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Strengthening the Occupational Health Expertise and Scientific Performance of Public Health Institution of Turkey



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How to find reliable information?

B 2.1 ppt 2

Learning Objectives

Five steps in looking for evidence¹

1. Translate a problem into an 'answerable question'
2. Efficiently look for the best evidence
3. Evaluate the methodological quality
4. Apply the evidence to the practice of occupational safety and health
5. Evaluate the quality of the process in the steps 1 to 4

¹based on van Dijk and Caraballo-Arias
(2015)

Summary of presentation

- Translate a problem into an 'answerable question' before starting a literature search
- Look for the best evidence in an efficient way
- Be critical and consider methodological quality, validity and usefulness of the studies



Occupational Safety and Health **online**

How to find reliable information

Frank van Dijk
Yohama Caraballo-Arias

1. Translate a problem into an 'answerable question'

'Answerable question'

= precise and concrete enough that a concrete answer can be found

- PICO:

- P:** population/patient/problem/general situation of the workplace or type of work
- I:** intervention/indicator/exposure/observation
- C:** comparator/control
- O:** outcome/results

1. Translate a problem into an ‘answerable question’

Exercise 1:

A pregnant nurse¹:

- A 34 years old nurse in a large hospital visits your consulting hour. She is 10 weeks pregnant.
- It is her 3rd pregnancy; the first two pregnancies were uncomplicated; two healthy kids
- “Doctor, I have heavy physical work (including handling of patients). Should I stop or change work during my pregnancy?”

=> Where would you search for evidence?

1. Translate a problem into an 'answerable question'

Patient/ population	Intervention/ exposure	Comparison	Outcome
pregnant workers	heavy physical work	compared to no or light work	give a higher risk of preterm delivery?

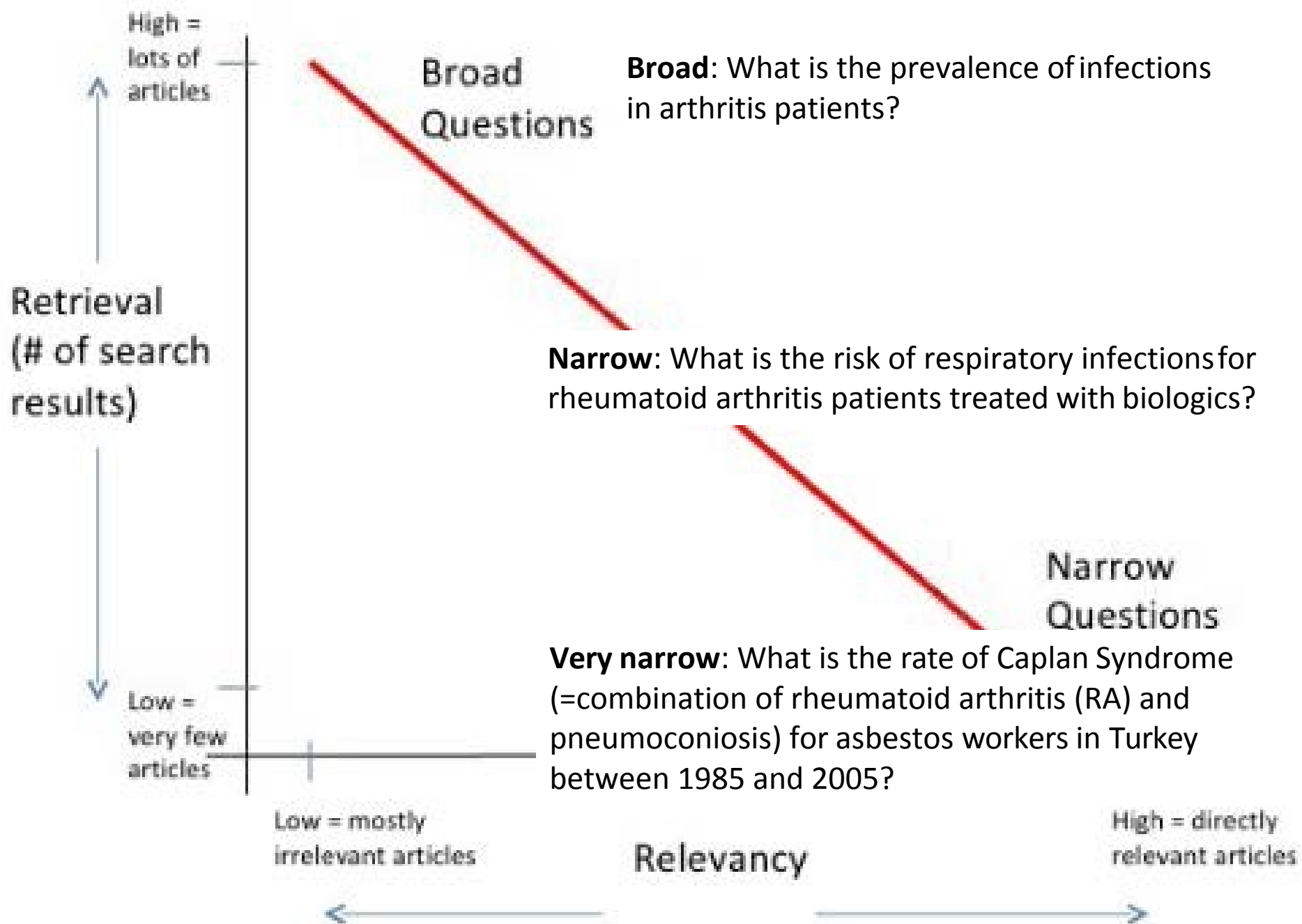
1. Translate a problem into an 'answerable question'

