



THE UNIVERSITY *of* EDINBURGH



# SYSTEMATIC LITERATURE SEARCHING

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## The literature searching process

- *“is not an exact science but an art.”*

Samuel Butler

Try to think of the process as a

- *‘journey not a destination’* Hearst 1999

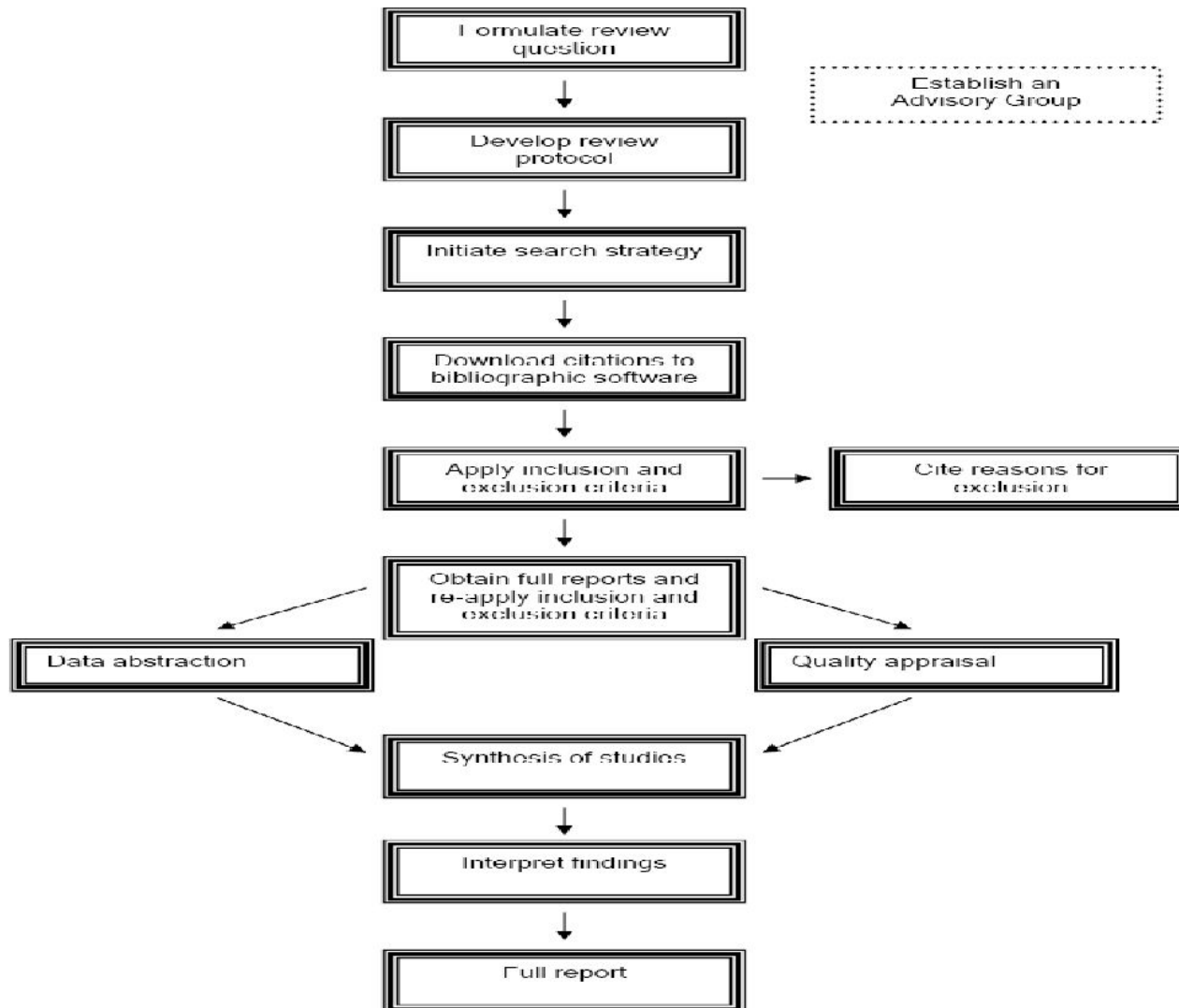


Figure One. Flow chart of a systematic review



- Steps in the Review Process
  - Defining and refining the research question
  - Divide into concepts (PICO)
  - Think about synonyms of key concepts
  - Think of best combination of concepts
  - Identify resources
  - Test strategy
  - Revise strategy
  - Re-test strategy
  - Adapt strategy for different databases



For this lecture we will be using the research question for searching demonstrations.



- What is the effectiveness of Cognitive Behaviour Therapy in Chronic Fatigue Syndrome?



## GETTING STARTED



- Is there a recent review in your research area ?
- Check out Cochrane
- Check out Medline using the Basic Search
- Check out Google and Google Scholar



- Click on the links for video screenshots
- [How to find Database List](#)
- [Quick Cochrane Search](#)
- [Basic Medline Search](#)



## Pearl Growing

- From one relevant article you can use **Footnote Chasing** and **Citation searching** to identify other key papers, relevant MeSH terms and keywords.

*Cognitive behavior therapy for chronic fatigue syndrome: a multi centre randomised controlled trial.* Lancet 2001, 357, 841-847 Prins JB et al





- Find Web of Science in the A-Z list
- [Web of Knowledge Cited Ref Search](#)



## WEB OF KNOWLEDGE<sup>SM</sup>

DISCOVERY STARTS HERE



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Support



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### All Databases

#### Search

in

Topic

*Example: oil spill\* mediterranean*

AND

in

Author

*Example: O'Brian C\* OR OBrian C\**

AND

in

Publication Name

*Example: Cancer\* OR Journal of Cancer Research and Clinical Oncology*

