

# How To Do Literature Search

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# Objectives

- To explain the role of searching the literature in conducting research
- To recognize the levels of evidence
- To differentiate the EBM resources
- To identify where to search for evidence
- To prepare proper search terms
- To perform Boolean operators and MeSH indexing
- To conduct literature search for evidence using Pubmed and Cochrane
- To summarize the literature review for the IRB



# Why searching a literature?

## Staying

- Staying current with advances in medicine

## Identifying

- Identifying information and ideas

## Increasing

- Increasing your breadth of knowledge

## Identifying

- Identifying seminal works in your area

## Carrying

- Carrying on from where others have already reached

## Avoiding

- Avoiding reinventing the wheel

## Putting

- Putting your work into perspective



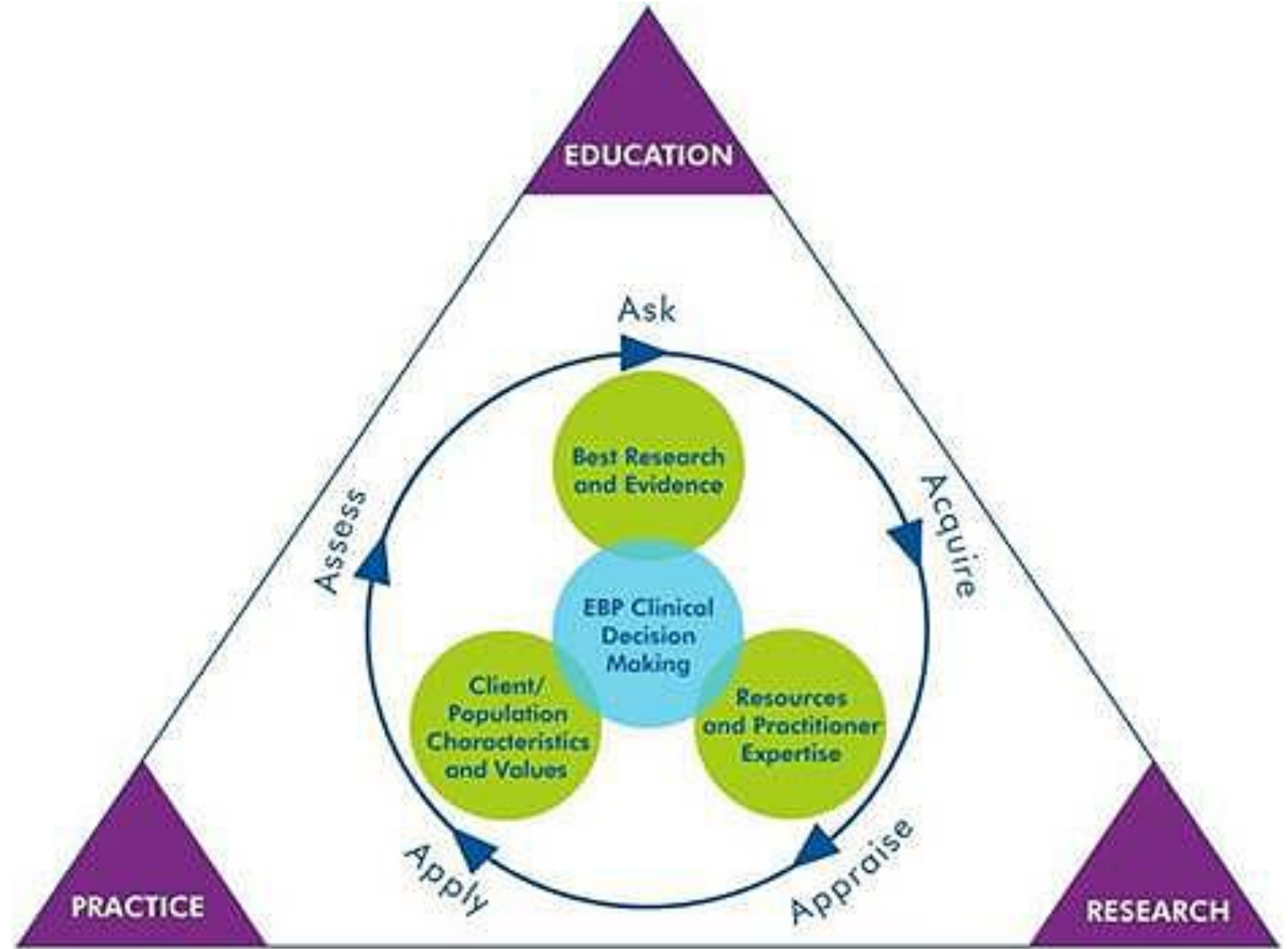
how much wo	<a href="#">Advanced Search</a>
<b>how much wood would a woodchuck chuck if a woodchuck could chuck wood</b>	<b>184,000 results</b>
how much wood	38,000,000 results
how much working tax credit will i get	53,900,000 results
how much working tax credit	74,000,000 results
how much would i get for my car	145,000,000 results
how much would an extension cost	9,460,000 results
<a href="#">Adverti</a> how much would it cost to build a house	44,800,000 results
how much wood could a woodchuck	158,000 results
how much would my mortgage be	20,700,000 results
how much working tax credit am i entitled to	452,000 results
	<a href="#">close</a>

# What is the first step in the evidence based practice process?

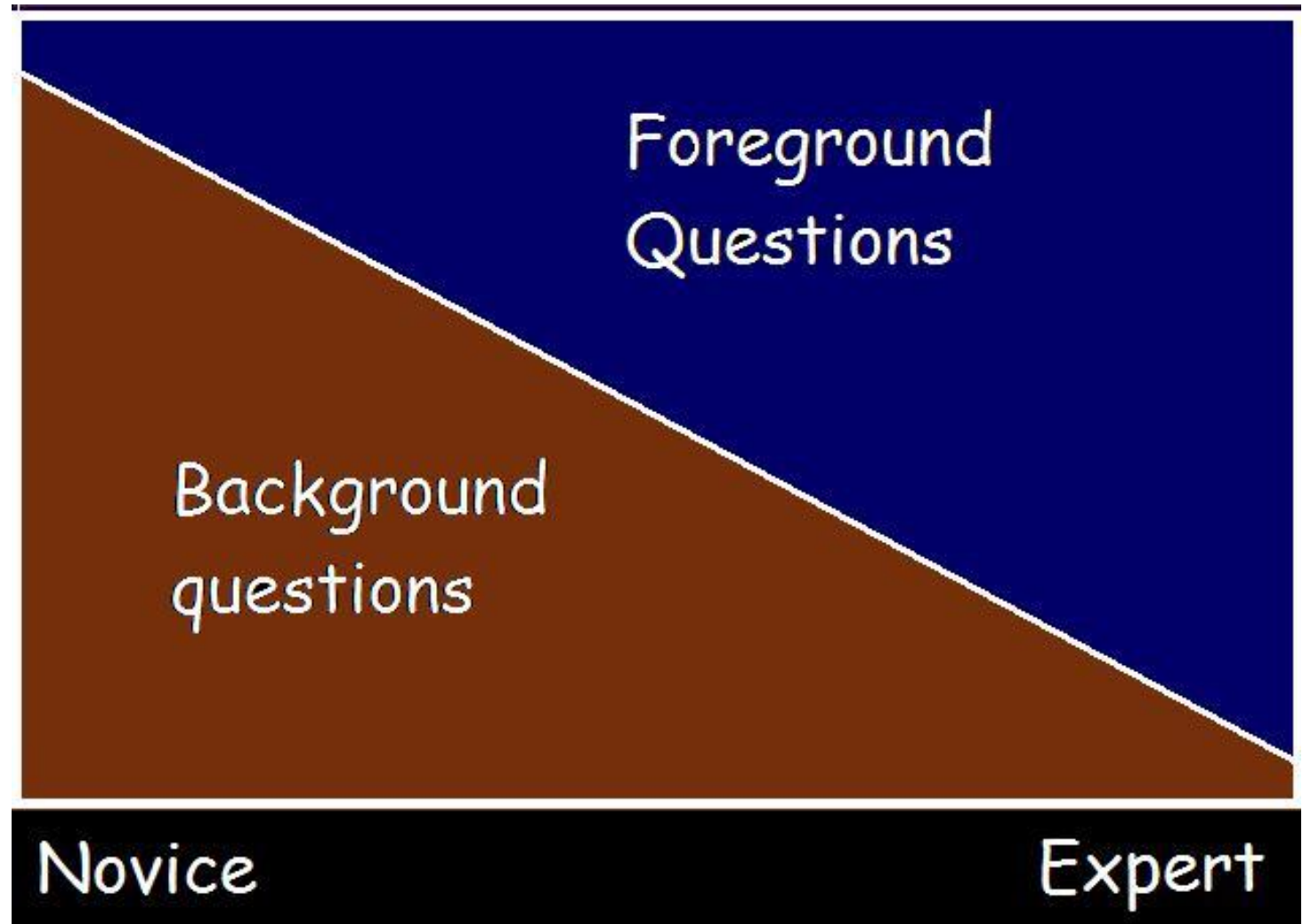
- A. Applying research to practice
- B. Acquiring available research and evidence
- C. Assessing the impact of change
- D. Asking a clinical question
- E. Appraising the research quality