Exercise 2:

Scenario: You're applying for a grant to support your research on infections in arthritis patients.

=> Think of a question related to this topic...





Available sources

Colleagues

Text books

(Inter)national
journals

Databases

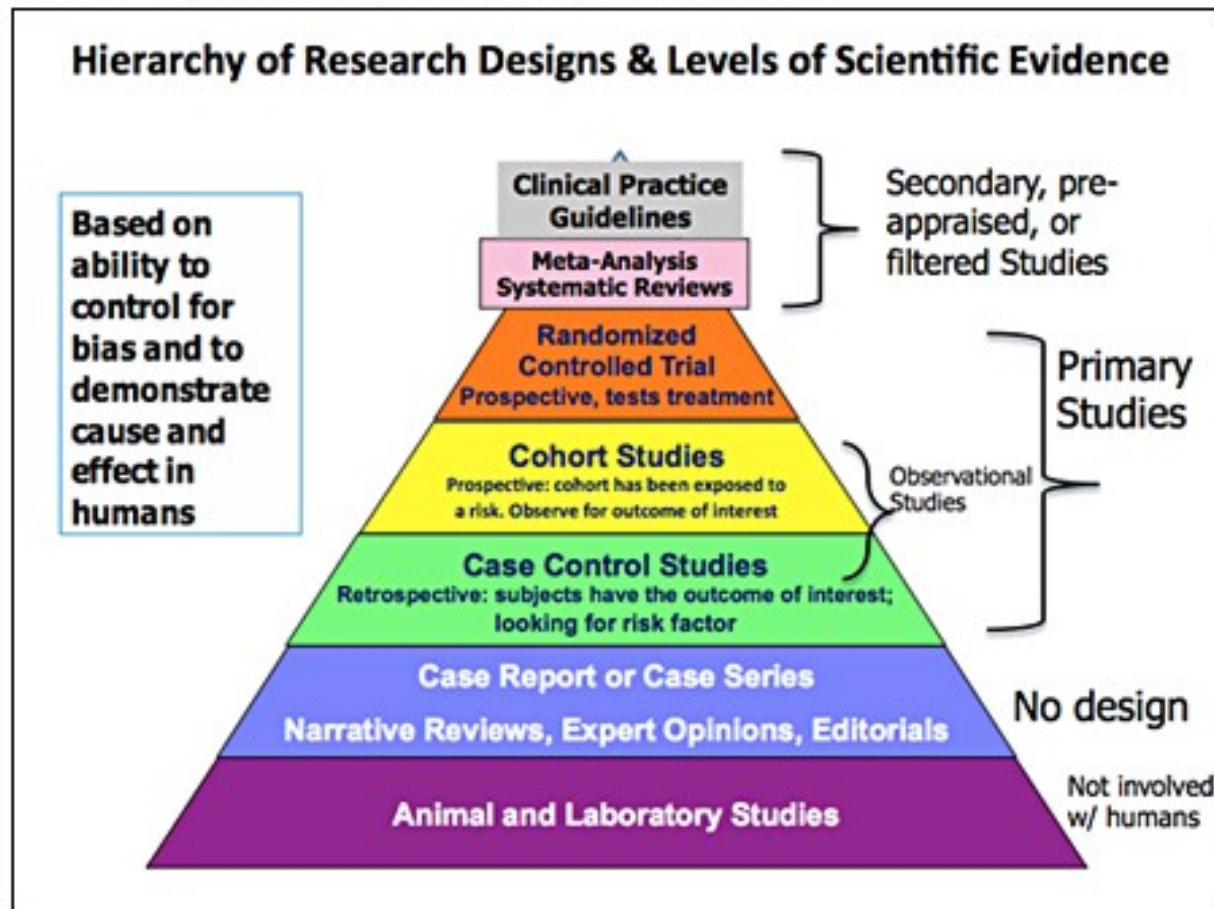
Websites

Guidelines

2. Efficiently look for the best evidence



Figure 2. Study Types and Levels of Clinical Evidence



Modified Evidence Pyramid. Copyright permission granted by SUNY Downstate Medical Center, Medical Research Library at Brooklyn

2. Efficiently look for the best evidence

Where?

- PubMed (Search engine) : Medline (database)
- Web of Knowledge – Web of Science (WoS)
- The Cochrane Library
- Other databases : Embase, Psycinfo,...
- Clinical practice guidelines

- Google Scholar

2. Efficiently look for (the best) evidence - results



Google (general search engine)


www.google.com

- Search the whole web
- Usually you find results here if you did not find anything elsewhere
- Gives you an idea, a direction
- Results are ordered by importance or relevance
- Not only validated and scientific sources ... a lot of rubbish too
- One has to be extremely critical towards the found results
- Also sponsored links

2. Efficiently look for (the best) evidence - results

Wikipedia - <https://en.wikipedia.org/>

Nederlands
日本語
Norsk bokmål
Norsk nynorsk
Polski
Português
Română
Русский
Slovenčina
Slovenščina
Српски / srpski
Srpskohrvatski / српскохрватски
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2. Efficiently look for the best evidence

DEVELOP A SEARCH STRATEGY

- A. Break your question into concepts - PICO
- B. Identify subject headings for each concept - MeSH
- C. Identify text words for each concept



TIPS:

1. Use a 'target article' to help you identify search terms
2. Use a worksheet to keep track of your terms

2. Efficiently look for the best evidence

Population	P	Patients with rheumatoid arthritis
Intervention or Exposure	I	Biologics
Comparison	C	
Outcome or endpoint	O	Risk of respiratory infections

Type of question?

2. Efficiently look for the best evidence

B. Identify subject headings for each concept

Medical Subject Headings (MeSH[®])

= the National Library of Medicine's **controlled** vocabulary thesaurus consisting of sets of terms naming **descriptors** in a **hierarchical structure** that permits searching at **various levels of specificity**.

=> Helps to create more focused searches



2. Efficiently look for the best evidence

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As part of @opentrials, Fleminger & @bengoldacre look to connect articles to correct #clinicaltrial IDs, e.g. bit.ly/2beE9z1

