

Literature Review

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Armoon

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Center, Saveh University of Medical
Sciences, Saveh, Iran*



Literature review

- What it is
- **Scientific account** of what **has** already been **published** on a specific topic
- What it is not
- Description or summary of all published information



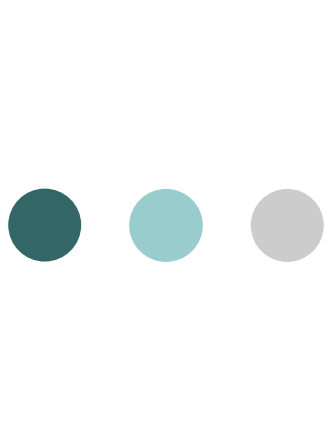
Literature reviews must....

1. Be organised around a **specific research question/** topic
2. **Synthesize** information into a summary of what is and is not known
3. Identify areas of **uncertainty/ controversy**
4. **Create questions** that need further research



Literature review

- Involves two processes
 - 1. Searching for information
 - 2. Critically appraising the literature



Literature Search using PubMed

Acknowledgement:

Prof. Geert van der Heijden



Contents

- Aim
- Systematic approach to searching
- How to use PubMed
- What not to do



Aim

- Time saving
 - Restrict absolute number titles
 - Increase number relevant titles
- Reduce **Numbers Needed to Read**



PubMed: What is it?

- **PubMed** is a **free** database accessing the MEDLINE database of citations, abstracts and some full text articles on life sciences and biomedical topics.
- <http://www.nlm.nih.gov/services/pubmed.html>



PubMed: What is in it?

- As of 8 March 2012 ~ over 21 million citations for biomedical literature
 - from [MEDLINE](#), life science journals, and online books.
- As of November 2011, 5,582 in Medline
- Different languages []



Systematic approach to searching

What to do and what NOT to do



Search strategy in PubMed

- Use knowledge, logic and creativity
- Start with good Research Question
 - Population
 - Determinant/ Exposure
 - Outcome
- Have several terms & synonyms for all
 - Be aware: UK / US spelling

