Why to do Research?

Dr. Nada A. Al-Yousefi

Assistant Professor & Consultant

Family Medicine Unit

Department of Family and Community Medicine

College of Medicine(KSU)

nalyousefi@ksu.edu.sa

March 2016

About 10% of published evidence is worth reading

About 1/3 of worthwhile evidence is eventually refuted or attenuated

About 1/2 of relevant evidence is not implemented

"...and, as you go out into the world, I predict that you will, gradually and imperceptibly, forget all you ever learned at this university."

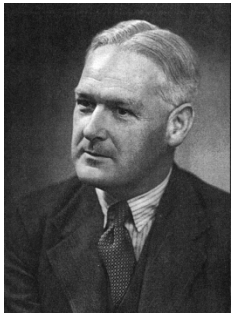
IMPORTANCE

- Our daily need for valid information about diagnosis, prognosis, therapy and prevention (up to 5 times per in-patient and twice for every 3 out-patients).

- The inadequacy of traditional sources for this information because they are out-of-date (textbooks), frequently wrong (experts), ineffective (didactic continuing medical education) or too overwhelming in their volume and too variable in their validity for practical clinical use (medical journals).

Some milestones in the history of Research

James Lind
publishes review & clinical trial in *Treatise on Scurvy*

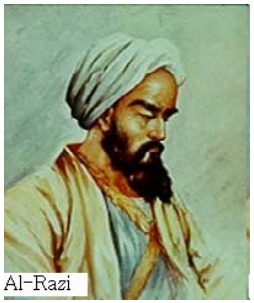


Bradford-Hill
publishes *Principles of Medical Statistics &*
MRC trial of streptomycin
Smoking vs cancer

McMaster University
Inspiring Innovation and Discovery
Home | More About

Clinical Epidemiology & Biostatistics

900 AD | 1780 | 1840 | 1937/48 | 1967 | 1970's

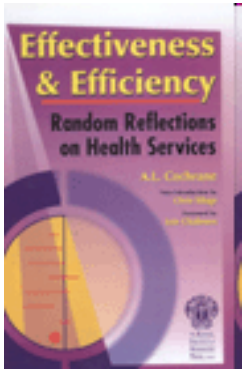


Al-Rhazi

For I once saved one group by it, while I intentionally neglected another group. By doing that, I wished to reach a conclusion .

Pierre Louis
Develops his "numerical method" and changes blood letting practice in France

Alvan Feinstein
publishes his book *Clinical Judgement*
1951 1st paper (medical student)
400+



Research Ethics

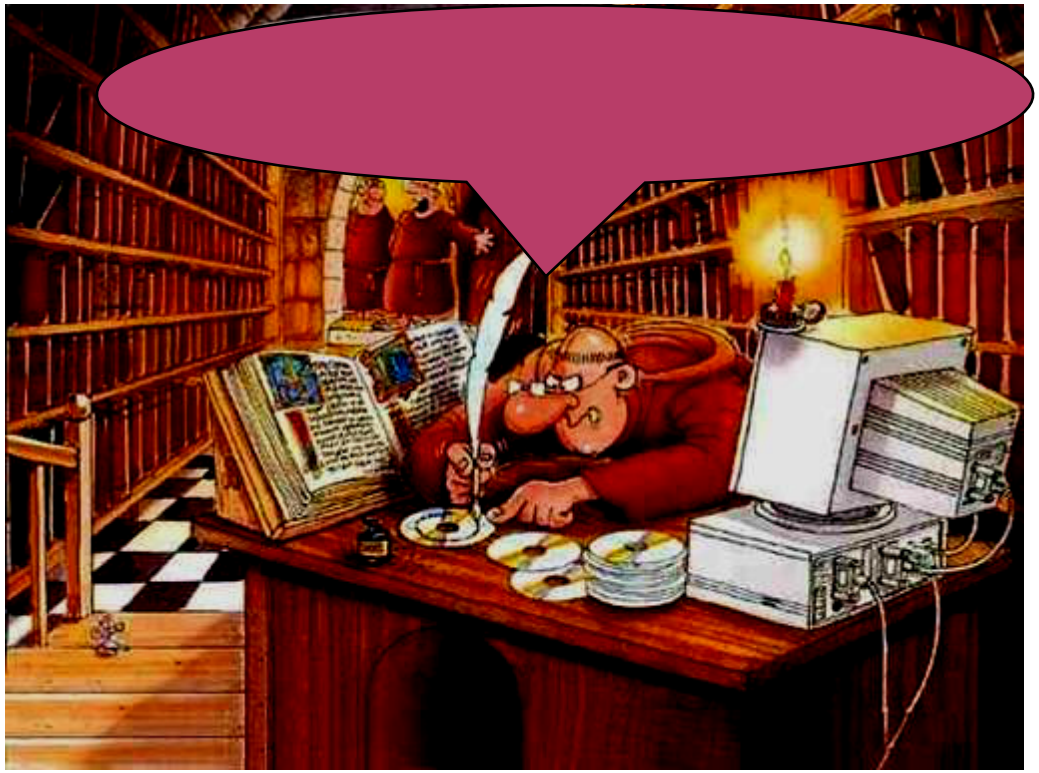
Is “pure” research above ethics and morality?

Is ethics and morality to do with technology and politics?

The Impact of Research on Values and Values on Research

- Ethical considerations are to the fore with the development of new technologies and new social systems

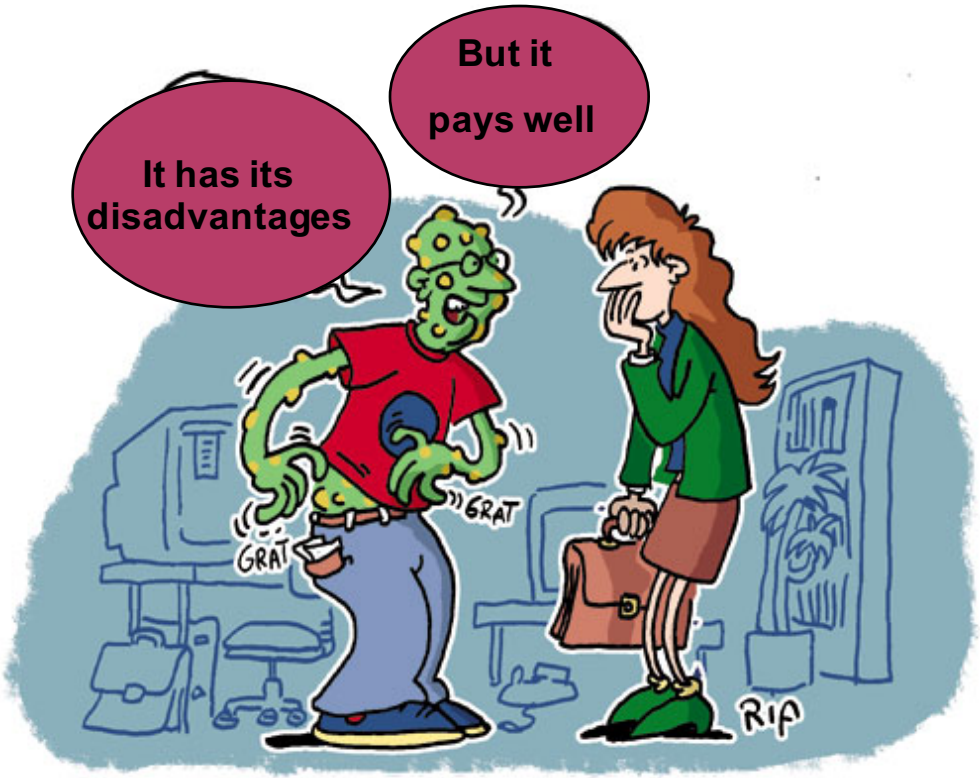
- Society is inherently conservative and seeks to set the limits of research activity



The scope of research ethics

- Ethical considerations cover all aspect of research but they are fore-grounded when the subject of the research are humans or animals

- Research involving human subjects in the Medical, Social and Behavioral Sciences poses complex ethical issues.
- It requires careful thought and consideration on the part of both researchers and research participants.
- Prospective participants must be given adequate information on both the possible risks and the potential benefits of their involvement to allow them to make informed decisions



Ethical Issues

- Justification for the research
- Access to participants/Privacy
- Informed consent
- Potential harm

- With research involving human subjects the risks and costs must be balanced against the potential benefits
- Trivial or repetitive research is may be unethical where the subjects are at risk

After years of experimentation the scientist proved that children become addicted to nicotine

Autonomy

- The ethical principle of autonomy means that each person should be given the respect, time, and opportunity necessary to make his or her own decisions.
- Prospective participants must be given the information they will need to decide to enter a study or not to participate.
- There should not be pressure to participate.

Vulnerable participants

- Potentially vulnerable participants such as children, the elderly, the mentally ill may be incapable of understanding information that would enable them to make an informed decision about study participation.

The process of obtaining consent

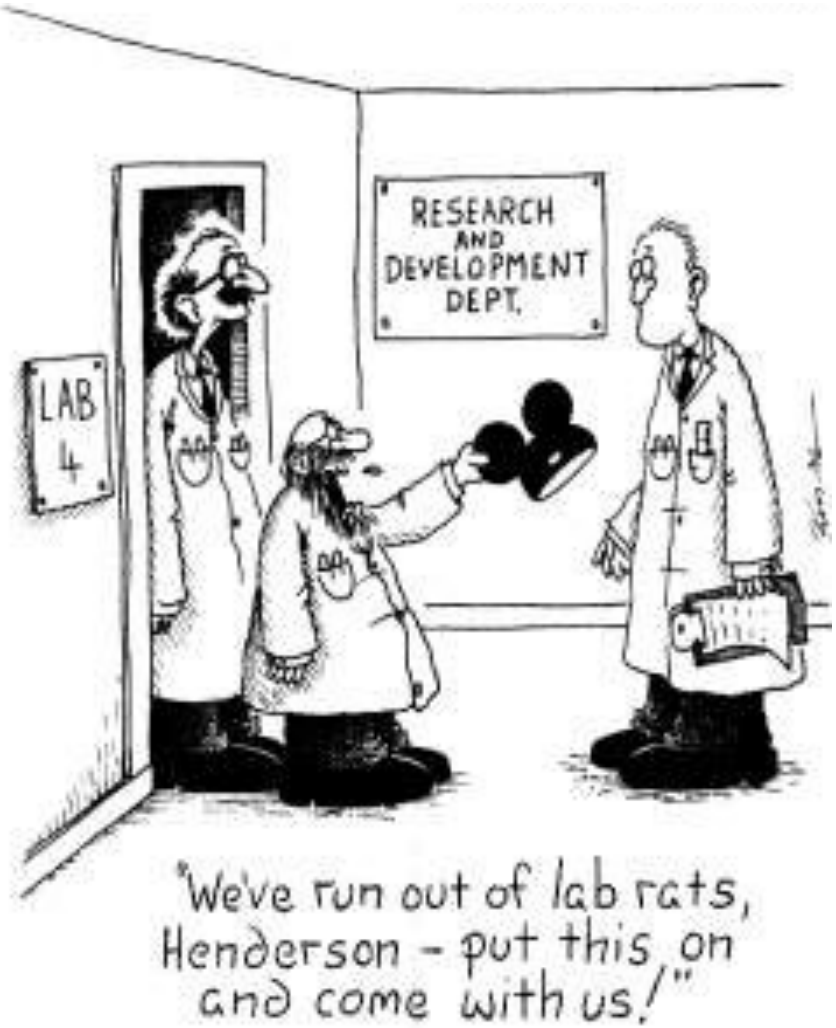
1. Identify participant population
2. Produce information sheet and consent document
3. Obtain permission from ethics committee
4. Present research information to participant and discuss its contents – indicating that withdrawal at any time is possible
5. Answer participants questions
6. Give a copy of the consent document
7. Allow the participant time to consider
8. Meet participant and discuss documents, to answer any more questions and assess participants understanding
9. Obtain appropriate signed consent
10. Start research

The participants

- The participants may not have the experience or educational background in order to fully understand the implications of the research
- They may be swayed because of their respect of and trust in the researcher who stands as an authority figure
- If they are being paid for their participation they may be swayed by economic considerations from a free judgement of the risks

Peer pressure

- The participants may be subject to social pressure of their peer group
- This is particularly prevalent in research groups



Contact Information

- Give the names of people who can answer questions about the research; include the principal investigator.
- If the researcher is a student, include the names and phone numbers of the principal investigator and, where applicable, the chair of ethical committee for questions.
- Furnish the contact name of a neutral third party who can explain the rights of research participants if the participant has any questions.

"Personally, I wouldn't have signed it."

Withdrawal

- Always stress the fact that participation is voluntary and that the participant can withdraw at any time

- State that refusing to participate will involve no penalty or decrease in benefits to which the participant is otherwise entitled.