# 5-step EBM process



Foreground  
Vs.  
Background  
EBM questions

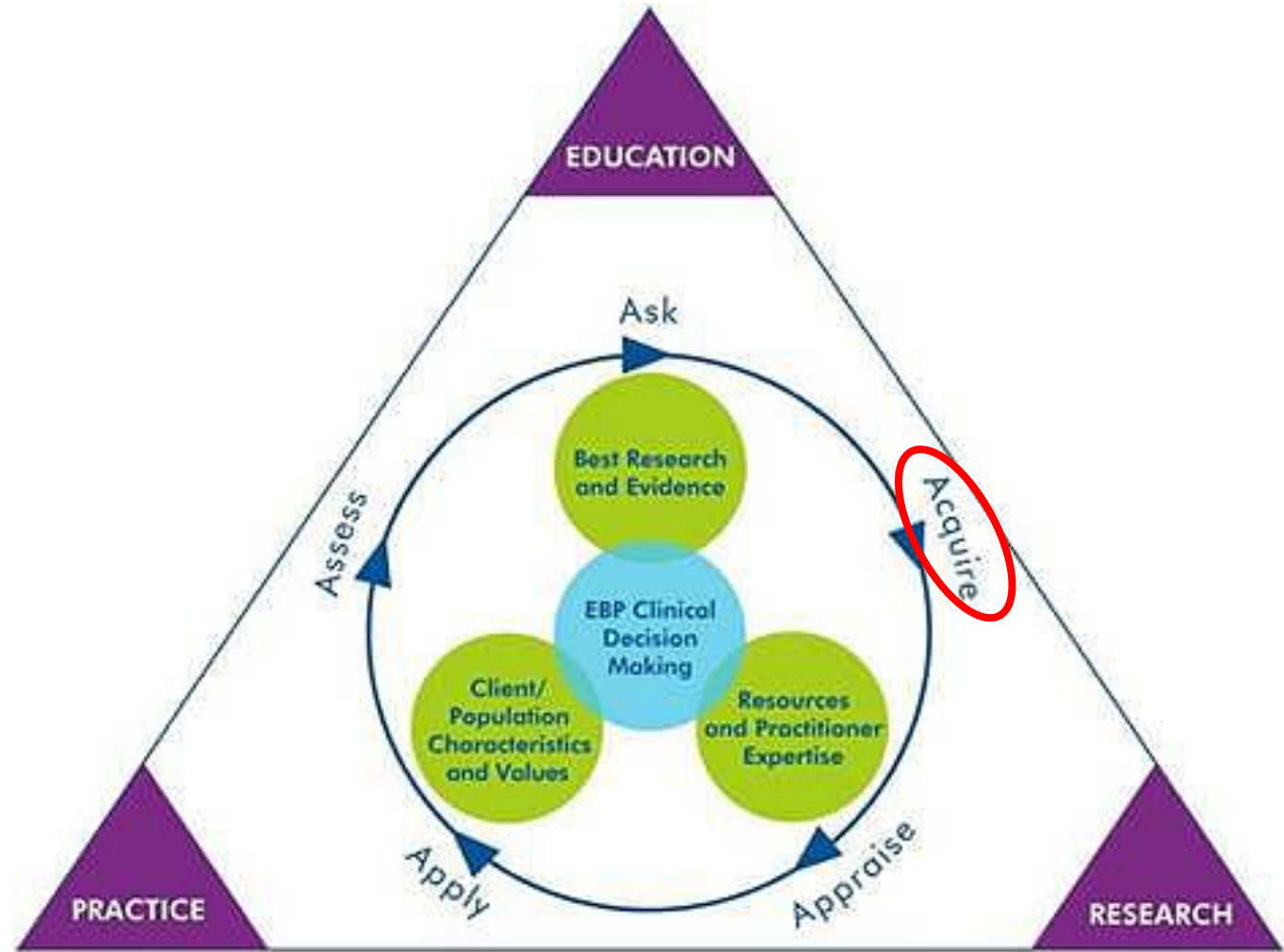


## Foreground OR Background?

- “What is malaria?”
- Are bed nets effective in lowering the incidence/prevalence of malaria in developing countries?



2nd step:  
Acquire



# Where do you search for evidence?

1. ACP Clinical Guidelines and Recommendations
2. BMJ BestPractice / Clinical Evidence
3. ClinicalKey / MDConsult
4. Cochrane Library
5. DynaMed
6. Essential Evidence Plus
7. Google
8. Google Scholar
9. Medscape
10. PubMed
11. Saudi Digital Library
12. Skyscape
13. StatRef
14. TRIP Database
15. UpToDate
16. Web of Knowledge
17. WebMD (Med-U)
18. Other

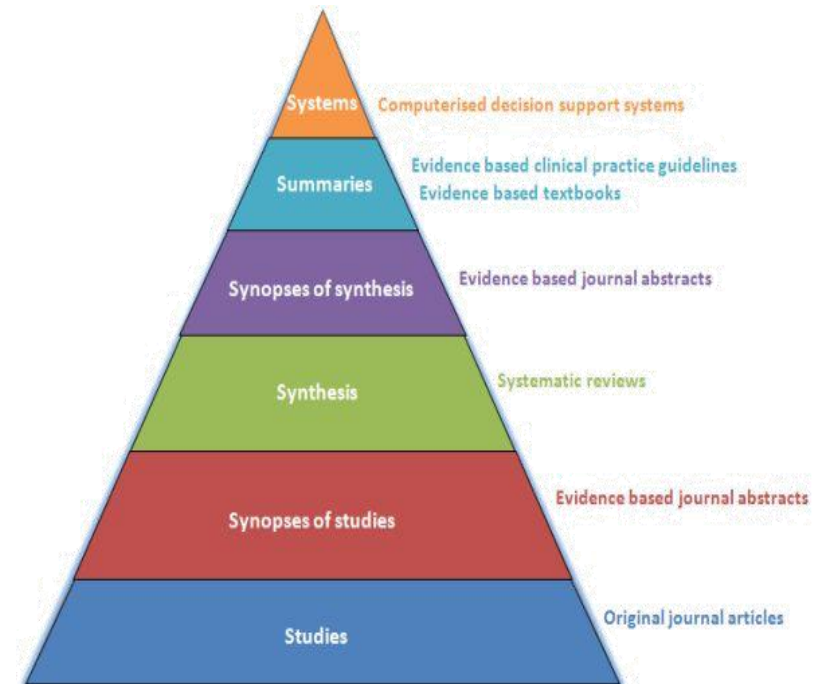


# Hierarchy of evidence

- Levels of evidence



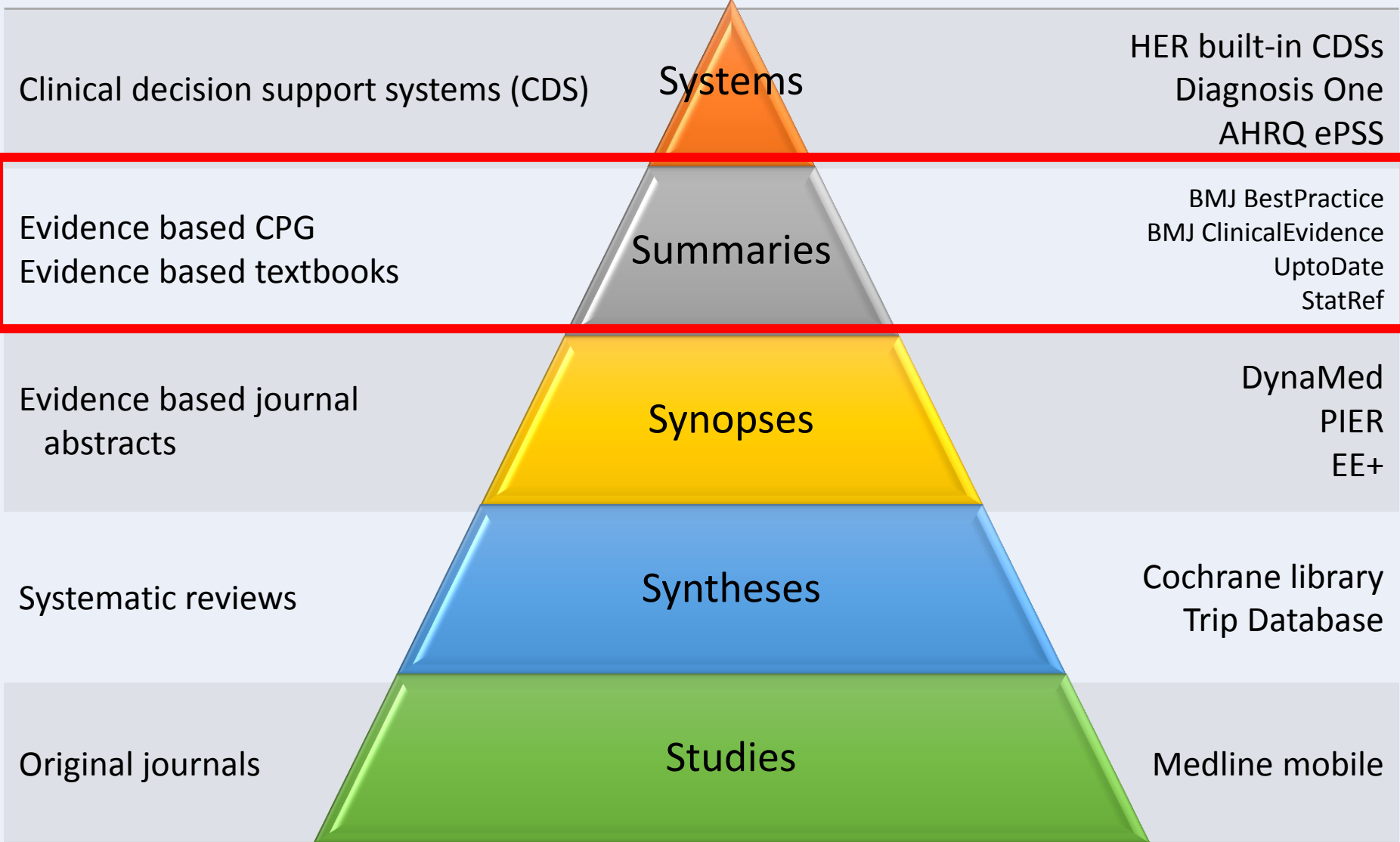
- Sources of evidence (6 Ss)