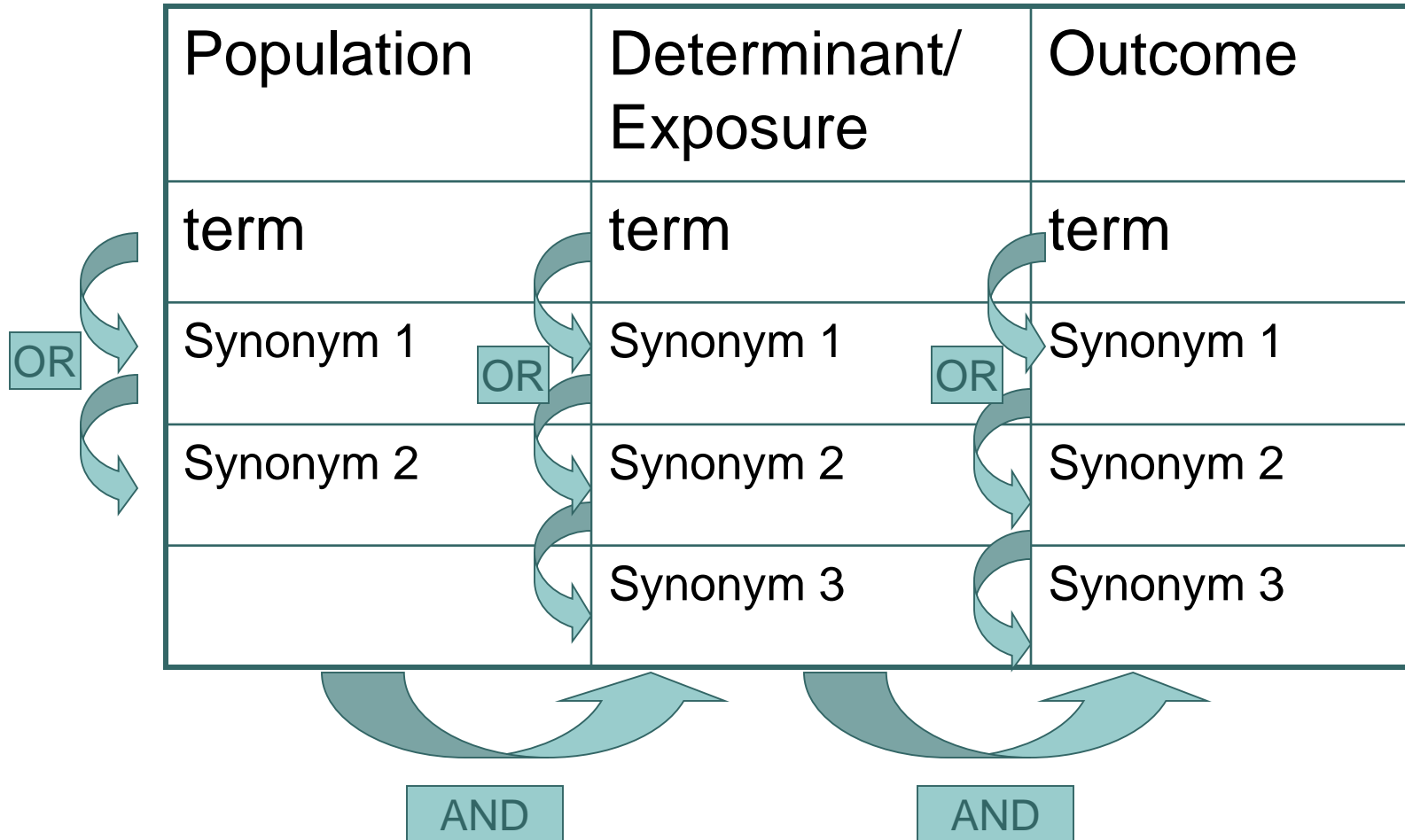


Search strategy

- Search #1: Population **OR** synonyms
- Search #2: Determinant **OR** synonyms
- Search #3: Outcome **OR** synonyms

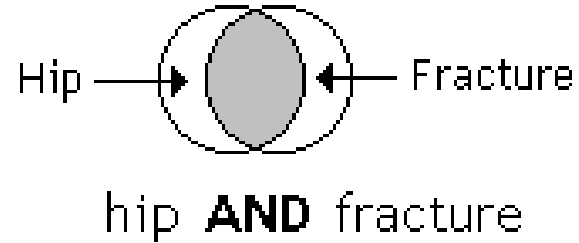
- Search #4: Combine #1, #2 and #3
 - Population (#1) **AND** Determinant (#2) **AND** Outcome (#3)

Basic Search Scheme

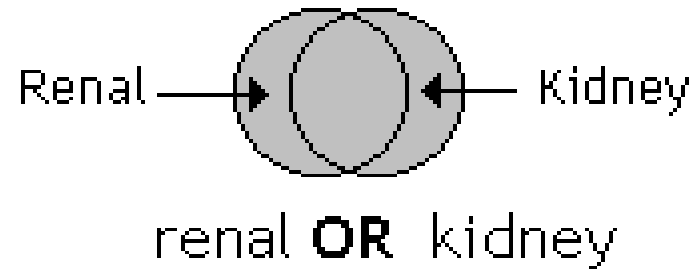


Boolean operators

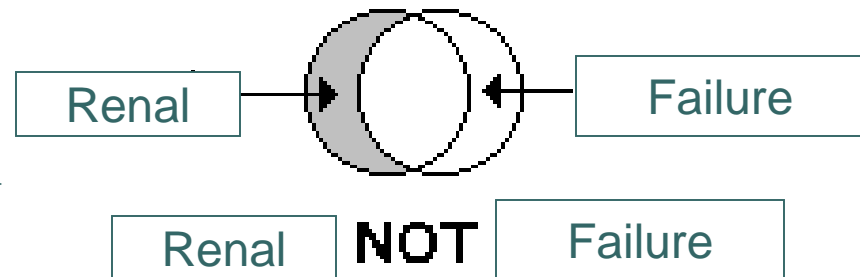
○ AND



○ OR



○ NOT





How to search in PubMed?