Research design

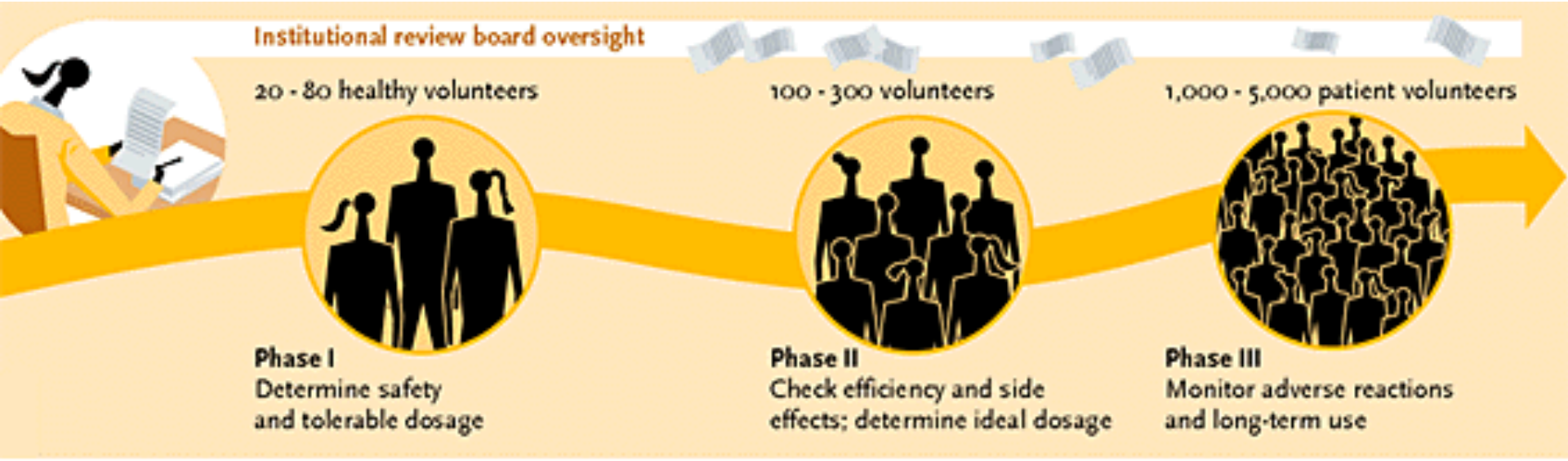
It is ethical behaviour for a researcher

- to use resources efficiently and effectively
- to work hard
- to ensure the well-being of all colleagues and participants

Minimising the risks
Maximising the potential for valuable results

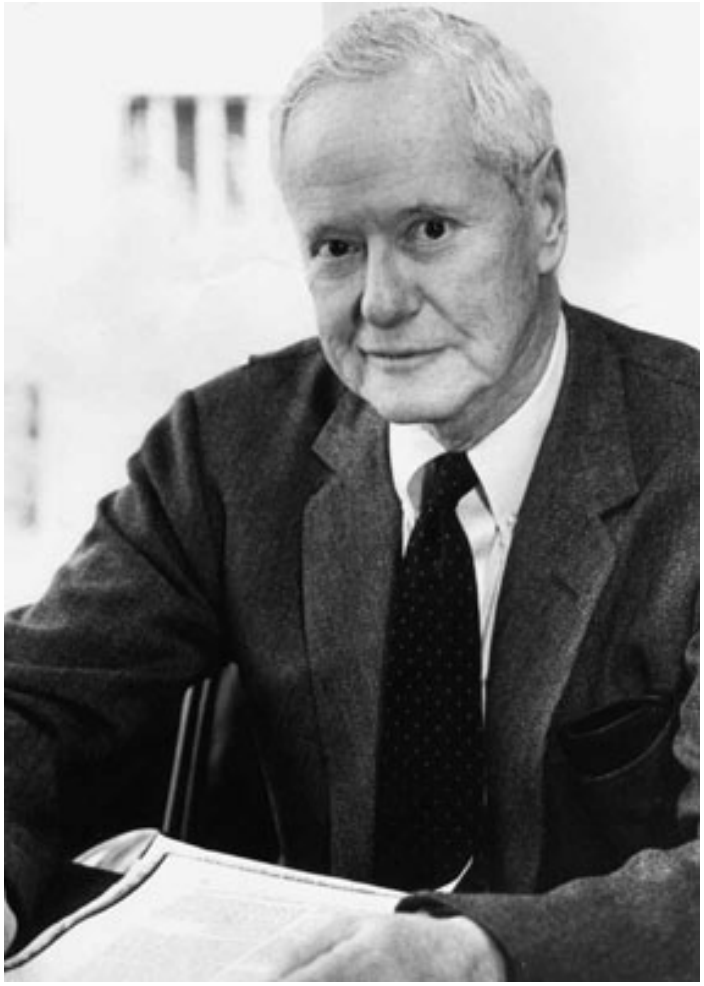
It is standard practise in research to carry out a preliminary small-scale project in order to enable

- more effective assessment of risks
- more efficient design of the main project



The Mertonian norms

- Communalism
- Universalism
- Disinterestedness
- Originality
- Scepticism



Robert K. Merton 1942

Confidentiality

- Confidentiality of electronically stored participant information.
- Appropriate selection and use of tools for analysis of the primary data
- Who has access to the data
- Data protection act

Universalism

There are no privileged sources of scientific knowledge

- Race, sex, politics ?
- Specialism ?
- Authority ?

But certain classes and ethnic groups are under-represented in research.

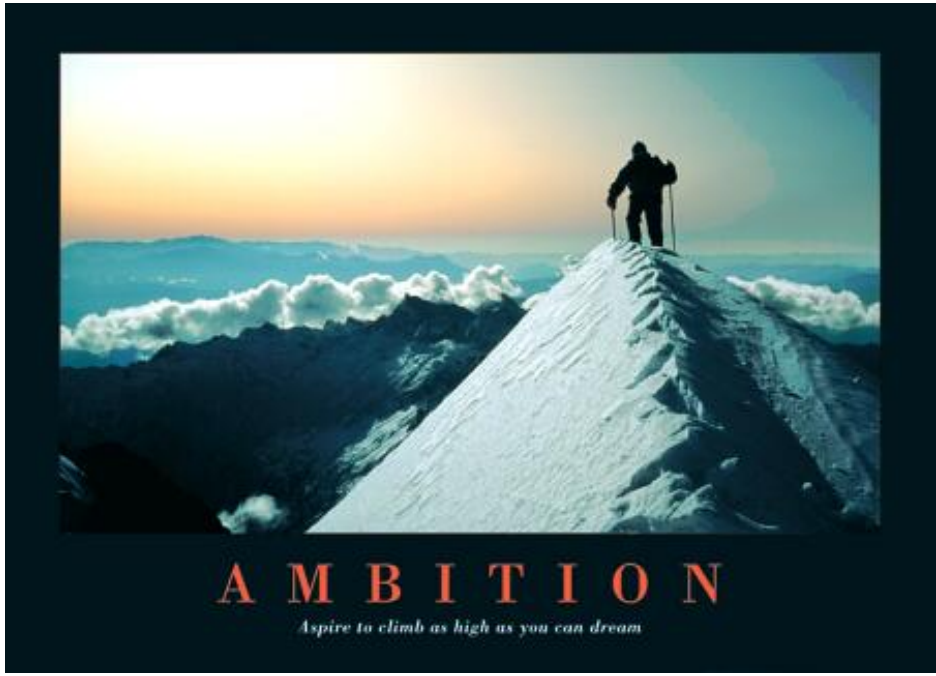
Disinteredness

Science is done for its own sake

How impersonal is research in practice ?

Research is competitive, not just in the search for funding but also for status.

- High achieving researchers tend to be highly ambitious?
- Personal feuds are rife in academia ? For example in disputes over priority ?



Originality

Science is the discovery of the unknown

- Plagiarism ?
- Publication of the same results in multiple journals ?
- Routine “stamp-collecting” surveys ?

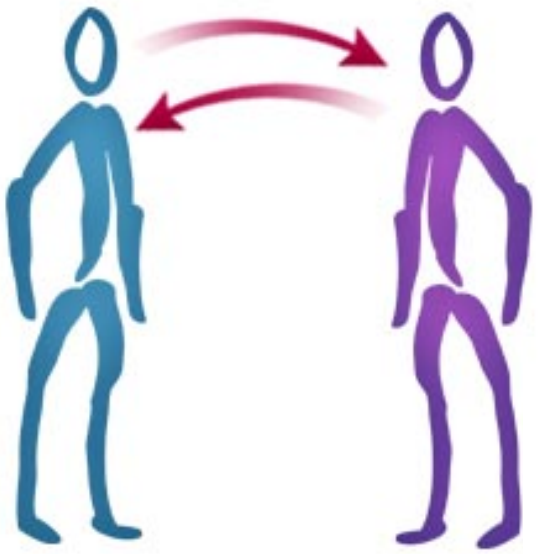
Sceptical

- Is sceptical of given opinions
- Challenges accepted views

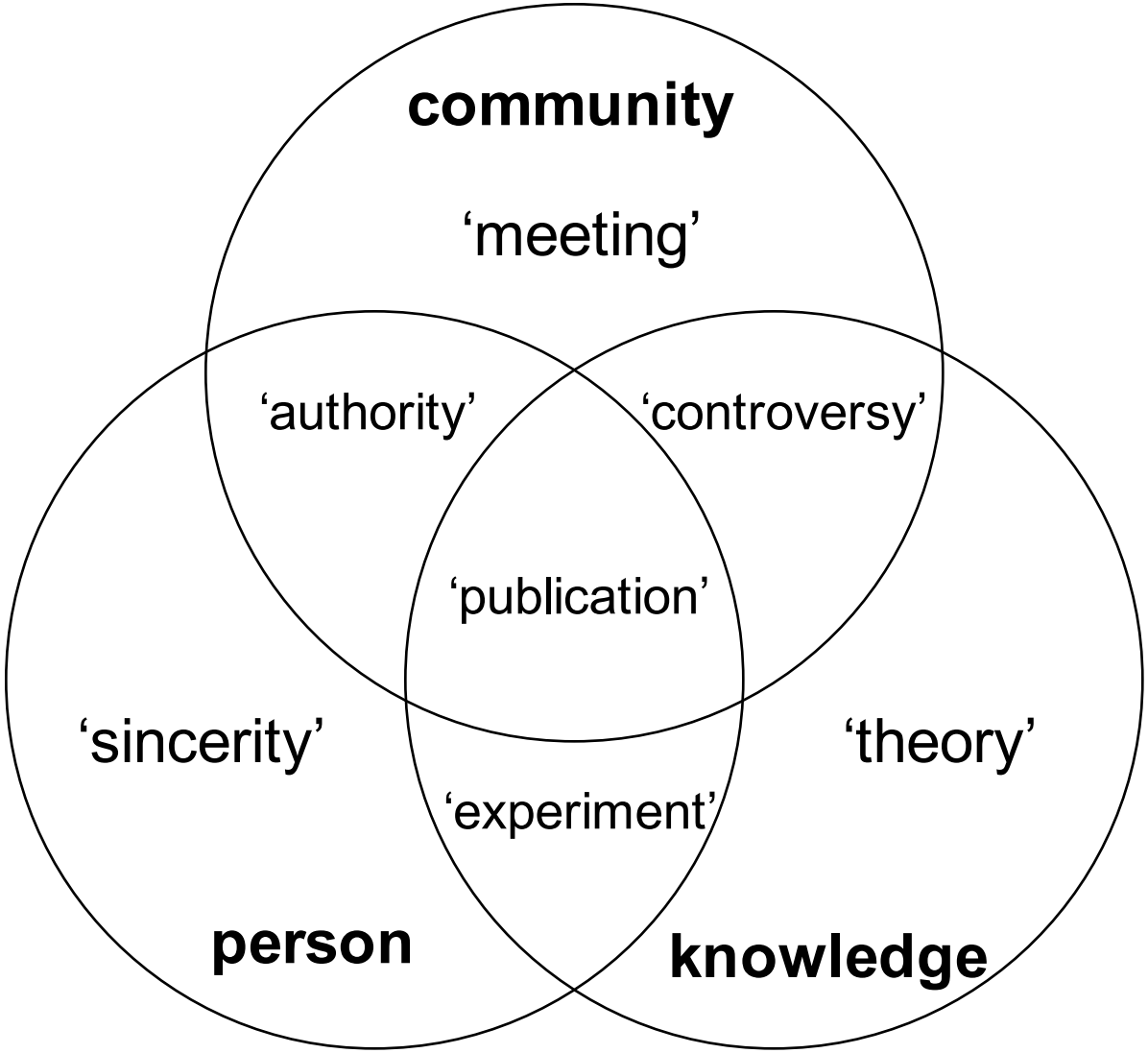
Research is social activity

- Research is not just a method and a system of organised knowledge

- It is a social activity carried out by groups of competing/co-operating/communicating scientists

