Principles of Evidence Based Health-care Practice (EBM)

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Learning Objectives

By the end of this session, the student will be able to:

- Identify the principles of evidence based health practice
- Justify why EBM is important
- Explain how to practice EBM by 5 steps approach
- Explain Step 1- PICO formulation
- Explain benefits of asking focused questions
- Search skills and available resources

Evidence-based medicine (EBM)

A new model for the health-care system involving using the **current evidence** (results of medical research studies) in the medical literature to provide **the best possible care to patients**.

Why EBM?

The spread of EBM has arisen from several realization:

- The need for valid information about diagnosis, prognosis, therapy and prevention
- Inadequate traditional source of information
  - Out-of-date → textbook
  - Potentially wrong → Experts
  - Too overwhelming in their volume and too variables in their validity for practical use → medical journals
- The disparity between our diagnostic skills and clinical judgment.

Why EBM?

- Promotes consistency of treatment and optimal outcomes
- Helps establish national standards of patient care
- Sets criteria to measure and reward performance-based medical practice
- Emphasis on accountability
- Justify treatments
- Patients increasingly finding their own information

What Have Been Done

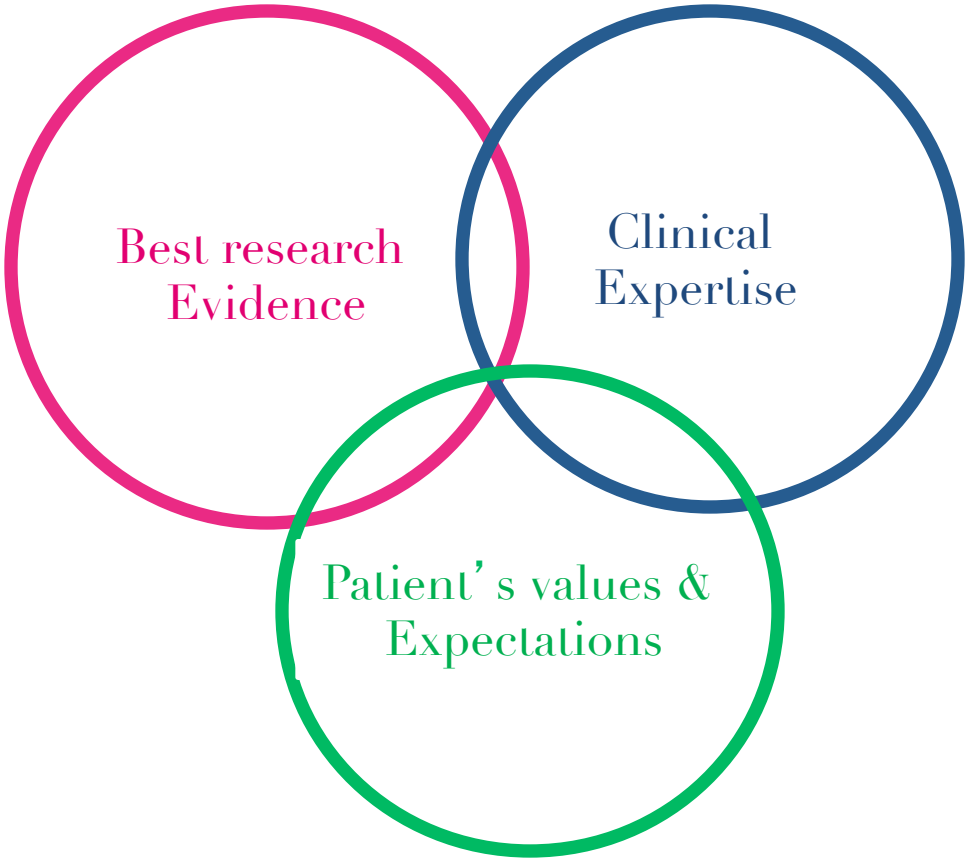
- The development of strategies for efficiently tracking down and appraising evidence.
- The creation of systematic reviews and concise summaries of the effects of health care (the cochrane collaboration).
- The creation of evidence-based journals of secondary publication (that publish the 2% of clinical articles that are both valid and of immediate clinical use).
- The creation of information systems for bringing the foregoing to us in seconds.
- The identification and application of effective strategies for life-long learning.

Uses of "EBM"

- Use of empirically-verified treatments in the care of patients
- Incorporation of research results into the process of care
- Ability to critically appraise research results

What is Evidence Based Medicine?

What is EBM (3 E's) ?



(Sackett, et al 1996)

What is EBM?

EBM is "*the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research.*"

(Sackett D, 1996)

What is EBM?

"Evidence-based medicine involves the combination of clinical expertise and professional wisdom with the best outside evidence to make important decisions about patient care."

Ref: Chung K.C., Ram A. N. (2009) Plastic & Reconstructive Surgery, 123(1): 389

Importance of EBM for Practicing Clinicians

Evidence increasing so rapidly we need better skills to keep up-to-date more efficiently than previous generations of clinicians

TIME AVAILABLE **TO READ**:

Less than1 Hour per Week

TIME NEEDED TO KEEP **CURRENT ON GENERAL MEDICINE**:

19 Articles per DAY
365 Days per Year

Ref: Davidoff F, Haynes B, Sackett D, Smith R. BMJ. 1995;310:1085-1086.

Principles of EBM

Principle (1)

Evidence alone is never the sole basis for decisions

Other factors that should be considered when taking clinical decision:

- Benefits and risks
- Costs
- Alternative strategies
- Patients' values

Principles of EBM

Principle (2)

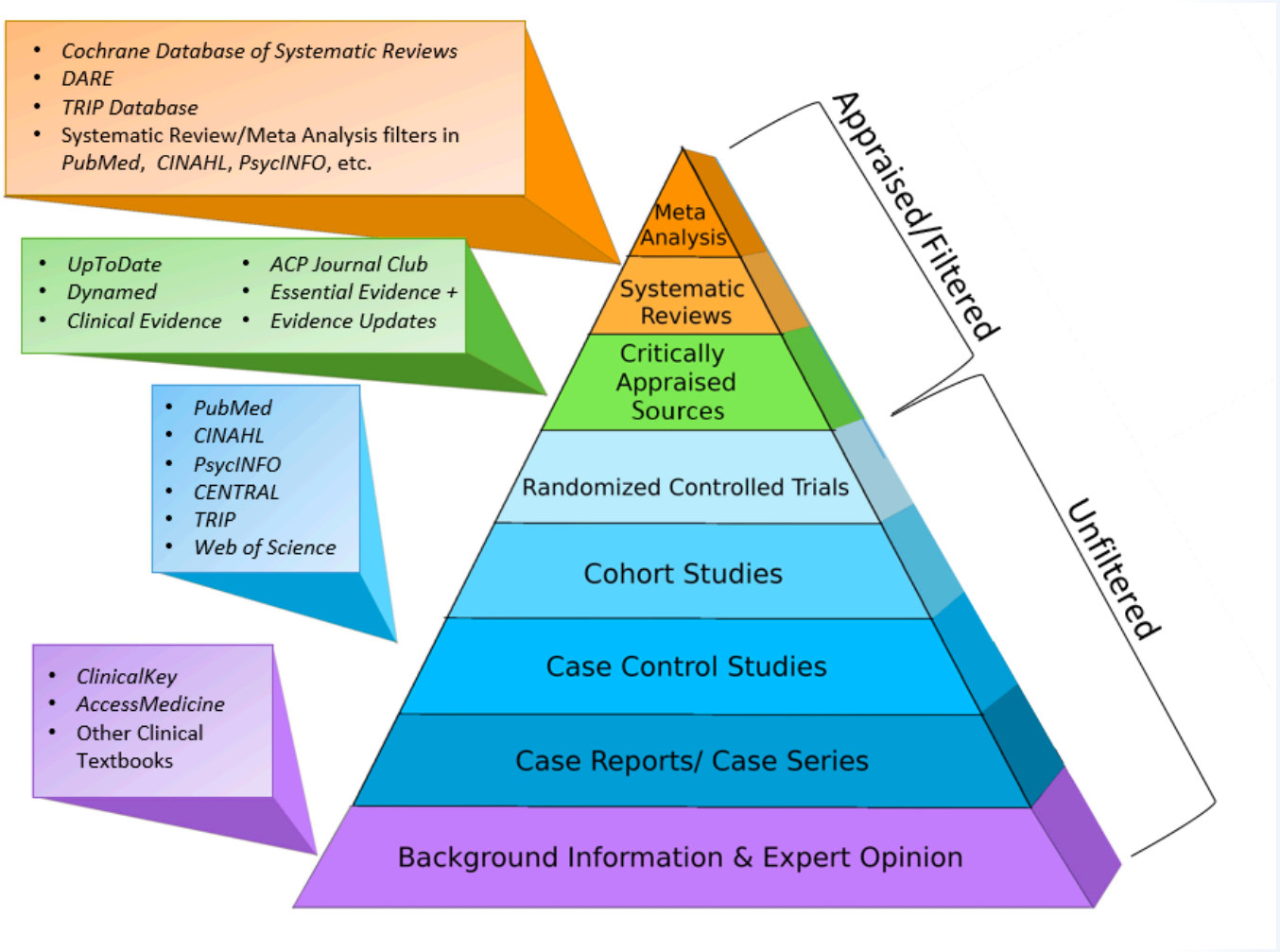
EBM has a hierarchy of strengths of evidence for treatment decisions

- The "best available evidence" → place the available literature into a hierarchy → This necessarily requires an understanding of both study design and quality

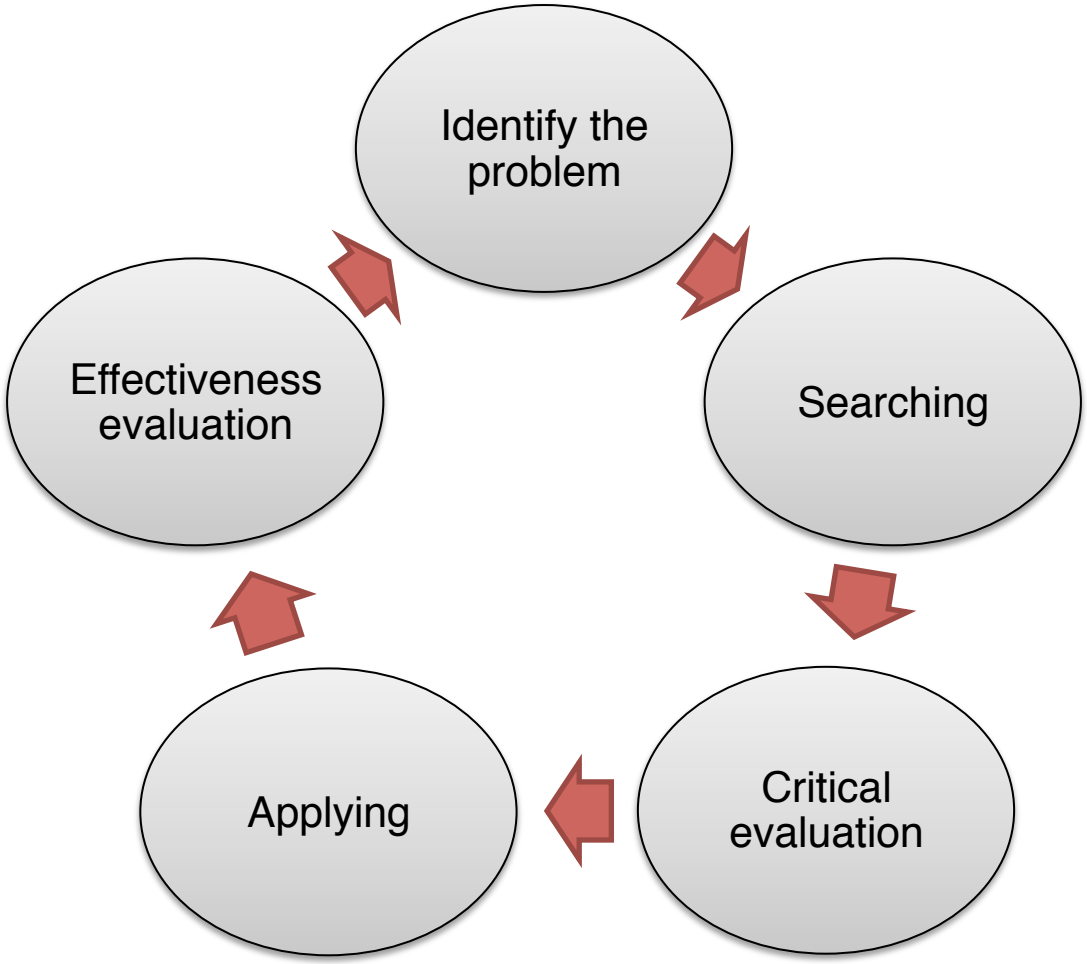
Hierarchy of evidence:

A spectrum of potential sources beginning with those most likely to provide the evidence to those with the least likely. *Thus, the physician must begin with the highest available evidence from the hierarchy*

Hierarchy of Evidence



The Steps of Practicing EBM



Step (1): Asking Clinical Question

There is a difference in asking:

"What are the best treatments for migraine?"

literature review topic.

versus

Evidence-centered on patient(s)

"In pregnant women, is sumatriptan better than other drugs at reducing migraine frequency or severity?"

Types of questions

Background

- General **knowledge** (disorder, a test, a treatment..)
- Non-focused questions
- Have two components:
  - A question root (who, what, where, when how and why) with a verb.
  - A condition, or an aspect of a disorder

Example:

- What is the proper management of irritable bowel syndrome?
- How does heart failure cause pleural effusion?

Types of questions

Foreground

- **Specific** knowledge to inform clinical decision or actions.
- Have four components (PICO):

P Patient, population, problem

I Intervention, exposure, test or other agent

C Comparison intervention, exposure, test…

O Outcomes of clinical importance, including time when relevant

PICO format

P	*The patient or problem* – who are the relevant patients, what kind of problem we try to solve?
I	*The intervention* – what is the management strategy, diagnostic test or exposure (drugs, diagnostic test, foods or surgical procedure)?
C	*Comparison of interventions* – what is the control or alternative management strategy, test or exposure that we will compare?
O	*The outcome* – what are the patient-relevant consequences of the exposure in which we are interested?

Types of questions

Foreground

These patient-centered problematic questions, involve interpretation and consideration of the risks vs. benefits for a patient or group of like patients.

Example:

- In a child complaining of fever, is ibuprofen better than acetaminophen in reducing the body temperature?
- Is metformin more effective than sulfonylurea compounds in obese patients having type 2 diabetes?

Exercise: Forming Foreground Questions

1. ***You wonder about the utility of ginger in preventing or reducing nausea and/or vomiting during pregnancy.***

P pregnant women

I ginger

C no ginger or other antiemetics

O Reduce nausea and/or vomiting

Exercise: Forming Foreground Questions

2. You are wondering about the effectiveness of hand washing in reducing the occurrence of hospital acquired infection among health care workers.

