criteria is identified, we will immediately assess risk of bias and extract the data and incorporate it in the synthesis, as appropriate. We will not adjust the meta-analyses to account for multiple testing given the methods related to frequent updating of meta-analyses are under development (Simmonds 2017).

Other

We will review the review scope and methods approximately yearly, or more frequently if appropriate, in light of potential changes in the topic area, or the evidence being included in the review (for example, additional comparisons, interventions or outcomes, or new review methods available).


Updating 6 SR
3 Published
3 Submitted
2 LSRs
1 LSR

Outline

- Why do LSRs?
- What conducting LSRs has involved?
- **What have been the challenges?**
- What are the suggestions for conducting LSRs?

Challenges

- Availability of LSR enablers (e.g., machine learning tools)
- Sustained commitment from authors, editorial teams, and publisher
- Sustained budget: to support the above commitment

Challenges

- How frequently should we search the literature? Monthly, bimonthly?

- When to incorporate the new evidence, immediately or using decision rules to decide if can be delayed? (i.e. small study)

Challenges

- Authorship: waning level of contribution
  - How does it affect authorship?
  - How frequently should we change the list of authors?
  - How to give credit to previous contributors?

- Publication: would every update have a new DOI?

Outline

- Why do LSRs?
- What conducting LSRs has involved?
- What have been the challenges?
- **What are the suggestions for conducting LSRs?**

Suggestions

- Plan time wisely (i.e., dedicate certain number of hours per month for updating LSR)
- Involve team members that are willing to commit for a long duration of time
- Document and organize the data wisely
- Establish good communication with editors

Suggestions

- Expect hurdles and be creative

Acknowledgments

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  - Project Transform- LSR network (Annie Synnot)

- Conflicts Of Interest: none

Thank you!

Questions?

NSW GOVERNMENT Health
Hunter New England Local Health District

Practical experiences of piloting an LSR:
Interventions for increasing fruit and vegetable consumption in children five years and under

LSR Network webinar, May 2018
Rebecca Kate Hodder
Hunter Medical Research Institute Research Fellow, The University of Newcastle
Research Practitioner, Hunter New England Population Health

THE UNIVERSITY OF NEWCASTLE AUSTRALIA

HMRI Hunter Medical Research Institute

History of the review

- Review objective
  - To assess effectiveness of interventions to increase consumption of fruit and/or vegetables amongst children aged five years and under
  - Eligibility: RCTs, dietary/biochemical F&V intake, children ≤5 years

- Original review (published 2012) - 5 studies
  - Effect for fruit but not veg for multi-component preschool-based interventions
  - No effect for specific child feeding or home visiting interventions

- Review update (published Sept 2017) - 45 new studies
  - Small effect on veg intake for specific child feeding interventions
  - No effect on fruit or veg intake for parent nutrition education, multi-component or child nutrition interventions