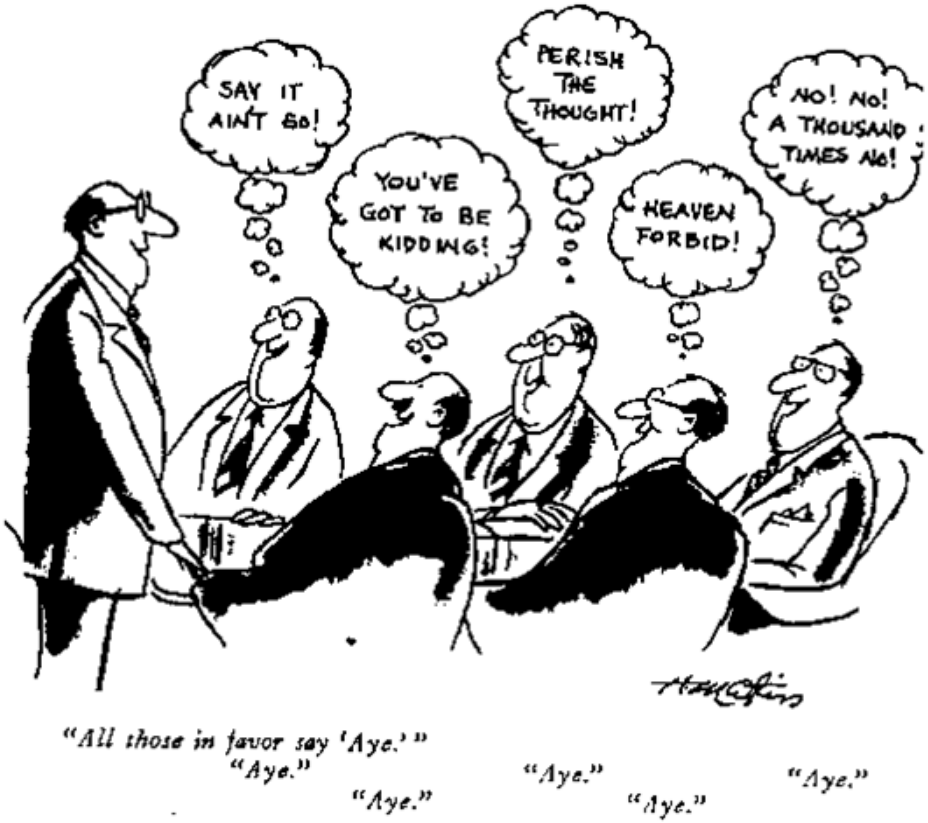


Three dimensions of academic research



The participation of colleagues

- A key consideration concerns the status/rank/class of not just subjects but all participants including colleagues
- This will influence the ethical relationship/responsibility of the researcher. Not all people are equal.



Ethical relationships with supervisors

- The relationship between the student and the supervisor is unequal and hierarchical.
- the supervisor plays many roles as "adviser", "promoter", "boss", "teacher", "friend", "principal investigator" etc.
- This multiplicity of roles may lead to conflict
- A student must feel free to make their own decisions

Ethical supervision

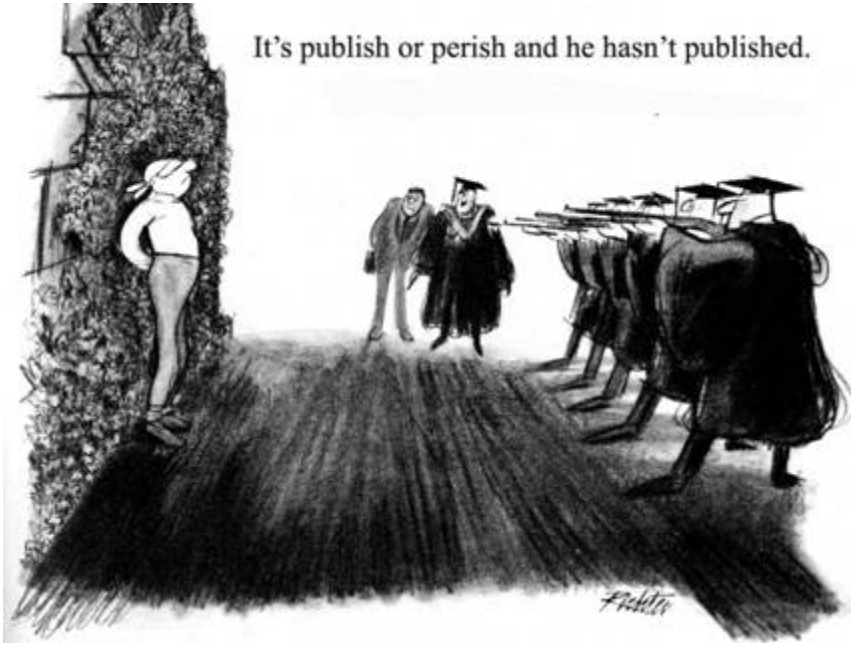
- Non-coercive
- Nurtures the student's confidence and skills
- Does not use the student just as a technician or assistant but allows the student to develop the project in new ways
- Not jealous of the student's success but allows the student to take ownership of their project and get the credit for it

Ethical relationships with colleagues

- Effective and ethical relationships with colleagues will aid a student to make more rapid progress on their project

PUBLICATIONS

- Are how the world sees you.
- Determine whether you get funding for further research or not!
- Determine whether you get promoted or not!!
- Determine whether you keep your job or not!!!

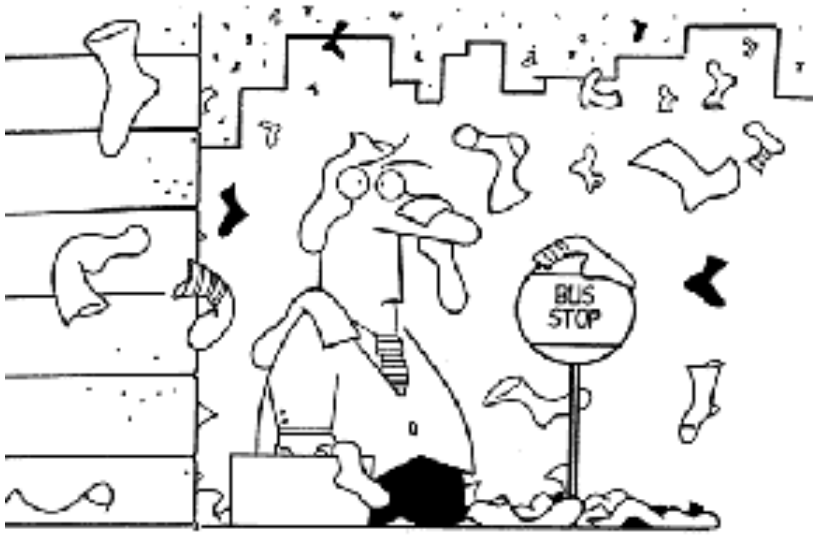


THE NEGATIVE DATA PROBLEM

Discouraging result for the antidepressant again!

THE NEGATIVE DATA PROBLEM

- Can negative results be important?
- Are they publishable?
- Would journals full of negative results sell?
- If they are not published are they doomed to be repeated wastefully?
- How can positive results be validated without knowing about negative ones?



THE DAY ALL THE MISSING SOCKS CAME BACK.

Two types of authorship problem

- Gift Authorship
  - Inclusion of authors who did not contribute significantly to the study – this might include a PhD supervisor!
    - Hierarchy (Expectation / favour)
    - Colleagues (Increase publications)
- Ghost Authorship
  - Absence of Authors
    - Professional writers (Should be acknowledged)
    - Hierarchical / political / personal reasons

When to publish?

There is intense pressure to publish early and often

- For career progression
- For getting new grants
- For establishing priority/primacy in an area of research

How to maximise your publications- UNETHICALLY!

- SALAMI-SLICING
  breaking up work into large number of small papers.
- TILING
  publishing sequence of substantially overlapping papers.
- DOUBLE-PUBLISHING
  publishing same work twice

Scratch my back and I'll scratch yours

- Peer review is not always entirely independent
- Many areas of research are small and highly competitive

Some senior scientists are intolerant of criticism and dangerous to cross.

"Egad! It's Professor DeArmond — the epitome of evil amongst butterfly collectors!"

PLAGIARISM

- Plagiarism is dishonesty.
- The research may be excellent but it wasn't done by the author of the paper.
- No point in trying to plagiarise published work.
- Plagiarism mostly involves unpublished theses.
- Difficult to detect unless editor/referee familiar with unpublished work in subject as well as published work.
- Sanctions seen as a default option now.

REJECTION

Well, of course you're going to be depressed if you keep comparing yourself with successful scientists.

An Introduction to Research Ethics

Research Objectives

Dr. Nada A. Al-Yousefi

Assistant Professor & Consultant

Family Medicine Unit

Department of Family and Community Medicine

College of Medicine(KSU)

nalyousefi@ksu.edu.sa

March, 2016

Research Hypothesis

- A research question is just that: ‘What’, ‘Why’, ‘When’, ‘How’, ‘Where’ and ‘Who’.
- A hypothesis is a statement of prediction of what you believe will happen in your study.
- A simple hypothesis contains one predictor and one outcome, for example, ‘patients with Crohn’s disease who take the new medication X, will have less abdominal pain than those on usual care’.

Research Hypothesis

- *However, complex hypothesis cannot be easily tested, so ideally you would split these hypotheses into two: (i) Those who take the new medication X will have less abdominal pain than those on usual care; and (ii) those who do not have a stressful life will have less abdominal pain.*

Research Aims and Objectives

- Your research objectives and aims should be linked to your hypothesis or research question.
- Aims are broad statements about what you hope your research will achieve, for example, to evaluate the efficacy of the new medication X in patients with Crohn's disease.

Research Aims and Objectives

- Objectives on the other hand are the steps you need to take in order to meet your aims and so are usually more specific and are usually numbered in sequence.
- For example, your first objective may be to assess effectiveness of new medication X in lowering abdominal pain in patients with Crohn's disease, as measured with the McGill Pain scale (Melzack, 1975).

Objectives should be ‘SMART’

- Clear about what will be achieved.
- You have a measure of when objectives have been achieved.
- **“Achievable”** Are the objectives feasible?
- **“Realistic”** they can be achieved using the resources available.
- They can be achieved within the timescales specified.

ASKING THE RIGHT RESEARCH QUESTION

Dr. Nada A. Al-Yousefi

Assistant Professor & Consultant
Family Medicine Unit
Department of Family and Community Medicine
College of Medicine(KSU)
nalyousefi@ksu.edu.sa

March 2016

Objectives

- Appreciate the importance of a clear and focused research question.
- To be able to use criteria such as PICO to frame an answerable question.

- The most important step in conducting a high-quality research study is to create a study question that will provide the guidance for the planning, analysis, and reporting of your study!

What Is a Study Question?

- A study question reflects an uncertainty that you want to try to resolve
  - ?effectiveness of an intervention in a specific patient population.

- It is the basis for your research study and presents the idea or ideas that are to be examined in your study.

What is a Study Question?

- Everything included in your study must relate to your study question(s) and study objective.

- It gives information about the patients to be studied, interventions to be compared, and primary outcomes to focus on.

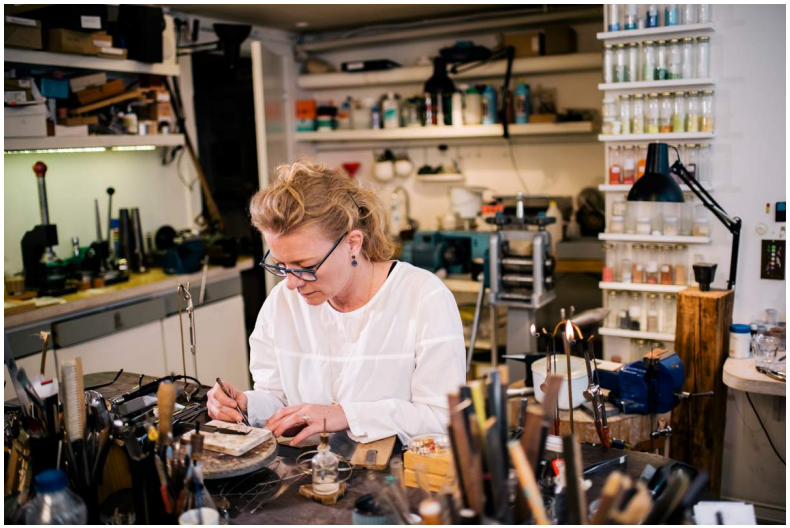
Your general study question can come from several places!

- You or others in your field might have observed a pattern of positive or poor outcomes or problems regarding a current treatment!
- Recent advances or technologies might spawn questions about their safety or applicability to different patient populations.
- You think that other treatments might perform better than what is currently practiced!

- Unfortunately, high quality, novel, and answerable study questions do not usually just appear!

- The inspiration for the study may emerge with time as you confer with colleagues, listen to lectures at professional meetings, or even as you critically appraise literature on a given topic.
- Frequently, study ideas build on previous research and are honed by working collaboratively with mentors and colleagues.

- Once you have a general idea of what you would like to research, the process of crafting your study begins with carefully forming and focusing an answerable question.



The Process of Creating an Effective Study Question

Research question criteria
FINER criteria (Hulley et al., 2007)

- **Feasible :**Adequate number of participants available and adequate skill mix in the research team. Also is the project manageable within the specified time frame, and budget?
- **Interesting:** The answer will be interesting to other researchers in the field, health professionals and patients.
- **Novel:** Confirms, refutes or extends previous findings (whether yours or published).
- **Ethical:** No reason why ethical approval could not be obtained.
- **Relevant :** To current scientific knowledge, policy, future research and patients.