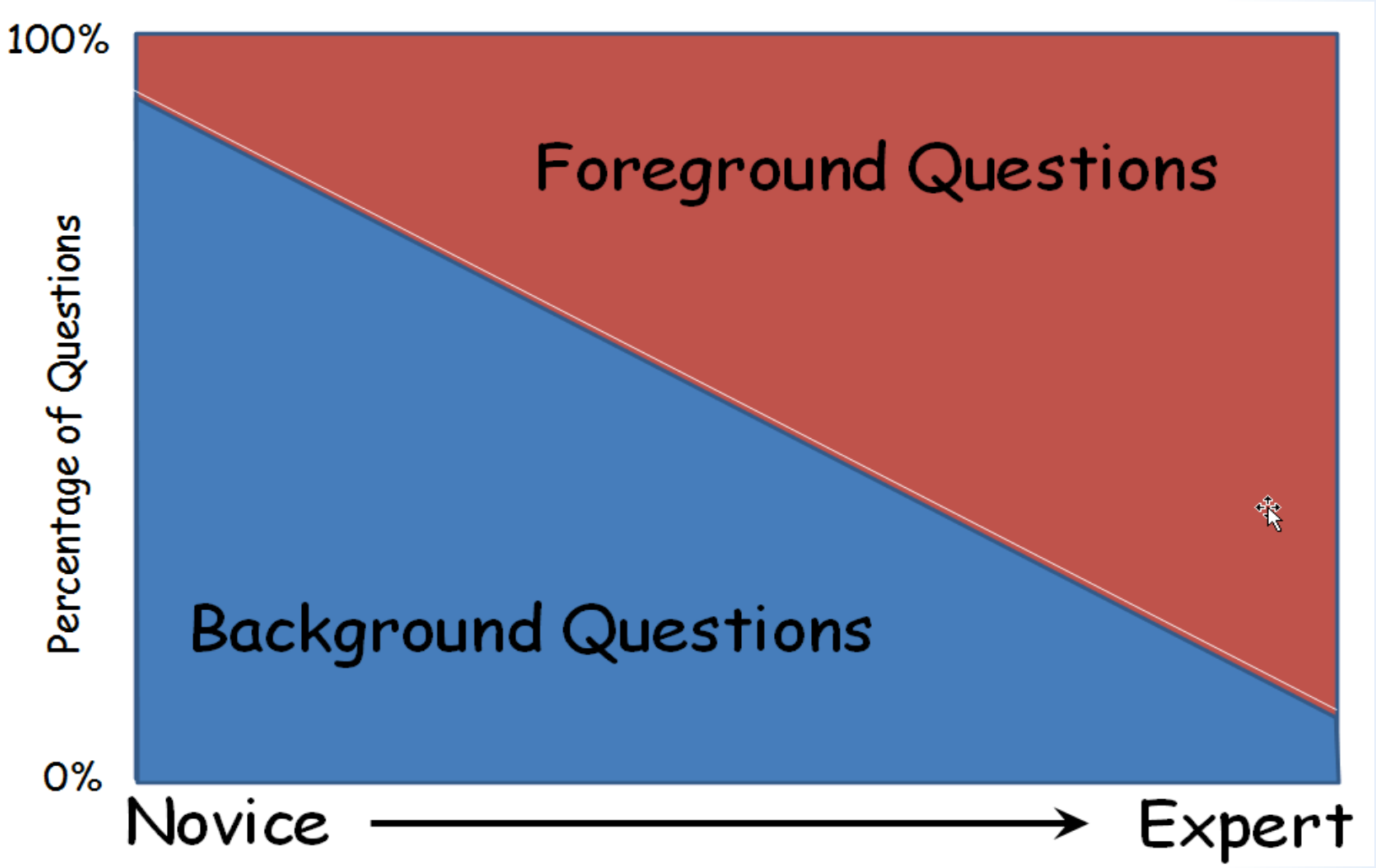
P Health care workers

I Hand washing

C No hand washing

O Reducing the occurrence of hospital acquired infection

Knowledge needs depends on experience with condition



Practicing EBM in Real-time

Practical methods for rapidly capture and save questions for later retrieval and searching:

- Jotting brief notes on a blank A4 page with 4 columns pre-drawn, “P”, “I”, “C” and “O” with a separate sheet for questions about background knowledge.
- You might use electronic file on your computer

P	I	C	O
Patient/Population	Intervention	Comparison	Outcome
This is the "Who". For this you need to think of age, sex, ethnic origins or other defining characteristics of the patient and the population.	This is also sometimes known as exposure, and makes up the "What". This is what is happening to the patient or population, so it could be a drug or a therapy, a screening questionnaire or a health improvement programme.	With what is the intervention (or indeed population) being compared? This could be a control group.	What outcome do you expect to see? For example, you may be interested in knowing whether an intervention has a health benefit, or whether an exposure results in mortality.

Terms within a column should be combined with OR
Columns should be combined with AND

Remember you don't need to have entries in each column

Rx Educational Prescription

Patient's Name

Learner:

3-part Clinical Question

Target Disorder:

Intervention (+/- comparison):

Outcome:

Date and place to be filled:

Presentation will cover:
1. search strategy;
2. search results;
3. the validity of this evidence;
4. the importance of this valid evidence;
5. can this valid, important evidence be applied to your patient;
6. your evaluation of this process.

Why Do We Need to Formulate a Specific and Clear Clinical Research Question?

- To focus on evidence directly relevant to our patients' clinical need.
- To focus on evidence directly addresses our particular knowledge needs
- Suggest high-yield search strategies
- When our questions get answered → our knowledge grows, our curiosity is reinforced, our cognitive resonance is restored → become better and faster clinician

Clinical Questions Categories

The most common type of clinical question is about how to treat a disease or condition.

- questions about intervention
- questions about etiology and risk factors
- questions about frequency and rate
- questions about diagnosis
- questions about prognosis and prediction
- question about cost-effectiveness
- question about phenomena

Type	Content	Best study designs
Therapy	Comparing two drugs or treatments	Meta-analysis Systematic review RCT
Diagnosis	Sensitivity & specificity of diagnostic tests	Prospective blind comparison to a gold standard
Etiology or Harm	Risk of developing conditions	RCT Cohort study
Prognosis	Anticipated clinical course of a disease	Cohort study Case control

Case 1

A **2-year-old** boy presents in an outpatient clinic with fever and severe pain in his right ear. He has a history of recurrent ear infections, and his mother expresses a concern that he has been on the antibiotic amoxicillin for the past few weeks. She is worried about the consequences of the long-term antibiotic use. She is also concerned about the outcome associated with recurrent ear infections. She wants to know if the **prescribed amoxicillin is effective**, or it can be substituted with another antibiotic because of its side effects such as frequent diarrhea.

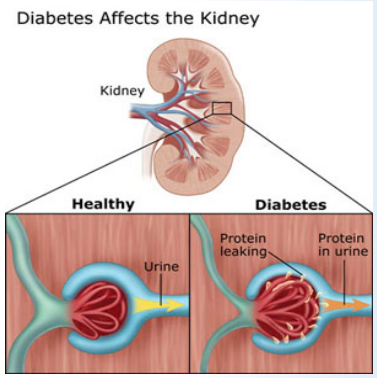
Case (1) Questions

- In children with acute otitis media (P), is cefuroxime (I) effective in reducing the duration of symptoms (O) as compared to amoxicillin (C)?
- In children suffering from otitis media, will cefuroxime result in the improvement of symptoms and reduction in developing resistance?
- Does treatment with amoxicillin increase the risk of developing resistance in children suffering from otitis media?
- Does surgical procedure has better outcome for the treatment of otitis media in children after repeated antibiotic therapy?

Case (2)

As a resident you have just seen a **58-year** old patient with **type 2 diabetes** with normal blood pressure. You consider treating this patient with ACE inhibitors because the attending said treatment could delay progression to diabetic nephropathy.

What is the Clinical Question?



Case (3)

- **In children with asthma, are inhaled corticosteroids more likely to result in growth delay than standard therapy with beta-agonists?**

  P= ……..

  I= ……..

  C= ……..

  O= ……..

- A PubMed search strategy might look like this:
  inhaled corticosteroids AND asthma AND growth delay
- Limits Activated: All Child: 0-18 years

Case (4)

The patient is a **65 year** old male with a long history of **type 2 diabetes** and **obesity**. Otherwise his medical history is unremarkable. He does not smoke. He had knee surgery 10 years ago but otherwise has had no other major medical problems. Over the years he has tried numerous diets and exercise programs to reduce his weight but has not been very successful. His grand-daughter just started high school and he wants to see her graduate and go on to college.

Case (4)

He understands that his diabetes puts him at a high risk for heart disease and is frustrated that he cannot lose the necessary weight. His neighbor told him about a colleague at work who had his **stomach stapled** and as a result not only lost over 100 lbs. but also "cured" his diabetes.

He wants to know if this procedure really works.

Case (4)

- Patient Problem

  Obese, diabetes type 2, male

- Intervention

  Stomach stapling (gastric bypass surgery; bariatric surgery)

- Comparison

  Standard medical care

- Outcome

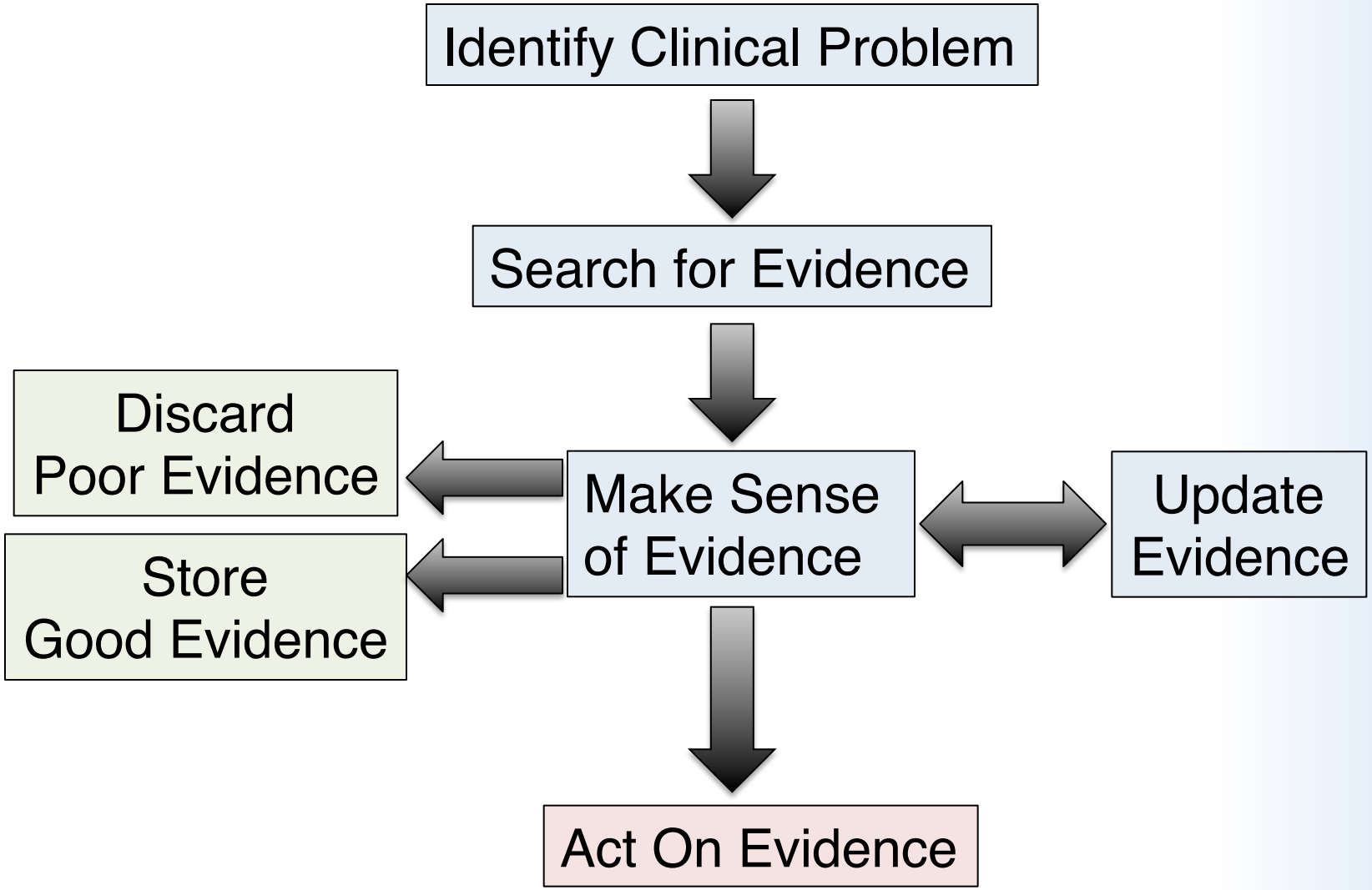
  Remission of diabetes; weight loss; mortality

Case (4)

In patients with type 2 diabetes and obesity, is bariatric surgery more effective than standard medical therapy at increasing the probability of remission of diabetes?

Case (4)

It is a **therapy question** and the best evidence would be a randomized controlled trial (RCT). If we found numerous RCTs, then we might want to look for a systematic review.


Identify Clinical Problem
Search for Evidence
Discard
Poor Evidence
Store
Good Evidence
Make Sense
of Evidence
Update
Evidence
Act On Evidence

Usefulness Of Medical Information

Focusing on outcomes of interest

- **POE: Patient-oriented evidence** → is an outcome which is important to patients
  - Mortality, morbidity, quality of life, live longer and/or better
  - **For example**, a reduction in the rate of heart attacks and strokes, a reduction in the development of diabetic foot ulcers
- **DOE: Disease-oriented evidence** → outcome which is not directly related to patients
  - Pathophysiology, pharmacology, etiology
  - **For example,** HbA1c in type 2 diabetes and peak expiratory flow volume in asthma

Patient-oriented Vs. disease-oriented outcomes

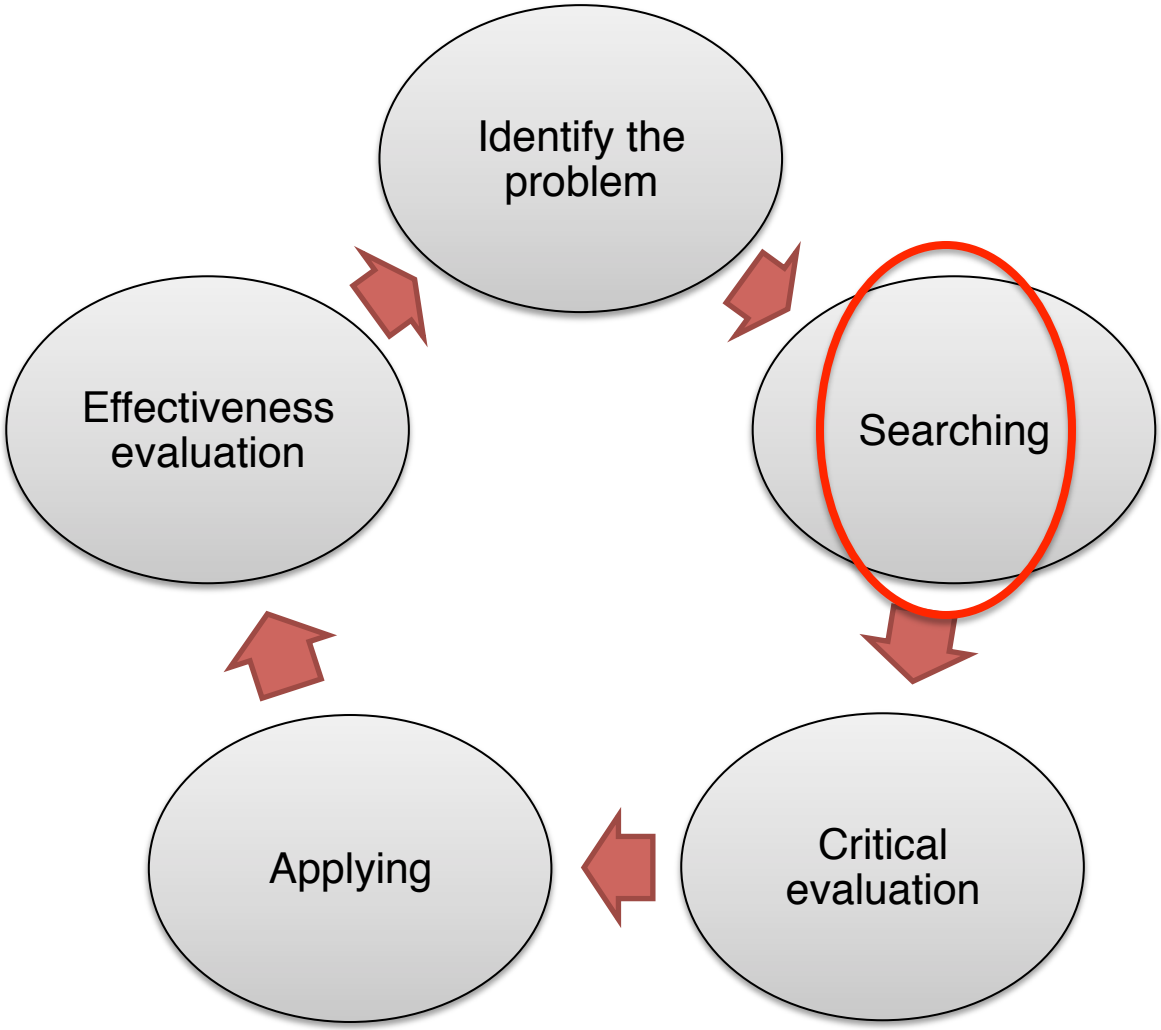
Disease-Oriented Outcome	*Patient*-Oriented Outcome
Intensive glucose lowering can decrease HbA1c	Intensive glucose lowering ***does not*** decrease mortality
Beta-carotene, Vit E are good antioxidants	Beta-carotene, Vit E neither prevents cancer or CV disease
Erythropoietin in patients with chronic renal failure increases Hemoglobin	Erythropoietin ***increases mortality*** in patients with chronic renal failure

Conclusions

- The PICO framework is invaluable for helping you refine your EBM question.