# Oxford Centre for Evidence-based Medicine Levels of Evidence (May 2001)

Level	Therapy/Prevention, Aetiology/Harm	Prognosis	Diagnosis	Differential diagnosis/ symptom prevalence study	Economic and decision analyses
1a	SR (with <a href="#">homogeneity*</a> ) of RCTs	SR (with <a href="#">homogeneity*</a> ) of inception cohort studies; <a href="#">CDR†</a> validated in different populations	SR (with <a href="#">homogeneity*</a> ) of Level 1 diagnostic studies; <a href="#">CDR†</a> with 1b studies from different clinical centres	SR (with <a href="#">homogeneity*</a> ) of prospective cohort studies	SR (with <a href="#">homogeneity*</a> ) of Level 1 economic studies
1b	Individual RCT (with narrow <a href="#">Confidence Interval‡</a> )	Individual inception cohort study with ≥ 80% follow-up; <a href="#">CDR†</a> validated in a single population	Validating** cohort study with <a href="#">good+++</a> reference standards; or <a href="#">CDR†</a> tested within one clinical centre	Prospective cohort study with good follow-up****	Analysis based on clinically sensible costs or alternatives; systematic review(s) of the evidence; and including multi-way sensitivity analyses
1c	<a href="#">All or none§</a>	All or none case-series	<a href="#">Absolute SpPins and SnNouts††</a>	All or none case-series	Absolute better-value or worse-value analyses + + + +
2a	SR (with <a href="#">homogeneity*</a> ) of cohort studies	SR (with <a href="#">homogeneity*</a> ) of either retrospective cohort studies or untreated control groups in RCTs	SR (with <a href="#">homogeneity*</a> ) of Level >2 diagnostic studies	SR (with <a href="#">homogeneity*</a> ) of 2b and better studies	SR (with <a href="#">homogeneity*</a> ) of Level >2 economic studies
2b	Individual cohort study (including low quality RCT; e.g., <80% follow-up)	Retrospective cohort study or follow-up of untreated control patients in an RCT; Derivation of <a href="#">CDR†</a> or validated on split-sample§§§ only	Exploratory** cohort study with <a href="#">good+++</a> reference standards; <a href="#">CDR†</a> after derivation, or validated only on split-sample§§§ or databases	Retrospective cohort study, or poor follow-up	Analysis based on clinically sensible costs or alternatives; limited review(s) of the evidence, or single studies; and including multi-way sensitivity analyses
2c	"Outcomes" Research; Ecological studies	"Outcomes" Research		Ecological studies	Audit or outcomes research
3a	SR (with <a href="#">homogeneity*</a> ) of case-control studies		SR (with <a href="#">homogeneity*</a> ) of 3b and better studies	SR (with <a href="#">homogeneity*</a> ) of 3b and better studies	SR (with <a href="#">homogeneity*</a> ) of 3b and better studies
3b	Individual Case-Control Study		Non-consecutive study; or without consistently applied reference standards	Non-consecutive cohort study, or very limited population	Analysis based on limited alternatives or costs, poor quality estimates of data, but including sensitivity analyses incorporating clinically sensible variations.
4	Case-series (and <a href="#">poor quality cohort and case-control studies§§</a> )	Case-series (and <a href="#">poor quality prognostic cohort studies***</a> )	Case-control study, poor or non-independent reference standard	Case-series or superseded reference standards	Analysis with no sensitivity analysis
5	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles"	Expert opinion without explicit critical appraisal, or based on economic theory or "first principles"

# Haynes' 5S pyramid of EBM resources



# Where do you search for guidelines?

BMJ Best  
Practice

CMA Infobase

Cochrane

DynaMed

EMBASE

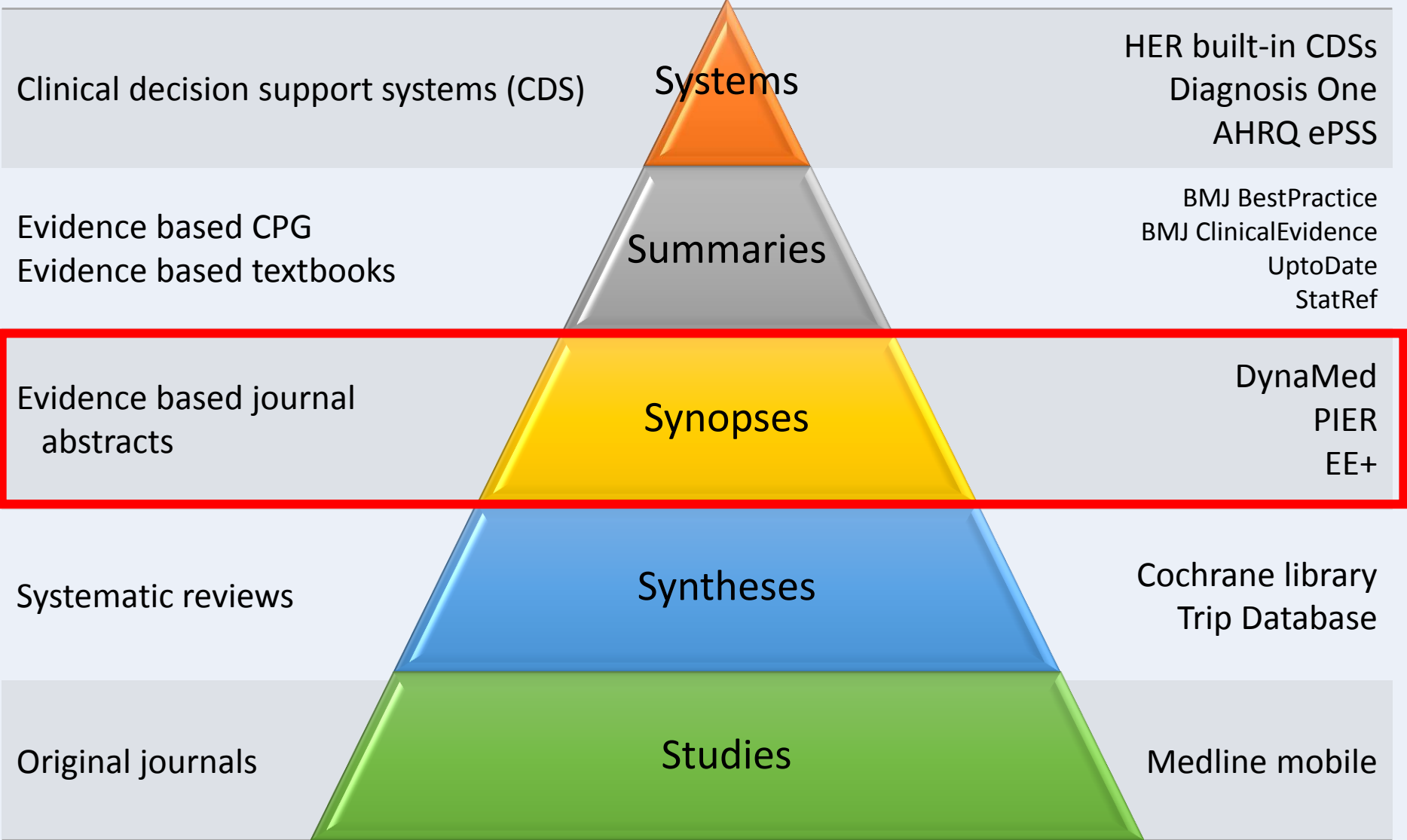
Essential  
Evidence Plus

Medline

National  
guideline  
Clearinghouse

TRIP database

# Haynes' 5S pyramid of EBM resources



# EvidenceUpdates

from BMJ

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This service is unique: all citations (from over 120 premier clinical journals) are pre-rated for quality by research staff, then rated for clinical relevance and interest by at least 3 members of a worldwide panel of practicing physicians. Here's what we offer:

- A [searchable database](#) of the best evidence from the medical literature
- An [email alerting](#) system
- Links to selected evidence-based resources

#### Hit Parade: The most often read articles in all disciplines, in the past 30 days

1. [Effectiveness of non-steroidal anti-inflammatory drugs for the treatment of pain in knee and hip osteoarthritis: a network meta-analysis.](#)  
Lancet (Review)
2. [Vaccines for preventing herpes zoster in older adults.](#)  
Cochrane Database Syst Rev (Review)
3. [Blood-Pressure and Cholesterol Lowering in Persons without Cardiovascular Disease.](#)  
N Engl J Med (Original)

#### News and headlines:

- ▣ [Warning issued over alarming rise in 'super-gonorrhoea' cases](#)  
Mon, 18 Apr 2016 16:00:00 GMT
- ▣ [Child head injuries could harm relationship with parents](#)  
Mon, 18 Apr 2016 13:30:00 GMT
- ▣ [Would you trust a smartphone app as a contraceptive?](#)  
Fri, 15 Apr 2016 12:00:00 GMT
- ▣ [Zika virus 'does cause birth defects'](#)  
Thu, 14 Apr 2016 16:30:00 GMT
- ▣ [Study argues ditching butter for veg oil won't prevent heart disease](#)  
Wed, 13 Apr 2016 16:30:00 GMT

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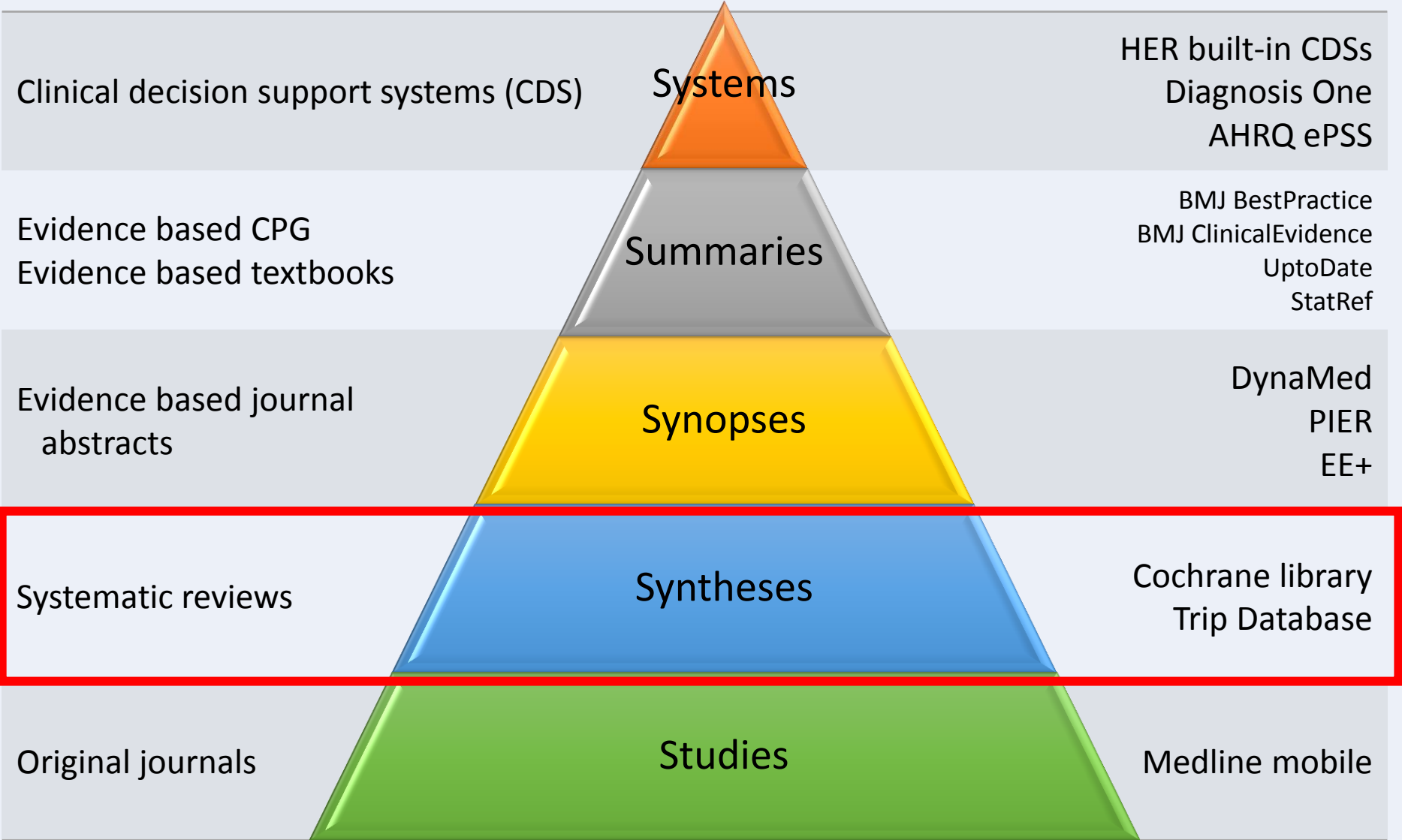
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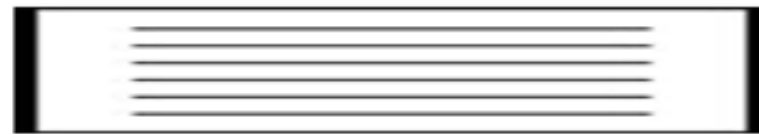
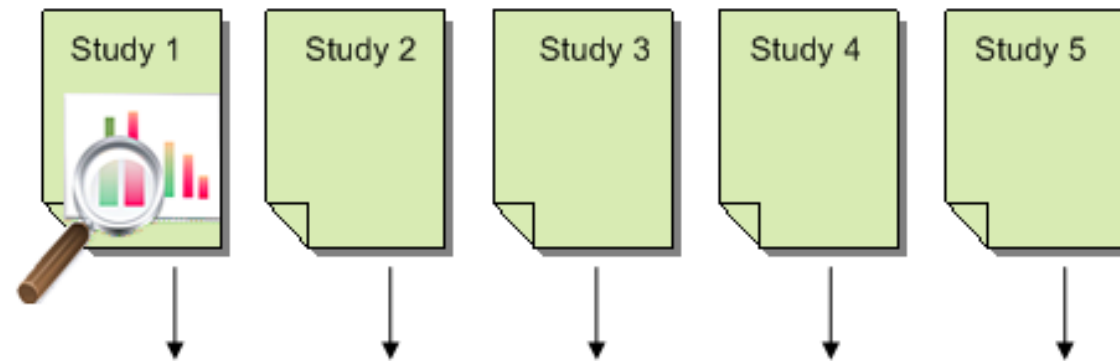
from BMJ



# Haynes' 5S pyramid of EBM resources

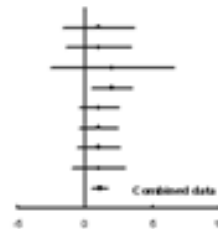


## Systematic Reviews and Meta-analysis: Putting Results into Perspective



### Systematic Review of Studies

A thorough, comprehensive, and explicit interrogation of the medical literature.



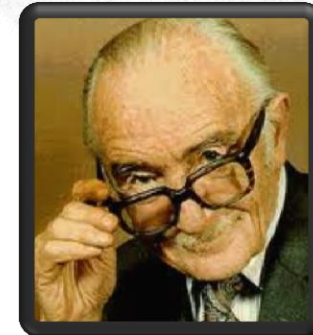
### Meta-analysis

A statistical approach to combine the data derived from a systematic review.