[Add Another Field >>](#)

Searches must be in English

**Current Limits:** (To save these permanently, [sign in](#) or [register](#).)

Timespan

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### Web of Science<sup>SM</sup>

#### Cited Reference Search (Find the articles that cite a person's work)

[View our Cited Reference Search tutorial.](#)

**Step 1:** Enter information about the cited work. Fields are combined with the Boolean AND operator.

\* Note: Entering the volume, issue, or page in combination with other fields may reduce the number of cited reference variants found.

*Example: O'Brian C\* OR OBrian C\**

in

Cited Author



*Example: J Comp\* Appl\* Math\* (journal abbreviation list)*

in

Cited Work



*Example: 1943 or 1943-1945*

in

Cited Year(s)

[Add Another Field >>](#)

Searches must be in English

Current Limits: (To save these permanently, [sign in](#) or [register](#).)



All Databases

Select a Database

Web of Science

Additional Resources

Search | Author Finder | Cited Reference Search | Advanced Search | Search History

## Web of Science<sup>SM</sup>

<< Back to previous page

### Cited Reference Search (Find the articles that cite a person's work)

[View our Cited Reference Search tutorial.](#)

**Step 2:** Select cited references and click "Finish Search."

Hint: Look for [cited reference variants](#) (sometimes different pages of the same article are cited or papers are cited incorrectly).

CITED REFERENCE INDEX

References: 1 - 4 of 4

Page 1 of 1 Go

Select Page

Select All\*

Clear All

Finish Search

Select References	Cited Author	Cited Work [SHOW EXPANDED TITLES]	Year	Volume	Page	Article ID	Citing Articles **	View Record
<input type="checkbox"/>	PRINS J	LANCET	2001	358	238		1	
<input type="checkbox"/>	PRINS JB	LANCET	2001	357	9259		1	
<input type="checkbox"/>	Prins, JB	LANCET	2001	358	240	10.1016/S0140-6736(01)05424-1	7	<a href="#">View Record</a>
<input type="checkbox"/>	Prins, JB	LANCET	2001	357	841	10.1016/S0140-6736(00)04198-2	194	<a href="#">View Record</a>