- The more focused your study question is, the higher the likelihood that you will be able to find a meaningful answer to it.

The Steps of Practicing EBM



Step (2): Searching for the Evidence

After completing this session, you will know:

- Revised the terms of PICO question.
- Identify available resources for EBM (primary and secondary)
- Identify the hierarchy of major study designs
- Explain how to select scientific literature that is relevant to a clinical question.
- Show in live practice some useful on-line resources to practice EBM

Search for Wanted Sources of Information

- Finding all relevant studies that have addressed a single question is not an easy task.

- The rapid growth of medical literature necessitates a systematic searching approach in order to identify the best evidence available to answer a clinical question.

Search for Wanted Sources of Information

- There are numerous sources of information that may be of assistance, including
  - Medical journals
  - Search of electronic databases
  - Communication with colleagues.

Search for Wanted Sources of Information

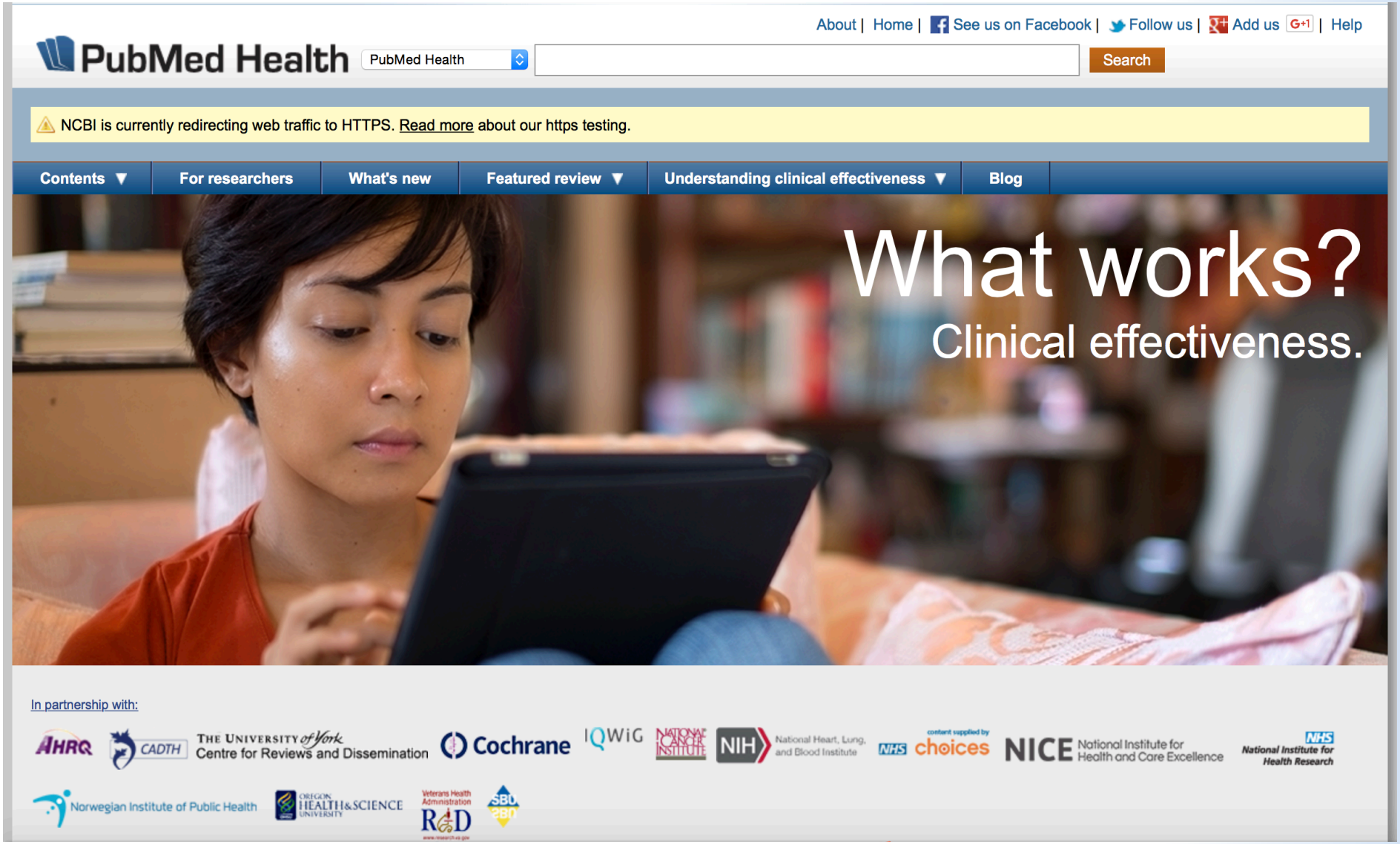
The ideal information source is

- Valid (contains high quality data)
- Relevant (clinically applicable)
- Comprehensive (has data on all benefits and harms of all possible interventions)
- User-friendly (is quick and easy to access and use)

Examples popular Search Engines

What are the Sources of Good Evidence?

1. **The Cochrane Library (http://www.thecochranelibrary.com)** An online library of published systematic reviews of evidence
2. **Database of Abstracts of Reviews of Effects (DARE) (http://www.crd.york.ac.uk/crdweb/)** This is a database of abstracts, quality assured by the DARE team, of systematic reviews of evidence.
3. **Trip Database (http://www.tripdatabase.com/)** A medical search engine with emphasis on evidence based medicine & clinical guidelines and queries.
4. **NICE Evidence Services (https://www.evidence.nhs.uk/)** Part of the National Institute for Health and Care Excellence (NICE), this is an online library of evidence of effectiveness and uncertainty.
5. **NHS Choices (http://www.nhs.uk/Pages/HomePage.aspx)** Aimed at the general public, this is an online library of summaries of evidence plus information about the NHS and services available.
6. **PubMed Health (https://www.ncbi.nlm.nih.gov/pubmedhealth/)** PubMed Health provides information for consumers and clinicians on prevention and treatment of diseases and conditions.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NIH National Heart, Lung, and Blood Institute
NHS choices
NICE National Institute for Health and Care Excellence
NHS National Institute for Health Research
Norwegian Institute of Public Health
Oregon Health & Science University
Veterans Health Administration R&D
SBU

The agencies starting to contribute their methods resources so far are:

- Agency for Healthcare Research and Quality (US) (AHRQ)
- Cochrane
- German Institute for Quality and Efficiency in HealthCare (IQWiG)
- National Institute for Health and Care Excellence (NICE)
- National Institute for Health Research (NIHR) Health Technology Assessment Programme (NIHR HTA)
- Institute of Medicine (IOM)

Types of Epidemiological Studies

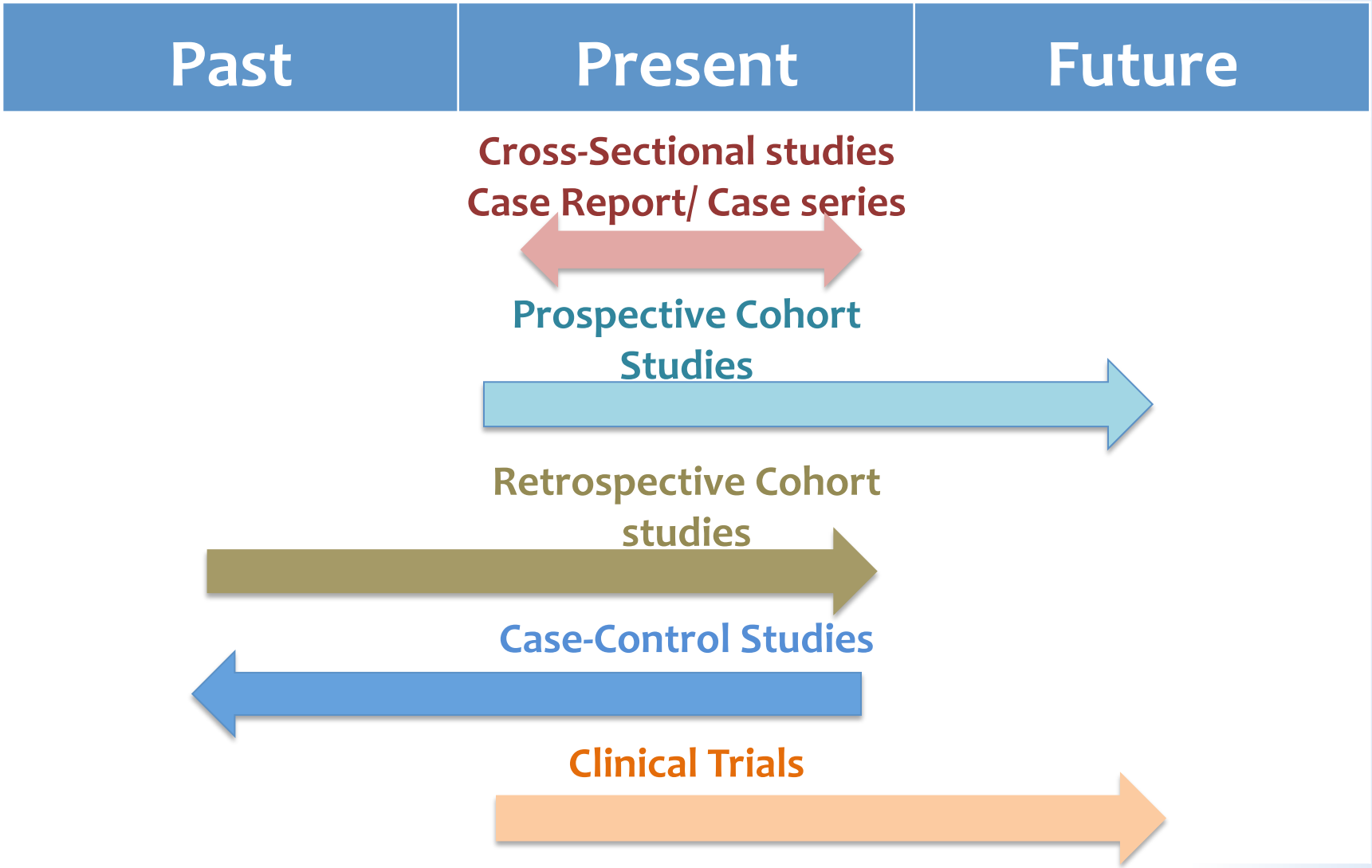
Observational

- Case Reports, Case series
- Cross - Sectional
- Case- Control
- Cohort

Interventional

- Clinical Trials

Types of Studies



“Best Available Clinical Evidence”

- **Therapy**
  - Double-blind, placebo-controlled, randomized clinical trial
- **Diagnosis**
  - Independent, blind comparison with a reference standard
- **Prognosis**
  - Representative and well-defined prospective cohort of patients at a similar point in the course of disease

See “Centre for Health Evidence”

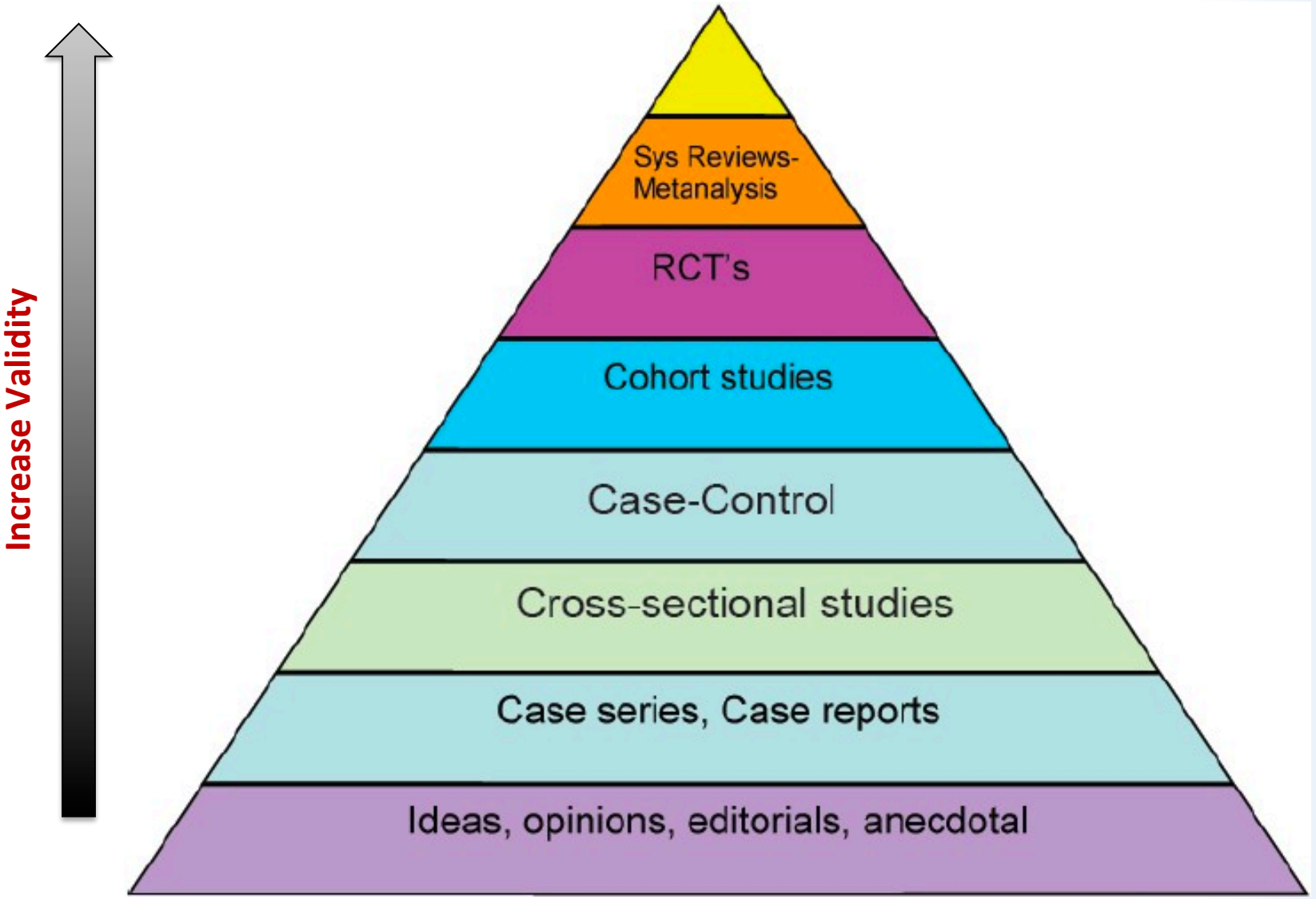
Levels of Evidences

- **(I-1)** a well done systematic review of 2 or more RCTs
- **(I-2)** a RCT
- **(II-1)** a cohort study
- **(II-2)** a case-control study
- **(II-3)** a dramatic uncontrolled experiment
- **(III)** respected authorities, expert committees, etc..
- **(IV)** ...someone once told me....

http://www.phru.org/casp/

See also **AAFP**

Hierarchy of Major Study Designs



Evidence-based Sources of Information

Primary Sources:

- Include databases that contain the original publications of medical research. E.g. Medline and PubMed databases.
- Important for practicing health care professionals for comprehensive review of a particular topic

Secondary Sources:

- Databases that contain summaries and analyses of the primary source of evidence
- In form of systematic reviews, guidelines
- Useful for busy physicians

Resources

Secondary sources:

- Guidelines: UK National Library for Health, NICE, SIGN; US National Guidelines Clearinghouse; Canadian Medical Association; New Zealand Guidelines Group.
- Evidence-Based Summaries: Bandolier, Clinical Evidence
- Structured Abstracts: EBM Online, ACP Journal Club
- Systematic Reviews: Cochrane Library

To search several of the databases simultaneously you can use: www.tripdatabase.com

Resources

Primary Sources:

- Use methodological filters to target the right type of study.
- For instance, PubMED filters for: therapy, diagnosis, prognosis or etiology.

Resources

- Searching exercise
  http://www.cebm.net/searching-exercise-warm/

- Five tips to jumpstart your evidence-based practice
  http://www.cebm.net/five-tips-to-jumpstart-your-evidence-based-practice/

More databases…

- **Google Scholar**
- **CINAHL** - Cum. Index to Nursing and Allied Health Literature

  http://www.cinahl.com
- **ERIC** – Education Resources Information Center

  http://www.eric.ed.gov
- **PsycINFO** – A database of American Psychological Association

  http://www.apa.org/psycinfo
- **Campbell Collaboration**

  http://www.campbellcollaboration.org
- **BEME** - Best Evidence Medical Education

  www.bemecollaboration.org

Planning your Search

Prepare

- What do we need to know about our topic?
- Make a list of all the terms connected with our topic.