Step 1: Draft a Preliminary Study Question

- The first step is to draft a simple clinical question you would like to answer or a hypothesis you would like to explore.
- What do you think the answer to that clinical question might be?
- Why do you think it may be important to evaluate this question?

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Step 2: Focus Your Study Question

- Now you can start the process of focusing your question.
- The following is an example of creating a preliminary study question.

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Step 2: Focus Your Study Question

Study question too broad	Study question somewhat more answerable	Study question with improved focus
What is the comparative effectiveness of laminoplasty versus laminectomy and fusion?	What is the comparative effectiveness of laminoplasty versus laminectomy and fusion for adults with cervical myelopathy?	What is the comparative effectiveness of laminoplasty versus laminectomy and fusion for adults with myelopathy due to spondylosis in the cervical spine?

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Exercise 1: Can the Topic Be Researched?

- **Is Prozac a good treatment for clinical depression in certain cases?**
- **Does McDonald's or Burger King make a better burger?**
- **Is there a link between hours of television viewing and violent behavior in children aged 8-14?**

Exercise 2: Is the Question Too Broad or Too Narrow?

- This exercise designed to improve your ability to select a good research question. Select what you think is the best research question out of the three (neither too broad nor too narrow).

- **Question A:** Do children sent to day care or preschool start kindergarten with more developed skills?
- **Question B:** Do children sent to day care or preschool start kindergarten with more highly developed language skills?
- **Question C:** Do children sent to day care or preschool start kindergarten with larger vocabularies?

- **Question A**
- **Question A is too broad.**
- Because it focuses on all skills (language, social, small motor, large motor, etc.) you'd have to gather too much diverse information to answer question A.
- **Question B**
- **The best research question is B.**
- The topic is broad enough to find more than just one or two sources, but it's limited to one focus--the development of preschool language skills.
- **Question C**
- **There may or may not be enough information to answer question C.**
- You'd need to find more than just one or two studies if you chose to answer question C. If you find that there are enough sources dealing with vocabulary only, then you could choose to pursue question C.

- **Question A:** What are the 14 different disease-causing genes that were discovered in 1994?
- **Question B:** What is the importance of genetic research in our lives?
- **Question C:** How might the discovery of a genetic basis for obesity change the way in which we treat obese persons, both medically and socially?

- **Question A**
- **Question A is far too narrow to develop into a research paper.**
- You could answer this question in one sentence, and the question does not allow you to develop your own thoughts about the topic.
- **Question B**
- **Question B is too broad.**
- You could write a book to discuss the importance of genetic research in our lives.
- **Question C**
- **Question C is the best choice.**
- You might be asking, "How can I research something whose effect hasn't been felt yet?" You can posit what "might happen logically" in the future based on what "has happened" in the past. For example, your research may bring you to the major things thought to have caused obesity in the recent last two to three decades in order to establish a direct relationship between cause and treatment. Once you establish that direct cause-and-effect relationship, you can project similar types of relationships based on the new genetic research.

Ask yourself the following questions

- What factual information do you need?
  - This information will answer the Who, What, When, and Where questions.
- What background / causes/ reasons do you need to investigate and include?
- What effects / solutions / recommendations / changes do you need to include?
- What comparisons or analogies can you make?
- What judgments or opinions can be supported by your research?

Step 3: Complete a PICO (Richardson, 1995)

- Add specifications to your study question using a PICO table to further refine it.
- While the more focused study question above is an improvement, there are some additional questions you should ask:
  - What types of patients and pathologies do you want to study or exclude from the study?
  - What variations of the treatments o interventions do you want to consider or exclude?
  - What specific outcomes or complications are the most important to measure and evaluate?

Questions: PICO

	1 **Patient or Problem**	2 **Intervention** (a cause, prognostic factor, treatment, etc)	3 **Comparison Intervention** (if necessary)	4 **Outcomes**
Tips for Building	Starting with your patient, ask "How would I describe a group of patients similar to mine?" Balance precision with brevity.	Ask "Which main intervention am I considering?" Be specific	Ask "What is the main alternative to compare with the intervention?" Again, be specific	Ask "What can I hope to accomplish?", or "What could this exposure really affect?" Again, be specific
Example	"In patients with heart failure from dilated cardiomyopathy who are in sinus rhythm..."	"...would adding anticoagulation with warfarin to standard heart failure therapy..."	:...when compared with standard therapy alone..."	"...lead to lower mortality or morbidity from thromboembolism. Is this enough to be worth the increased risk of bleeding?"

USEFULNESS OF MEDICAL INFORMATION

DISEASE ORIENTED EVIDENCE THAT MATTERS

(DOES)

PATIENT ORIENTED EVIDENCE THAT MATTERS

(POEMS)

DOEs ----------→ POEM

Drug A lowers cholesterol	Drug A decreases cardiovascular mortality/morbidity	Decreases overall mortality
PSA screening detects prostate cancer most of the time and at an early stage	PSA screening decreases mortality	PSA screening improves quality of life
Corticosteroid use decreases neutrophil chemotaxis in patients with asthma	Corticosteroid use decreases admissions, length of hospital stay, and symptoms of acute asthma	Corticosteroid use decreases asthma-related mortality
Tight control of type 1 diabetes mellitus can keep fasting blood glucose <140mg/dl	Tight control of type 1 diabetes can decrease microvascular complications	Tight control of type 1 diabetes can decrease mortality and improve quality of life

Step 3: Complete a PICO Table

- The PICO system provides a framework for further refinement based on these questions.
- A PICO table will help you to consider what should be included in your study and what should not be included.
- Your final PICO table is an aid to further refine your study question, define inclusion and exclusion criteria, highlight the interventions and outcomes you will measure, and provide the groundwork for a focused literature search.

Step 3: Complete a PICO Table(Patients)

- **Patients:** Consider factors related to the condition, demographics (e.g., age, gender), behaviors (e.g., smoking), medical history (e.g., previous treatment, medications, general health factors, comorbidities), factors associated with treatment selection (e.g., severity or location of condition), and other factors that might be relevant to treatment selection or outcomes.
- For most studies, it is important to define a fairly homogeneous patient population, especially if there are any factors that might influence the outcome other than the intervention you are evaluating.

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Step 3: Complete a PICO Table(Intervention)

- **Intervention:**
- Make sure you specify variations of the procedures (e.g., approach, number of levels, use of specific devices, grafting) as being included or excluded.
- If there are variations of the procedure that could influence results, think carefully about their inclusion.

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Step 3: Complete a PICO Table(Comparison)

- **Comparison:**
- Specify the alternative treatment to which the intervention is compared.
- Again, are there variations that should be excluded?

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Step 3: Complete a PICO Table(Outcome)

- **Outcome:**
- Be specific and aim for the most important outcomes.
- They can be patient-reported (e.g., pain, function, quality of life) or clinical outcomes (e.g., nonunion, complications, reoperation, death).
- List the primary outcome of interest first; this outcome provides the focus for your study, the data collection, and the sample-size estimate. Then list secondary outcomes that might provide valuable contributions to your overall study results.

Step 3: Complete a PICO Table(Example)

- "What is the comparative effectiveness following laminoplasty versus laminectomy and fusion for adults with myelopathy due to spondylosis in the cervical spine?"

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Step 3: Complete a PICO Table(Example)

	Inclusion	Exclusion
Patients What patient group do you want to include?	Symptomatic adults with cervical myelopathy due to spondylosis	• Patients under 18 years of age • Ossification of the posterior longitudinal ligament (OPLL) • Tumor • Trauma • Infection • Deformity
Intervention What surgical treatment, procedure, or implants are you interested in?	Cervical laminoplasty	
Comparison What is the comparison treatment?	Cervical laminectomy and fusion	
Outcomes What outcomes are you interested in (e.g., pain, function)?	• JOA recovery rate (primary outcome) • NDI • Neck or arm pain • SF-36 • Complications, including CSF leakage, dural tear, and C5 palsy	• Radiographic outcomes • Economic, cost-effectiveness

Case Study

- A cardiologist proposes the initial simple question: whether placing antibiotic sponges into the chest cavity at the end of heart surgery will prevent infections?
- After discussion with various groups, amendments to the question are made:

ASKING THE RIGHT QUESTIONS. Peter S. Blair and Andy Barton L

Case Study

- ‘heart surgery’ is too broad and it might be sensible to pick a specific procedure;
- different types of sponges are on the market so it is decided to stick to one type;
- the sponges are not free, so cost and cost-effectiveness need to be considered;
- getting out of hospital and home as soon as possible is seen as a priority by patients.

ASKING THE RIGHT QUESTIONS. Peter S. Blair and Andy Barton L

Case Study

- Thus the question became:
  - in patients undergoing coronary artery bypass grafting, what is the effectiveness and cost-effectiveness of inserting a gentamicin-impregnated collagen sponge into the chest cavity at closure on wound infection rates and length of stay?

ASKING THE RIGHT QUESTIONS. Peter S. Blair and Andy Barton L

Case Study

- P:_____
- I:_____
- C:_____
- O:_____

Case Study

- P: Patients who are undergoing coronary artery bypass grafting
- I: Gentamicin-impregnated collagen sponge
- C: No gentamicin-impregnated collagen sponge
- O: Wound infection rates and length of stay

ASKING THE RIGHT QUESTIONS. Peter S. Blair and Andy Barton L

Step 3: Complete a PICO Table

- The question should be structured using criteria such as PICO which breaks down an individual question into components which may ***directly translate into keywords*** that inform the design and literature search of any study.
- Using a criterion also ensures that any publications resulting from your project will be found during a literature search on the same subject.

ASKING THE RIGHT QUESTIONS. Peter S. Blair and Andy Barton L

Step 4: Refine Study Question and Conduct Preliminary Literature Search

- Now you can use your completed PICO table to refine your study question and to conduct a quick preliminary literature search.

- It is important to find out what is currently known and not known about your research topic, what has already been published on this topic, and what gaps exist that your research can fill, whether it be a type of intervention that has not been studied, a particular group of patients who have not previously been included in studies, or an outcome that has not been measured but is important to patients.

Step 4: Refine Study Question and Conduct Preliminary Literature Search

- This initial literature search helps you hone your study question further and may help you determine if it is realistic to answer in a single, focused study.

- The PICO framework is also helpful for getting feedback from potential co-investigators/colleagues to further refine your study question.

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Step 5: Consider Additional Questions

- By this point, you should have not only a solid study question, but at least a preliminary idea of how you might approach answering it, and there are some additional questions to consider for another round of refinement.

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Step 5: Consider Additional Questions

- To be more specific in your study focus, consider these additional questions:
  - What might constitute a clinically meaningful improvement?
  - What time frame will be important? Are you looking at outcomes that are short-term or long-term to evaluate the effects?
  - Is there a specific hypothesis that you would like to test?

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Step 5: Consider Additional Questions (Example)

- In symptomatic adults with cervical myelopathy due to spondylosis, does laminoplasty improve the severity of myelopathy (as measured by the JOA recovery rate) compared with laminectomy and fusion at 12 months?

or, more specifically

- In symptomatic adults with cervical myelopathy due to spondylosis, does laminoplasty lead to a minimum 75% JOA recovery rate (from baseline to 12 months) more frequently than after laminectomy and fusion?

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

Step 6: Perform a More Complete Literature Search

- Now that you have created a clear, focused, answerable study question and a PICO or PPO table as the framework for your study, you can proceed to amore complete literature search.
- It is important to solidify your understanding of what is known about your research topic, what gaps in knowledge need to be filled, and what is the best study design to answer your study question.

Asking the Right Question: Specifying Your Study Question. Evid Based Spine Care J 2013;4:68–71.

- As you explore possible ideas, write down the ones that interest you.
- Also write down any recurring terms, themes, issues, etc.

- Mistakes are usually made during the design phase; but might also be made during the data collection, analysis or manuscript preparation phases.

Fifteen common mistakes encountered in clinical research. J Prosthodont Res. 2011 Jan;55(1):1-6. doi: 10.1016/j.jpor.2010.09.002

Evaluate Your Own Research Question

- Evaluate the quality of your research question and the ease with which you should be able to answer it.

Ask yourself:

- Does the question deal with a topic or issue that interests me enough to spark my own thoughts and opinions?
- Is the question easily and fully researchable?
- Is the scope of this information reasonable?
- Given the type and scope of the information that I need, is my question too broad, too narrow or okay?
- What sources will be able to provide the information I need to answer my research question (journals, books, Internet, government documents, people)?
- Can I access these sources?
- Given my answers to the above questions, do I have a good-quality research question that I actually will be able to answer by doing research?

Conclusions

- Great study ideas take time to formulate. Familiarity with the strengths and limitations of the current literature, participation in professional meetings and collegial exchanges are probably the best breeding grounds for generating great, new study ideas.
- It may take time for the input from such sources to coalesce into an inspired thought that ignites the creative process.

- Have you discussed possible research projects with your Supervisor?
- Have you talked with your classmates about possible research projects?
- Have you thought about what interests you?
- Have you scanned your textbook and class materials?
- Have you seen or heard of an interesting idea in the popular media?
- Have you scanned current journals related to the subject of your course?