# What is Cochrane

- Archie Cochrane (1909-88)
  - British epidemiologist
  - Advocated RCTs to inform healthcare practice
- Cochrane collaboration
  - Cochrane Reviews (>4,000) registered
  - Identify, appraise and synthesise research-based evidence and present it in accessible format; regularly updated
  - Focus on interventions
  - Outstanding general resource

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



The School of Medicine,  
Cardiff University and the  
Cochrane Archive

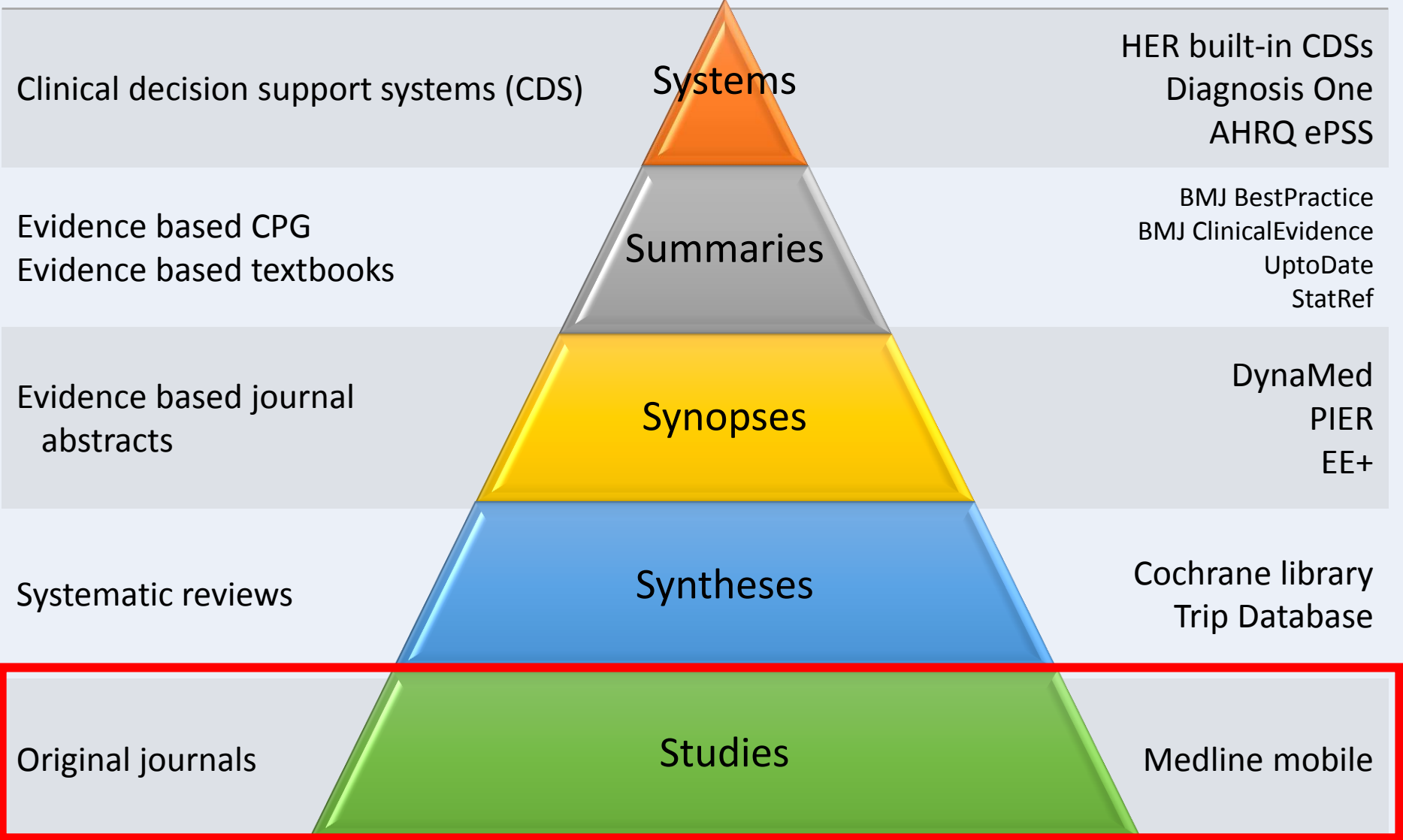


# Filtered and Critically Appraised EBM Resources

- *The Cochrane Library* by The Cochrane Collaboration via Wiley
  - Independent non-for-profit international collaboration
  - Reviews are among the studies of highest scientific evidence
  - Minimum Bias: Evidence is included/excluded on the basis of explicit quality criteria
  - Reviews involve exhaustive searches for all RCT, both published and unpublished, on a particular topic
  - Abstracts searchable for free on the Internet; complete database is available via OVID in SDL for all universities
  - 1995-



# Haynes' 5S pyramid of EBM resources



# Primary Resources

## Global databases

- (Cochrane, PubMed, Health PubMed, Ovid, Science Citations, grey literature, etc.)

## WHO databases

- (global / regional): observatories; scientific journals (WHO Bulletin / EMHJ); surveillance; surveys; ICTRP; CPG, etc.

## National databases:

- ENSTINET, SaudiMedLit; NCHS, CAPMAS; healthcare delivery institutions (websites, reports); clinical trials; grey literature, etc.



PubMed

<https://www.ncbi.nlm.nih.gov/pubm>

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PubMed is a database developed by the National Center for Biotechnology Information (NCBI) at the U.S. National Library of Medicine (NLM) available on the Web.

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PubMed Health provides information for consumers and clinicians on prevention and treatment of diseases and conditions.

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PubMed Health specializes in reviews of clinical effectiveness research, with easy-to-read summaries for consumers as well as full technical reports. Clinical effectiveness research finds answers to the question “What works?” in medical and health care.

---

NLM is the worlds largest medical library

---

NLM has been indexing the biomedical literature since 1879

---

MEDLINE is a database of indexes (with citations and abstracts)

---

PubMed provides access to MEDLINE

---

PubMed database is more current and comprehensive than MEDLINE ( it includes citations even prior to their indexing with MEDLINE)

---

# What is PubMed?



# Why PubMed ?

Over 20 million citations for biomedical literature from app. 5500 selected journals from over 70 countries

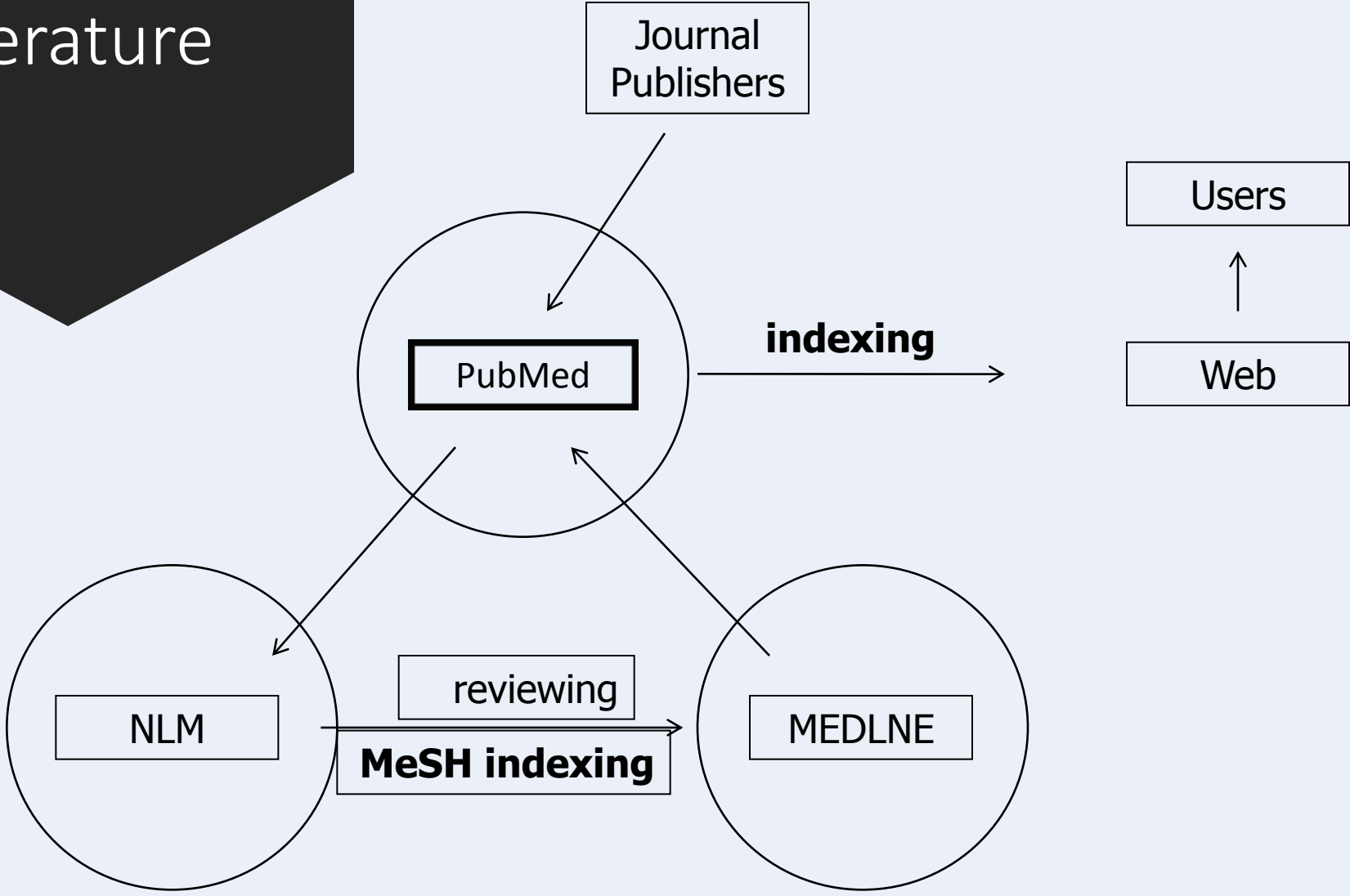
## Source:

- MEDLINE (NLM database)
- Life science journals
- Online books

## Fields:

- Medicine
- Nursing
- Dentistry
- Veterinary medicine
- Health care system
- Preclinical sciences

# Indexing a literature



# Where to start...?

- Internet search/Any search engine
- Guidelines review
- Database search – Medline/PsycINFO
- Reference tracking-references in articles
- Expert contacts

**General overview**



**Thorough search**



**Refining**



# More thorough search?

**If you fail to plan,  
you plan to fail.**

Ben Franklin

Prepare → Organize → Combine



# Prepare

What do we need to know about our topic?

Make a list of all the terms connected with our topic.

# Organize

1

Make a list of the words that are critical to your search.

2

Exchange/add some words if needed.

3

Note terms that you don't want to appear.

4

Discard the rest.

# Combine

Use Boolean operators to combine our most important terms

AND

Use AND to connect the terms we want to see.

NOT

Use NOT to exclude terms we don't want.

OR

Use OR to include similar terms.

# Boolean Operators

# BOOLEAN OPERATORS

Utilizing **Boolean Operators** when searching will provide better, and more accurate, results

**AND**

- Retrieves articles that contain **ALL** the terms
- **NARROWS** down the search

"child obesity" **AND** Maryland  
"video games" **AND** teens

**OR**

- Retrieves articles with **ANY** of the terms
- **BROADENS** the search

**NOT**

- Eliminates articles containing the **SECOND** term
- **NARROWS** the search

depression **AND** teens  
**NOT** adults  
"video games" **AND**  
teenagers **NOT**  
children

obesity **OR**  
overweight  
children **OR**  
juveniles



# MeSH indexing

- Acronym for “Medical Subject Headings”
- Similar to key words on other systems
- Used for indexing journal articles for MEDLINE
- Arranged in hierarchy, from more general to more specific
- Used by researchers





Tree of  
MeSH  
database

[All MeSH Categories](#)

[Analytical, Diagnostic and Therapeutic Techniques and Equipment Category](#)

[Therapeutics](#)

**Phototherapy**

[Color Therapy](#)

[Heliotherapy](#)

[Laser Therapy, Low-Level](#)

[Photochemotherapy](#)

[Hematoporphyrin Photoradiation](#)

[Ultraviolet Therapy](#)

[PUVA Therapy](#) +

## Searching MeSH Term

NCBI Resources How To

MeSH MeSH head injury

Save search Limits Advanced

Display Settings: Summary Send to:

**Results: 4**

- [Craniocerebral Trauma](#)
  1. Traumatic injuries involving the cranium and intracranial structures (i.e., BRAIN; CRANIAL NERVES; MENINGES; and other structures). Injuries may be classified by whether or not the skull is penetrated (i.e., penetrating vs. nonpenetrating) or whether there is an associated hemorrhage.  
Year introduced: 2000(1966)
- [Head Injuries, Closed](#)
  2. Traumatic injuries to the cranium where the integrity of the skull is not compromised and no bone fragments or other objects penetrate the skull and dura mater. This frequently results in mechanical injury being transmitted to intracranial structures which may produce traumatic

[All MeSH Categories](#)

[Diseases Category](#)

[Nervous System Diseases](#)

[Trauma, Nervous System](#)

**Craniocerebral Trauma**

[Brain Injuries](#)

[Brain Concussion +](#)  
[Brain Hemorrhage, Traumatic +](#)  
[Brain Injury, Chronic](#)  
[Diffuse Axonal Injury](#)



[Epilepsy, Post-Traumatic](#)  
[Pneumocephalus](#)  
[Shaken Baby Syndrome](#)



[Cerebrospinal Fluid Otorrhea](#)  
[Cerebrospinal Fluid Rhinorrhea](#)  
[Coma, Post-Head Injury](#)

[Cranial Nerve Injuries](#)

[Abducens Nerve Injury](#)  
[Facial Nerve Injuries](#)  
[Optic Nerve Injuries](#)



[Head Injuries, Closed](#)

[Brain Concussion +](#)

[Head Injuries, Penetrating](#)

[Intracranial Hemorrhage, Traumatic](#)

[Brain Hemorrhage, Traumatic +](#)  
[Hematoma, Epidural, Cranial](#)



[Hematoma, Subdural +](#)  
[Subarachnoid Hemorrhage, Traumatic](#)

[Skull Fractures](#)

[Skull Fracture, Basilar](#)  
[Skull Fracture, Depressed](#)



# MeSH

This will help you  
exclude all other  
diseases in that  
category

This will give you  
fewer articles in  
your results page!

# Keys to Successful Searching

**Indexes:** Identifying appropriate **indexes** through clinical questions

**Components of “well-built clinical questions.”: PICO**

- **Patient/problem**
- **Intervention**
- **Comparison intervention**
- **Outcome**

Try to make a search...

### *Case example*

- A 45-year-old man presents with a 10-month history of burning epigastric pain that has not improved with a proton-pump inhibitor. Findings on upper endoscopy are normal, but *Helicobacter pylori* serology is positive.

### *Treat Helicobacter pylori or not?*

- Try to make a search....

Case example

NCBI Resources How To My NCBI Sign In

PubMed.gov  
US National Library of Medicine  
National Institutes of Health

PubMed Helicobacter pylori Search

RSS Save search Limits Advanced Help

Display Settings: Summary, 20 per page, Sorted by Recently Added Send to: Filter your results:

Results: 1 to 20 of 30512 << First < Prev Page 1 of 1526 Next > Last >>

[Helicobacter pylori infection in neonatal mice prevents allergic asthma.](#)

1. Ahmad N.  
Thorax. 2011 Sep 22. [Epub ahead of print] No abstract available.  
PMID: 21940493 [PubMed - as supplied by publisher]  
[Related citations](#)

[Clinical value of duodenal biopsies - Beyond the diagnosis of coeliac disease.](#)

2. Walker MM, Talley NJ.  
Pathol Res Pract. 2011 Sep 20. [Epub ahead of print]  
PMID: 21940106 [PubMed - as supplied by publisher]  
[Related citations](#)

[Motility and Chemotaxis in Campylobacter and Helicobacter.](#)

3. Lertsethtakarn P, Ottemann KM, Hendrixson DR.  
Annu Rev Microbiol. 2011 Oct 13;65:389-410.  
PMID: 21939377 [PubMed - as supplied by publisher]  
[Related citations](#)

Free Full Text (8069)  
Review (5375)

Manage Filters

Also try:

[helicobacter pylori infection](#)

[helicobacter pylori eradication](#)

[helicobacter pylori gastric cancer](#)

[helicobacter pylori diagnostic](#)

[helicobacter pylori caga](#)

Titles with your search terms

[Helicobacter pylori: gastric cancer and beyond.](#) [Nat Rev Cancer. 2010]

[Clinical practice. Helicobacter pylori infection.](#) [N Engl J Med. 2010]



# Components of “well-built clinical questions”

- PICO

1. Patient/problem - “non-ulcer dyspepsia”
2. Intervention - “treatment of *Helicobacter pylori* infection”
3. Comparison intervention - “no treatment”
4. Outcome - “improve symptoms”

Case example

NCBI Resources How To My NCBI Sign In

PubMed.gov  
US National Library of Medicine  
National Institutes of Health

PubMed  Search

RSS Save search Limits Advanced Help

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

Filter your results:

All (613)

[Free Full Text \(171\)](#)

[Review \(125\)](#)

[Manage Filters](#)

Results: 1 to 20 of 613 << First < Prev Page 1 of 31 Next > Last >>

- [Quantitation of \*Helicobacter pylori\* ureC gene and its comparison with different diagnostic techniques and gastric histopathology.](#)  
Shukla SK, Prasad KN, Tripathi A, Ghoshal UC, Krishnani N, Nuzhat H.  
J Microbiol Methods. 2011 Aug;86(2):231-7. Epub 2011 May 23.  
PMID: 21624400 [PubMed - in process]  
[Related citations](#)
- [Virulence attributes of \*Helicobacter pylori\* isolates & their association with gastroduodenal disease.](#)  
Saxena A, Shukla S, Prasad KN, Ghoshal UC.  
Indian J Med Res. 2011 May;133(5):514-20.  
PMID: 21623037 [PubMed - in process] [Free PMC Article](#)  
[Free full text](#) [Related citations](#)
- [High correlation of babA \(2\)-positive strains of \*Helicobacter pylori\* with the presence of gastric cancer.](#)  
Talebi Bezmin Abadi A, Taghvaei T, Mohabbati Mobarez A, Vaira G, Vaira D.