Organize

- Make a list of the words that are critical to your search.
- Exchange/add some words if needed.
- Note terms that you don’t want to appear.
- Discard the rest.

Combine

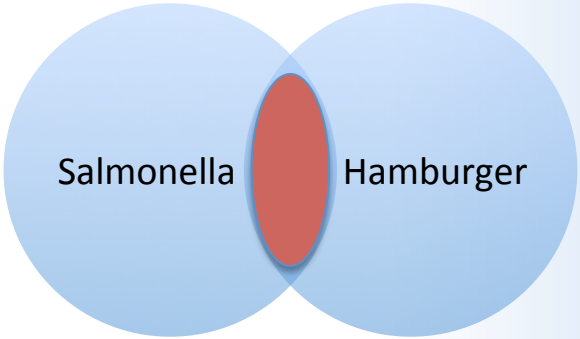
Use Boolean operators to combine our most important terms

- Use AND to connect the terms we want to see.
- Use NOT to exclude terms we don't want.
- Use OR to include both terms.

Boolean Operators

AND

Salmonella AND Hamburger



Salmonella - 69432

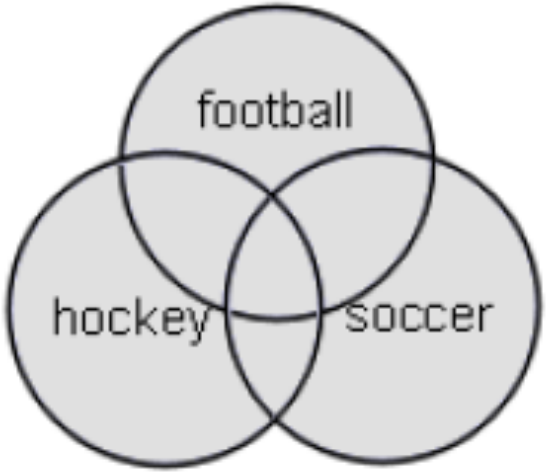
Hamburger - 2703

Salmonella AND Hamburger - 14

Boolean Operators

OR

Football OR Hockey OR Soccer



Football - 3948

Hockey - 1466

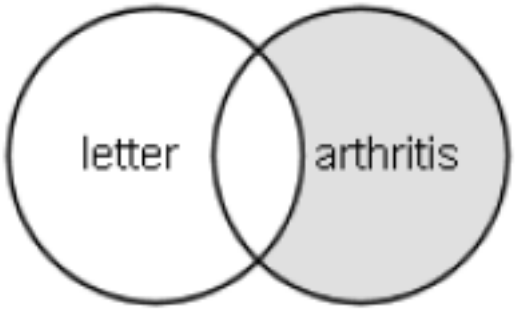
Soccer - 3137

Total - 7538

Boolean Operators

NOT

Arthritis NOT Letter

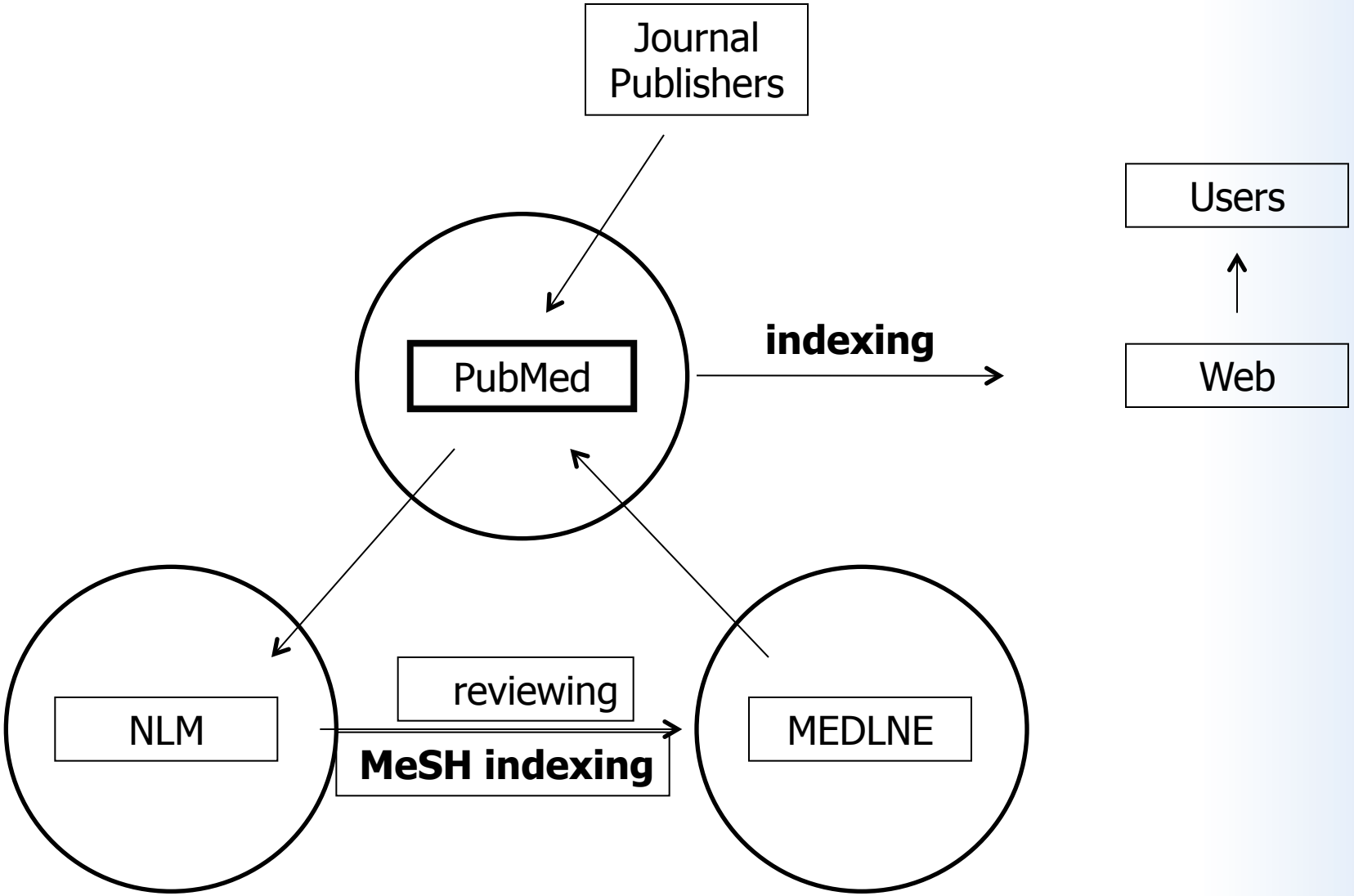


Arthritis - 185375

Letter - 686049

Arthritis “excluding” letter - **176352**

Indexing a literature



What is PubMed?

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

Why PubMed ?

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

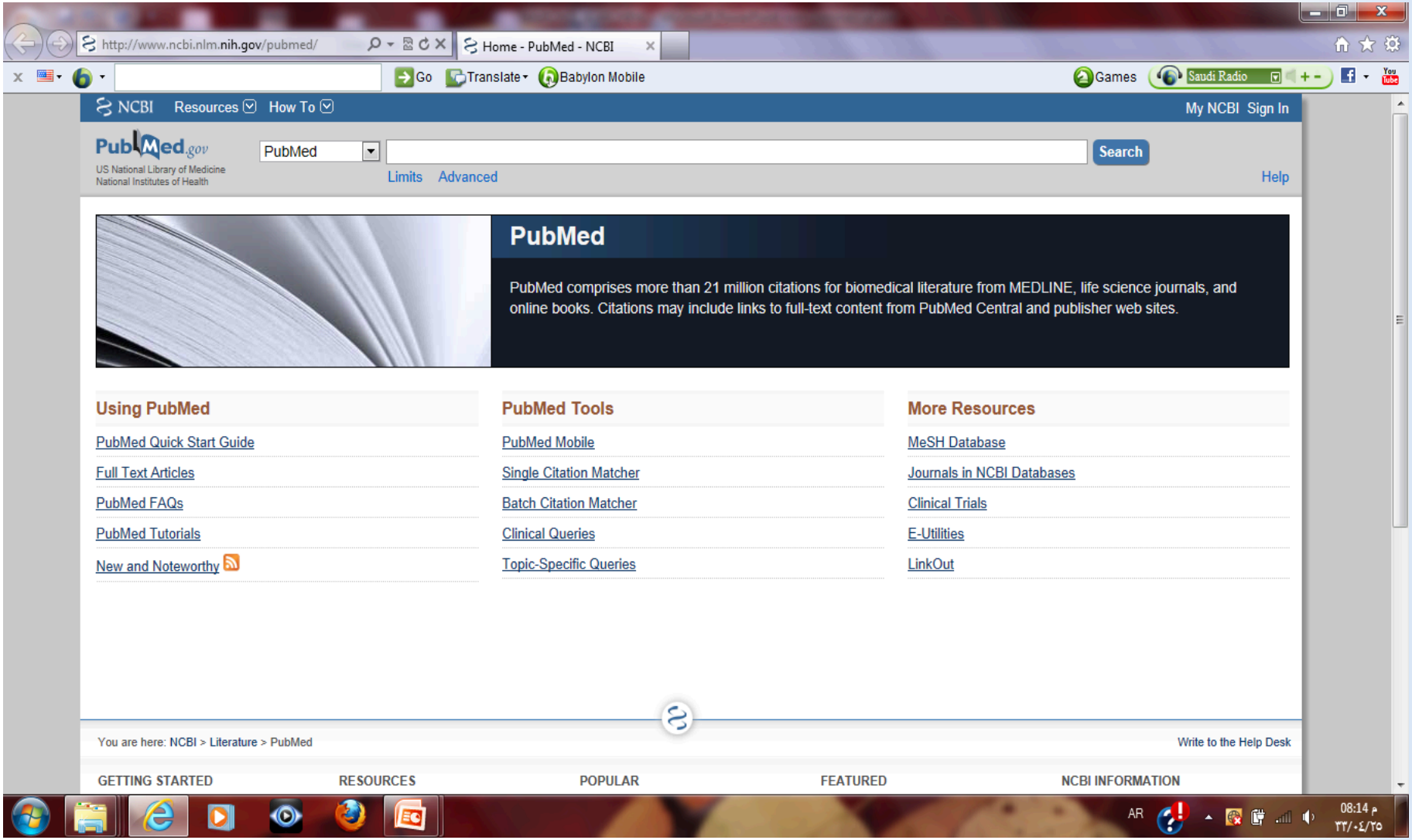
Source:

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

Fields:

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

https://www.ncbi.nlm.nih.gov/pubmed/



Stopwords

- In computer search engines, a stop word is a commonly used word (such as "the") that a search engine has been programmed to ignore, both when indexing entries for searching and when retrieving them as the result of a search query.

- Stop words are deemed irrelevant for searching purposes because they occur frequently

Stopwords

	Stopwords
A	a, about, again, all, almost, also, although, always, among, an, and, another, any, are, as, at
B	be, because, been, before, being, between, both, but, by
C	can, could
D	did, do, does, done, due, during
E	each, either, enough, especially, etc
F	for, found, from, further
H	had, has, have, having, here, how, however
I	i, if, in, into, is, it, its, itself
J	just
K	kg, km
M	made, mainly, make, may, mg, might, ml, mm, most, mostly, must
N	nearly, neither, no, nor
O	obtained, of, often, on, our, overall
P	perhaps, pmid
Q	quite
R	rather, really, regarding
S	seem, seen, several, should, show, showed, shown, shows, significantly, since, so, some, such
T	than, that, the, their, theirs, them, then, there, therefore, these, they, this, those, through, thus, to
U	upon, use, used, using
V	various, very
W	was, we, were, what, when, which, while, with, within, without, would

MeSH (Medical Subject Headings) is the NLM controlled vocabulary thesaurus used for indexing articles for PubMed.

All MeSH Categories
- Diseases Category
  - Cardiovascular Diseases
    - Heart Diseases
      - Arrhythmia
        - **Atrial Fibrillation**

All MeSH Categories
- Diseases Category
  - Pathological Conditions, Signs and Symptoms
    - Pathologic Processes
      - Arrhythmia
        - **Atrial Fibrillation**

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

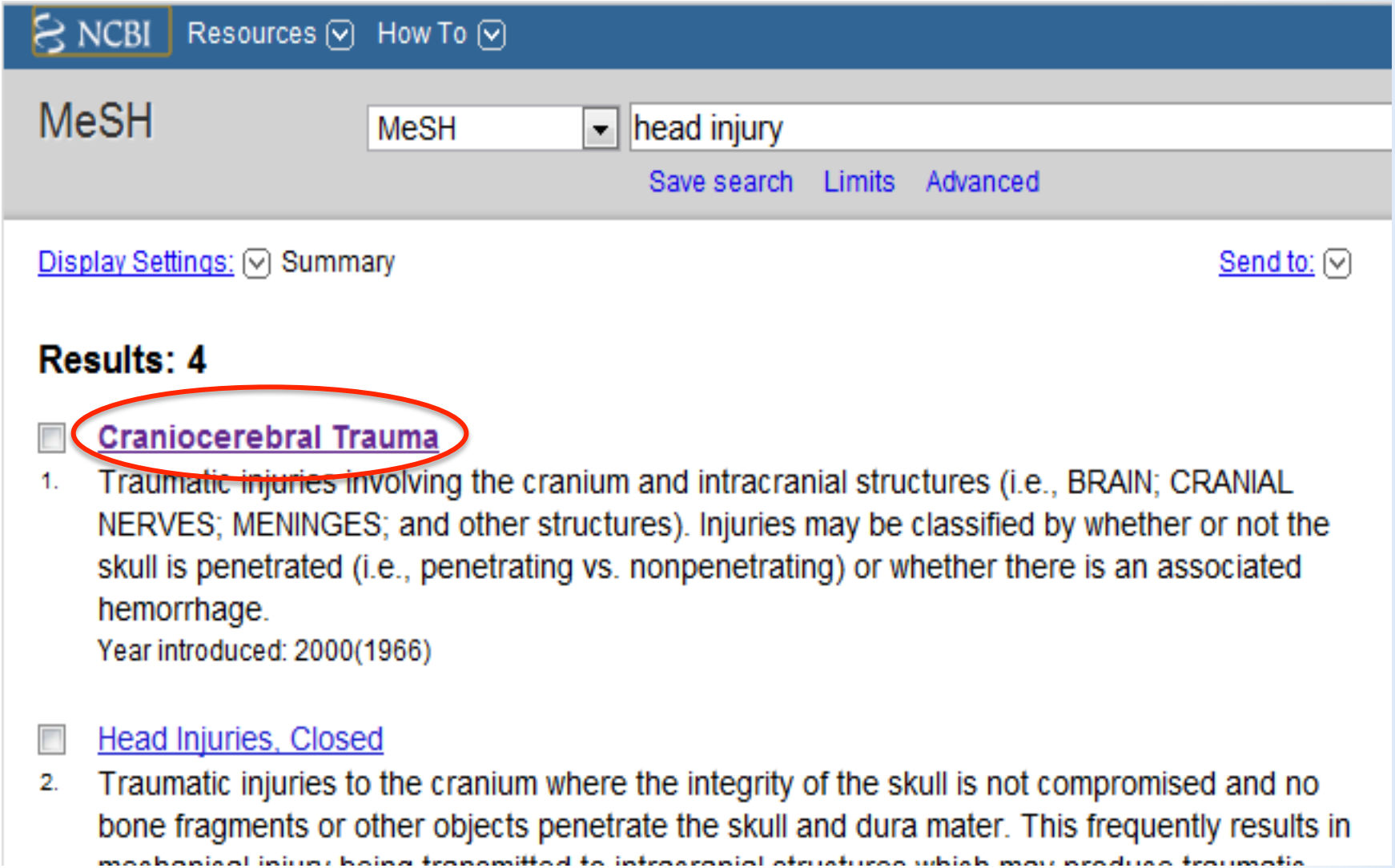
Photochemotherapy

Hematoporphyrin Photoradiation

Ultraviolet Therapy

PUVA Therapy +

Example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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

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

Benefits of Using MeSH Indexing

- This will help you exclude all other diseases in that category
- This will give you fewer articles in your result page!

Try to make a search...

