



SYSTEMATIC LITERATURE SEARCHING

Sheila Fisken University of Edinburgh





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



ER O	F KNOWLEDGE SM DISCOVERY STARTS HERE	C THOMSON REUTER
mobile site	Sign In Marked List (0) My EndNote Web My ResearcherID My Citation Ale	erts My Saved Searches Log Out Help
Databases earch Sear	Select a Database Web of Science Additional Resources ch History Compound Mark of List (0) Additional Resources	University of Edinburgh
Search	in Topic 💌	Maintenance Alert We are currently updating the system and apologize for performance issues you may
AND 🗸	in Author 🗨 🍳 Example: O'Brian C* OR OBrian C* in Publication Name 💌 🥄	Additionally, if you have questions about any differences you may be noting between the new Web of
	Example: Cancer* OR Journal of Cancer Research and Clinical Oncology Add Another Field >>	version, please take a look at our Frequently Asked Questions page.
	Search Clear Searches must be in English	Support, Tools, Tips



Sign In Marked List (0) My EndNote Web My ResearcherID My Citation Alerts My Saved Searches Log Out Help All Databases Select a Database Web of Science Additional Resources Search Author Finder Cited Reference Search Advanced Search Search History Web of orenice SM View our Cited Reference Search (Find The articles that cite a person's work) 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. Prins Example: OBrian C* OR OBrian C* Inno Cited Work © Inno Cited Vork © Sator 1943-1945 Add Another Field>> Clear Search smust be in English		HERE OTHOMSON REUTERS
All Databases Select a Database Web of Science Additional Resources Search Author Finder Clied Reference Search Advanced Search Search History Web of Science Search Search History View our Cited Reference Search Clied Reference Search (Find the articles that cite a person's work) View our Cited Reference Step 1: Enter information about the cited work. Fields are combined with the Boolean AND operator. View our Cited Reference * Note: Entering the volume, issue, or page in combination with other fields may reduce the number of cited reference variants found. Search tutorial. Prins in Cited Author Search Example: O'O RoBrian C* in Cited Work Search 2001 in Cited Year(s) In Cited Year(s) Search Example: 1943 or 1943-1945 Add Another Field >> Searches must be in English Searches must be in English	io to mobile site Sign In Marked List (0) My EndNote Web M	y ResearcherID My Citation Alerts My Saved Searches Log Out Help
Search Author Finder Cited Reference Search Advanced Search Search History Web of chemce SM Cited Reference Search (Find the articles that cite a person's work) View our Cited Reference Search Search tutorial. Step 1: Enter information about the cited work. Fields are combined with the Boolean AND operator. View our Cited Reference Search utorial. View our Cited Reference Search utorial. * Note: Entering the volume, issue, or page in combination with other fields may reduce the number of cited reference variants found. Image: Cited Author Image: Cited One Appl* Math* (journal abbreviation list) Image: Cited Year(s) Image: Cited Yea	All Databases Select a Database Web of Science Addi	tional Resources
Web chance SM Cited Reference Search (Find the articles that cite a person's work) View our Cited Reference Search (the articles that cite a person's work) Step 1: Enter information about the cited work. Fields are combined with the Boolean AND operator. View our Cited Reference Search (utorial. * Note: Entering the volume, issue, or page in combination with other fields may reduce the number of cited reference variants found. View our Cited Reference Search tutorial. Prins in Cited Author Image: Cited Author Example: O'Brian C* OR OBrian C* in Cited Work Image: Cited Work (journal abbreviation list) 2001 in Cited Year(s) Image: Cited Year(s) Image: Cited Year(s) Example: 1943 or 1943-1945 Add Another Field >> Searches must be in English	Search Author Finder Cited Reference Search Advanced Search Search His	tory
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. * Note: Entering the volume, issue, or page in combination with other fields may reduce the number of cited reference variants found. Prins in Example: OBrian C* OR OBrian C* Lancet in Example: J Comp* Appl* Math* (journal abbreviation list) 2001 in Example: 1943 or 1943-1945 Add Another Field >> Search Citear Searches must be in English	Web of mence SM	
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. * Note: Entering the volume, issue, or page in combination with other fields may reduce the number of cited reference variants found. Prins in Example: O'Brian C* OR OBrian C* Lancet in Example: J Comp* Appl* Math* (journal abbreviation list) 2001 in Example: 1943 or 1943-1945 Add Another Field >> Search Clear Searches must be in English	Cited Reference Search (Find the articles that cite a person's work)	View our Cited Reference
* Note: Entering the volume, issue, or page in combination with other fields may reduce the number of cited reference variants found. Prins in Cited Author Image: Cited Author Example: O'Brian C* OR OBrian C* in Cited Work Image: Cited Work Image: Cited Year(s) 2001 in Cited Year(s) Image: Cited Year(s) Image: Cited Year(s) Image: Cited Year(s) Add Another Field >> Searches must be in English Image: Searches must be in English Image: Searches must be in English	Step 1: Enter information about the cited work. Fields are combined with the	he Boolean AND operator. Search tutorial.
Prins in Cited Author S Example: O'Brian C* OR OBrian C* in Cited Work S Lancet in Cited Work S Example: J Comp* Appl* Math* (journal abbreviation list) in Cited Year(s) 2001 in Cited Year(s) Example: 1943 or 1943-1945 Add Another Field >> Search Searches must be in English	* Note: Entering the volume, issue, or page in combination with other fields may re	educe the number of cited reference variants found.
Example: O'Brian C* OR OBrian C* in Cited Work S Lancet in Cited Work S Example: J Comp* Appl* Math* (journal abbreviation list) in Cited Year(s) S 2001 in Cited Year(s) S Example: 1943 or 1943-1945 Add Another Field >> Search Searches must be in English	Prins	in Cited Author 💌 🍳
Lancet in Cited Work S Example: J Comp* Appl* Math* (journal abbreviation list) in Cited Vear(s) S 2001 in Cited Year(s) S Example: 1943 or 1943-1945 Add Another Field >> Search Clear Searches must be in English	Example: O'Brian C* OR OBrian C*	
Example: J Comp* Appl* Math* (journal abbreviation list) 2001 in Cited Year(s) Example: 1943 or 1943-1945 Add Another Field >> Search Clear Search Searches must be in English	Lancet	in Cited Work 💌 🔍
2001 in Cited Year(s) Example: 1943 or 1943-1945 Add Another Field >> Search Clear Search Searches must be in English	Example: J Comp* Appl* Math* (journal abbreviation list)	
Example: 1943 or 1943-1945 Add Another Field >> Search Clear Searches must be in English	2001	in Cited Year(s) 💌
Add Another Field >> Search Clear Searches must be in English	Example: 1943 or 1943-1945	
Search Clear Searches must be in English	Add Another Field >>	
	Search Clear Searches must be in English	
Current Limits: (To save these nermanently isign in or register.)	Current Limits: (To save these nermanently, sign in or register.)	