- Use 'Title/ Abstract' in search builder, under Advanced Search tab in Pubmed
- <http://www.ncbi.nlm.nih.gov/pubmed>



PubMed

Search

Advanced

Help



PubMed comprises more than 24 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.

PubMed COMMONS



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Relevance of space? Author T Brinker notes predominant view of perivascular space in brain & emerging alternatives.
1.usa.gov/1o5R99R

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- MeSH Database
Journals in NCBI Databases
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E-Utilities (API)
LinkOut

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Builder

All Fields ▾



[Show index list](#)

AND ▾

All Fields ▾



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History

There is no recent history



Research Question

- Does **renal impairment** increase **mortality** risk in **Type 2 Diabetes Mellitus**?
- Population: Type 2 DM
- Determinant: Renal impairment
- Outcome: Mortality

Example

Population		
Type 2 Diabetes		
Type 2 diabetics		
Non insulin dependent diabetes		

OR



PubMed Advanced Search Builder



History deleted.

((type 2 diabetes[Title/Abstract]) OR type 2 diabetics[Title/Abstract]) OR non insulin dependent diabetes[Title/Abstract]

[Edit](#)

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Builder

	Title/Abstract	type 2 diabetes	-	Show index list
OR	Title/Abstract	type 2 diabetics	-	Show index list
OR	Title/Abstract	non insulin dependent diabetes	- +	Show index list

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Search	Add to builder	Query	Items found	Time
#1	Add	Search ((type 2 diabetes[Title/Abstract]) OR type 2 diabetics[Title/Abstract]) OR non insulin dependent diabetes[Title/Abstract]	56747	03:31:08



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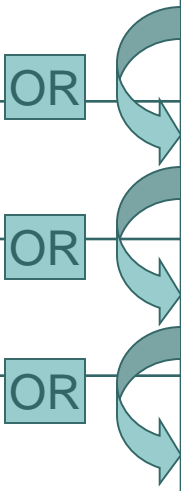
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Example

	Determinant/ Exposure	
	Renal	
OR	Kidney	
OR	Albuminuria	
OR	Glomerular	



The diagram illustrates a set of relationships between four terms: Renal, Kidney, Albuminuria, and Glomerular. Each term is located in a row of a table. To the left of each row, there is a light blue box containing the text 'OR'. Three curved, light blue arrows point from the 'OR' boxes to the right, connecting the rows. The first arrow connects the 'OR' box of the 'Renal' row to the 'Kidney' row. The second arrow connects the 'OR' box of the 'Kidney' row to the 'Albuminuria' row. The third arrow connects the 'OR' box of the 'Albuminuria' row to the 'Glomerular' row. This suggests that 'Renal' is related to 'Kidney', 'Kidney' is related to 'Albuminuria', and 'Albuminuria' is related to 'Glomerular'.

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Tutorial

(((renal[Title/Abstract]) OR kidney[Title/Abstract]) OR albuminuria[Title/Abstract]) OR glomerular[Title/Abstract]

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Builder

	Title/Abstract	renal	-	Show index list
OR	Title/Abstract	kidney	-	Show index list
OR	Title/Abstract	albuminuria	-	Show index list
OR	Title/Abstract	glomerular	- +	Show index list

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Search	Add to builder	Query	Items found	Time
#2	Add	Search (((renal[Title/Abstract]) OR kidney[Title/Abstract]) OR albuminuria[Title/Abstract]) OR glomerular[Title/Abstract]	585424	04:03:22
#1	Add	Search ((type 2 diabetes[Title/Abstract]) OR type 2 diabetics[Title/Abstract]) OR non insulin dependent diabetes[Title/Abstract]	56747	03:31:08



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Example

		Outcome
		Mortality
	OR	Death

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YouTube Tutorial

(mortality[Title/Abstract]) OR death[Title/Abstract]

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Builder

Title/Abstract mortality [Show index list](#)