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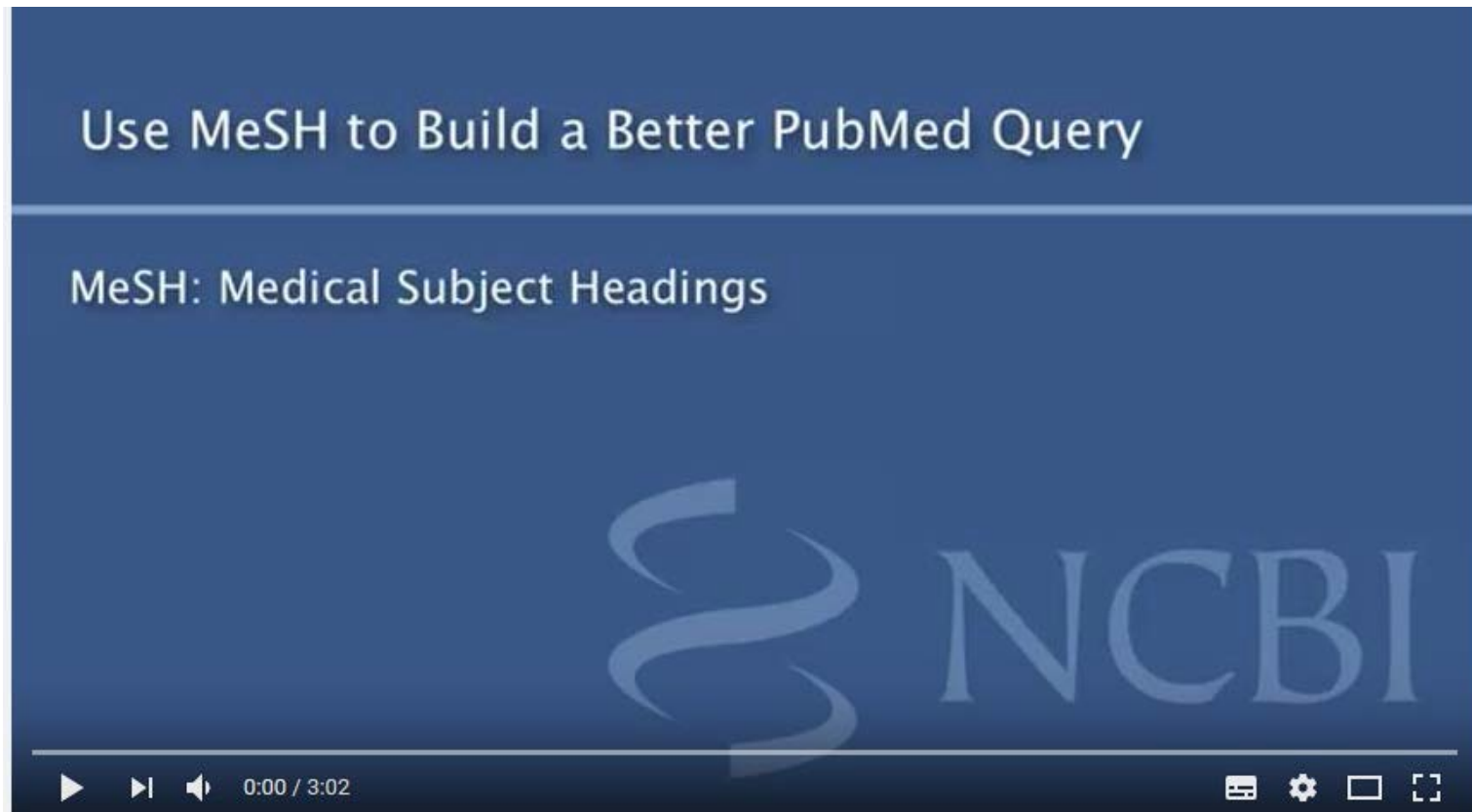
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2. Efficiently look for the best evidence





2. Efficiently look for the best evidence

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☐ [Incidence rates of occupational diseases in the Dutch construction sector, 2010-2014.](#)
1. van der Molen HF, de Vries SC, Stocks SJ, Warning J, Frings-Dresen MH.
Occup Environ Med. 2016 May;73(5):350-2. doi: 10.1136/oemed-2015-103429. Epub 2016 Mar 3.
PMID: 26940576
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☐ [Treatment patterns of chronic obstructive pulmonary disease in employed adults in the United States.](#)
2. Diette GB, Dalal AA, D'Souza AO, Lunacek OE, Nagar SP.
Int J Chron Obstruct Pulmon Dis. 2015 Feb 24;10:415-22. doi: 10.2147/COPD.S75034. eCollection 2015.
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☐ [Hypothetical interventions to limit metalworking fluid exposures and their effects on COPD mortality: G-estimation within a public health framework.](#)
3. Picciotto S, Chevrier J, Balmes J, Eisen EA.
Epidemiology. 2014 May;25(3):436-43. doi: 10.1097/EDE.0000000000000082.
PMID: 24608667
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4. Nishimura K, Mitsuma S, Kobayashi A, Yanagida M, Nakayasu K, Hasegawa Y, Jones PW.
Respir Res. 2013 Jun 2;14:61. doi: 10.1186/1465-9921-14-61.
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2. Efficiently look for the best evidence