	for Finder Cit	ed Reference Search Adv	vanced S	earch S	earch H	istory			
Web of §	Science SM								
<< Back to pre	evious page								
Cited Refe	erence Sear	ch (Find the articles th	nat cite	a person'	s work)			View our	Cited Reference
Step 2: Se	lect cited refer	rences and click "Finish	Search					Search tu	torial.
Hint: Look fo	r cited reference	e variants (sometimes diffe	erent pag	jes of the s	same ar	ticle are cited or papers are cited i	ncorrectly).		
CITED REFER	ENCE INDEX			aala			660 A		
References:	1-4 of 4		1	Page	1	of 1 60 PP			
	Select Page	Select All* Clear All	F	inish Sear	ch				
				inian seal	en l				
Select References	Cited Author	Cited Work [SHOW EXPANDED TITLES]	Year	Volume	Page	Article ID	Citing Articles **	View Record	
	PRINS J	LANCET	2001	358	238		1		
	PRINS JB	LANCET	2001	357	9259		1		
	Prins, JB	LANCET	2001	358	240	10.1016/S0140-6736(01)05 <mark>4</mark> 24-1	7	View Record	
-	Prins, JB	LANCET	2001	357	841	10.1016/S0140-6736(00)04198-2	194	View Record	
	Select Pag	e Select All* Clear	All	Finish S	Search				
Restrict res	ults by any or a	all of the options below:							

٨

v

* "Calact All" adds the first EAA matches to your sited 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



J



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





- Use the database specific indexing eg Medlin 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 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 @

Sheila.Fisken@ed.ac.uk



References:

- Booth A. 'Unpacking your literature search toolbox: on search styles and tactics'. Health Information and Libraries Journal 2008; 25(4): 313-7.
- Cheng, K., C. Preston, et al. (1998). "Time to publication as full reports of abstracts of randomized controlled trials in cystic fibrosis." <u>Pediatric Pulmonology</u> **26**(2): 101-105.

Cochrane Collaboration. Cochrane handbook for systematic reviews of interventions

http://www.cochrane-handbook.org/

Centre for Reviews and Dissemination. Undertaking systematic reviews of research on effectiveness: CRD's guidance for those carrying out or commissioning reviews

http://www.york.ac.uk/inst/crd/report4.htm

Dozier, M. (2011) Searching the Literature Systematically.

- Egger, M., P. Juni, et al. (2003). "How important are comprehensive literature searches and the assessment of trial quality in systematic reviews? Empirical study." <u>Health Technology</u> <u>Assessment</u> **7**(1): 1-76.
- Hopewell S, McDonald S, Clarke MJ, Egger M. Grey literature in meta-analyses of randomized trials of health care interventions. Cochrane Database of Systematic Reviews 2007, Issue 2. Art. No.: MR000010. DOI: 10.1002/14651858.MR000010.pub3.
- Khan K S, Kunz R, Kleijnen J, Antes G Systematic Reviews to support Evidence Based Medicine London: Hodder Arnold 2011
- Savoie, I., D. Helmer, et al. (2003). Beyond Medline: reducing bias through extended systematic review search. International Journal of Technology Assessment in Health Care **19**(1): 168-78.