OR Title/Abstract death [Show index list](#)

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Search	Add to builder	Query	Items found	Time
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#1	Add	Search ((type 2 diabetes[Title/Abstract]) OR type 2 diabetics[Title/Abstract]) OR non insulin dependent diabetes[Title/Abstract]	56747	03:31:08



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Search	Add to builder	Query	Items found	Time
#3	Add	Search (mortality[Title/Abstract] OR death[Title/Abstract])	717376	04:05:25
#2	Add	Search (((renal[Title/Abstract] OR kidney[Title/Abstract] OR albuminuria[Title/Abstract] OR glomerular[Title/Abstract])	585424	04:03:22
#1	Add	Search ((type 2 diabetes[Title/Abstract] OR type 2 diabetics[Title/Abstract]) OR non insulin dependent diabetes[Title/Abstract])	56747	03:31:08



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Example

Population	Determinant/ Exposure	Outcome
Type 2 Diabetes	Renal	Mortality
Type 2 diabetics	Kidney	Death
Non insulin dependent diabetes	Albuminuria/ Albumin	
	Glomerular	



AND



AND

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Tutorial

((#1) AND #2) AND #3

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Recent Query	#1	-
AND	Recent Query	#2
AND	Recent Query	#3

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Search	Add to builder	Query	Items found	Time
#3	Add	Search (mortality[Title/Abstract] OR death[Title/Abstract])	717376	04:05:25
#2	Add	Search (((renal[Title/Abstract] OR kidney[Title/Abstract] OR albuminuria[Title/Abstract] OR glomerular[Title/Abstract])	585424	04:03:22
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PubMed.gov US National Library of Medicine National Institutes of Health

PubMed ((#1) AND #2) AND #3 Search

RSS Save search Limits Advanced Help

Display Settings: Summary, 20 per page, Sorted by Recently Added

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All (851)

Free Full Text (181)

Review (293)

Manage Filters

Renin Inhibitors and Cardiovascular and Renal Protection: An Endless Quest?

1. Azizi M, Ménard J.
 Cardiovasc Drugs Ther. 2012 Mar 6. [Epub ahead of print]
 PMID: 22392185 [PubMed - as supplied by publisher]
[Related citations](#)

Glitazones in chronic kidney disease: Potential and concerns.

2. Bolignano D, Zoccali C.
 Nutr Metab Cardiovasc Dis. 2012 Feb 23. [Epub ahead of print]
 PMID: 22364889 [PubMed - as supplied by publisher]
[Related citations](#)

Pharmacological management of type 2 diabetes mellitus in patients with ckd.

3. Hamilton CA.
 J Ren Care. 2012 Feb;38 Suppl 1:59-66. doi: 10.1111/j.1755-6886.2012.00275.x.
 PMID: 22348365 [PubMed - in process]
[Related citations](#)

One Risk Assessment Tool for Cardiovascular Disease, Type 2 Diabetes, and Chronic Kidney Disease.

4. Alssema M, Newson RS, Bakker SJ, Stehouwer CD, Heymans MW, Nijpels G, Hillege HL, Hofman A, Witteman JC, Gansevoort RT, Dekker JM.
 Diabetes Care. 2012 Feb 14. [Epub ahead of print]
 PMID: 22338109 [PubMed - as supplied by publisher]
[Related citations](#)

The role of serum uric acid in cardiovascular disease in Type 2 diabetic and non-diabetic subjects: A narrative review.

5. Zoppini G, Targher G, Bonora E.
 J Endocrinol Invest. 2011 Dec;34(11):881-6.
 PMID: 22322536 [PubMed - in process]
[Related citations](#)

Chronic kidney disease and mortality risk among older patients with type 2 diabetes mellitus (ZODIAC-24).

6. Drion I, van Hateren KJ, Joosten H, Alkhalaf A, Groenier KH, Kleefstra N, Wetzels JF, Bilo HJ.
 Age Ageing. 2012 Feb 6. [Epub ahead of print]

Find related data

Database: Select

Find items

Search details

((#1) AND #2) AND #3

Search See more...

