

The background is a vibrant, abstract composition. It features numerous vertical lines in black, red, green, and blue. At the top of these lines are large, concentric circles in various colors (black, red, green, blue, and grey). Some of these circles have a smaller circle inside them, creating a tunnel-like effect. Interspersed among these larger shapes are smaller, stylized flowers with five petals, some in grey and some in green. The overall style is modern and graphic.

SYSTEMATIC REVIEWS: LAYING THE GROUNDWORK

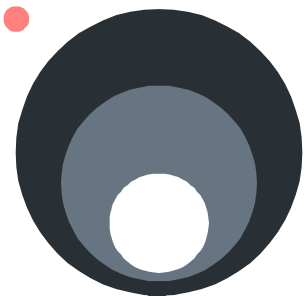
Becky Morin
Hirsh Health Sciences Library



WHAT IS A SYSTEMATIC REVIEW?

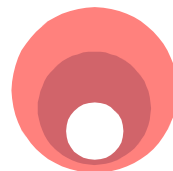
"A systematic review attempts to collate all empirical evidence that fits pre-specified eligibility criteria to answer a specific research question. It uses explicit, systematic methods that are selected to minimize bias, thus providing reliable findings from which conclusions can be drawn and decisions made. Meta-analysis is the use of statistical methods to summarize and combine the results of independent studies."

- Cochrane Collaboration



A SYSTEMATIC REVIEW IS:


- Comprehensive
- Composed of a clear question
- Possessed of explicit and rigorous methods
- A research study
- Designed to limit bias



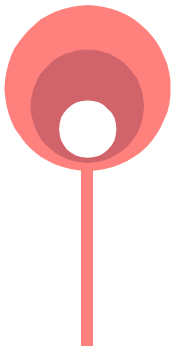


A SYSTEMATIC REVIEW IS NOT:

- A narrative or literature review
- A solo task
- A short-term research project
- A one-time commitment



A Systematic
Review becomes
a trusted piece
of evidence, &
should be kept
current



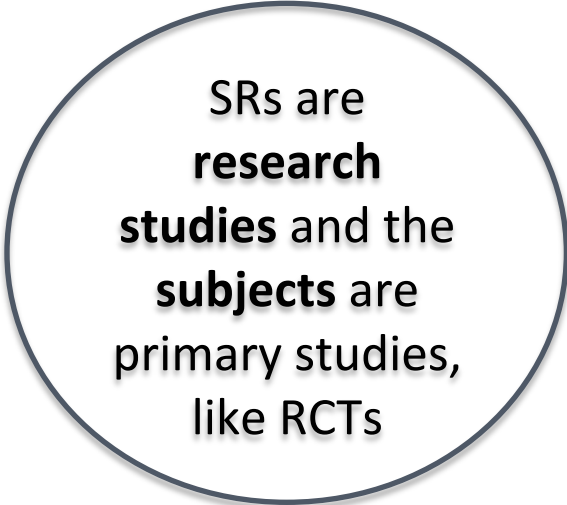


SYSTEMATIC REVIEW = RESEARCH STUDY

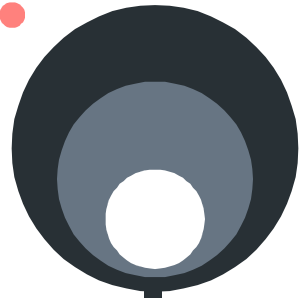
Systematic Reviews : Primary Studies

::

Primary Studies : Individual Participants



SRs are
**research
studies** and the
subjects are
primary studies,
like RCTs

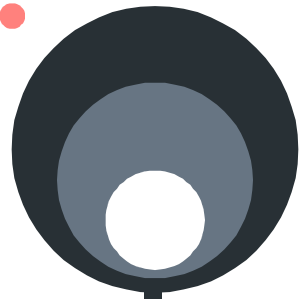


SYSTEMATIC REVIEW = RESEARCH STUDY

- Literature searches provide the pool of studies
- Quality Systematic Reviews require quality studies

Give the same attention to the studies you include in a Systematic Review as you would to subjects in an experiment.