- As you explore, make a list of all of the ideas that interest you.
- Notice whether or not there appears to be a lot of potential information on an idea.
- Write down any unusual aspects about an idea that you notice.
- When you have completed your exploration, pick the most interesting idea from your list to be your research project.
- Also pick the second most interesting one in case your first choice doesn't meet the requirements for a good project.

- Don't throw away your list!
- You may find it helpful at another time.

Conclusions

- Your study begins with developing a researchable study question, which is an iterative and deliberate process.
- You might have to go through multiple iterations in the process of refining your study question into something that is novel and answerable.

Conclusions

- The PICO framework is invaluable for helping you refine your study question, setting the stage for both preliminary and more complete literature searches, and for laying the groundwork for your study.

Conclusions

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

Conclusions

- The more thought and effort you put into the initial planning of your research study, especially the creation of a focused, answerable study question and PICO framework, the higher quality your research study is likely to be and more likely you are to find an answer to that question!

What to do?

- Identify research ideas that interest you and meet the criteria of your assignment.
- Develop an overview of your research idea.
- Organize your research and write a preliminary topic statement.
- Narrow or broaden your topic to match the requirements of your assignment.
- Develop questions that your research should address.

After completing this session, you will have:

- Select a research topic
- Use strategies for focusing a research project
- Write research questions

Literature Review

Dr. Nada A. Al-Yousefi

Assistant Professor & Consultant

Family Medicine Unit

Department of Family and Community Medicine

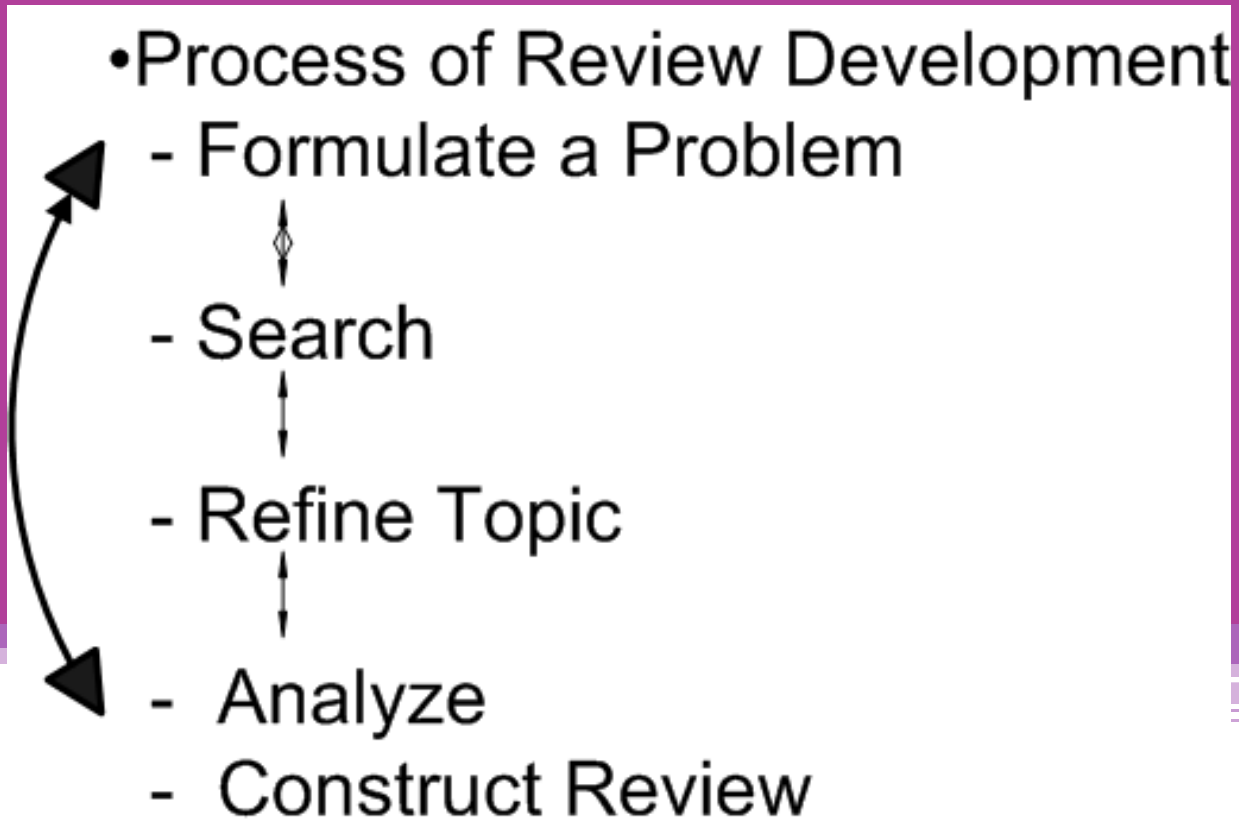
College of Medicine(KSU)

nalyousefi@ksu.edu.sa

March 2016

Develop an overview of your research idea

- Now that you have selected an idea to research, you need to get an overview of that subject area and the amount of information that might be available for you to use in your research.
- Developing an overview of a topic before you firmly commit to it is important for several reasons.
  - Key terminology
  - Whether there is enough information available
  - Whether your research idea is too broad or too narrow



How To Write A Literature Review

Research Tips
RefWorks/EndNote

Definition of a Literature Review

- A **literature review**
  - surveys scholarly articles, books and other sources (e.g. dissertations, conference proceedings) relevant to a particular issue, area of research, or theory.
  - provides a short description and critical evaluation of work critical to the topic.
  - offers an overview of significant literature published on a topic.

(Lyons, 2005)

Literature Reviews are Conducted For Various Reasons

1. For a review paper

2. For the introduction (and discussion) of a research paper, masters thesis or dissertation

3. To embark on a new area of research

4. For a research proposal

(Burge, 2005)

Mistakes!

1. Failure to carefully examine the literature for similar, prior research

- When selecting and refining the exact focus of a question it is critically important for the novice to read in detail the discussion section of similar articles, for in that portion of the paper, most researchers speculate on what needs to be accomplished next in that topical area to advance the science.

Fifteen common mistakes encountered in clinical research. J Prosthodont Res. 2011 Jan;55(1):1-6. doi: 10.1016/j.jpor.2010.09.002

2. Failure to critically assess the prior literature

- There is an old adage that says: “those who forget history are doomed to repeat it” and it is applicable to research as well. Investigators who repeat work previously done and do not recognize and build on prior efforts are likely to find their work un-publishable.

Fifteen common mistakes encountered in clinical research. J Prosthodont Res. 2011 Jan;55(1):1-6. doi: 10.1016/j.jpor.2010.09.002

Conducting a literature review will help you:

- Determine if proposed research is actually needed.
  - Even if similar research published, researchers might suggest a need for similar studies or replication.
- Narrow down a problem.
  - It can be overwhelming getting into the literature of a field of study. A literature review can help you understand where you need to focus your efforts.
- Generate hypotheses or questions for further studies.

(Mauch & Birch, 2003)

Conducting a literature review will give you:

- Background knowledge of the field of inquiry
  - Facts
  - Eminent scholars
  - Parameters of the field
  - The most important ideas, theories, questions and hypotheses.

- Knowledge of the methodologies common to the field and a feeling for their usefulness and appropriateness in various settings.

(Mauch & Birch, 2003)

Outline of Review Process

- Formulate a problem - which topic or field is being examined and what are its component issues?

- Search the literature for materials relevant to the subject being explored.
  - searching the literature involves reading and refining your problem

- Evaluate the data - determine which literature makes a significant contribution to the understanding of the topic

- Analyze and interpret - discuss the findings and conclusions of pertinent literature

- Format and create bibliography

(Lyons, 2005)

Component of Literature review

- Problem formulation—which topic or field is being examined and what are its component issues?
- Literature search—finding materials relevant to the subject being explored
- Data evaluation—determining which literature makes a significant contribution to the understanding of the topic
- Analysis and interpretation—discussing the findings and conclusions of pertinent literature

After completing this session, you will know:

- Introduction to search engines
- Identify suitable information sources.
- Access main search engines on the web
- Academic Digital Library/Saudi Digital Library
- EndNote software
- Examples and explanations

Why searching a literature?

- Staying current with advances in medicine
- Identifying information and ideas
- Increasing your breadth of knowledge
- Identifying similar works in your area
- Carrying on from where others have already reached
- Avoiding reinventing the wheel
- Putting your work into perspective

Data Evaluation: Selecting literature

- Read widely
- When you read for your literature review, you are actually doing two things at the same time:
  1. Trying to define your research problem: finding a gap, asking a question, continuing previous research, counter-claiming
  2. Trying to read every source relevant to your research problem

- It is usually impossible to do the latter
  - you will need to identify the most relevant and significant works and focus on them.

(Asian Institute of Technology)

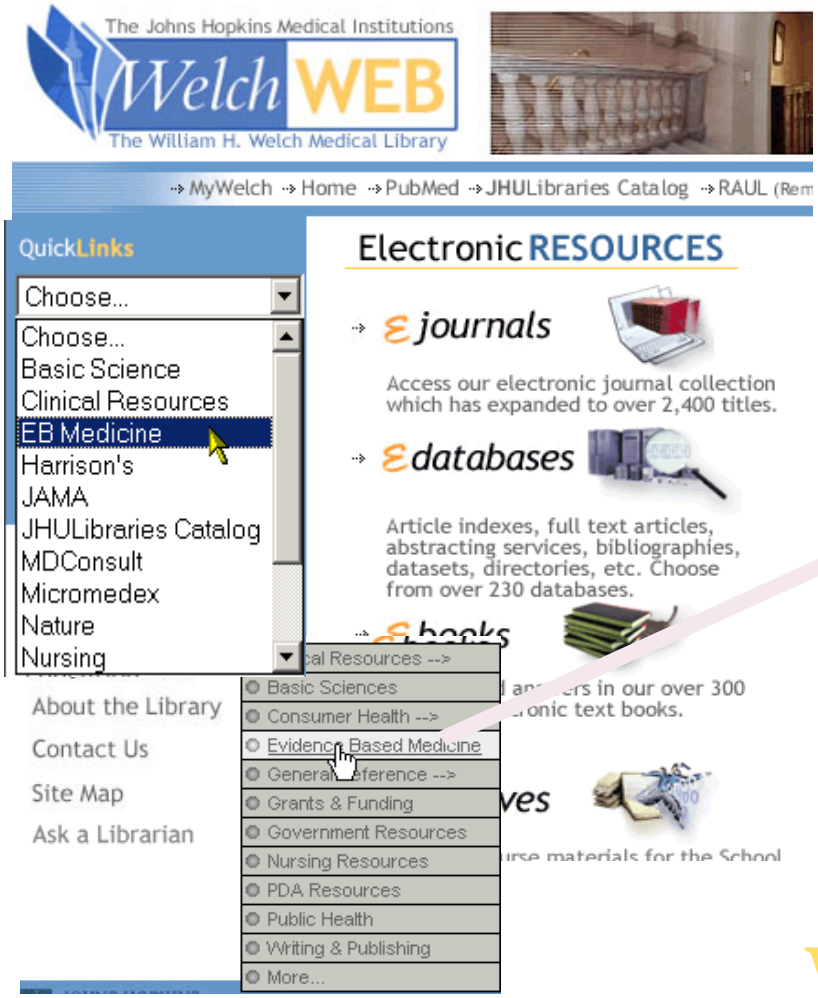
Data Evaluation: Selecting Literature

- As you define your problem you will more easily be able to decide what to read and what to ignore.
  - Before you define your problem, hundreds of sources will seem relevant.
  - However, you cannot define your problem until you read around your research area.
  - This seems a vicious circle, but what should happen is that *as* you read you define your problem, and *as* you define your problem you will more easily be able to decide what to read and what to ignore.

(Asian Institute of Technology)

Examples popular Search Engines

What are the Sources?



Evidence Based Medicine

- Systematic Reviews, Journal Articles and other Databases
- Clinical Trials and Pre-publication Resources
- Research Tools: Filters, Hedges and Strategies
- Statistical Tools and Calculators
- Journal Clubs, List Servers, and Meta-lists
- Education and Tutorials
- Organizations and other resources

Ranking * = Good; **Very Good; ***Excellent

Systematic Reviews, Journal Articles and other Databases

- National Guideline Clearinghouse*** - EBM practice guidelines
- Cochrane*** - Systematic reviews of literature on specific subjects
- TRIP -CeRes*** - British meta-search engine; covers 58 resources
- Clinical Queries - PubMed*** - Evidence Based filters for Medline
- UpToDate*** - Topic reviews on specific clinical issues
- MD Consult - Practice guidelines, clinical topics
- Clinical Evidence Online** - Provides a searchable list of reviewed topics, BMJ
- Best Evidence - Provides a searchable list of reviewed topics, ACP
- CAT Bank* - 63 Critically Appraised Topics
- SUM Search - Univ. of Texas - Meta-search for Merck, NGC, and PubMed
- Bandolier - Reviewed literature, offers subjects by medical speciality

www.welch.jhu.edu

Who has access to the following databases ?