Recent activity

- Turn Off Clear
- ((((type 2 diabetes[Title/Abstract]) OR type 2 diabetics[Title/A... (851) PubMed
- type 2[Title/Abstract] (90314) PubMed
- type 2 diabetes[Title/Abstract] (48435) PubMed
- ((((((cardiac[Title/Abstract]) OR coronary[Title/Abstract]) OR he... (16 PubMed
- (renal[Title/Abstract]) OR kidney[Title/Abstract] (570025) PubMed



How to MeSH up your search

What NOT to do



MeSH database

- Medical Subject Headings (MeSH)
- Systematic keyword catalogue
- Related to content
- 5 MeSH terms per record
 - Based on title and abstract words
- Partially manual process
 - Misclassification possible
 - MeSH = US spelling



MeSH database

- Author keywords: NOT used
- Only available 3 – 6 months after publication
- Adjustment to terms regular
 - Eg. 2007
 - 22 terms removed
 - 494 terms added
 - 99 terms replaced

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Builder

- Affiliation
- ✓ All Fields
- Author
- Author - Corporate
- Author - First
- Author - Full
- Author - Identifier
- Author - Last
- Book
- Date - Completion
- Date - Create
- Date - Entrez
- Date - MeSH
- Date - Modification
- Date - Publication
- EC/RN Number
- Editor
- Filter
- Grant Number
- ISBN
- Investigator
- Investigator - Full
- Issue
- Journal
- Language
- Location ID
- MeSH Major Topic
- MeSH Subheading
- MeSH Terms
- Other Term
- Publication
- Pharmacological Action
- Publication Type
- Publisher

AND

Search

History

There is

Search field with minus icon and [Show index list](#)

Search field with minus and plus icons and [Show index list](#)

Empty search field

Empty search field

Empty search field

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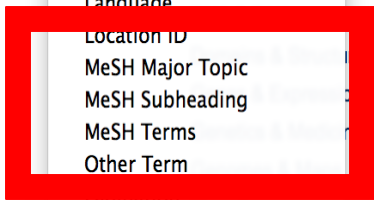
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What else not to do

- Use sparingly wildcard/ truncation *
 - Eg. Random*
 - Look at ‘search details’ 
- Try NOT to use Boolean term NOT



-
- 5. [Comparison of the radial artery and saphenous vein as composite grafts in off-pump coronary artery bypass grafting in elderly patients: a **randomized** controlled trial.](#)

Song SW, Sul SY, Lee HJ, Yoo KJ.

Korean Circ J. 2012 Feb;42(2):107-12. Epub 2012 Feb 27.

PMID: 22396698 [PubMed - in process]

[Related citations](#)

- 6. [Comparison between topical honey and mafenide acetate in treatment of burn wounds.](#)

6. Maghsoudi H, Salehi F, Khosrowshahi MK, Baghaei M, Nasirzadeh M, Shams R.

Ann Burns Fire Disasters. 2011 Sep 30;24(3):132-7.

PMID: 22396671 [PubMed - in process]

[Related citations](#)

- 7. [Uncovering the dynamics of cardiac systems using stochastic pacing and frequency domain analyses.](#)

7. Lemay M, de Lange E, Kucera JP.

PLoS Comput Biol. 2012 Mar;8(3):e1002399. Epub 2012 Mar 1.

PMID: 22396631 [PubMed - in process]

[Related citations](#)

- 8. [Systematic Lymphadenectomy for Survival in Patients with Endometrial Cancer: A Meta-analysis.](#)

8. Kim HS, Suh DH, Kim MK, Chung HH, Park NH, Song YS.

Jpn J Clin Oncol. 2012 Mar 6. [Epub ahead of print]

PMID: 22396619 [PubMed - as supplied by publisher]

Find related data

Database:

Search details

```
randomeffects[All Fields] OR  
randomely[All Fields] OR  
randomer[All Fields] OR  
randomezed[All Fields] OR  
randomforest[All Fields] OR  
randomi[All Fields] OR
```

[See more...](#)

Recent activity

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 random* (754968)

PubMed





Additional tips

- Save search strategy under My NCBI 
- Save/ Email collection on articles 

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Results: 1 to 20 of 754968

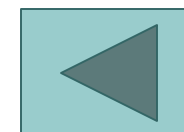
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All (754968)

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[Review \(70408\)](#)

[Brain Aging and Regeneration after Injuries: an Organismal approach.](#)



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Brain Aging and Regeneration after Injuries: an Organismal approach.