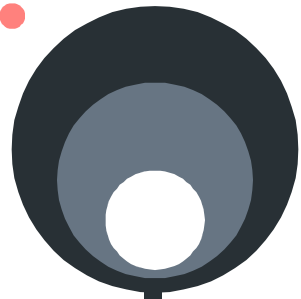




STEPS IN CONDUCTING A SYSTEMATIC REVIEW

- Assess need
- Assemble team
- Create protocol
- Conduct the review
- Update the review as needed



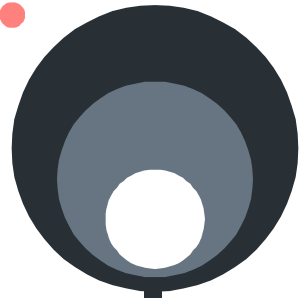


ASSESS NEED

Ask yourself these questions about your topic:

- Is the question interesting to practitioners or researchers?
- Are there existing Systematic Reviews?
- Are those reviews of quality?
- Are those reviews in need of an update?



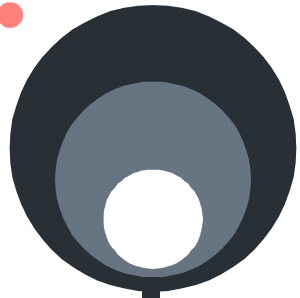


ASSEMBLE TEAM

Required Skills and Expertise include:

- Methods
- Information Retrieval
- Subject Knowledge
 - Several reviewers
 - A tie-breaker
- Statistics
 - For Meta-Analysis





CREATE PROTOCOL

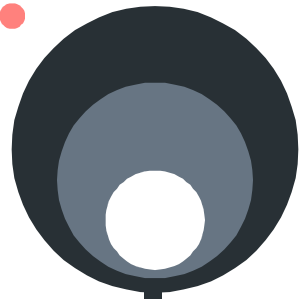
There are Protocols you can adapt and follow

- [Cochrane Collaboration](#)
- [Campbell Collaboration](#)
- [PROSPERO](#)
- [PRISMA-P guidelines](#)

A PROTOCOL is the plan or set of steps to follow, and includes:

- Rationale
- Objectives
- Methods





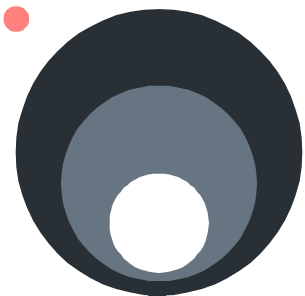
PARTS OF THE PROTOCOL

(1) The Research Question

PICO(TS)

- Patient/population
- Intervention (or exposure)
- Comparison
- Outcome
- Timing
- Study Design

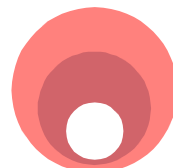




PARTS OF THE PROTOCOL

(2) The Inclusion/Exclusion Criteria

- Study Types
- Scope
- Languages
- Publication Types





PARTS OF THE PROTOCOL

(3) Search Strategy

- Databases
- Search terms
- Limits
- Updates
- Citation Management
plan & tools



Cochrane Reviews
mandate Medline,
EMBASE, & the
Cochrane Library
(but you'll probably
need other
databases, grey lit.,
& handsearching,
too)

SEARCH STRATEGY?

DON'T PANIC



(The Library can help with that)



SEARCH STRATEGY

Search strategy

Ovid MEDLINE(R)

Searches Results

1 exp osteoporosis/ or osteopenia/ 24956

2 exp fractures, bone/ 48639

3 1 and 2 7521

4 ../ 3 yr=2008-2010 and hu=y 1408

5 bone density conservation agents/ or calcium/ or selective estrogen receptor modulators/ or vitamin d/ 93798

6 4 and 5 443

7 (alendronate or etidronate).mp. or ibandronate/ or pamidronate.mp. or residronate.mp. or zolendronate.mp. or bisphosphonates.mp. or disphosphonates.mp. or calcitonin.mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier] 16982

8 (raloxifen or tamoxifen or teriparatide or denosumab).mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier] 12189

9 4 and (7 or 8) 251

10 6 or 9 490

11 10 and placebo*.mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier] 56

12 10 and systematic*.mp. [mp=title, original title, abstract, name of substance word, subject heading word, unique identifier] 10

13 10 and comparative study/ 21

14 randomized controlled trial.pt. 185925

15 controlled clinical trial.pt. 34713

16 randomized controlled trials/ 56507

17 random allocation.sh. 32003

18 double blind method.sh. 59430

19 single-blind method.sh. 10945

20 clinical trial\$.pt. 262668

21 exp clinical trials/ 0

22 (clinic\$ adj25 trial\$1).ti.ab. 125979

23 ((singl\$ or doubl\$ or trebl\$ or tripl\$) adj (blind\$ or mask\$)).ti.ab. 56901