General search engines:

- Pub-med (Medline)
- Clinical Evidence
- Cochrane
- Best Evidence
- Trip database
- Bandolier

EBM Guidelines:

- NICE
- PRODIGY
- SIGN
- Others

Not Enough ?

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

Regional and Local…

- Index Medicus of the Eastern Mediterranean Region
  - http://www.emro.who.int/information-resources/imemr-database/
- Saudi Medical Literature:
  - http://saudimedlit.librarynwafh.com/index.html

What is the difference?

- **“Literature Review”**
- **“Literature Search”**

What is a literature search?

"A systematic and thorough search of published literature in order to collect information about a particular topic."

The Chartered Society of Physiotherapy, UK

Where to start…?

- Internet search/Any search engine
- Guidelines review

General overview

- Database search – Medline/PsycINFO
- Reference tracking-references in articles

Thorough search

- Expert contacts

Refining

Evidence Based Guidelines

- NICE - National Institute for Health and Clinical Excellence
  - http://www.nice.org.uk
- PRODIGY - formerly CKS
  - http://prodigy.clarity.co.uk/home
- NGC - National Guideline Clearinghouse
  - http://guideline.gov/
- SIGN - Scottish Intercollegiate Guidelines Network
  - http://www.sign.ac.uk/index.html

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

- 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.

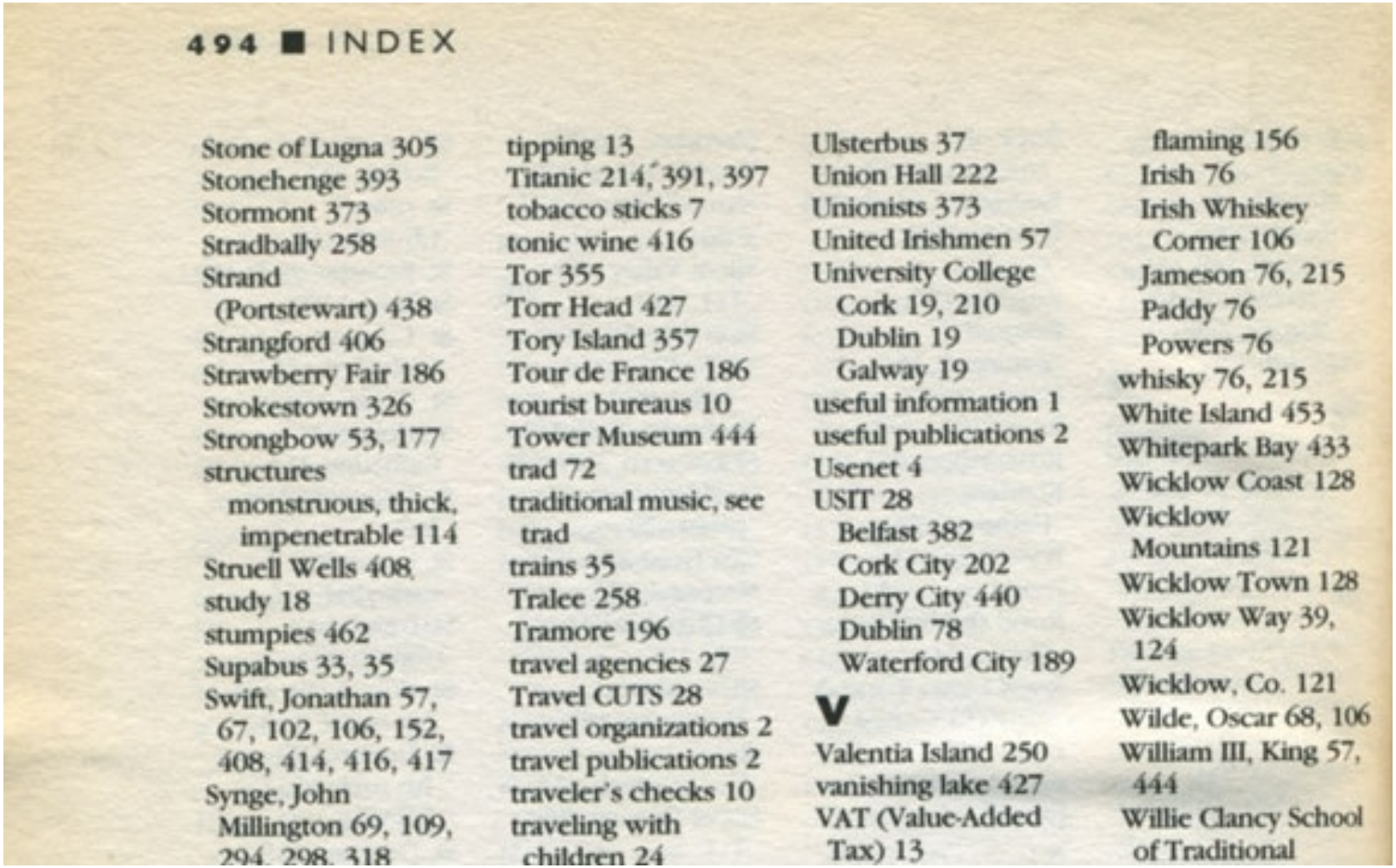
Combine

Use Boolean operators to combine our most important terms.

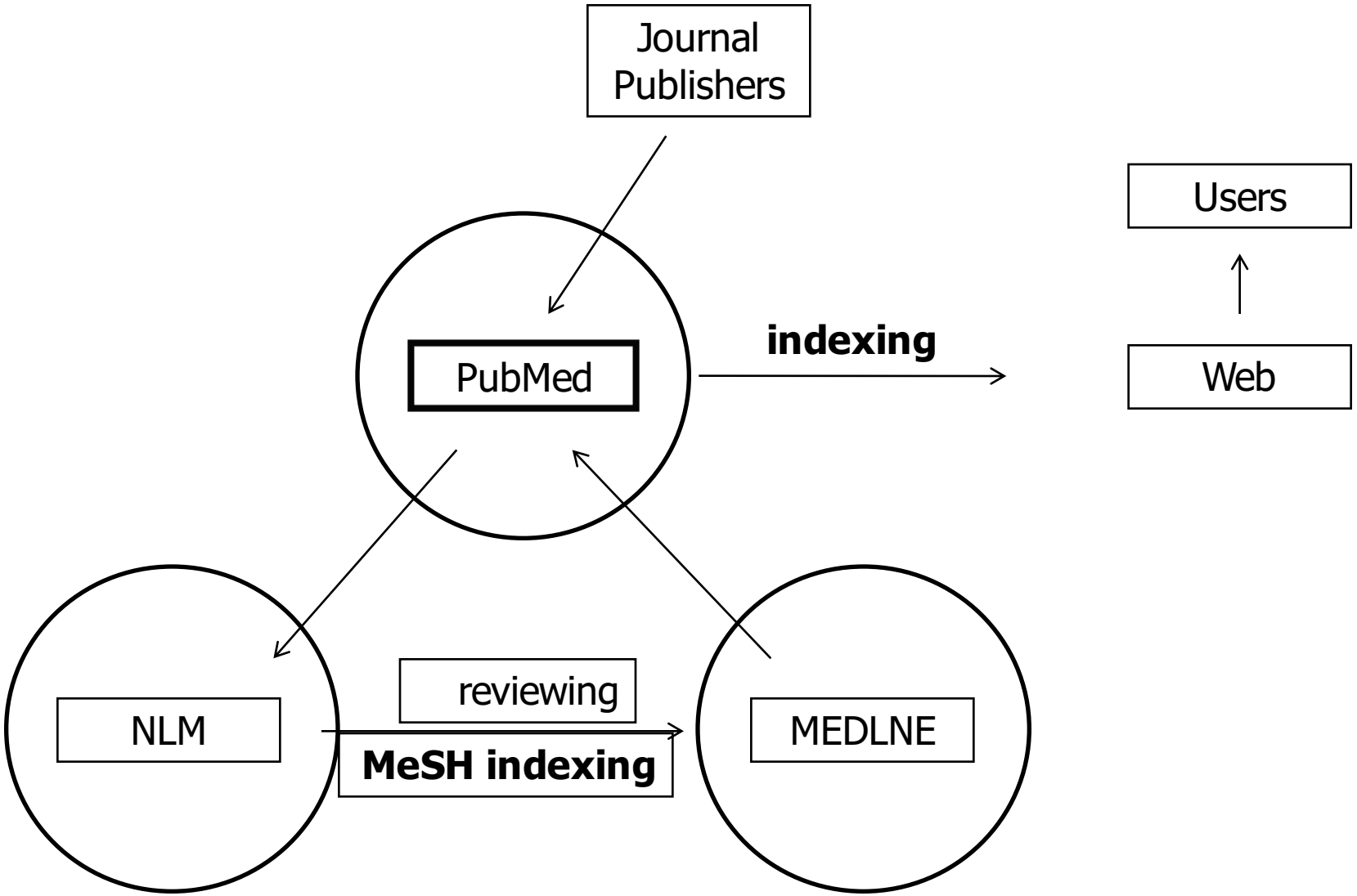
- Use AND to connect the terms we want to see.
- Use NOT to exclude terms we don't want.
- Use OR to include similar terms.

What are the mechanisms?

Index - Something that reveals or indicates



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**)

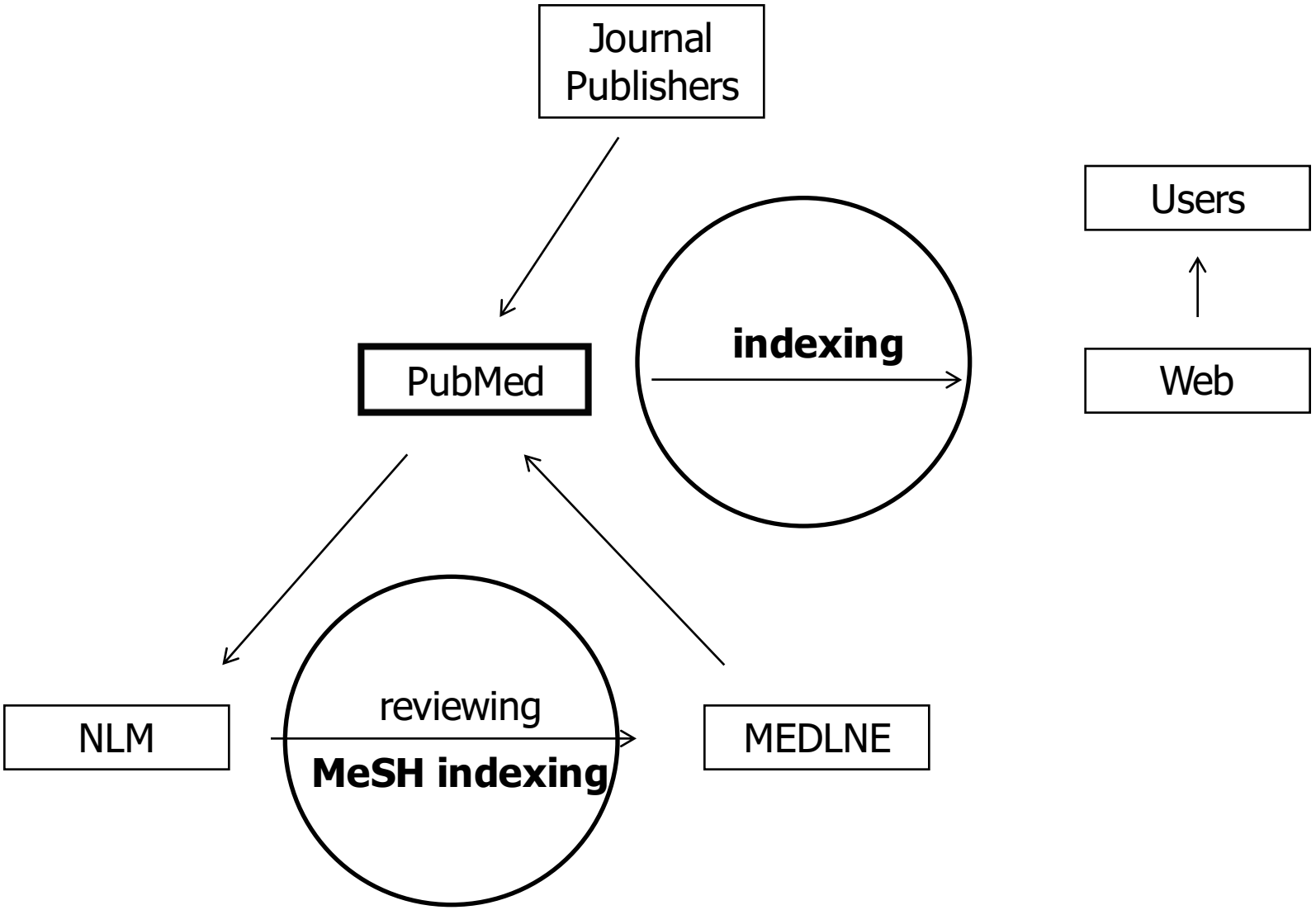
Why PubMed ?