**Titles with your search terms**

[Comparison of *Helicobacter pylori* eradication rate in patients with [Korean J Gastroenterol. 2008]

Eradication of *Helicobacter pylori* for non-ulcer dyspepsia. [Cochrane Database Syst Rev. 2006]

Prevalence of *Helicobacter pylori* infection in maintenance h[Saudi J Kidney Dis Transpl. 2009]

[See more...](#)

**71 free full-text articles in PubMed Central**

Virulence attributes of *Helicobacter pylori* isolates & their association with n [Indian J Med Res. 2011]

# Components of “well-built clinical questions”

- PICO

1. Patient/problem
  - “non-ulcer dyspepsia”
2. Intervention
  - “treatment of Helicobacter pylori infection”
3. Comparison intervention
  - “no treatment”
4. Outcome
  - “improve symptoms”

## Case example

NCBI Resources How To My NCBI Sign In

PubMed.gov PubMed Helicobacter pylori AND non-ulcer dyspepsia AN Search

US National Library of Medicine National Institutes of Health RSS Save search Limits Advanced Help

Display Settings: [x] Summary, Sorted by Recently Added Send to: [x] Filter your results:

**Results: 5** Boolean Operator

All (5)  
[Free Full Text \(2\)](#)  
[Review \(2\)](#)  
[Manage Filters](#)

**Find related data**

Database: Select  
[Find items](#)

**Search details**

```
("helicobacter pylori"[MeSH Terms] OR ("helicobacter"[All Fields] AND "pylori"[All Fields])) OR "helicobacter pylori"[All Fields] AND (non-
```

[Search](#) [See more...](#)

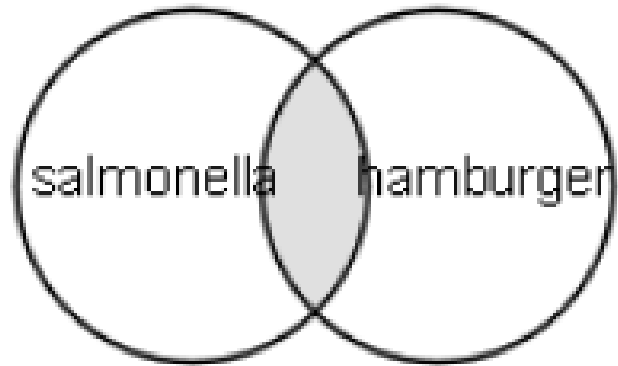
1. [The effect of \*\*Helicobacter pylori\*\* eradication on symptoms and gastric emptying in patients with nonulcer dyspepsia.](#)  
Türkay C, Soykan I, Kir M, Ozden A.  
Turk J Gastroenterol. 2002 Sep;13(3):146-53.  
PMID: 16378296 [PubMed] [Free Article](#)  
[Related citations](#)

2. [Lack of effect of \*\*Helicobacter pylori\*\* on symptom improvement with a prokinetic medication, cisapride, in patients with non-ulcer dyspepsia.](#)  
Gonlachanvit S, Mahachai V, Chaiwatanarat T, Kullavanijaya P.  
J Med Assoc Thai. 2005 May;88(5):660-7.  
PMID: 16149685 [PubMed - indexed for MEDLINE]  
[Related citations](#)

3. [Cure of \*\*Helicobacter pylori\*\* infection does not improve symptoms in non-ulcer dyspepsia patients-a double-blind placebo-controlled study.](#)  
Miwa H, Hirai S, Nagahara A, Murai T, Nishira T, Kikuchi S, Takei Y, Watanabe S, Sato N.  
Aliment Pharmacol Ther. 2000 Mar;14(3):317-24.

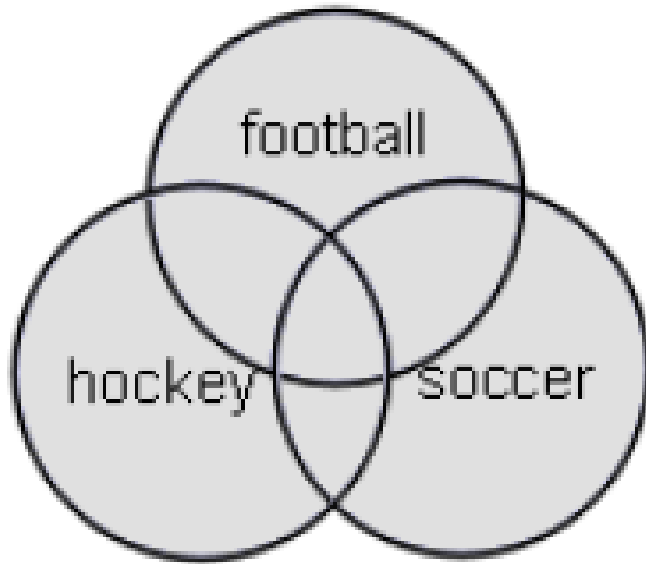
# Boolean Operators

## AND



- Salmonella AND Hamburger
- Salmonella - 69432
- Hamburger - 2703
- Salmonella AND Hamburger - **14**

# Boolean Operators

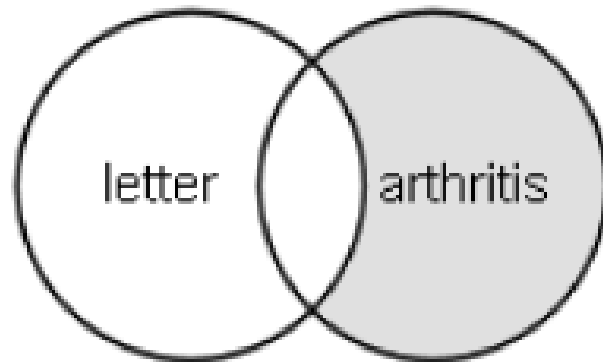


**OR**

- Football OR Hockey OR Soccer
- Football - 3948
- Hockey - 1466
- Soccer - 3137
- Total - 7538**

# Boolean Operators

## NOT



- Arthritis NOT Letter
- Arthritis - 185375
- Letter - 686049
- Arthritis “excluding” letter - **176352**

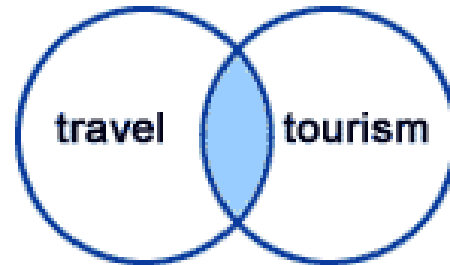
# Quiz

Which is the correct strategy to find information on Zika virus and any of these countries Brazil, Mexico and the United States?

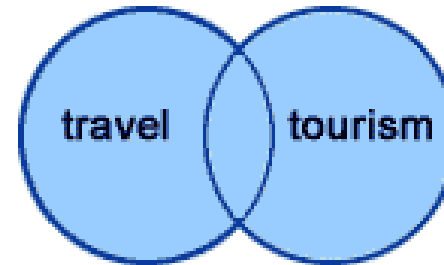
- Zika AND Brazil AND Mexico AND United States
- Zika AND (Brazil OR Mexico OR United States)
- Zika OR (Brazil OR Mexico OR United States)