24 placebos.sh. or placebo\$.ti.ab. 77056

25 random\$.ti.ab. 338239

26 research design.sh. 36764

27 exp evaluation studies/ 128329

28 follow up studies.sh. 229076

29 prospective studies.sh. 194109



PARTS OF THE PROTOCOL

(4) The Study Selection

- Review for:
 - Applicability
 - Bias
 - Based on Title and Abstract usually
- Need at least two independent reviewers and a tie-breaker
- Document everything
 - Include log of excluded studies and why



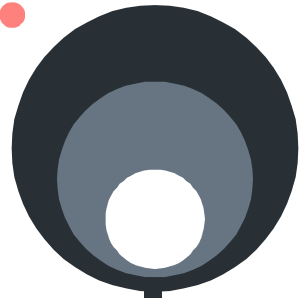
PARTS OF THE PROTOCOL

(5) Data Extraction

- For included studies
 - What data?
 - What software?
 - Procedures?
 - Author contacts
 - Language translation?
 - You read the whole article @ this point

<http://chmg.cochrane.org/sites/chmg.cochrane.org/files/uploads/Template-Data%20Extraction-CHMG.pdf>





PARTS OF THE PROTOCOL

(6) Quality Assessment

- Define criteria
- Define your process
- Will it effect your analysis?






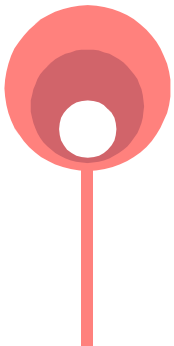
PARTS OF THE PROTOCOL

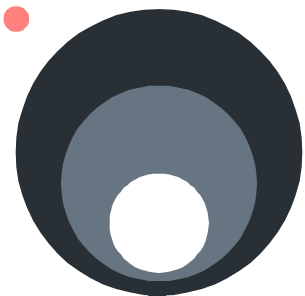
(7) Data Synthesis

- Are you including Meta-analysis?
 - Qualitative or Quantitative?
- What are the outcomes of interest?
 - Are outcomes comparable between studies?
- Publication bias?



If you're doing a
Meta-Analysis,
you should include
a statistician or
similar expert on
your team from
Day One.



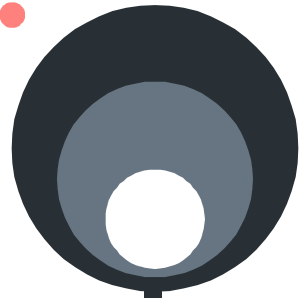


PARTS OF THE PROTOCOL

(8) Dissemination

- What is your publication plan?
- Where would you like to publish?
- Do you need approval from a funder or board?





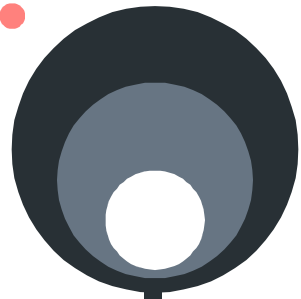
CONDUCT THE REVIEW

Just Follow Your Protocol!

- Test your protocol with a small set of studies
- Review and analyze literature as dictated
- Problems? STOP and revise as needed
- Stay in touch with the Librarian in case you need to make revisions.