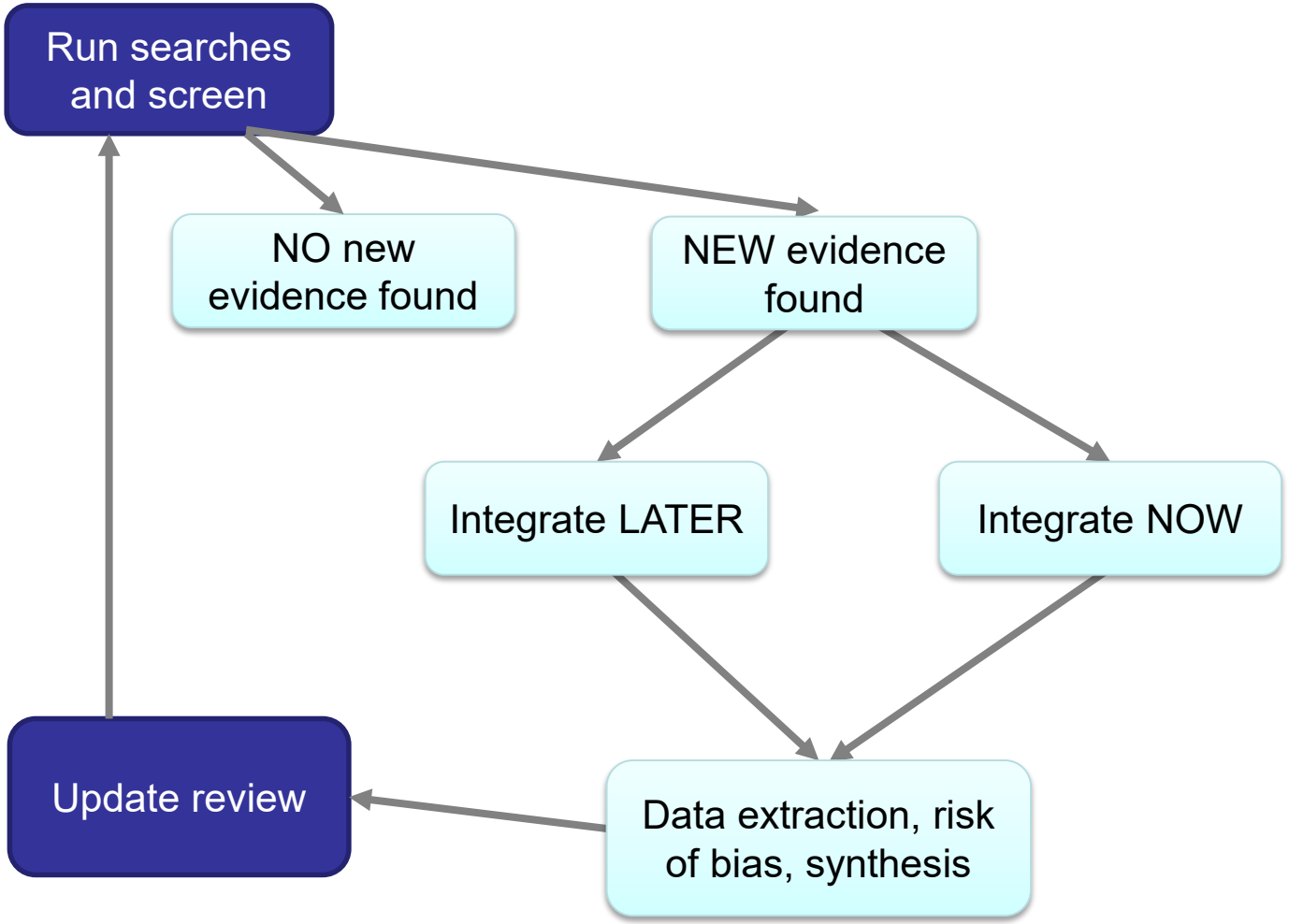
Criteria for considering LSR for this review

- ✓ The review question is a priority for decision making
  - Growing burden of disease from low F&V consumption
  - Early childhood is critical period for healthy eating behaviours
  - Potential for results to inform national child obesity prevention

- ✓ Certainty in the existing evidence is low or very low
  - Very low quality of evidence found all intervention types

- ✓ There is likely to be new research evidence
  - 45 new studies between 2012 and 2017
  - 5 ongoing studies identified in 2017