Select Page

Select All\*

Clear All

Finish Search

Restrict results by any or all of the options below:

All languages

English

Afrikaans

Arabic

All document types

Article

Abstract of Published Item

Art Exhibit Review

\* "Select All" adds the first 500 matches to your cited reference search, not all matches

- What is the effectiveness of Cognitive Behaviour Therapy in Chronic Fatigue Syndrome?
- P : Patients with Chronic Fatigue Syndrome
- I : Cognitive Behaviour Therapy
- C: Other therapies or Placebo ?
- O: Reduced symptoms ?



Think of synonyms, alternative spellings and truncation possibilities.

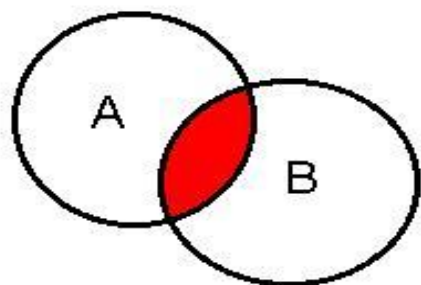


- CBT. Behavior/Behaviour Therap\*
- Chronic Fatigue Syndrome, CFS, ME, Post-viral fatigue syndrome\*

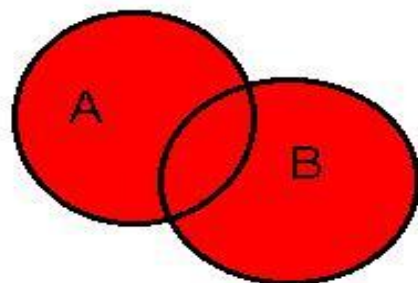
**Limits:** Adults, Humans, 1990-2011

**Study design:** Trial, randomised controlled trial, systematic review, observational study.

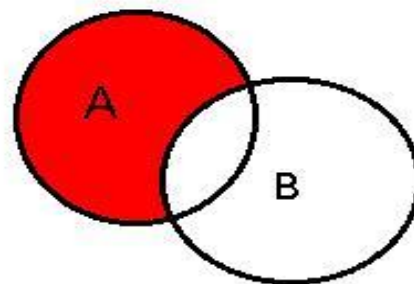
## BOOLEAN OPERATORS




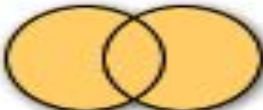

A AND B



A OR B



A NOT B

Boolean Operator	Examples	Retrieves
<p><b>AND</b></p>	<p><b>children and television</b></p> <p>rodgers AND hammerstein</p> <p>children AND poverty</p>	 <p>Retrieves records containing both terms</p>
<p><b>OR</b></p>	<p><b>television or television viewing</b></p> <p>sixties OR 60s OR 1960s</p> <p>labor OR labour</p>	 <p>Retrieves records containing either one or both terms</p>
<p><b>NOT</b></p>	<p><b>television not movies</b></p> <p>caribbean NOT cuba</p> <p>s1 NOT s2</p>	 <p>Excludes records containing the second term</p>





- Use the database specific indexing eg Medline MeSH and Emtree (Embase) and remember that they may differ.
- Use textwords with variants and synonyms
- Truncation
- Wildcards e.g. behavio?r
- Adjacency searching e.g. cognitive adj3 therap\*
- Field limits e.g. trial.ti,ab
- Publication types



## Which Database ?



- Medline
- PsychINFO
- Embase
- Web of Knowledge

- **Medline**
- ***Why use it?***
- Good coverage of wide range of clinical medical topics
- One of the longest periods of coverage: from 1966, with over 15million records
- Very strong and widely recognised controlled thesaurus of MeSH (Medline Subject Headings) for good relevancy of results. Transparent navigation of MeSH terms allows searcher to 'see inside' the organisation of the database
- Ovid interface has excellent search refining tools, and several save options including auto-alert
- ***Bear in mind...***
- Long indexing delay: 3 to 6 months for complete records (Pre-medline helps to overcome this)
- Very large: over 11 million records, so requires sifting through results
- Of the biomedical, science and social science databases one of the weaker ones for psychiatry and psychology
- Journal coverage weighted toward North American titles
- Does not usually index publications other than journal articles