- 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

Indexing a literature



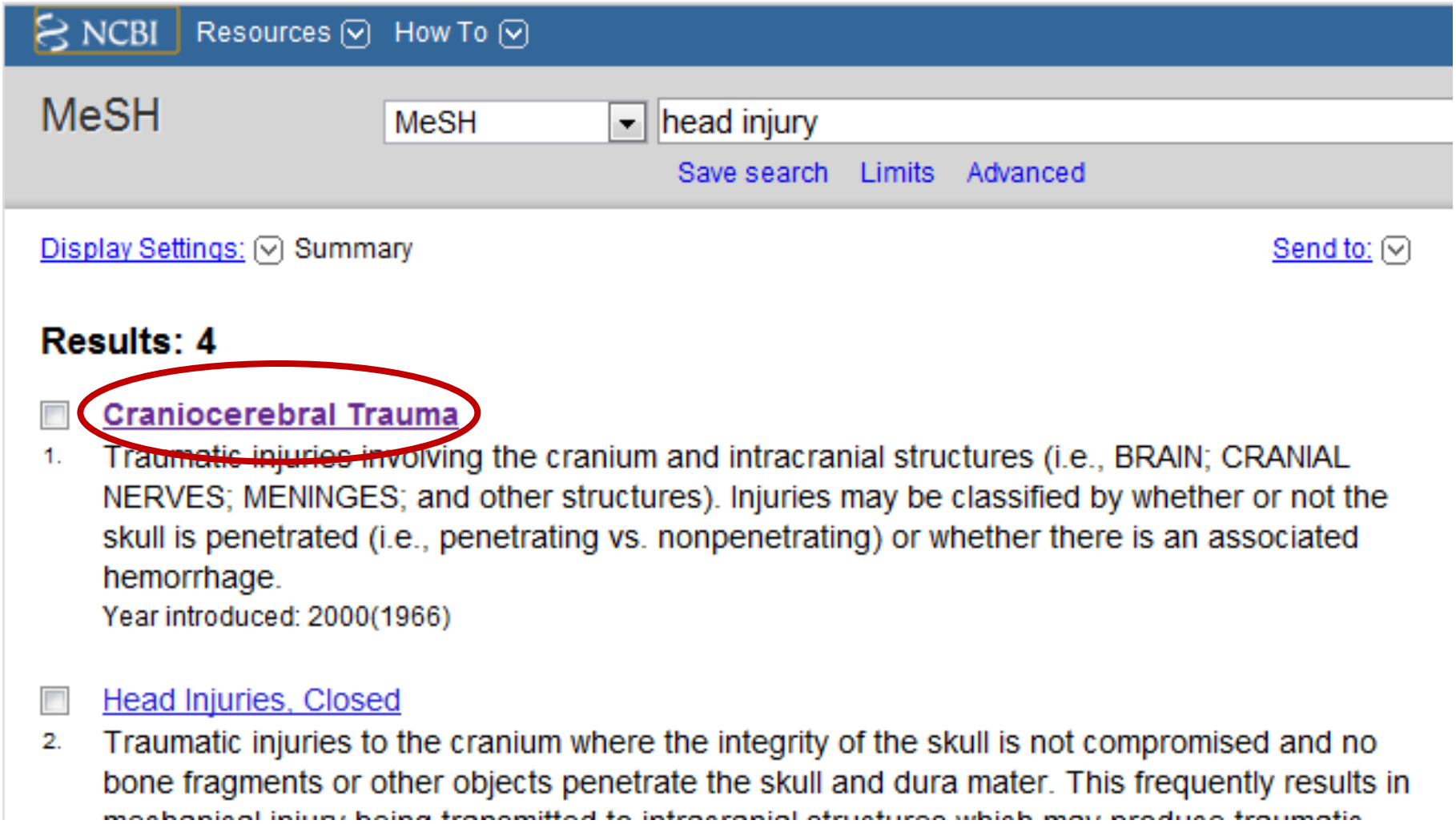
MeSH indexing

- 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 +


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

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

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

Try to make a search…

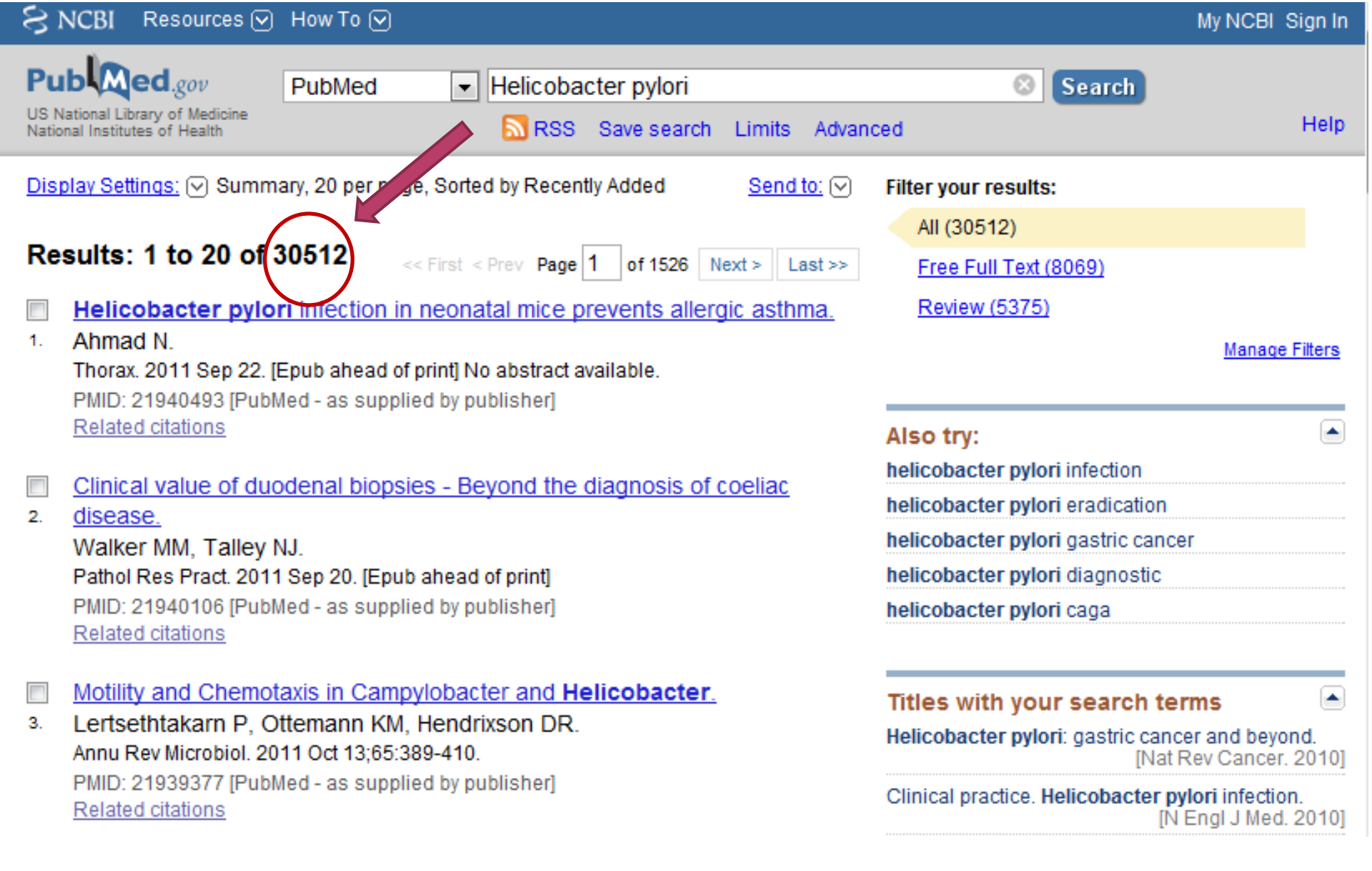
Case example

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….

Case example

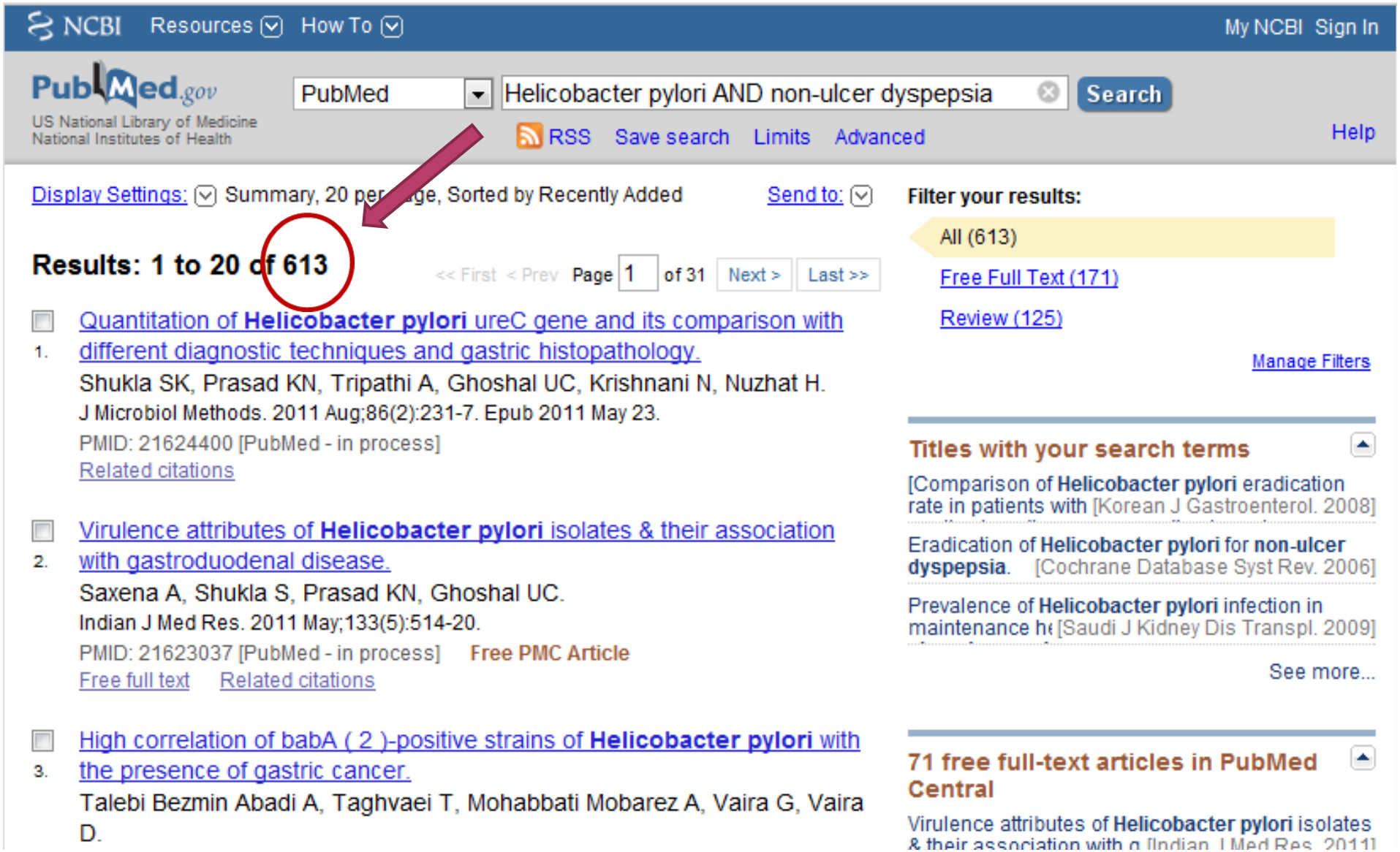


Case example

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*.

Components of "well-built clinical questions."