LSR processes



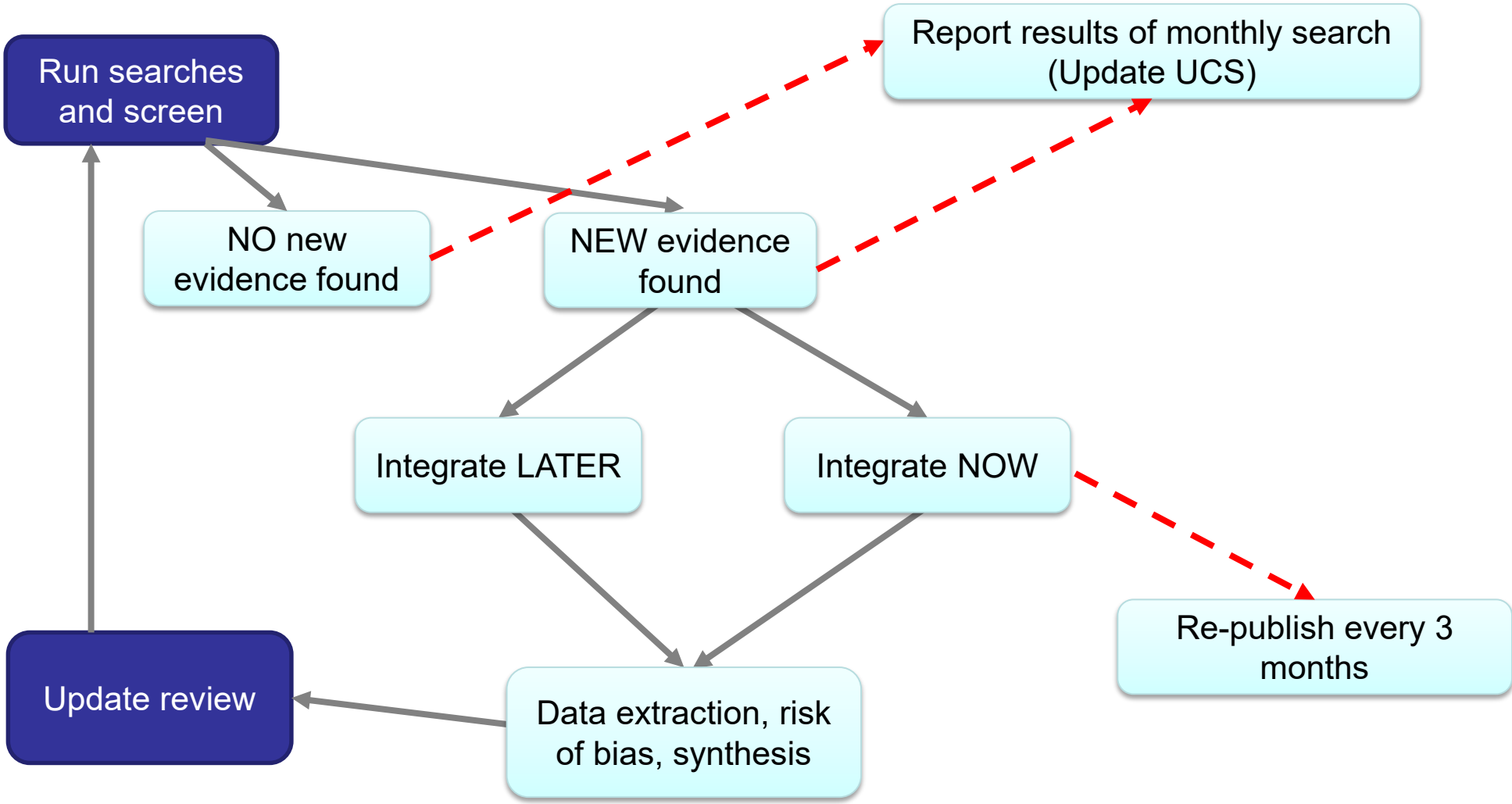
What exactly are we doing?

- Modified search strategy
  - Monthly
    - Databases
    - Trial registries
  - 6 monthly
    - Journal hand searching
    - Theses/dissertations
    - Grey literature
  - Ongoing
    - Contacting authors for early sharing
    - Citation tracking via Web of Science

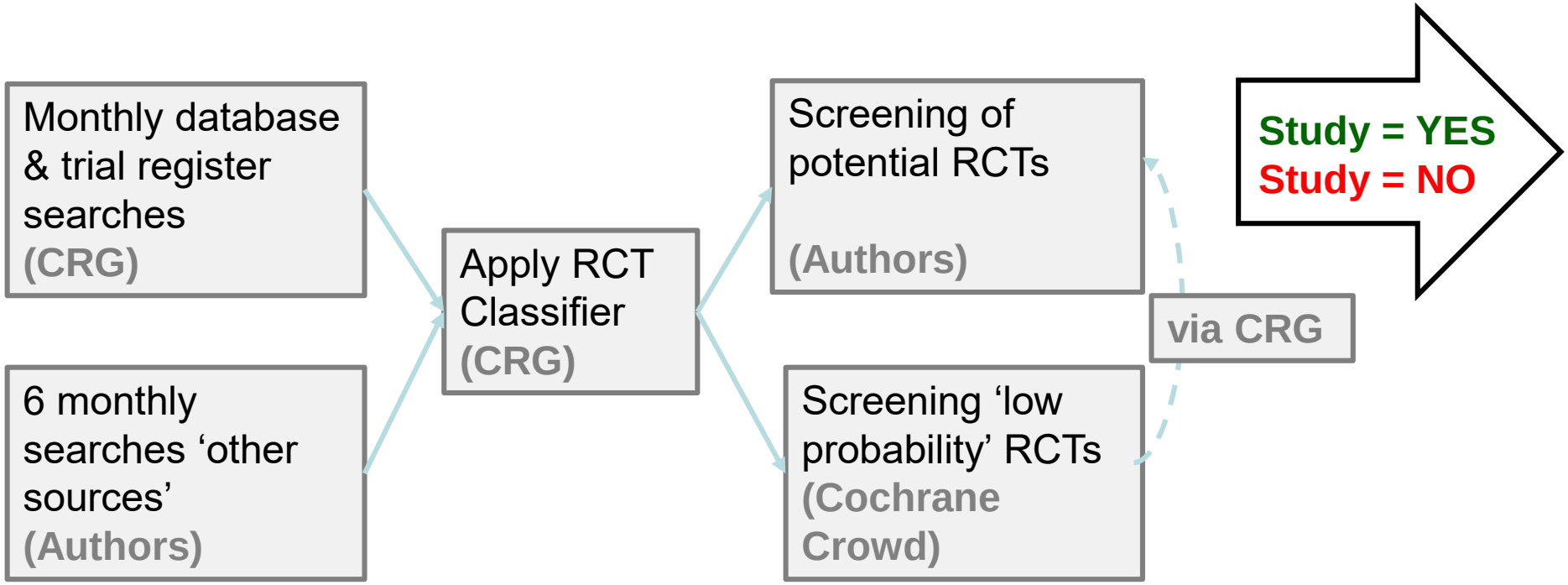
What exactly are we doing?