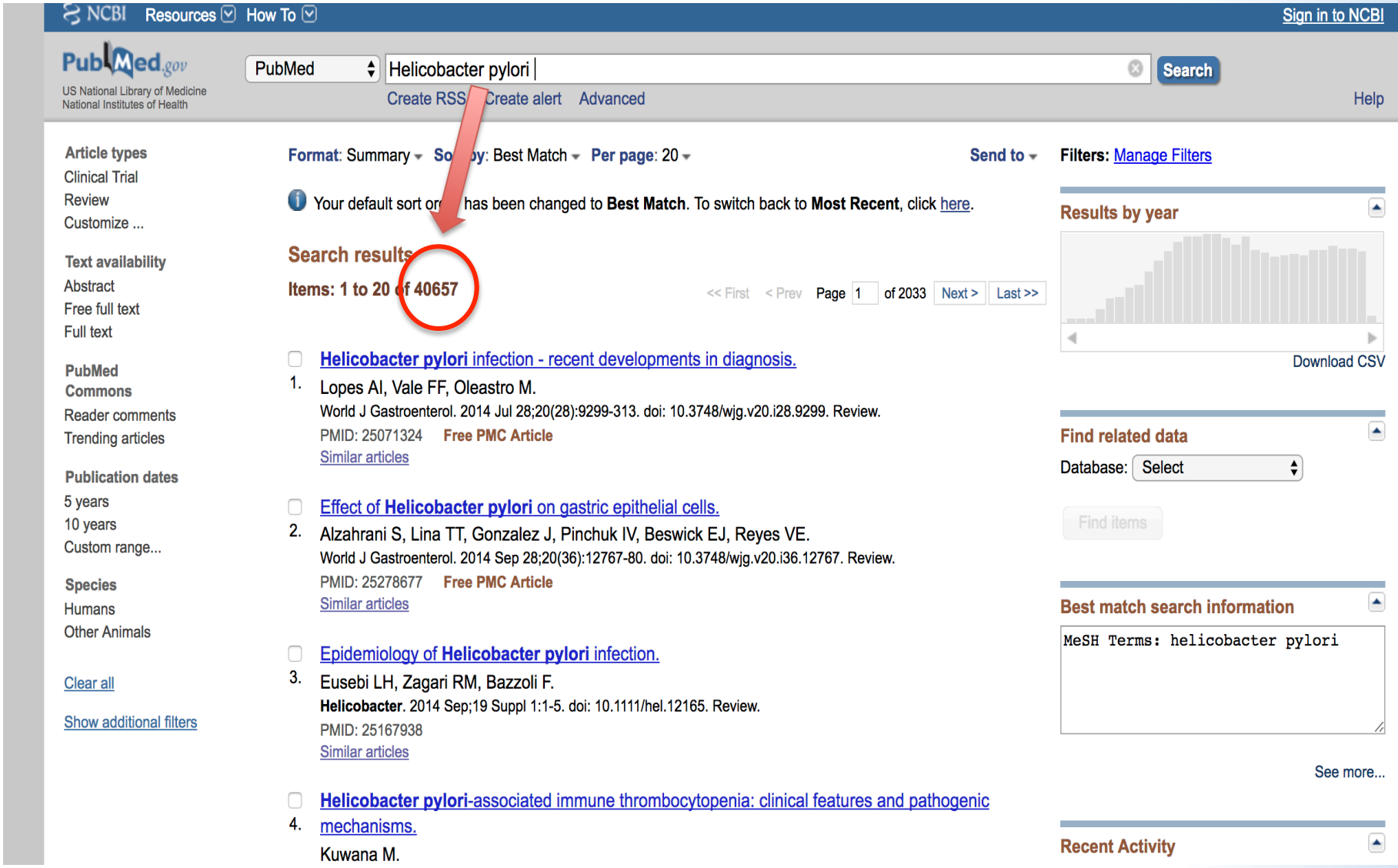
Case example

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….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Alzahrani S, Lina TT, Gonzalez J, Pinchuk IV, Beswick EJ, Reyes VE.
World J Gastroenterol. 2014 Sep 28;20(36):12767-80. doi: 10.3748/wjg.v20.i36.12767. Review.
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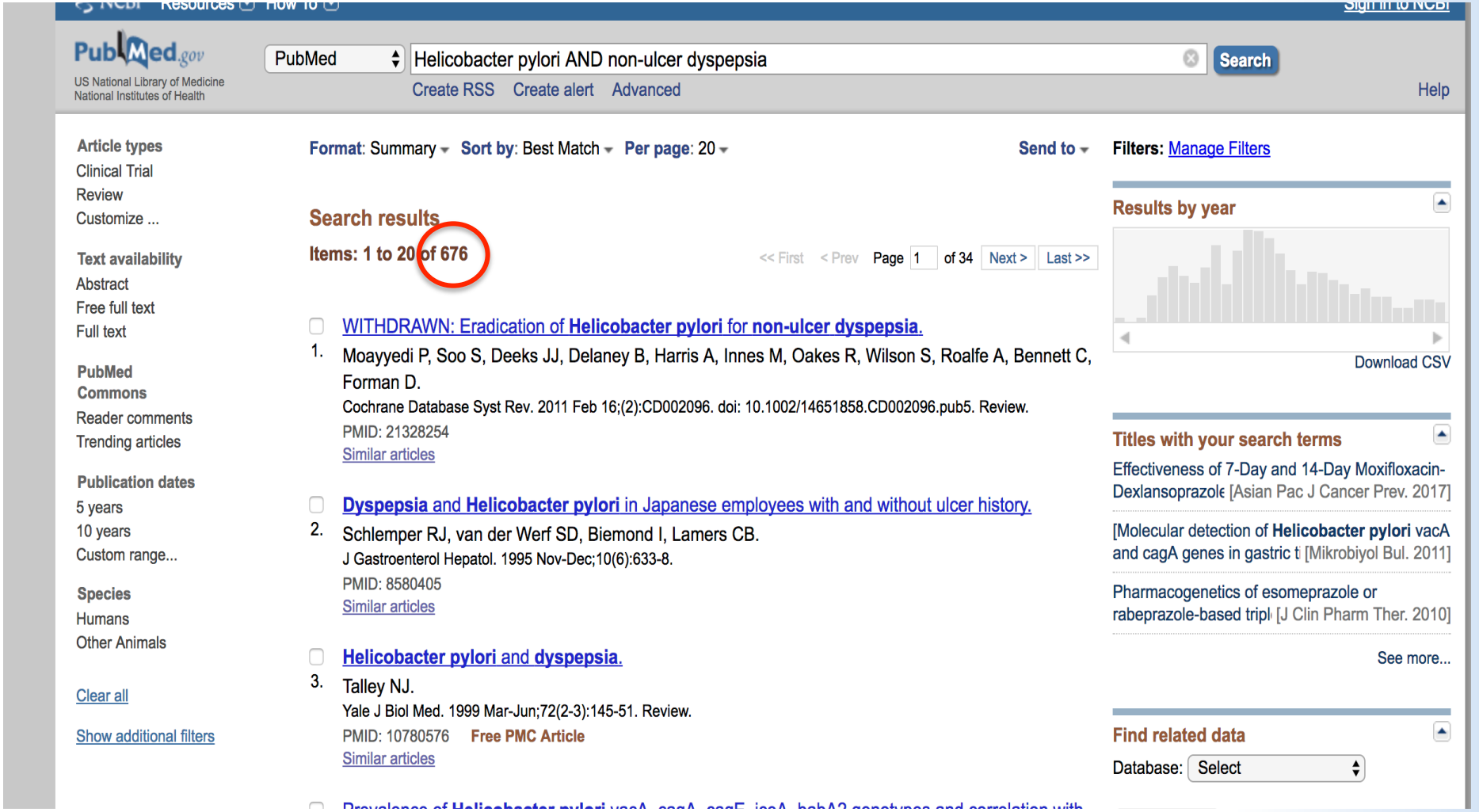
Components of "well-built clinical questions"

- Patient/problem → "non-ulcer dyspepsia"
- Intervention → "treatment of Helicobacter pylori infection"
- Comparison intervention → "no treatment"
- Outcome → "improve symptoms"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Moayyedi P, Soo S, Deeks JJ, Delaney B, Harris A, Innes M, Oakes R, Wilson S, Roalfe A, Bennett C, Forman D.
Cochrane Database Syst Rev. 2011 Feb 16;(2):CD002096. doi: 10.1002/14651858.CD002096.pub5. Review.
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Schlemper RJ, van der Werf SD, Biemond I, Lamers CB.
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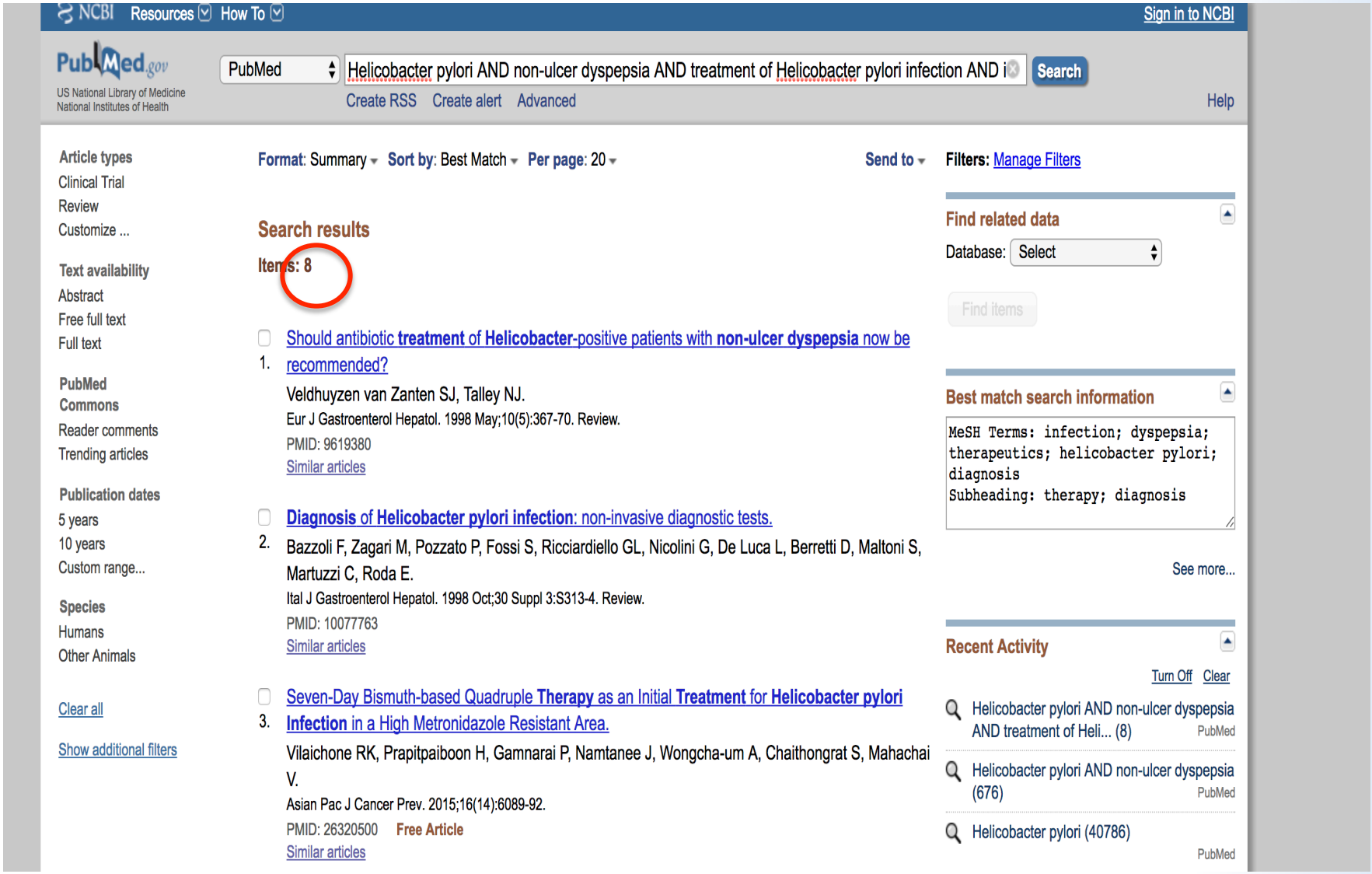
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Bazzoli F, Zagari M, Pozzato P, Fossi S, Ricciardiello GL, Nicolini G, De Luca L, Berretti D, Maltoni S, Martuzzi C, Roda E.
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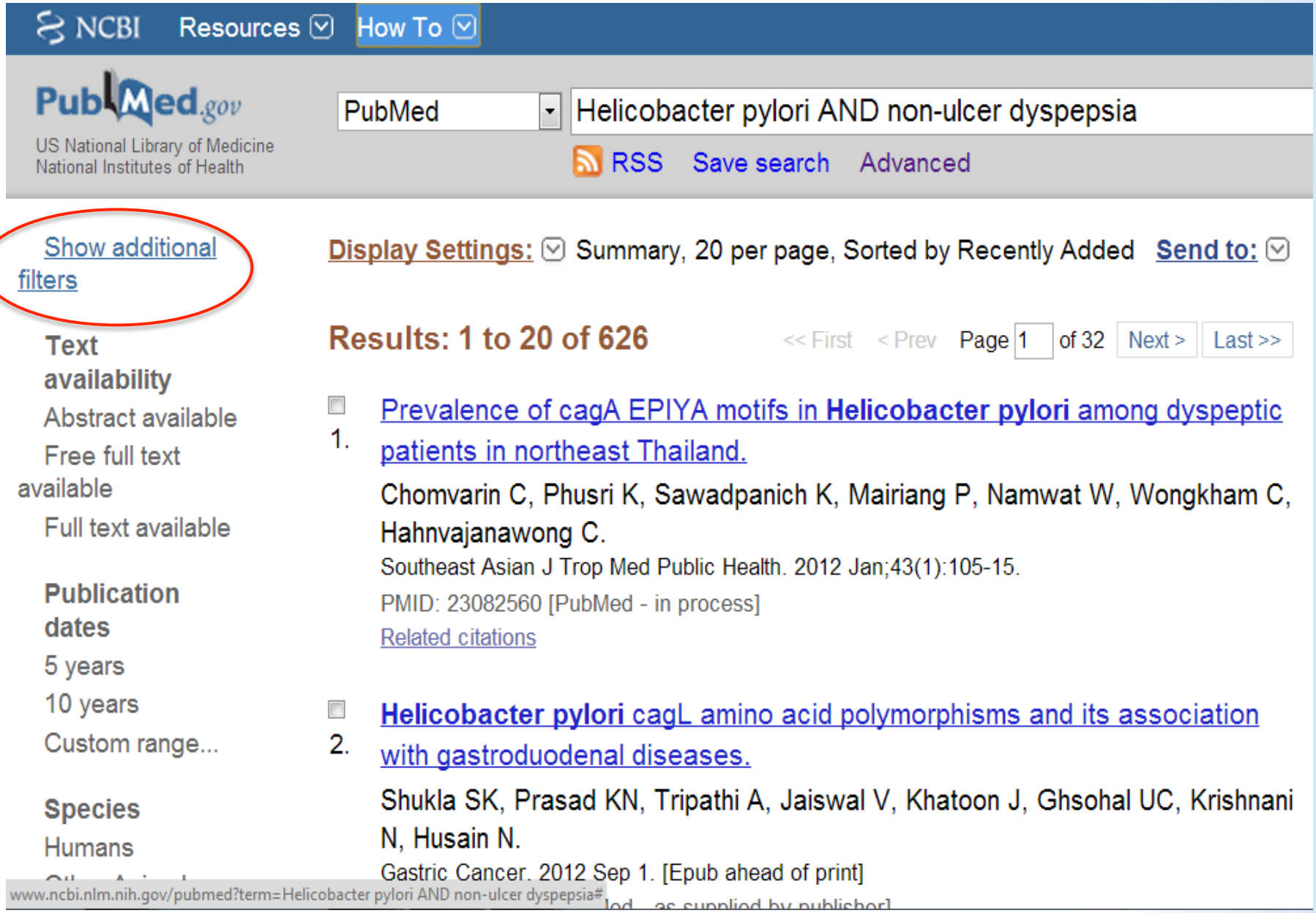
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1. Prevalence of cagA EPIYA motifs in Helicobacter pylori among dyspeptic patients in northeast Thailand.
Chomvarin C, Phusri K, Sawadpanich K, Mairiang P, Namwat W, Wongkham C, Hahnvajanawong C.
Southeast Asian J Trop Med Public Health. 2012 Jan;43(1):105-15.
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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]
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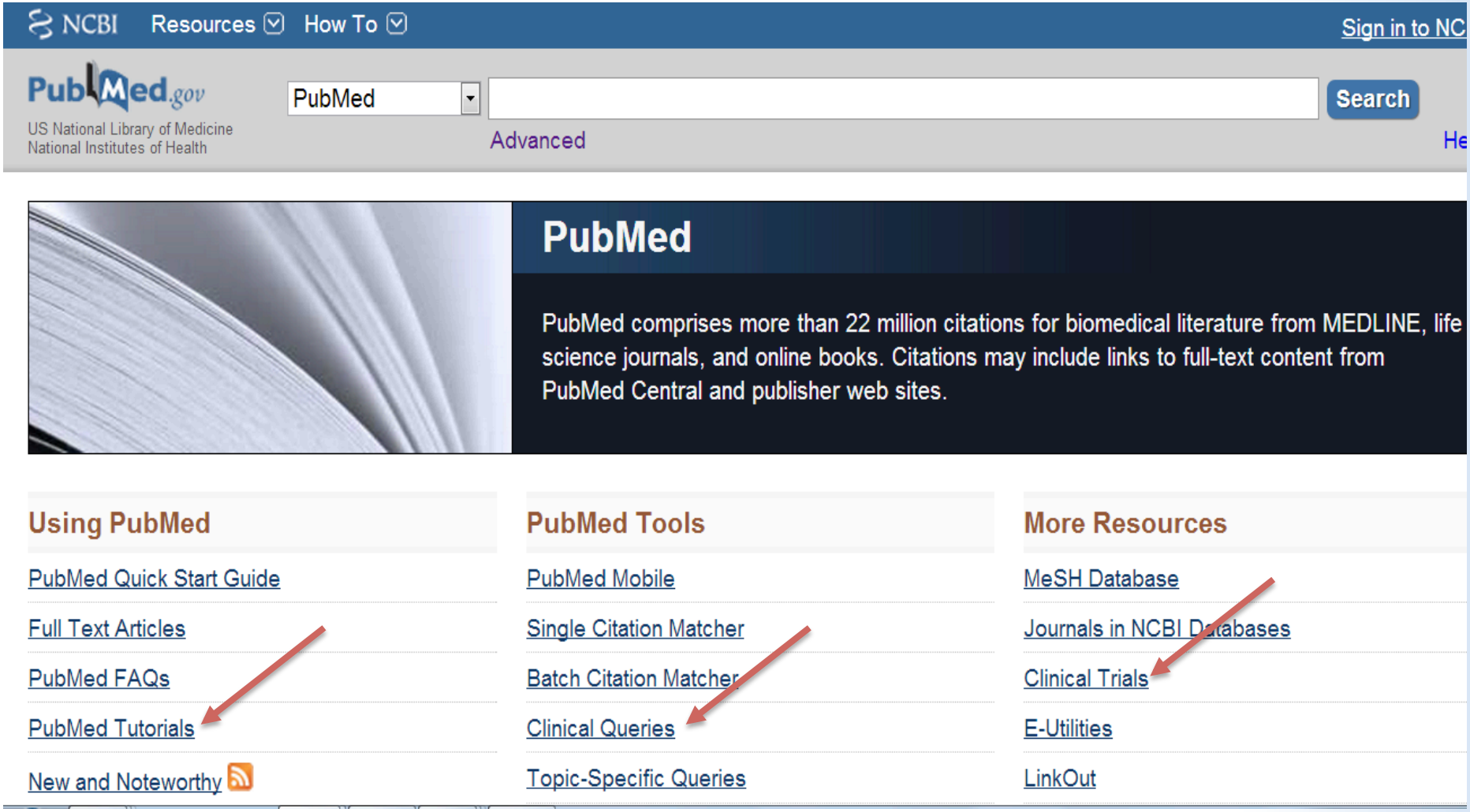
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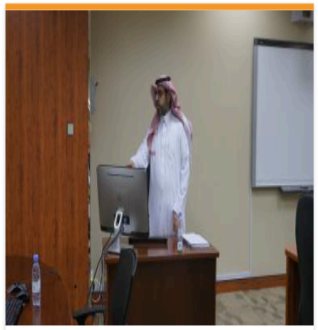