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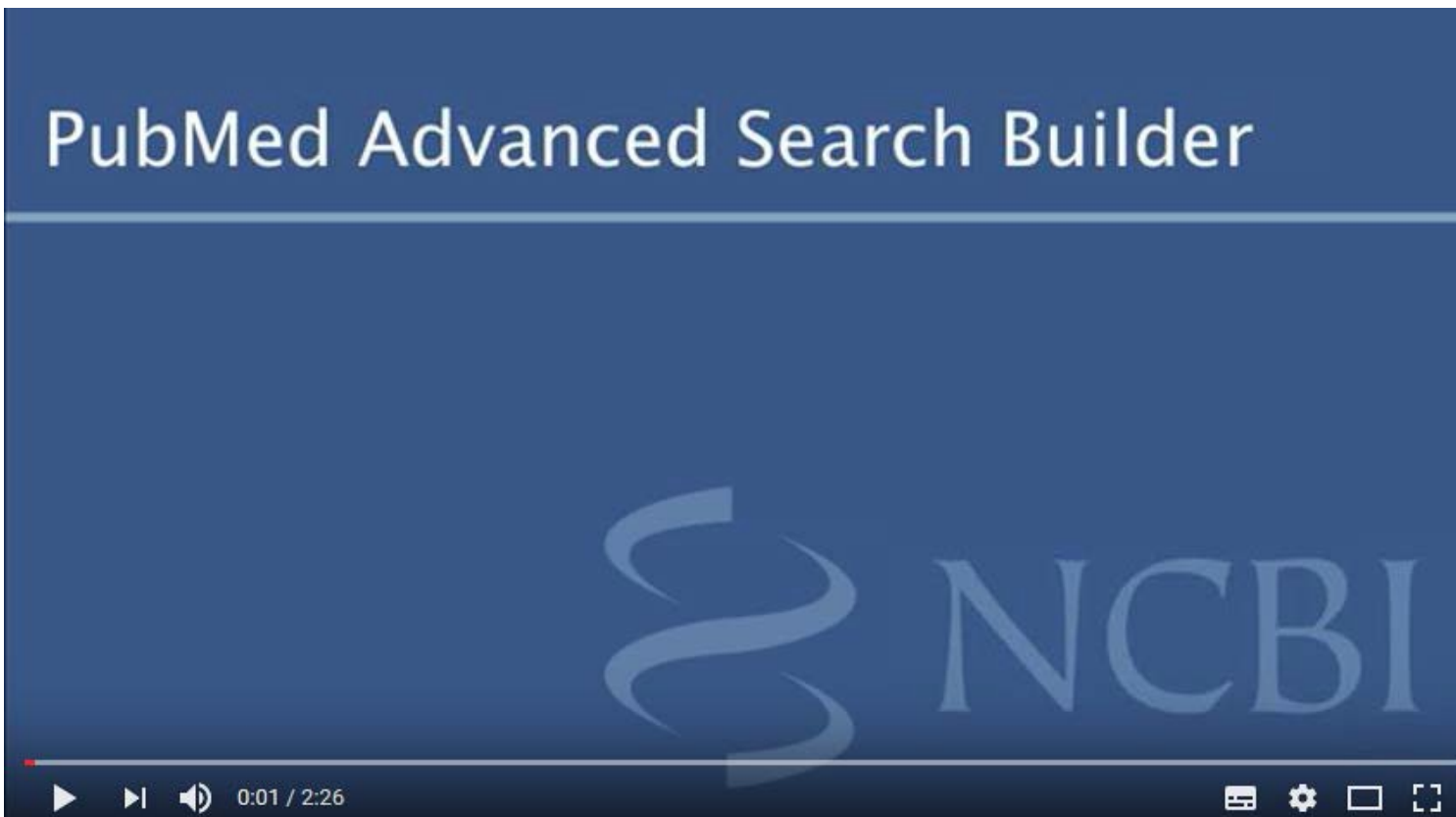
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GETTING STARTED RESOURCES POPULAR FEATURED NCBI INFORMATION

2. Efficiently look for the best evidence

<http://www.ncbi.nlm.nih.gov/pubmed>



3. Evaluate the methodological quality

A. Journal Citation Reports: impact factor (IF)

“number of citations in a given year to papers published in that journal in the preceding 2 years, divided by the number of papers the journal published in that same 2-year period”

- relative index (ratio)
- measure of citation, not a measure of quality
- depends on research field and subject area
- fluctuations with time (slow)

3. Evaluate the methodological quality

A. Impact factor

ISI Web of KnowledgeSM

Journal Citation Reports[®]

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3. Evaluate the methodological quality

B. Methodological quality

1. Validity of the study (levels of evidence, degrees of recommendation)
2. Results of the study (e.g clinical importance, uncertainty, confidence intervals, sensitivity analysis)
3. Usefulness of the study

3. Evaluate the methodological quality

B. Methodological quality

Existing checklists:

- **SIGN:** <http://www.sign.ac.uk/methodology/checklists.html>
- **AMSTAR (systematic reviews):** http://amstar.ca/Amstar_Checklist.php
- **CASP:** <http://www.casp-uk.net/casp-tools-checklists>

3. Evaluate the methodological quality

C. Levels of evidence

- HIGH QUALITY: further research is very unlikely to change our confidence in the estimate of the effect = A (RCT's)
- MODERATE QUALITY: further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate = B
- LOW QUALITY: further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate = C (observational studies)
- VERY LOW QUALITY: any estimate of effect is very uncertain = D

3. Evaluate the methodological quality

The Evidence Pyramid