Dozier, M (2011)

- **EMBASE**

***Why use it?***

- Good coverage of wide range of clinical medical topics, but particularly strong in pharmacology and psychiatry when compared with Medline.
- Good European journal coverage
- Well structured controlled thesaurus (Emtree) for good relevancy of results
- In addition to journal articles, covers meetings, conferences and symposia
- Shorter Indexing delay than Medline: 4 to 8 weeks
- ***BUT***
  
- Coverage: 1980 to present

- **PsycINFO *Why use it?***
- Coverage back to 1887
- Well structured controlled thesaurus
- Indexes more than just journal articles: dissertations and books, including book chapters
- Good for all aspects of mental health
- Good for social, behavioural and psychological aspects of health and illness
- ***BUT***
- Comparatively small database: approximately 1.5 million records

- **AMED (Allied and Alternative Medicine)**
- ***Why use it?***
- Subjects covered include acupuncture, homeopathy, palliative care, Chinese medicine, hospice care, physiotherapy, chiropractic, hypnosis, podiatry, herbalism, occupational therapy, rehabilitation, holistic treatments and osteopathy.
- Controlled thesaurus terms (based on MeSH) are used
- ***BUT***
- Updated quarterly
- Not all subjects have been covered since 1985: palliative care is since 1997, speech and language therapy since 1999.
- Coverage: 1985 to present
- Number of journals indexed: nearly 600 (mostly European journals)



- VIDEOSCREENCAST OF a Medline Search using Mesh headings



[Medline search](#)

- Savoie et al (2000) estimated that 29.2% of items in their review were uncovered by:
  - searching the web
  - handsearching
  - scanning reference lists
  - personal communication
  - searching specialised databases and web sites.
- Wallace et al.
  - 11 of 65 trials (17%) in end stage renal disease reviews were found by searching beyond major databases.



- Beyond the Databases
- Long lead times before publication:
  - publication gaps after conference presentation
    - Cheng et al (1998)
      - Only 8.1% of a set of conference papers achieved publication within 12 months, 40% within 5 years
    - Hopewell et al (2007) Cochrane review
      - trials with positive results are published sooner than other trials
  - indexing lag – between publication and recording in databases



- Egger M et al (2003) How important are comprehensive literature searches and the assessment of trial quality in systematic reviews? Empirical study.
  - Assesses effect of non-English studies, grey literature and non-MEDLINE recorded studies on the effects of meta-analyses of SRs of more than 5 RCTs.
  - Suggests that with limited resources, fewer sources might be searched without compromising efforts to reduce bias
  - Recommends adequate quality assessment of studies before inclusion in reviews
  - Does not assess the quality of the searching employed by review teams
- Generated ongoing debate



- List databases searched;
- Note the dates of the last search for each database AND the period searched;
- Note any language or publication status restrictions
- List grey literature sources;
- List individuals or organizations contacted;
- List any journals and conference proceedings specifically handsearched for the review;
- Detail may be curtailed if full information is provided in appendix/internet site e.g.

## Top Tips

- Keep notes of searches and results
- Scope and Re-Scope
- Test and Re-Test- gold standard
- Avoid 'scope creep' (Booth 2011)
- Accept the 'point of diminishing returns'
- Know when to STOP
- Searching is never fully transparent, nor reproducible but make it Rigorous.



Enjoy the journey and If you need any help  
and advice on the way then email me

@

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<http://www.cochrane-handbook.org/>
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<http://www.york.ac.uk/inst/crd/report4.htm>
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