- Screening processes
  - RCT classifier via CRS web to identify likely RCTs
    - 0-9% likely RCTs
    - 10-100% likely RCTs
  - Cochrane Crowd via CRS web to identify RCTs
    - 0-9% likely RCTs
  - Local author team
    - Title/abstract screening on review-specific eligibility criteria
      - 10-100% likely RCTs
      - 0-9% likely RCTs returned from Cochrane Crowd
    - Full text screening

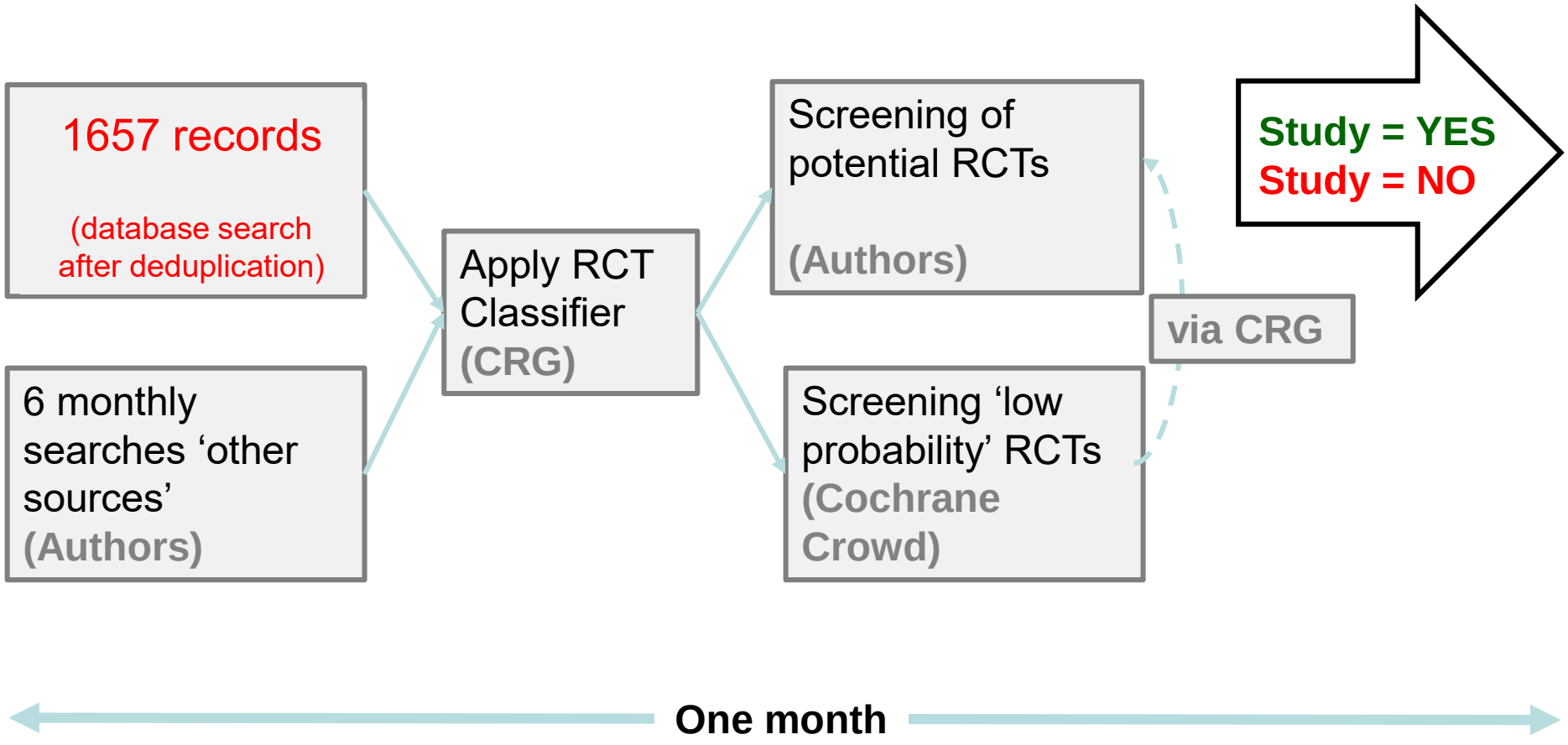
What exactly are we doing?