1. Buga AM, Vintilescu R, Pop OT, Popa-Wagner A.

Aging Dis. 2011 Feb;2(1):64-79. Epub 2011 Sep 20.

PMID: 22396867 [PubMed - in process]

Related citations

Interactive Rhythmic Auditory Stimulation Reinstates Natural 1/f Timing in Gait of Parkinson's Patients.

2. Hove MJ, Suzuki K, Uchitomi H, Orimo S, Miyake Y.

PLoS One. 2012;7(3):e32600. Epub 2012 Mar 2.

PMID: 22396783 [PubMed - in process]

Related citations

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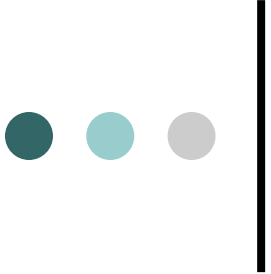
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Titles with your search terms

Dabigatran versus warfarin in patients with atrial fibrillation. [N Engl J Med. 2009]

Improved survival with ipilimumab in patients with metastatic melanoma. [N Engl J Med. 2010]

Angiotensin-receptor blockade and risk of cancer: meta-analysis of rar [Lancet Oncol. 2010]



Nurses and other allied health researchers

- RQ: What is the level of knowledge and attitudes of nursing students toward tuberculosis?
- Reason: To understand and determine whether there is a need for improvement in nursing education regarding tuberculosis.



Research Question

- What is the **level of knowledge and attitudes of nursing students toward tuberculosis?**
- Population: Nursing students
- Determinant: Level of knowledge and attitudes towards TB
- Outcome: None

Example

Population		
Nurse	? Nurse student	
nursing		

OR



Example

	Determinant/ Exposure	
	attitude	
OR	knowledge	
OR	behaviour	
OR	Behavior	
OR	Perception	
OR	perceive	

Example

	Determinant/ Exposure/ (Disease of interest)	
	tuberculosis	
OR	TB	

PubMed Advanced Search Builder

YouTube Tutorial

Use the builder below to create your search

[Edit](#)

[Clear](#)

Builder

All Fields [Show index list](#)

AND All Fields [Show index list](#)

or [Add to history](#)

History

[Clear history](#)

Search	Add to builder	Query	Items found	Time
#4	Add	Search ((#1) AND #2) AND #3	63	03:10:34
#3	Add	Search (tuberculosis[Title/Abstract] OR TB[Title/Abstract]	139991	03:10:13
#2	Add	Search (((attitude[Title/Abstract] OR knowledge[Title/Abstract] OR behaviour[Title/Abstract] OR behavior[Title/Abstract] OR perception[Title/Abstract] OR perceive[Title/Abstract]	865699	03:07:52
#1	Add	Search (nurse[Title/Abstract] OR nursing[Title/Abstract]	230611	03:06:38



You are here: NCBI > Literature > PubMed

[Write to the Help Desk](#)

GETTING STARTED

- NCBI Education
- NCBI Help Manual
- NCBI Handbook
- Training & Tutorials

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- Chemicals & Bioassays
- Data & Software
- DNA & RNA
- Domains & Structures
- Genes & Expression

POPULAR

- PubMed
- Nucleotide
- BLAST
- PubMed Central
- Gene

FEATURED

- GenBank
- Reference Sequences
- Map Viewer
- Genome Projects
- Human Genome

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Display Settings: Summary, 20 per page, Sorted by Recently Added

Send to: [dropdown]

Filter your results:

Results: 1 to 20 of 63

<< First < Prev Page 1 of 4 Next > Last >>

- All (63)
- Free Full Text (12)
- Review (12)