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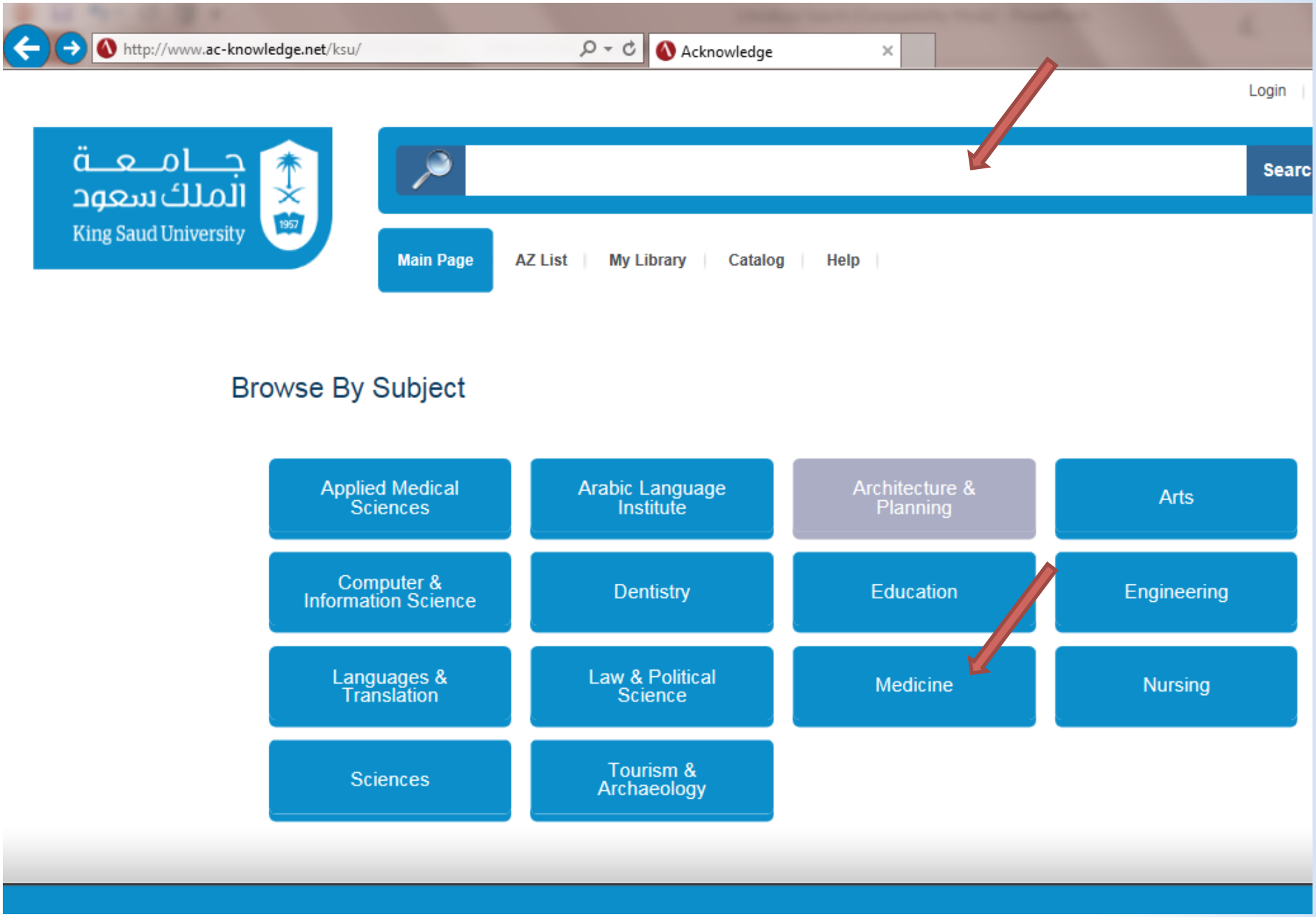
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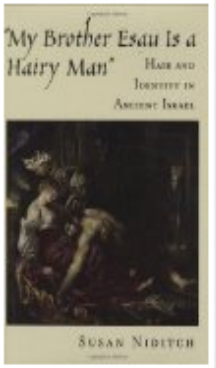

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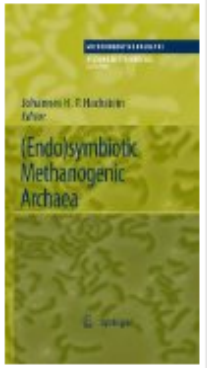

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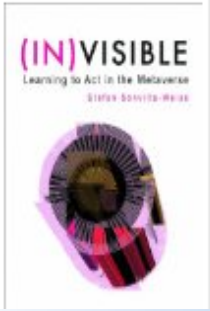

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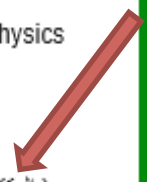

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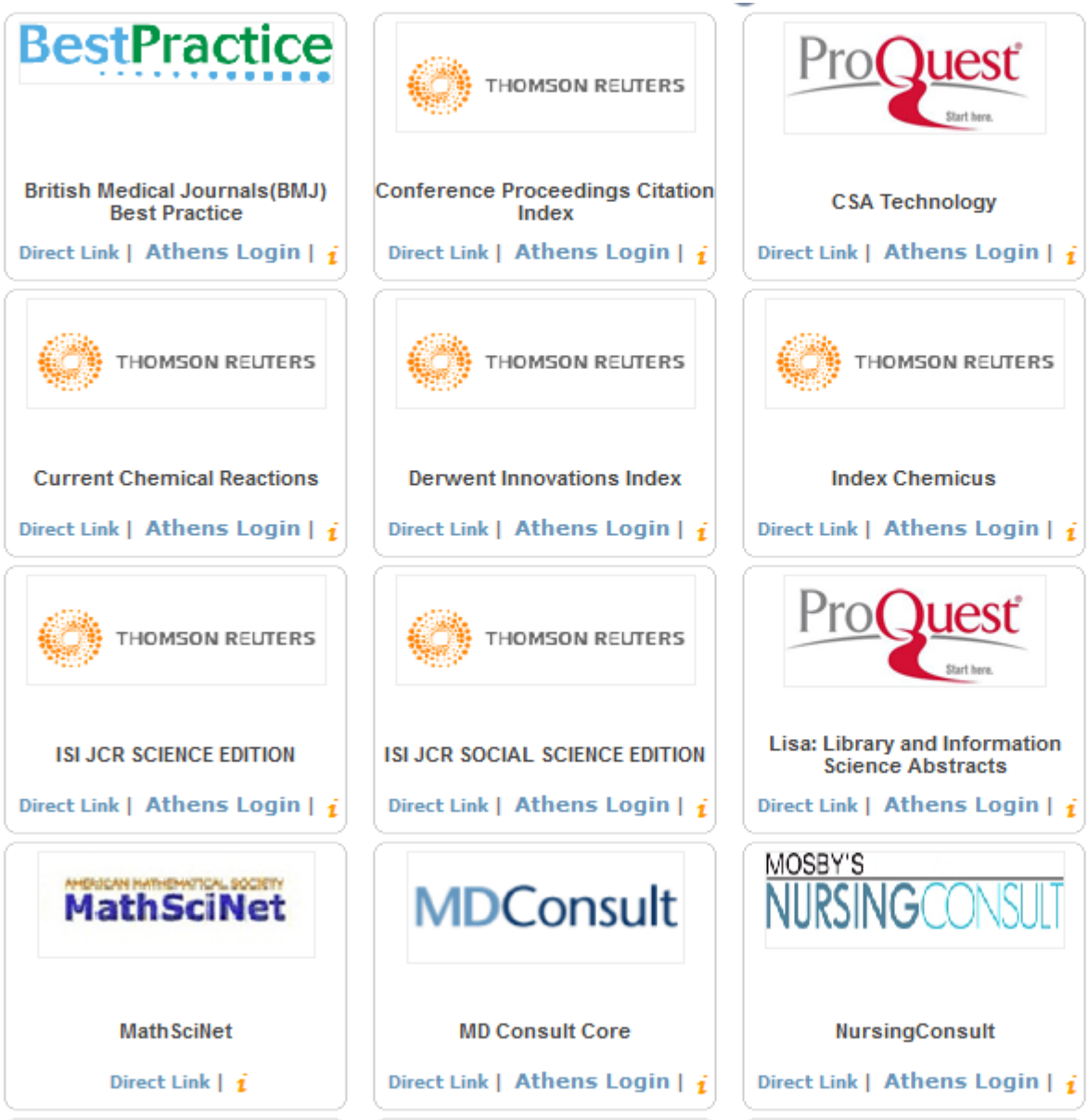


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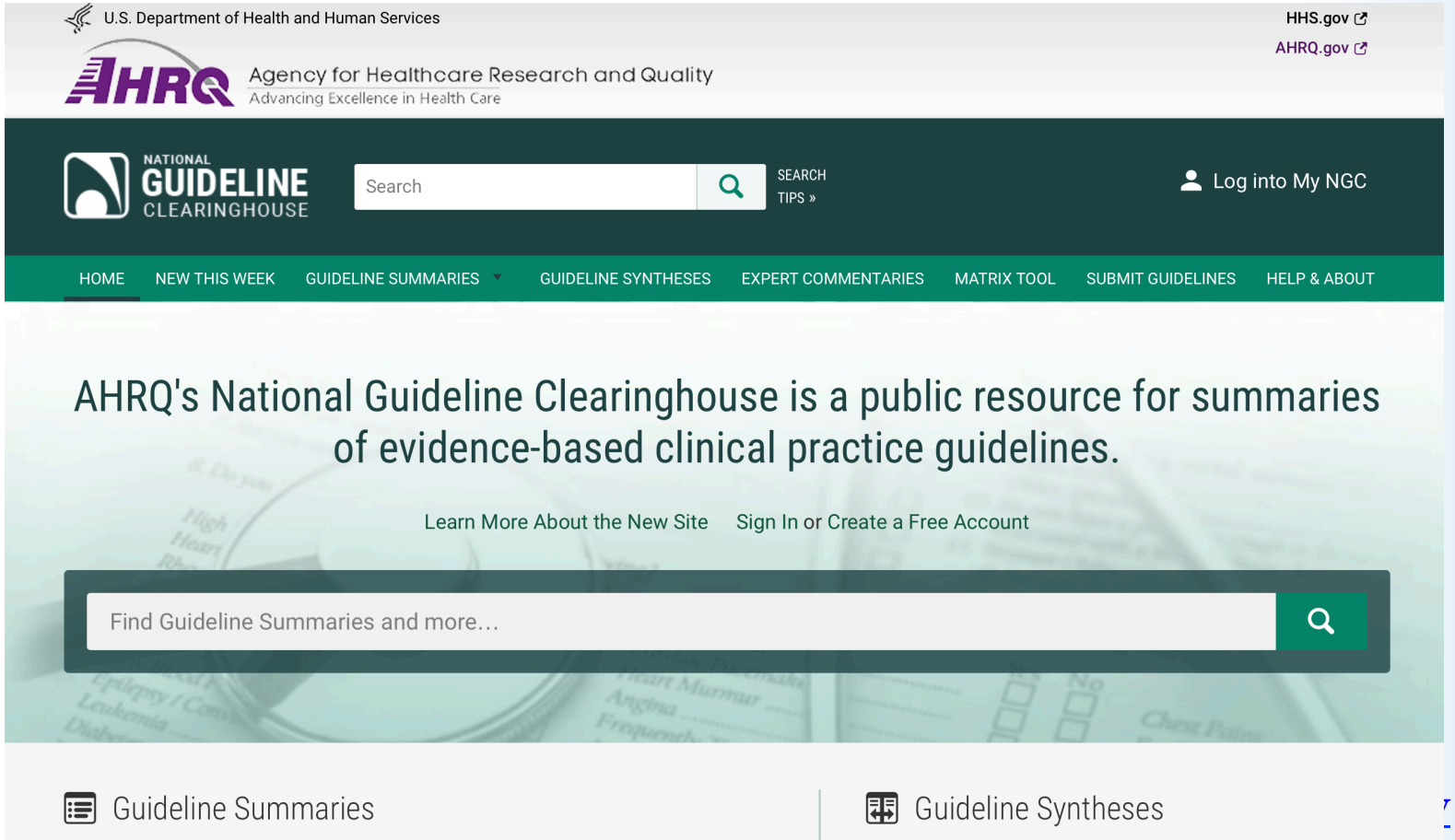


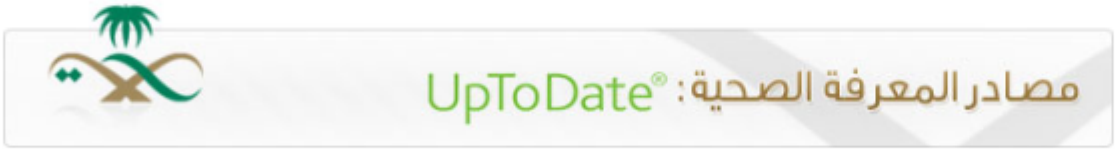
البوابة الإلكترونية لوزارة الصحة
المملكة العربية السعودية

التوعية الصحية

مصادر المعرفة الصحية

تُعنى مصادر المعرفة الصحية بدعم القرار الطبي بالأدلة بواسطة آراء الخبراء والمتخصصين في الشأن الصحي عالميًا، ومن ثم تحظى هذه المصادر بثقة الأطباء لاستخدامها كمراجع في اتخاذ قرارات الرعاية الصحية الصائبة.