DOCUMENT ANY CHANGES AND WHY YOU
MADE THEM



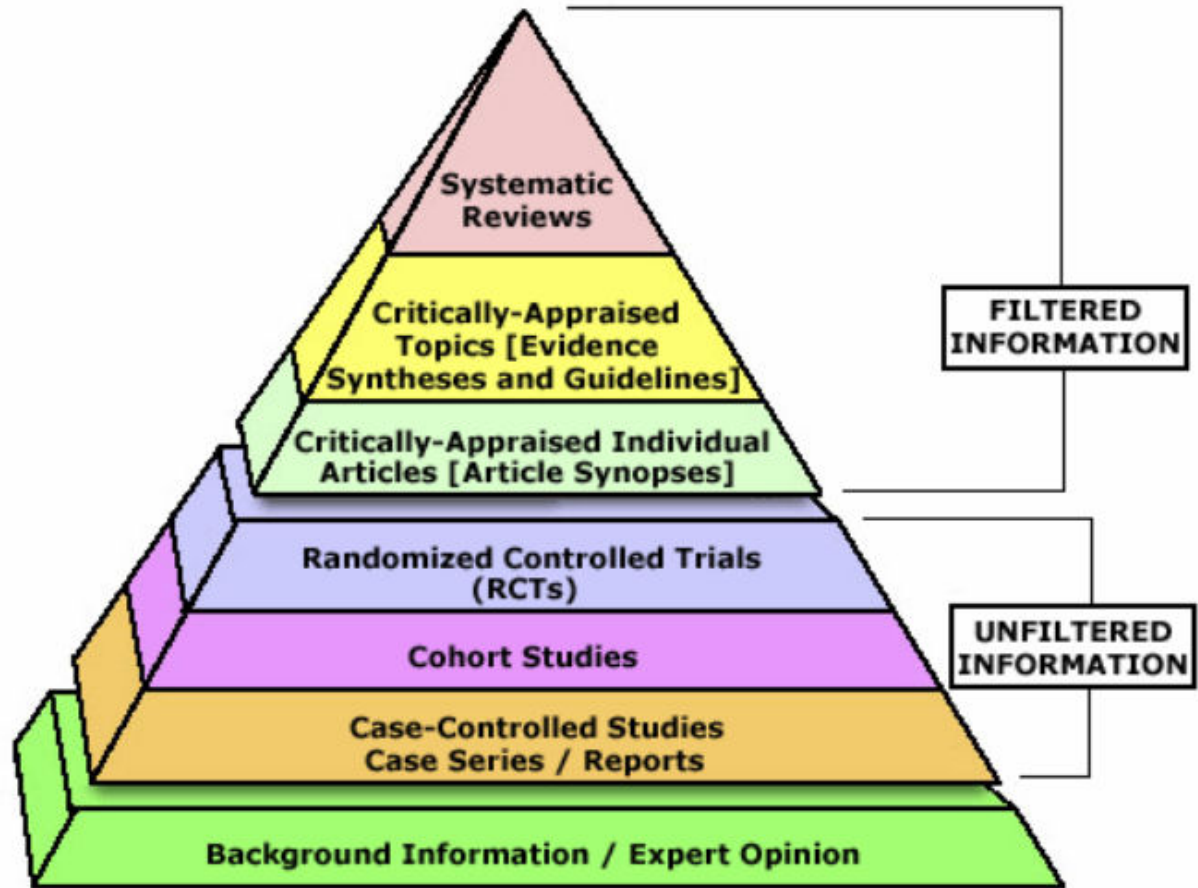


UPDATE THE REVIEW

- New research findings can render a Systematic Review obsolete.
- Cochrane recommends Reviews be updated every 2 years or include commentary explaining why not.
- Updates can be simply re-running searches or may involve restructuring research questions



WHY DOES IT MATTER?





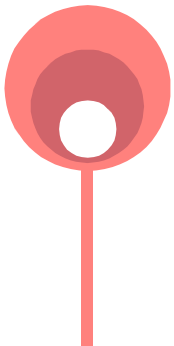
So...

The average systematic review requires at least 12 months of work.