Manage Filters

- [Cerebral malaria: What is known and what is on research.](#)
1. Gay F, Zougbedé S, N'dilimabaka N, Rebollo A, Mazier D, Moreno A. Rev Neurol (Paris). 2012 Mar 1. [Epub ahead of print] PMID: 22386676 [PubMed - as supplied by publisher] [Related citations](#)
- [Do nurses have a different physical health profile? A systematic review of experimental and observational studies on nurses' physical health.](#)
2. Fronteira I, Ferrinho P. J Clin Nurs. 2011 Sep;20(17-18):2404-24. doi: 10.1111/j.1365-2702.2011.03721.x. Epub 2011 Jul 13. Review. PMID: 21752130 [PubMed - indexed for MEDLINE] [Related citations](#)
- [Knowledge, attitudes and practices of private sector providers of tuberculosis care: a scoping review.](#)
3. Bell CA, Duncan G, Saini B. Int J Tuberc Lung Dis. 2011 Aug;15(8):1005-17. Review. PMID: 21669027 [PubMed - indexed for MEDLINE] [Related citations](#)
- [Welcome intrusions: an interpretive phenomenological study of TB nurses' relational work.](#)
4. Bender A, Peter E, Wynn F, Andrews G, Pringle D. Int J Nurs Stud. 2011 Nov;48(11):1409-19. Epub 2011 May 20. PMID: 21601205 [PubMed - indexed for MEDLINE] [Related citations](#)
- [Knowledge of and attitudes toward tuberculosis of Turkish nursing and midwifery students.](#)
5. Akin S, Gorak G, Unsar S, Mollaoglu M, Ozdilli K, Durna Z. Nurse Educ Today. 2011 Nov;31(8):774-9. Epub 2011 Feb 1. PMID: 21288610 [PubMed - indexed for MEDLINE] [Related citations](#)
- [Mycobacterium tuberculosis: implications for district nurses.](#)
6. James S, Watson M. Br J Community Nurs. 2010 Oct;15(10):492-5. Review.

Find related data

Database: [Select]

[Find items]

Search details

{(#1) AND #2) AND #3

[Search] See more...

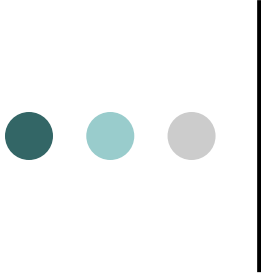
Recent activity

- (((nurse[Title/Abstract]) OR nursing[Title/Abstract])) AND (((... (6 PubMed
- Knowledge of and attitudes toward tuberculosis of Turkish nursing and m PubMed
- tuberculosis education nurse (230) PubMed
- tuberculosis education (3725) PubMed
- random* (754968) PubMed



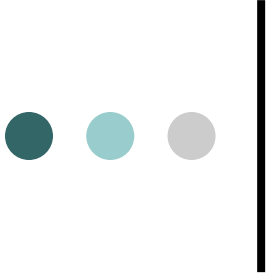
Practical session

- Think of a research question and prepare search terms
 - 5 minutes
- Go through PubMed search together



Literature search for Qualitative Studies

- Challenges of search in database:
 - **Titles are descriptive** c.f. RCT which usually has clear description of population, determinants, outcome and/or research method
 - Eg: Unbearable incidents: Failure to endure the experience of Illness
 - Specific key terms difficult
 - Limited standardisation in presentation of abstract c.f RCT : poor description of study method
 - Poor indexing: inconsistent indexing in Pubmed
 - Complex and difficult!



Literature search for Qualitative Studies

- Currently, no establish search strategy for qualitative study
- Potentially useful method:
 - Use appropriate MeSH terms in search:
 - eg: qualitative research, focus groups, narration, anecdotes, grounded theory, attitude, knowledge, practice
 - Limit search to publication types
 - Use a Quality research filter
 - Pubmed Health services research queries
 - <http://www.nlm.nih.gov/nichsr/hedges/search.html>



Thank you

Any Questions?