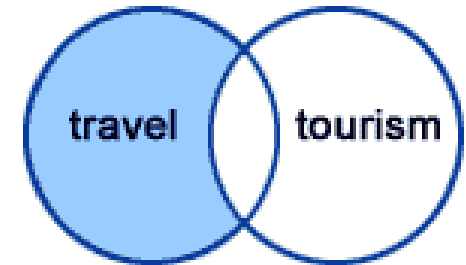
# Boolean Operators



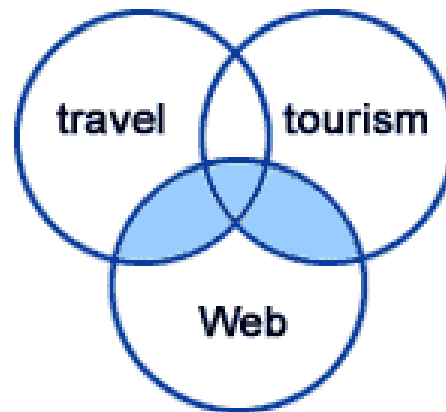
*travel* **AND** *tourism*



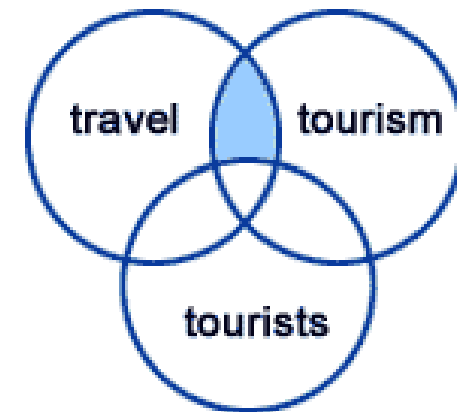
*travel* **OR** *tourism*



*travel* **NOT** *tourism*



*(travel* **OR** *tourism)* **AND** *Web*



*(travel* **AND** *tourism)* **NOT** *tourists*



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- [Prevalence of cagA EPIYA motifs in Helicobacter pylori among dyspeptic patients in northeast Thailand.](#)  
Chomvarin C, Phusri K, Sawadpanich K, Mairiang P, Namwat W, Wongkham C, Hahnvajanawong C.  
Southeast Asian J Trop Med Public Health. 2012 Jan;43(1):105-15.  
PMID: 23082560 [PubMed - in process]  
[Related citations](#)
- [Helicobacter pylori cagL amino acid polymorphisms and its association with gastroduodenal diseases.](#)  
Shukla SK, Prasad KN, Tripathi A, Jaiswal V, Khatoon J, Ghsohal UC, Krishnani N, Husain N.  
Gastric Cancer. 2012 Sep 1. [Epub ahead of print]

www.ncbi.nlm.nih.gov/pubmed?term=Helicobacter pylori AND non-ulcer dyspepsia#



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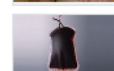
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## EDITORIAL

**General health checks in adults for reducing morbidity and mortality from disease**



Since the latter half of the 20th century, technological advances in modern medicine and a growing emphasis on preventive care have led to increased enthusiasm for screening in apparently healthy people. In primary care practice, the general health check (also termed periodic health evaluation or routine medical examination) is the usual mechanism used to screen asymptomatic people for disease. Although widely practiced, there is no universally accepted definition of what constitutes a general health...

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[Adenoidectomy for otitis media in children](#)  
Maaïke TA van den Aardweg , Anne GM Schilder , Ellen Herkert , Chantal WB Boonacker and Maroeska M Rovers  
May 2010  

[Antibiotics for the prevention of acute and chronic suppurative otitis media in children](#)  
Amanda J Leach and Peter S Morris  
January 2011

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difference of 3% between groups). There were no differences found when examining treatment with ceftriaxone for less than seven days (30% failure in those receiving ceftriaxone and 27% in short-acting antibiotics administered for seven days or more) or azithromycin for less than seven days (18% failure in both those receiving azithromycin and short-acting antibiotics administered for seven days or more) with respect to risk of treatment failure at one month or less. Significant reductions in gastrointestinal adverse events were observed for treatment with short-acting antibiotics and azithromycin.

### Authors' conclusions

Clinicians need to evaluate whether the minimal short-term benefit from longer treatment of antibiotics is worth exposing children to a longer course of antibiotics.

### Plain language summary

Jump to...

#### Short course antibiotics for healthy children with uncomplicated acute otitis media

Acute otitis media (AOM), or middle ear infection, is a common childhood illness, with more than half of all children having at least one infection by the time they are seven. Although otitis media often resolves without treatment, it is frequently treated with antibiotics. The length of treatment varies widely. This review of 49 trials found that treating children with a short course (less than seven days) of antibiotics, compared to treatment with a long course (seven days or greater) of antibiotics, increases the likelihood of treatment failure in the short term. No differences are seen one month later. The amount of gastrointestinal adverse events decreased with a shorter course of antibiotics.

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# Clinical Scenario

- Khalid is a 40 years old smoker, would like to quit smoking, he tried to do that, several times over the last two years, but he could not tolerate the withdrawal symptoms. Recently he read an article reporting that some medications can be used to help smoker to quit, he would like your advise about this issue!





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## From the newsroom

Thomas C

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[Hypnotherapy for \*\*smoking\*\* cessation](#)

... Hypnotherapy for **smoking** cessation. ... There is not much evidence from trials

about the effects of hypnotherapy for people trying to quit **smoking**. ...

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**Smoking** cessation

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عنوان

*The Cochrane Database of Systematic Reviews* 2006  
Issue 3

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#### Plain language summary

**Two medications used to treat depression, bupropion and nortriptyline, help smokers who are trying to quit.**

Trials of bupropion (Zyban) for smoking cessation indicate that it can double the chance of quitting. The side effects of bupropion include insomnia, dry mouth and nausea. This medication can also cause seizures: at the dose used for smoking



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bupropion use. Concerns that bupropion may increase suicide risk are currently unproven.

### **Authors' conclusions**

The antidepressants bupropion and nortriptyline aid long term smoking cessation but selective serotonin reuptake inhibitors (e.g. fluoxetine) do not. The fact that only some forms of antidepressants aid cessation and that they do so regardless of depressive symptoms strongly suggests that their mode of action is independent of their antidepressant effect.

This is an abstract and plain language summary of a regularly updated, systematic review prepared and maintained by The Cochrane Collaboration. The full text of the review is available in [\*The Cochrane Library\*](#) (ISSN 1464-780X).

## Exercise

Scenario: Professor X is teaching the Global Health course and asks that you write a descriptive five-page paper describing a program that has made a positive impact on one of the eight [2015 Millennium Development Goals](#) or on one of the many [Healthy People 2020](#) objectives.

How would you go about it?

**1**

**STATING A GENERAL RESEARCH QUESTION**

**2**

**LOCATING BACKGROUND INFORMATION**

**3**

**ANALYZING SEARCH RESULTS**

**4**

**IDENTIFYING HIGH-QUALITY ARTICLES**

# Critical Appraisal Table – Key Elements

---

**Reference or ID number:** the table must include a unique identifier for ease in finding the record being appraised.

---

**Study Design:** this helps with determining the strength of evidence of the data.

---

**Participants:** How many participants were in the study?

---

**Characteristics of the problem within the population**

---


**Intervention outcomes.**

---

**Include or exclude** the study? based on what you find



Reference	Study Design	Population		Intervention Outcomes Discussion	I or E
		# of Study Participants	Charac-teristics		
Bertani et al, 2015	Cross-sectional Study	61	Brazilian pregnant women, 25 of whom smoked	Alternative forms of tobacco consumption including e-cigarettes are discussed, and it is recommended that additional studies are needed.	
Kahr et al, 2015	Focus Groups	11 focus groups with 87 participants	Pregnant women, Houston, Texas	Clinicians should advise against e-cigarettes as they are not considered safe nor effective in smoking cessation.	
Suter et al, 2014	Review Article	14 articles	Table discusses effects of utero nicotine exposure on offspring	Authors conclude that "no amount of nicotine is known to be safe during pregnancy."	
England et al, 2014	Mailed survey	1024 ACOG Members/ 252 eligible	American College of Obstetrics & Gynecology	Ob/Gyns are not consistently screening pregnant patients, and many are not knowledgeable about the harms of e-cigarettes.	
Spindel et al, 2016	Research Article (NIH Extramural Funding)	n/a	n/a	In a review of the literature, authors found that "data strongly imply that at least 50% of vapers will continue to vape while pregnant despite best efforts at cessation (citing two articles), and that nicotine is addictive (citing one article)"	



# Key Elements of High Quality Articles

- **Peer Reviewed Journal:** This is a process where experts in a scholarly discipline review the research of an author or authors to ensure that the article meets standards for publication. The criteria includes: quality, significance, methodology, and importance.
- **Currency:** Locating the most current five or ten years of information is not a gold standard. There are several factors that determine how far back in time your search should run.
- Clearly **recognized research question or problem:** The introduction or background should include what is known, what is unknown and what is the author's aim or hypothesis.
- **Study design:** Revisit the PUBLIC HEALTH EVIDENCE-BASED PYRAMID to review different types of study designs.
- **Times Cited:** This is an indication that something important is going on with the article, but one should not assume that the article is necessarily good.

# Summarizing the Literature Review

**Introduction:** Gives a quick idea of the topic of the literature review, such as the central theme or organizational pattern.

**Body:** Contains your discussion of sources and is organized either chronologically, thematically, or methodologically

**Conclusions/Recommendations:** Discuss what you have drawn from reviewing literature so far. Where might the discussion proceed?

For more info:

<https://writingcenter.unc.edu/tips-and-tools/literature-reviews/>

# Objectives

- ✓ To explain the role of searching the literature in conducting a research
- ✓ To recognize the levels of evidence
- ✓ To differentiate the EBM resources
- ✓ To identify where to search for evidence
- ✓ To prepare proper search terms
- ✓ To perform Boolean operators and MeSH indexing
- ✓ To conduct literature search for evidence using Pubmed and Cochrane
- ✓ To summarize the literature review for the IRB



Qs?

---



Thank You!