وإيماناً من وزارة الصحة بأهمية هذه المصادر لاكتساب المعرفة الطبية في مجال الرعاية وجودتها، فقد حرصت على تيسير الوصول إلى محتوى أهم المصادر المتخصصة في هذا الشأن، وذلك عبر الحاسب أو الجوال. ومن أهم هذه المصادر ما يلي:



التوعية الصحية

محتوى المعرفة الصحية من (BMJ)

(ما عليك إلا أن تمارس الطب المعزّز بالبراهين، وتعمل على تحسين نتائج الرعاية الصحية)

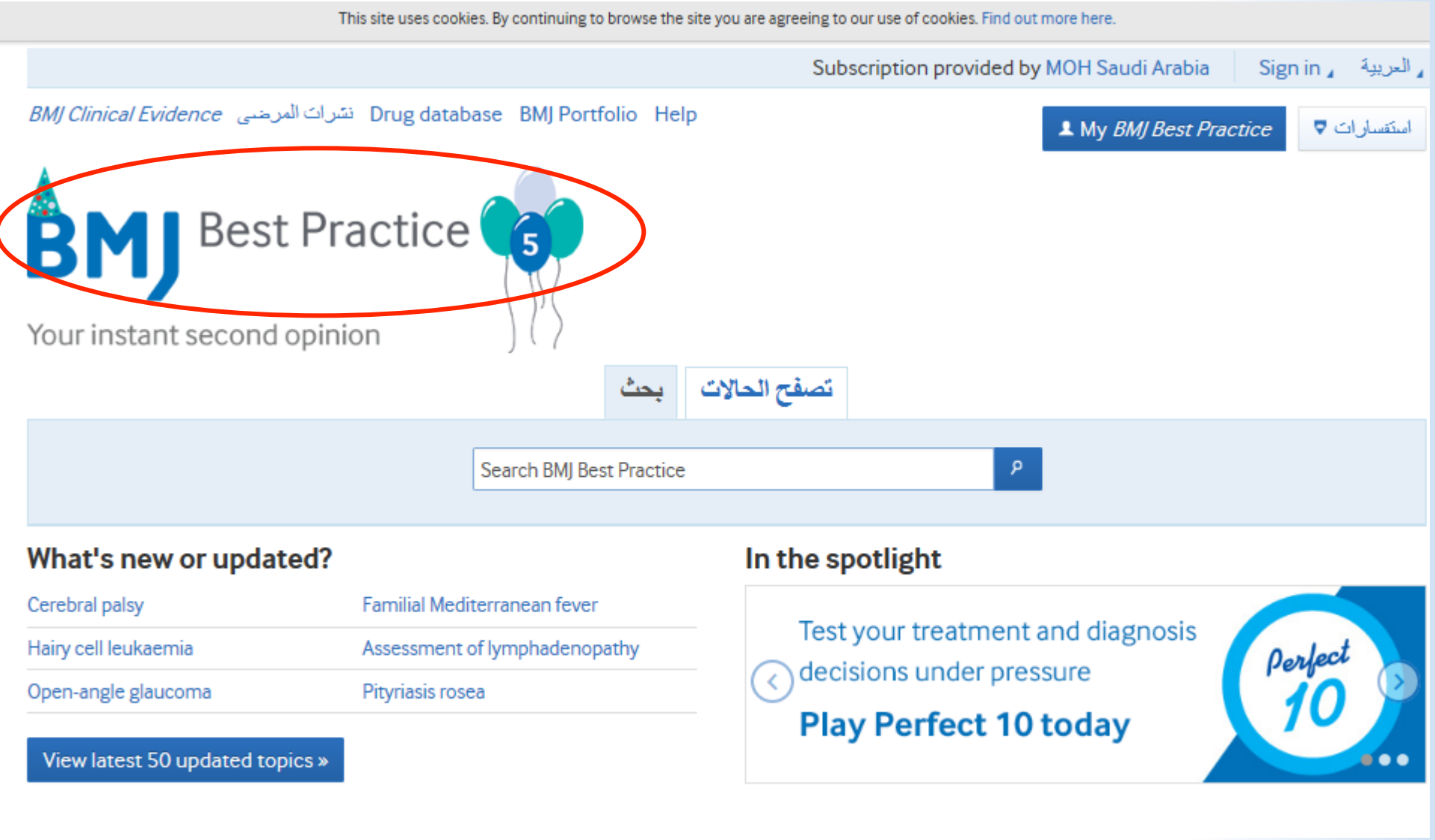
شركة **BMJ** هي شركة تحظى بموثوقية عالية، متخصصة في إتاحة المعرفة المتعلقة بالرعاية الصحية، وتتولى نشر المطبوعة الذائعة المسمّاة: "المجلة الطبية البريطانية" (The BMJ). فيما يلي، يمكنك استعراض الأدوات التي من شأنها أن تسهم في تلبية متطلباتك المهنية، وجميعها خدمات يقدّمها ويستفيد منها الأطباء.

استكمال رحلة التطوير المهني والتعليم الطبي المستمر (CME/CPD) مع إتاحة الاطلاع على نماذج تعليمية عبر الإنترنت

عن طريق **"BMJ Learning"**، تقدم الشركة دورات تعليمية عبر الإنترنت للممارسين الصحيين، تتيح لك الدراسة على النحو الذي يناسبك ويرضيك. سيكون في إمكانك الاختيار من بين 1000 دورة تعليمية، قد تكون عبارة عن ملفّات صوت أو صورة أو رسوم متحركة، وتشمل طيفًا واسعًا من التخصصات الطبية والمجالات السريرية. وعلاوة على ذلك، تقيس هذه الدورات مقدار ما تحرزه من تقدُّم من خلال الأسئلة التي يتعين عليك إجابتها قبل وبعد الدورة. وما إن تنجح في اجتياز الدورة، ستحصل على شهادة معتمدة تفيد بذلك. كما يمكنك – من خلال "حافظة BMJ" – تسجيل كافة الدورات التي أمكن اجتيازها، جنبًا إلى جنبٍ مع الدورات الأخرى التي تخطط لها أو تطمح فيها، بالإضافة إلى الشهادات التي حصّلتَ عليها.

فضلًا عن ذلك، ترتبط هذه الدورات بما يُعرف بـ "BMJ Best Practice"، وهي أداة أخرى تتيحها الشركة تمكنك من تعيين المصادر

http://bestpractice.bmj.com/best-practice/welcome.html



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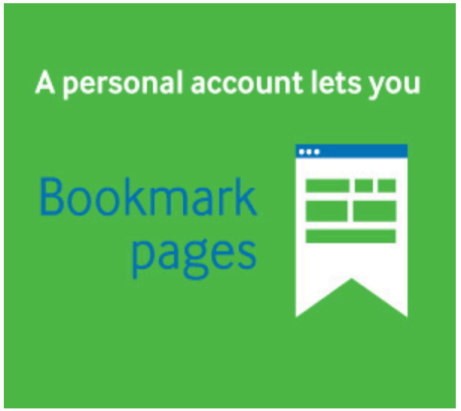

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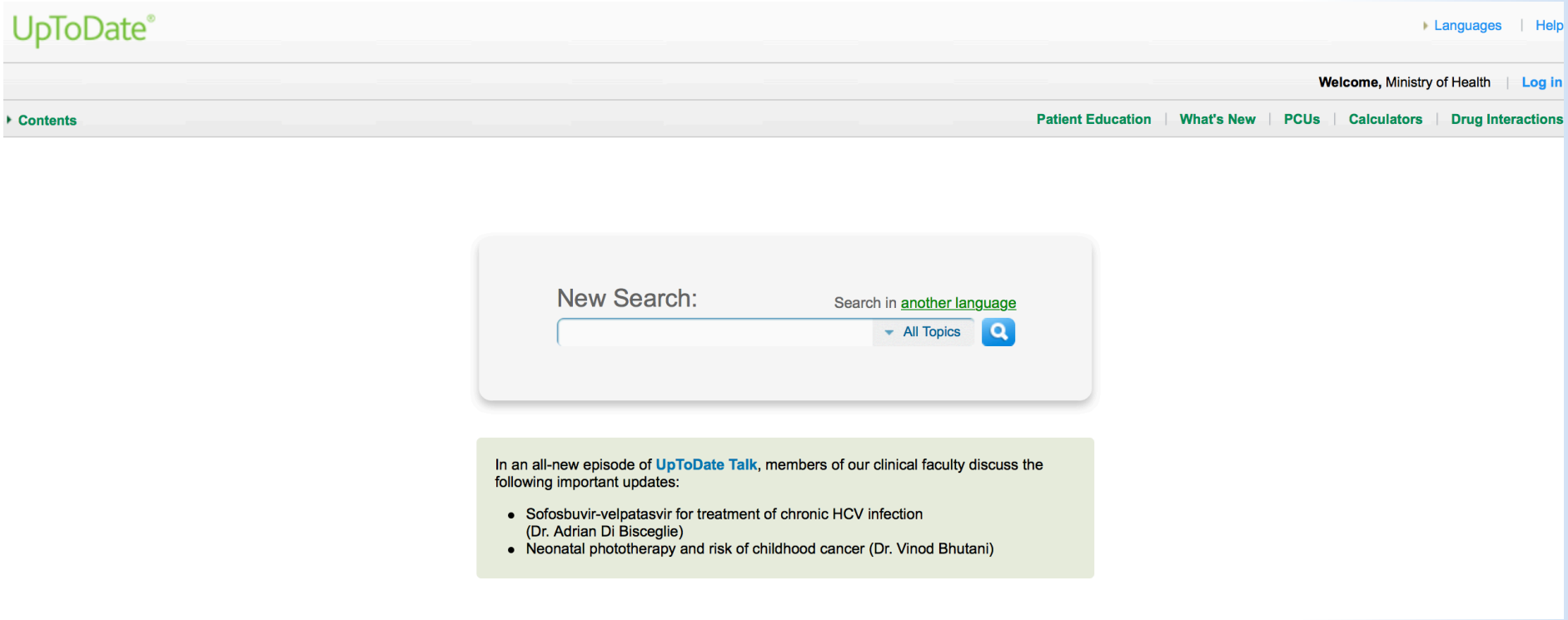

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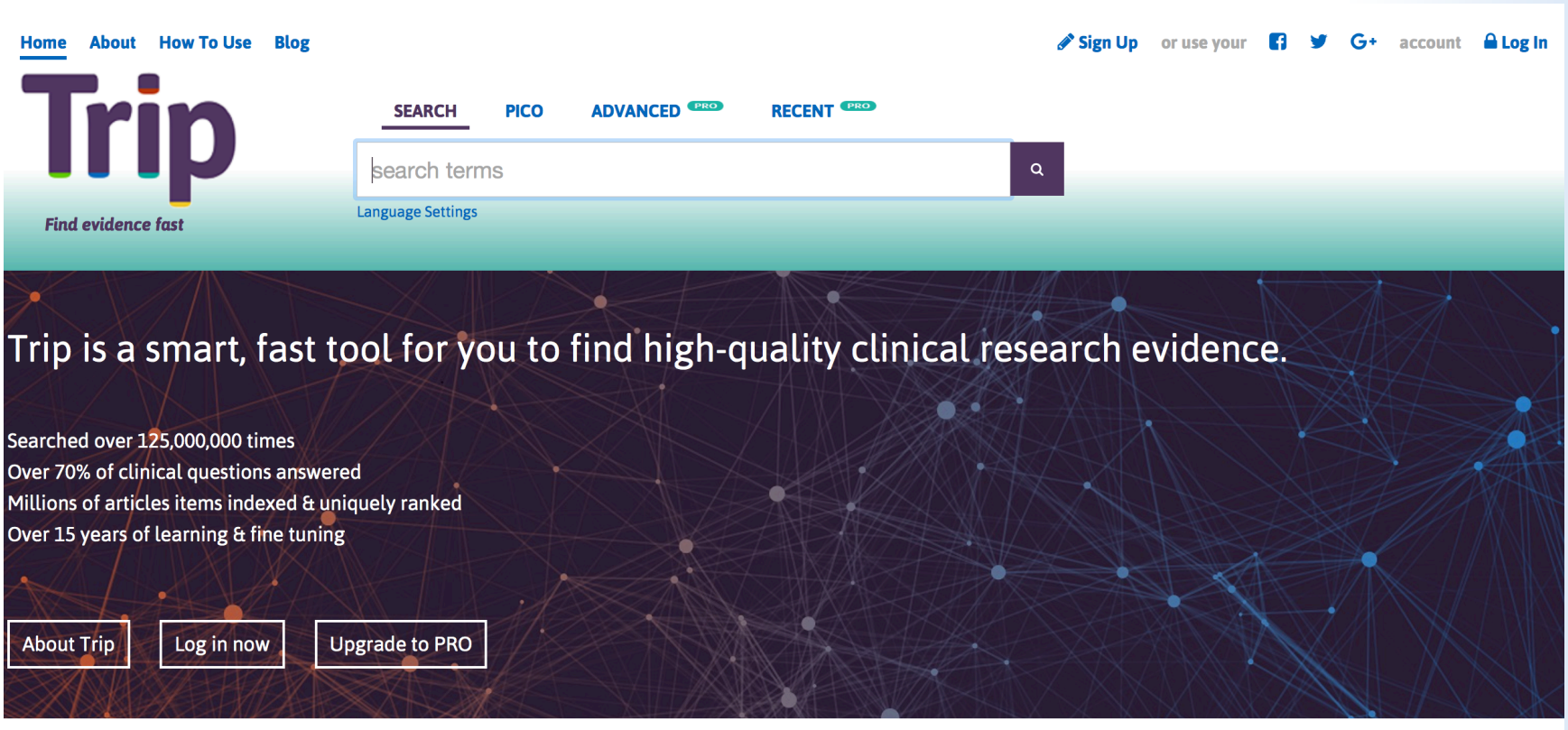