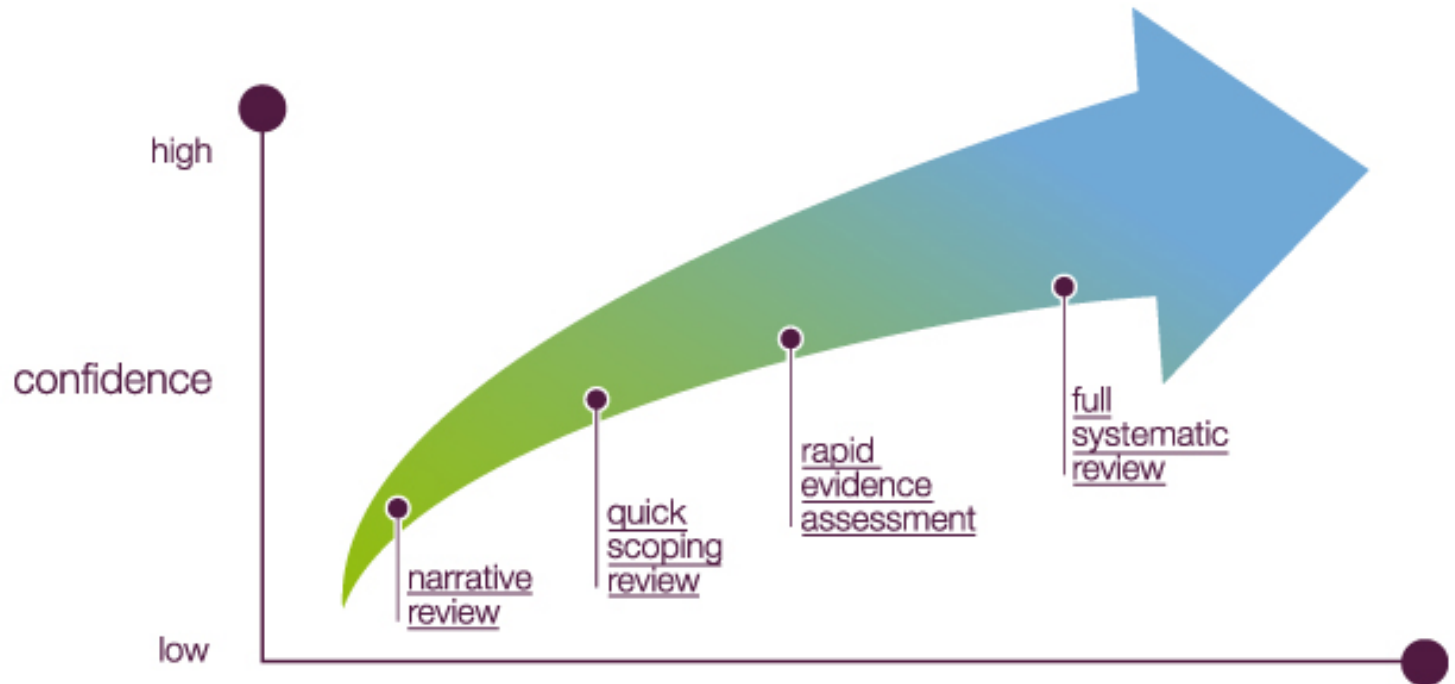
Box 2.3.b: Timeline for a Cochrane Review

Month	Activity
1 - 2	Preparation of protocol
3 - 8	Searches for published and unpublished studies
2 - 3	Pilot test of eligibility criteria
3 - 8	Inclusion assessments
3	Pilot test of 'Risk of bias' assessment
3 - 10	Validity assessments
3	Pilot test of data collection
3 - 10	Data collection
3 - 10	Data entry
5 - 11	Follow up of missing information
8 - 10	Analysis
1 - 11	Preparation of review report
12 -	Keeping the review up-to-date

From: Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011. Available from www.cochrane-handbook.org.



OTHER TYPES OF REVIEWS



Reviews of increasing complexity, from narrative reviews to systematic reviews... with complexity comes *an increase in time & resources needed*

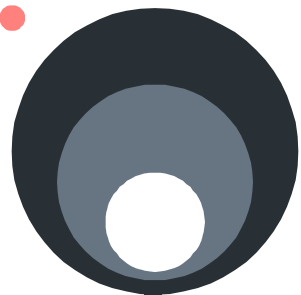
HLWIKI International

http://hlwiki.slais.ubc.ca/index.php/Scoping_reviews



OTHER TYPES OF REVIEWS

- Narrative Review
 - Focused on an overview of a topic, may contain opinion
- Scoping Review
 - Like a Narrative Review, but also searches for gaps in the research literature
- Rapid Review
 - Similar to an accelerated Systematic Review, targeted toward filling urgent needs in health care
- Horizon Scan
 - Scopes out areas for further research and study



RESOURCES

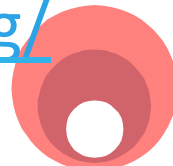
Start with our LibGuide:

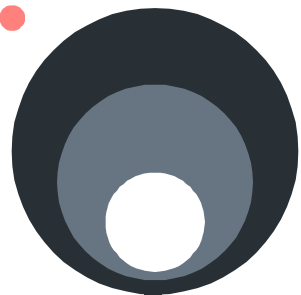
<http://researchguides.library.tufts.edu/SystematicReviews?hs=a>



Seek expert advice here:

- Cochrane Handbook of Systematic Reviews of Interventions: <http://handbook.cochrane.org/>
- PRISMA: <http://www.prisma-statement.org/>





RESOURCES

One of your FIRST steps in conducting a Systematic Review should be to contact a Librarian to work with you and your team!

Email: hhsl@tufts.edu

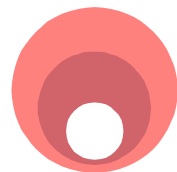


Call: 617-636-6705

Text: 617-477-8439

Chat:

<http://www.library.tufts.edu/hsl/services/ask.html>





Do you have any questions?

**THANK YOU FOR YOUR
ATTENTION !**

Becky Morin

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(617) 636-3969