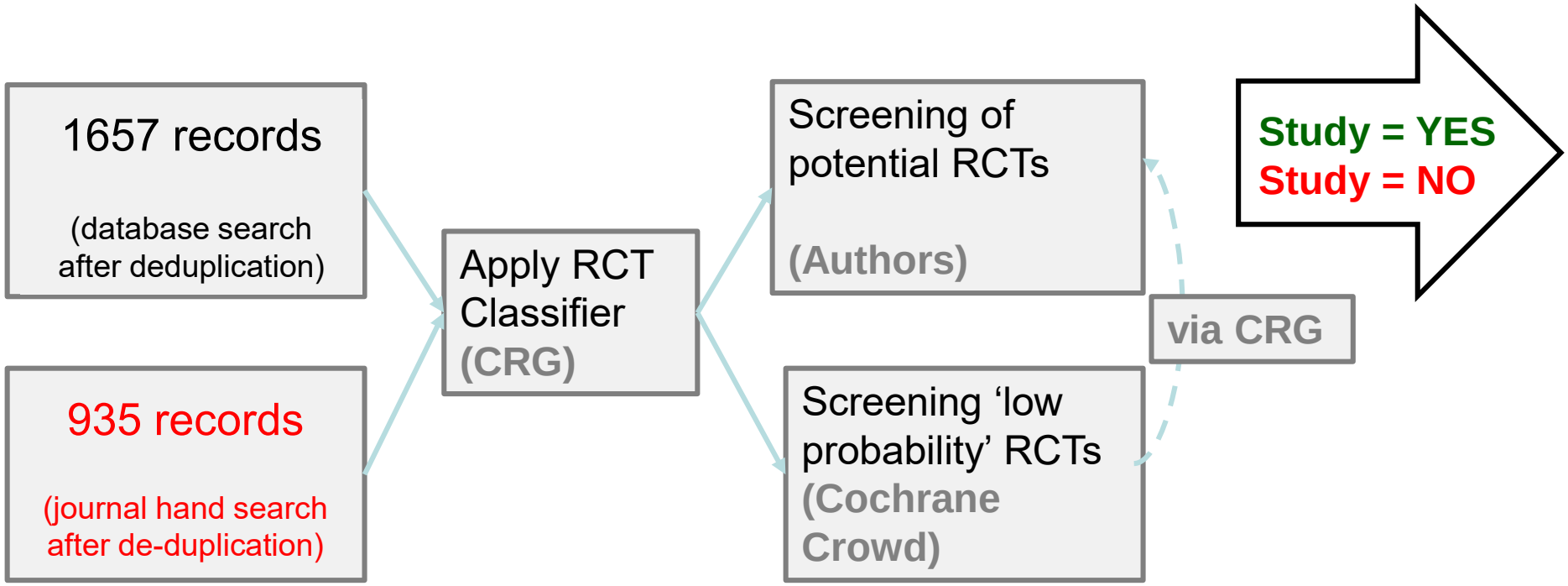
What exactly we are doing? Screening…



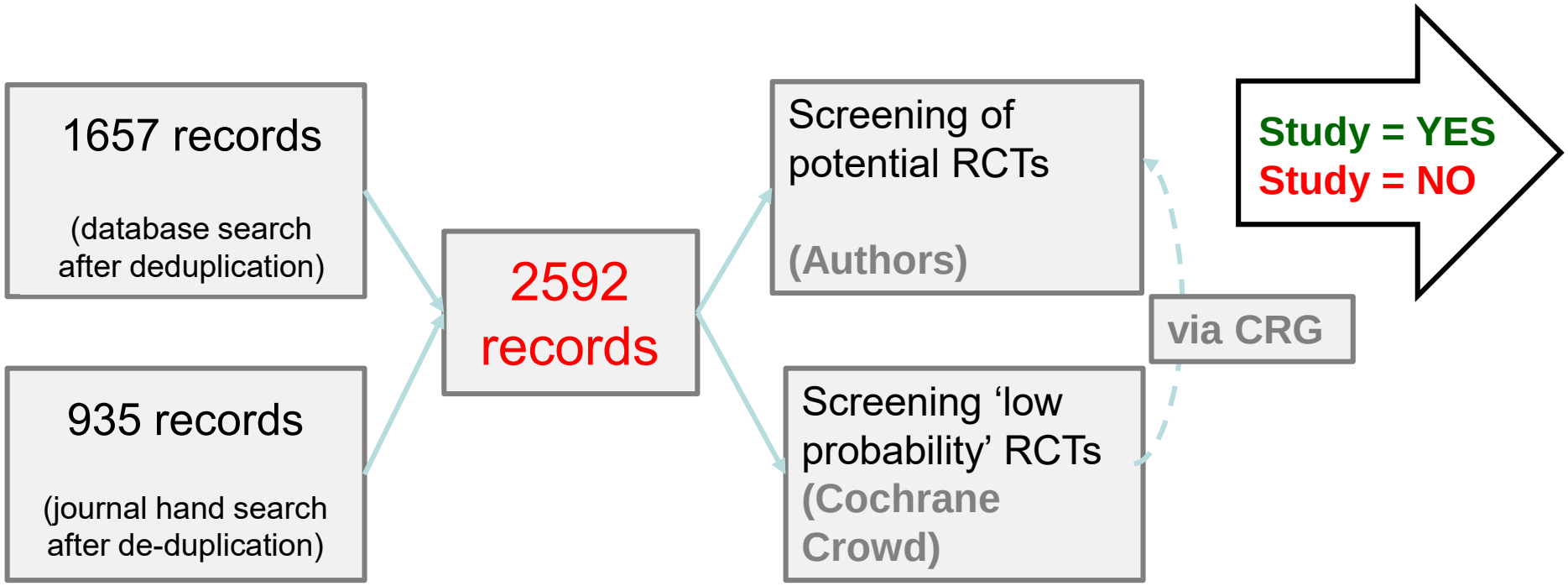
Results from monthly screening



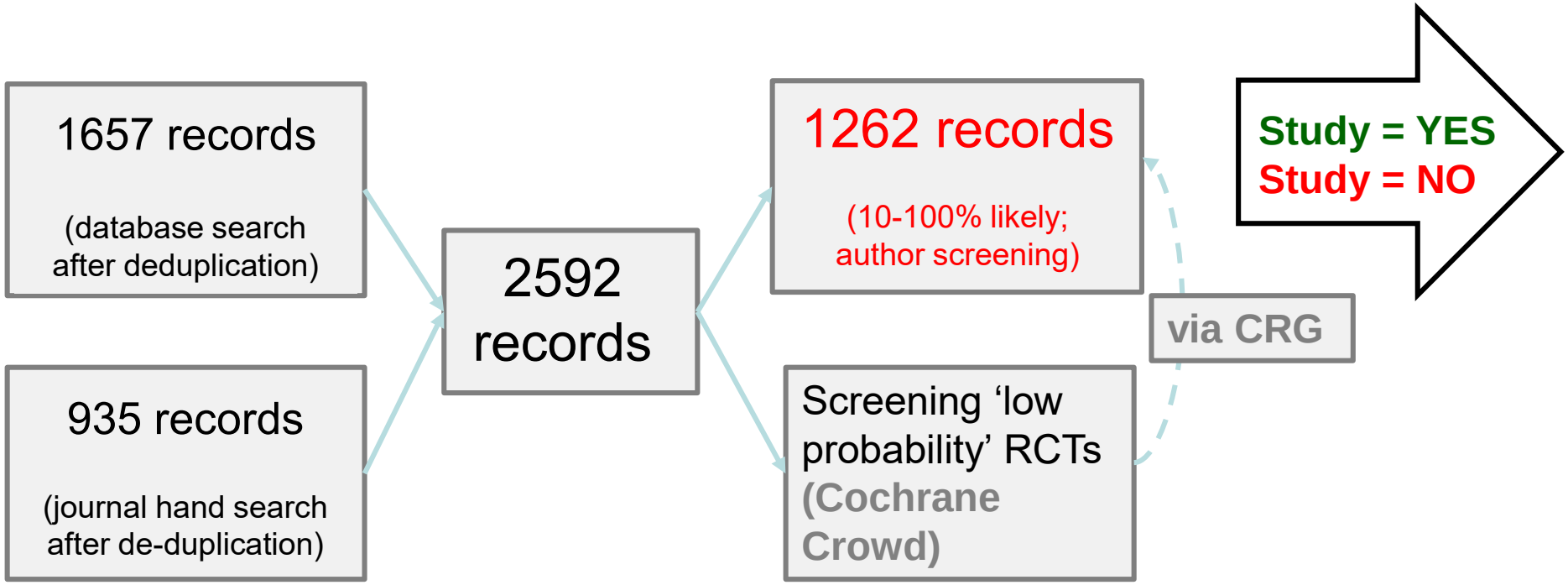
Results from monthly screening



Results from monthly screening

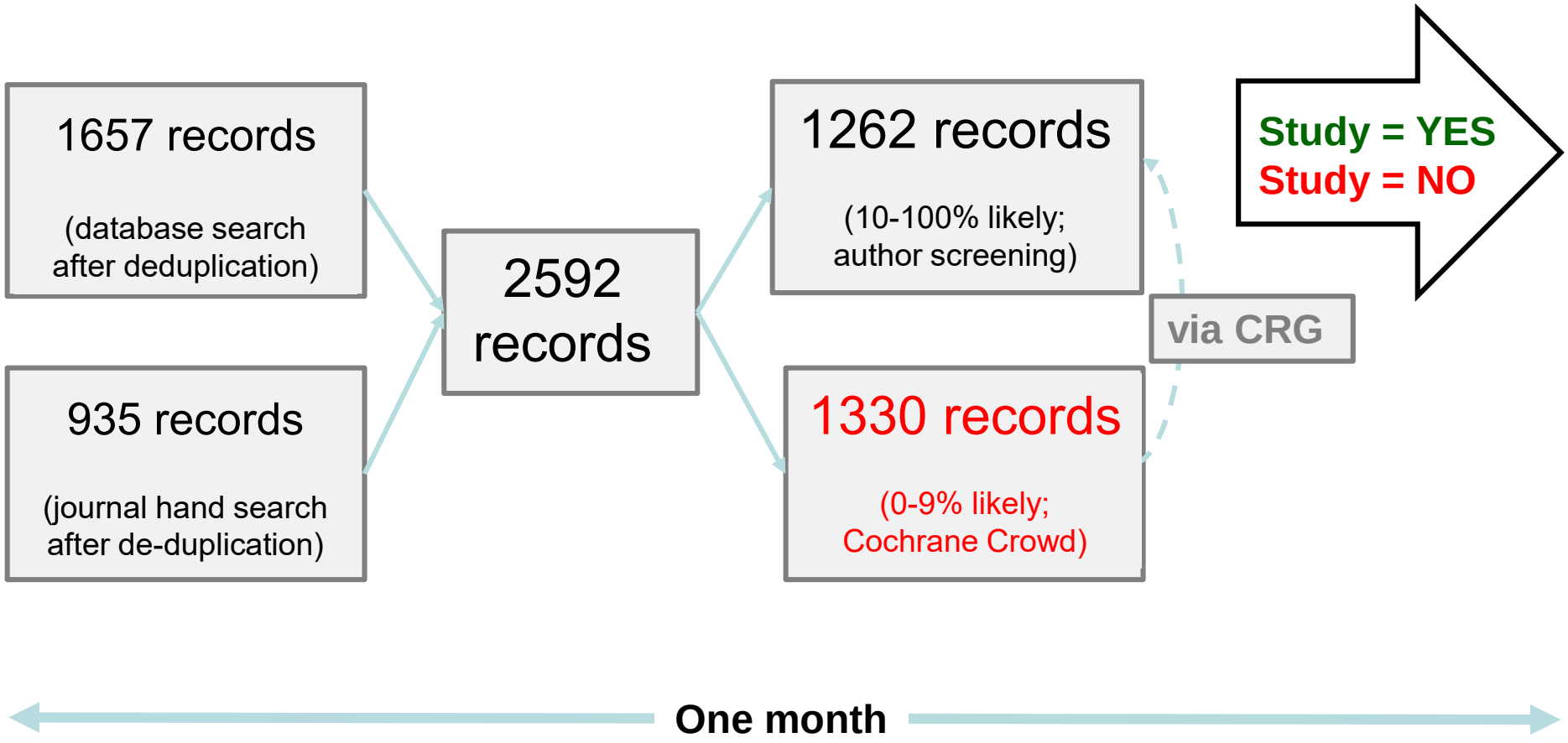


Results from monthly screening

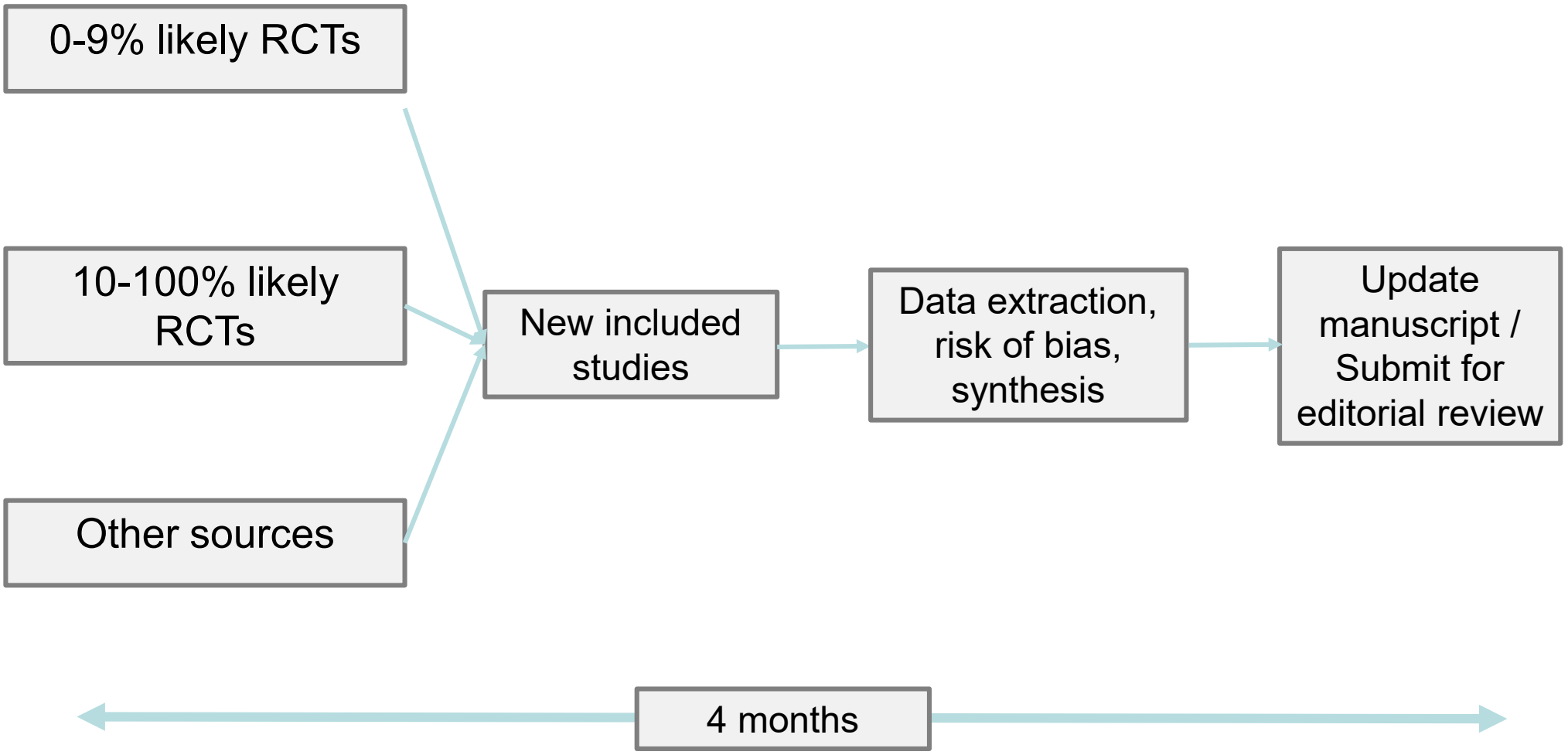


One month

Results from monthly screening



Publication timeline



Publications to date

'Baseline' review published Sept17
– 45 new studies (50 in total)

1st living systematic review published Jan18
– 5 new studies (55 in total)

2nd living systematic review published May18
– 8 new studies (63 in total)

3rd living systematic review underway
- So far…3 new studies to be included

What have been the challenges?

- Ongoing author capacity/motivation to complete tasks in short timelines
- Concurrent monthly screening / synthesis of previous searches
- Contacting authors – other eligible trials and missing data
- No uptake of early sharing to date
- Timeline for updating review, editorial review and publication
- Ongoing authorship
- Consolidating excluded studies from all searches

What has been easier than we anticipated?

- Monthly searches
- Integration of RCT classifier & Cochrane Crowd
- Keeping on top of included studies

Tips for embarking on LSR

- Seek out LSR expertise
- Partner with information specialists for searches
- Plan/Identify author capacity, tasks and timelines early
- Processes/systems in place for monitoring records/new studies/author
- Identification of lead to manage tasks to timelines
- Identify opportunities to reduce workload i.e. machine learning, Cochrane Crowd
- Decide when your review will exit ‘living’ mode

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- Funding support: Robert Woods Johnson Foundation

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HMRI Hunter Medical Research Institute

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