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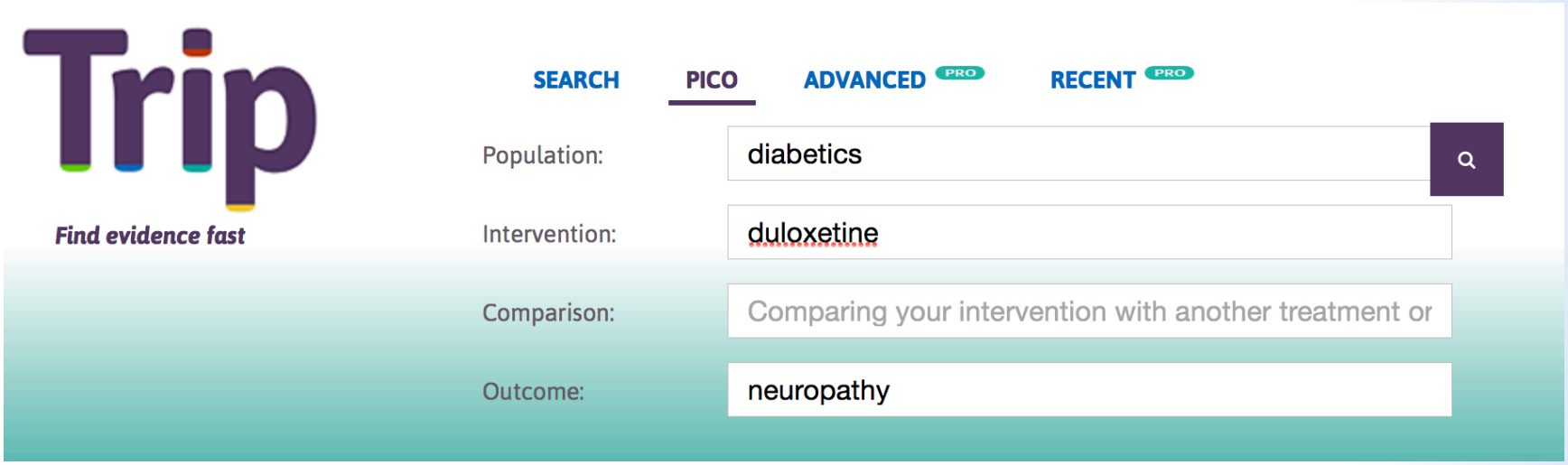
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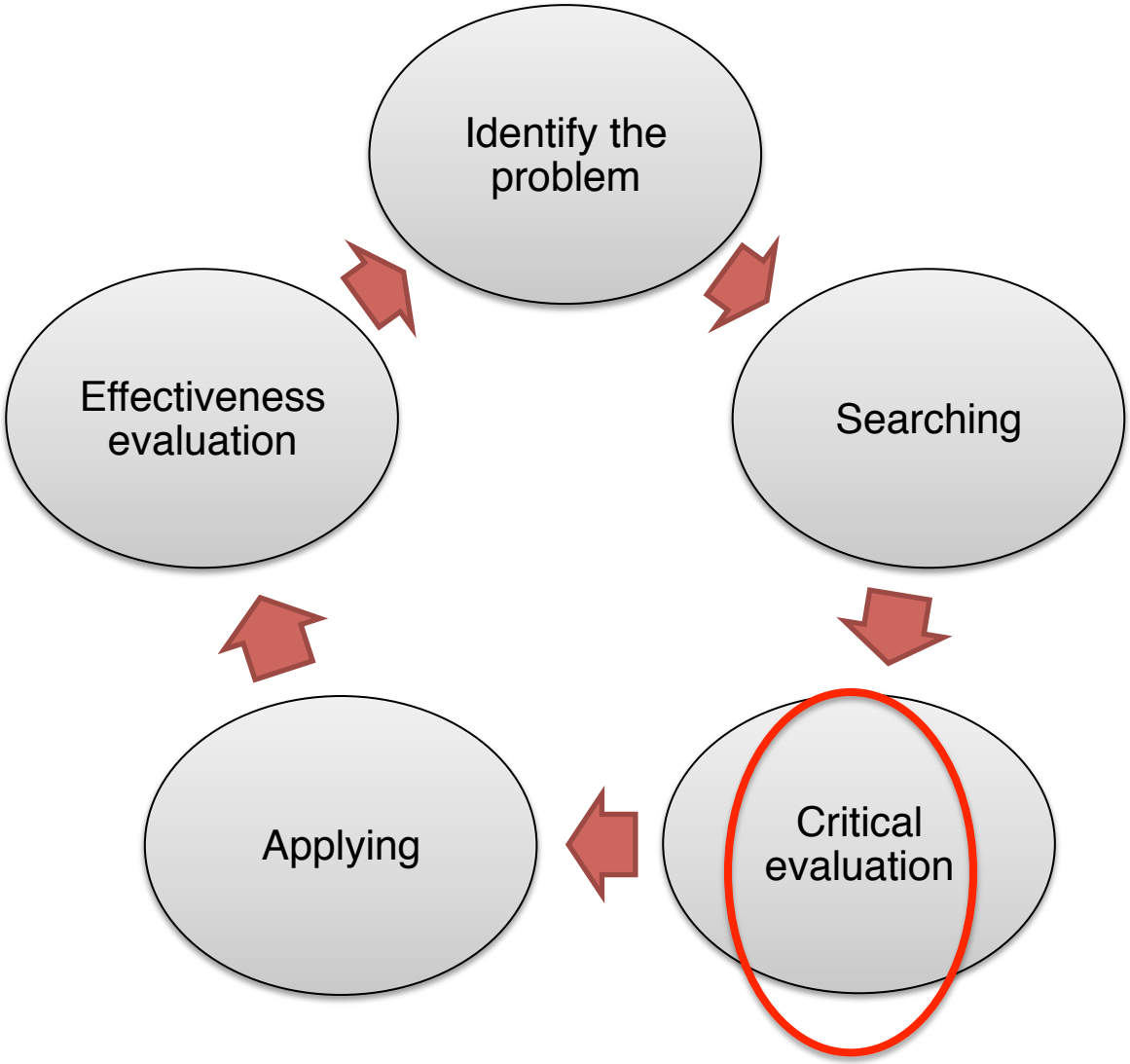
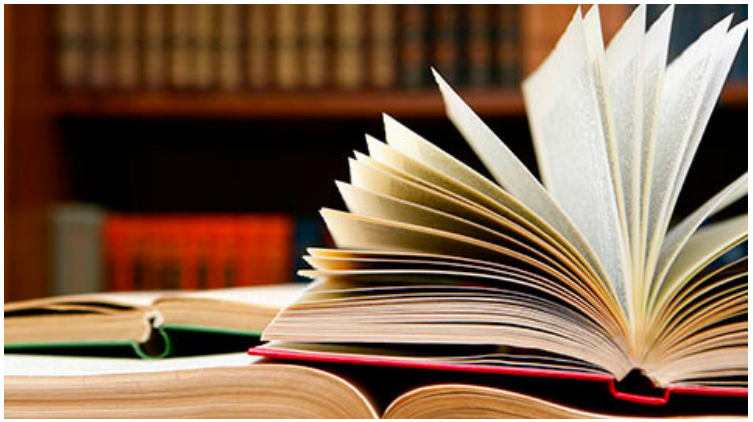
The steps of practicing EBM



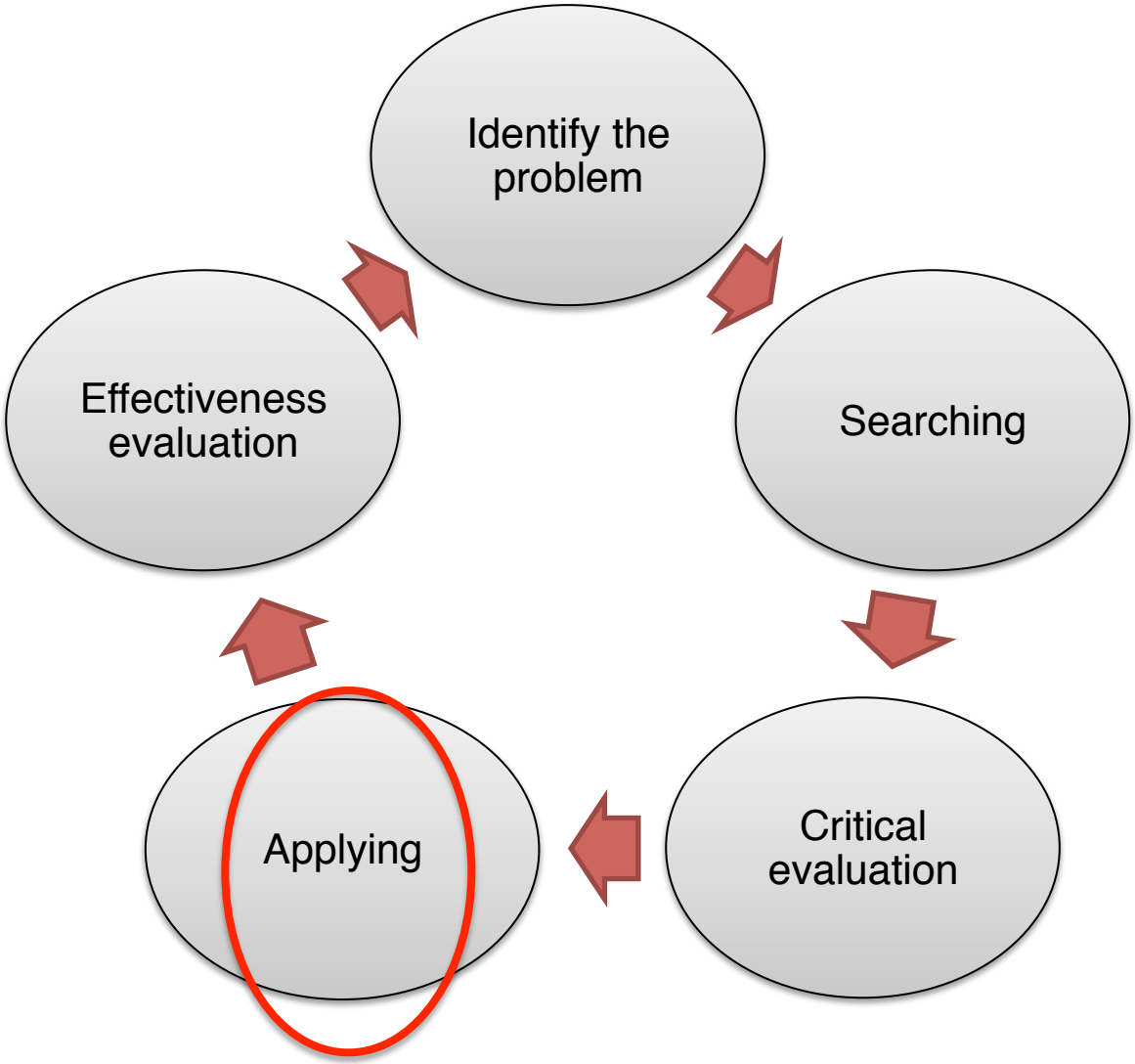
Step (3): Critical Appraisal



Critical Evaluation of the Information

- Critical assessment of the articles is a process that involves careful reading and analysis of methodology, contents and conclusions.
- A key question that should be kept in mind is *"Do I believe in the results enough that I'll be ready to a similar approach, or in achievement of similar results with my patients?"*
- Skills to obtain the ability of critical evaluation should be learned and practiced as any other clinical skills.

The steps of practicing EBM



Step (4): Applying the Evidence

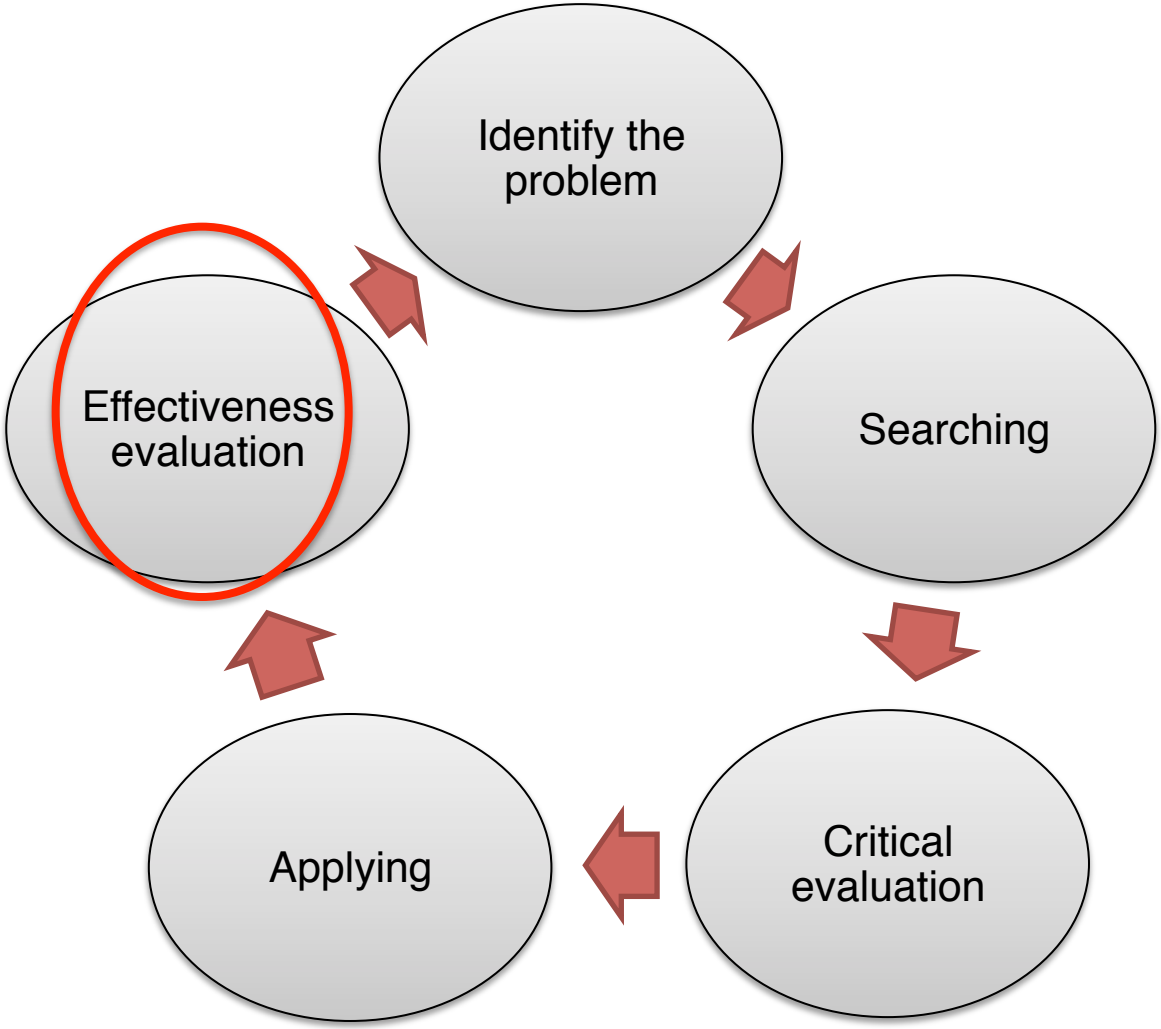
Application of Information to the Patients

- How to apply acquired information on the special circumstances pertaining to each patient.
- Integrate the valid evidence with other relevant information (values & preferences, clinical/health issues, & system issues)
- Take into consideration the patient values
  - The patient is a precious, lone child of the parents
  - The economical/financial status of the patients does not permit expensive therapies
- Implement the decision in practice

Application of Information to the Patients

- *The questions that we should ask before the decision to apply the results of the study are:*
  - Are the participants in the study similar enough to my patient?
  - Is the treatment available and is health care system prepared to fund it?
  - What alternatives are available?
  - Do the potential side effects of the drug or procedure outweigh the benefits?
  - Are the outcomes appropriate to the patient? Does the treatment conflict with the patient's values and expectations?

The steps of practicing EBM



Step (5): Evaluate Effectiveness

Efficacy Evaluation of this Application on a Patient

- To assess whether certain evidence, which is applied to the patient, caused changes to better and to the extent that it is confirmed by research.
- If the data *differ significantly*, it would be necessary to investigate why some patients did not respond to the changes introduced in the expected way and what can be done to change it

Evaluate the Process

- Was clinician able to formulate a focused question?
- Was clinician able to devise a precise search strategy for locating the evidence?
- Did clinician use the most appropriate resource?
- Were more relevant resources like practice guidelines available to clinician?
- Did the ‘evidence’ work in his patient?
- The clinician should document the outcomes of the application of the evidence and based on his experiences

What are the benefits of adopting EBM?

- Minimize the errors in patient care
- Reduces the cost of treatment to the patient
- Optimizes the quality of patient care
- Skills learnt in practicing EBM are the very same ones needed for being a lifelong, self-directed learner
- Habit of accessing literature on a daily basis is the best guarantor of ensuring advancement of knowledge and keeping abreast of scientific progress

Who benefits?

- Practitioners → current knowledge to assist with decision making
- Researchers → reduced duplication identify research gaps
- Community → recipients of evidence-based interventions
- Funders → identify research gaps/priorities
- Policy maker → current knowledge to assist with policy formulation

Limitations of EBM

Although EBM is regarded as the best standard of conventional clinical practice there are a number of limitations for its use:

1. Lack of good evidence for many clinical questions
2. Results may not be relevant for all treatment situations
3. Lag in time between when the research studies is conducted, when its results are published when these are properly applied

Conclusion

- Medicine is not an exact science, but a science of probability
- The challenge to physicians is to provide up to-date medical care
- The ultimate goal for clinicians should be to help patients live long, functional, satisfying, and pain and symptom free life
- By adopting the principles of Evidence Based Medicine, it will be possible to maximize the benefits of scientific research for patient care
- Medical educators and medical colleges have the singular responsibility of teaching the principles of EBM


THANKYOU