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

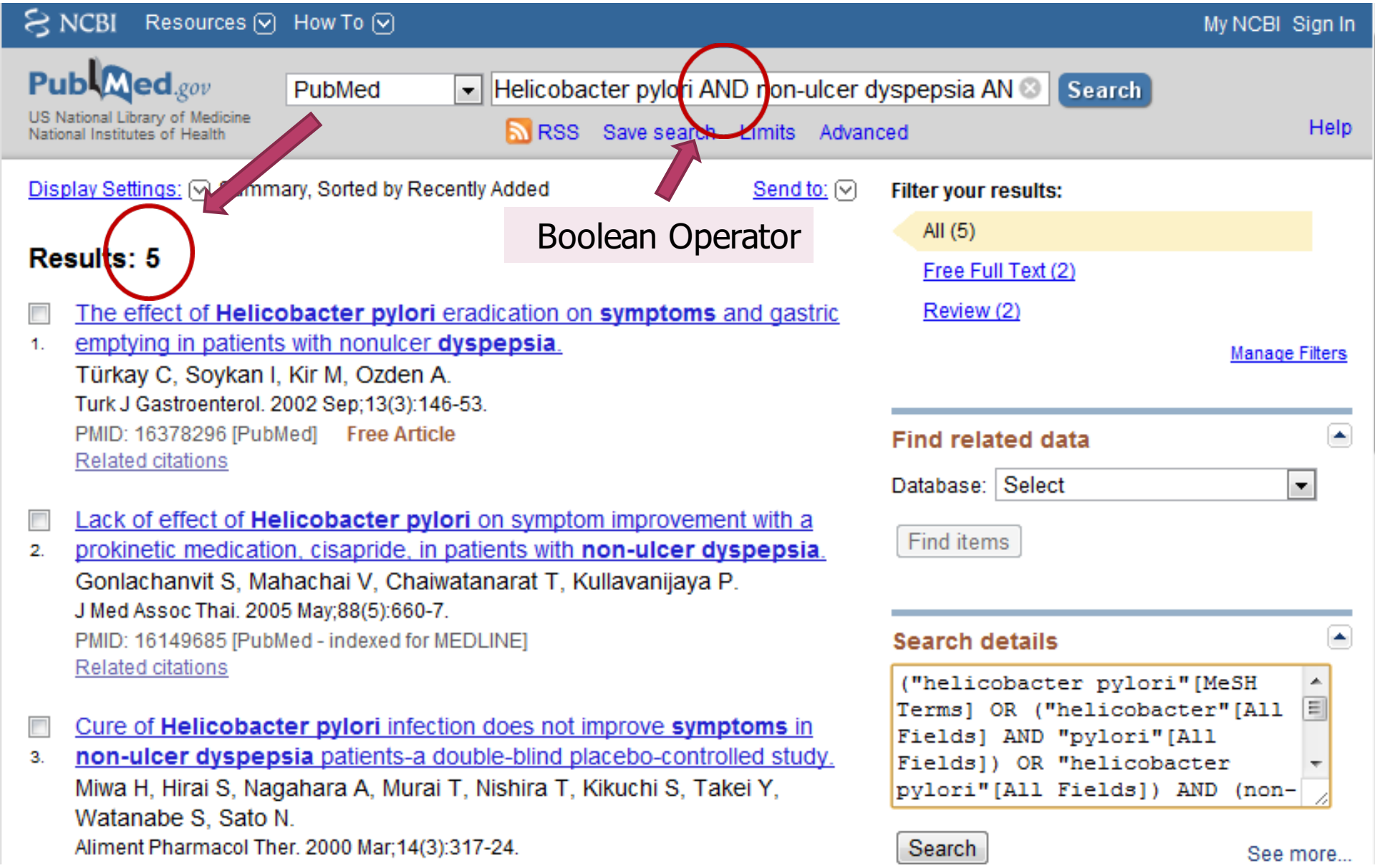

NCBI Resources How To
My NCBI Sign In
PubMed.gov
US National Library of Medicine
National Institutes of Health
PubMed
Helicobacter pylori AND non-ulcer dyspepsia
Search
RSS Save search Limits Advanced
Help
Display Settings: Summary, 20 per page, Sorted by Recently Added
Send to:
Results: 1 to 20 of 613
<< First < Prev Page 1 of 31 Next > Last >>
1. 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
2. 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
3. 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.
Filter your results:
All (613)
Free Full Text (171)
Review (125)
Manage Filters
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 g [Indian J Med Res. 2011]

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*.

Components of "well-built clinical questions."

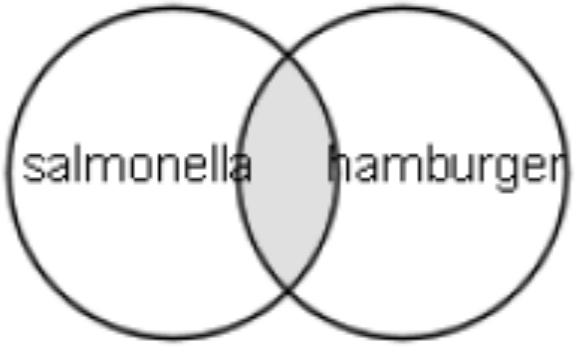
1. Patient/problem - "non-ulcer dyspepsia"
2. Intervention - "treatment of *Helicobacter pylori infection*"
3. Comparison intervention- "no treatment"
4. Outcome - "improve symptoms"


NCBI Resources How To
My NCBI Sign In
PubMed.gov
US National Library of Medicine
National Institutes of Health
PubMed
Helicobacter pylori AND non-ulcer dyspepsia AN
Search
RSS Save search Limits Advanced
Help
Display Settings: Summary, Sorted by Recently Added
Send to:
Boolean Operator
Results: 5
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.
Filter your results:
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...

Boolean Operators

AND

- Salmonella AND Hamburger

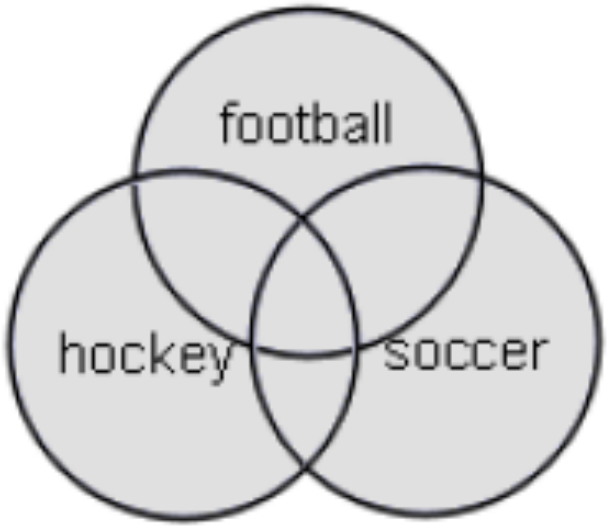


- Salmonella - 69432
- Hamburger - 2703
- Salmonella AND Hamburger **- 14**

Boolean Operators

OR

- Football OR Hockey OR Soccer



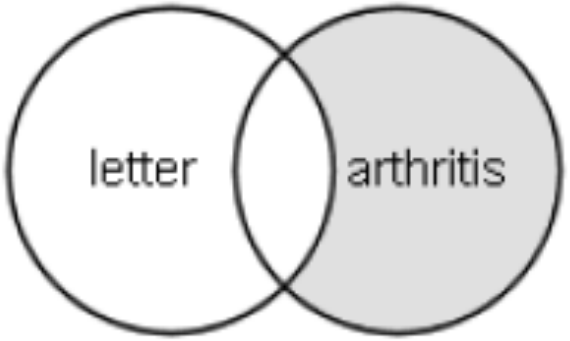
- Football - 3948
- Hockey - 1466
- Soccer - 3137

Total - 7538

Boolean Operators

NOT

- Arthritis NOT Letter



- Arthritis - 185375
- Letter - 686049
- Arthritis “excluding” letter - **176352**

NCBI Resources How To

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

PubMed | Helicobacter pylori AND non-ulcer dyspepsia

RSS Save search Advanced

Show additional filters

Text availability
Abstract available
Free full text available
Full text available

Publication dates
5 years
10 years
Custom range...

Species
Humans

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

Results: 1 to 20 of 626

<< First < Prev Page 1 of 32 Next > Last >>

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.

PMID: 23082560 [PubMed - in process]

Related citations

2. **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]

NCBI Resources How To Sign in to NC

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

PubMed Search

Advanced He

PubMed

PubMed comprises more than 22 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.

Using PubMed

- PubMed Quick Start Guide
- Full Text Articles
- PubMed FAQs
- PubMed Tutorials
- New and Noteworthy

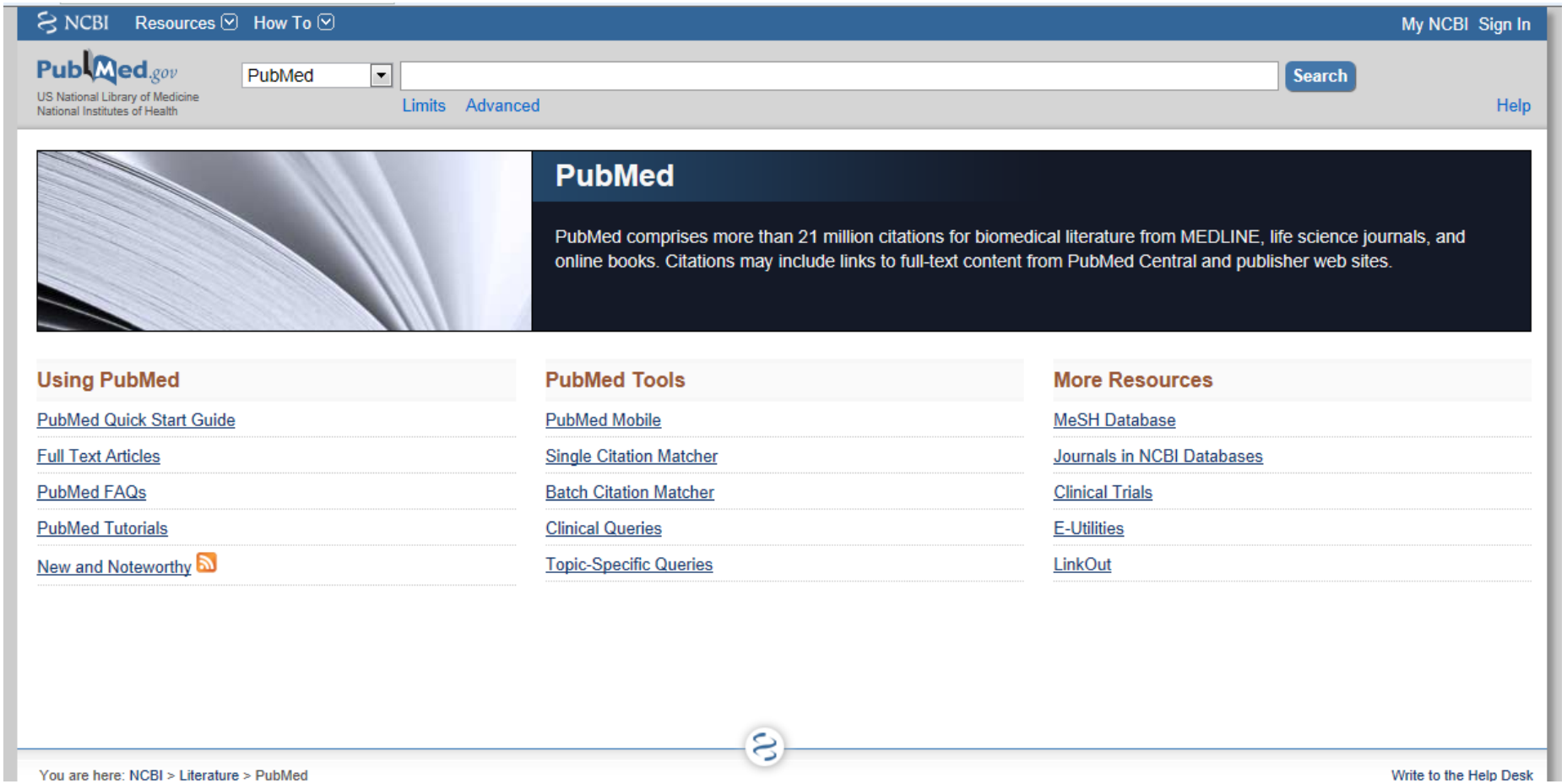
PubMed Tools

- PubMed Mobile
- Single Citation Matcher
- Batch Citation Matcher
- Clinical Queries
- Topic-Specific Queries

More Resources

- MeSH Database
- Journals in NCBI Databases
- Clinical Trials
- E-Utilities
- LinkOut

www.ncbi.nlm.nih.gov/pubmed



- Key concepts!
- Auther

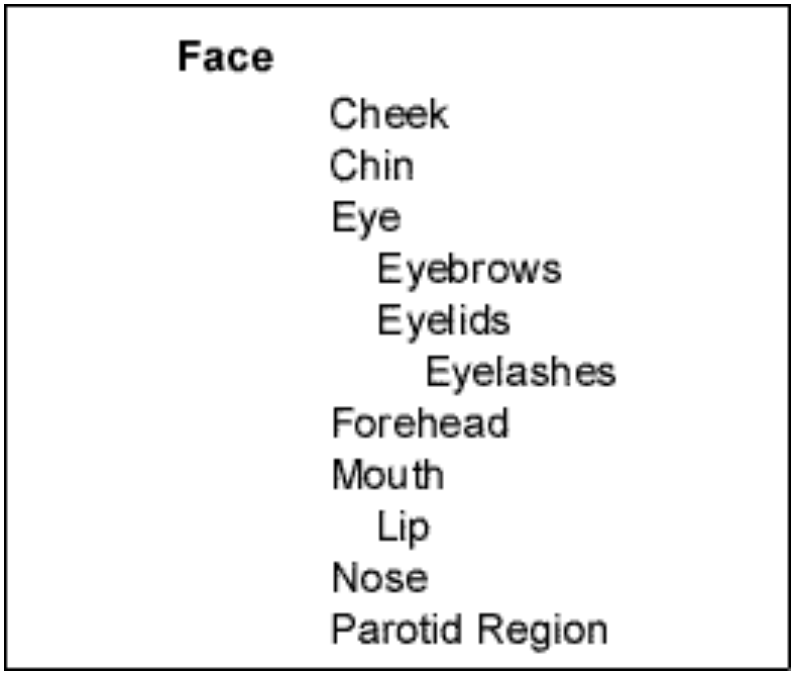
Stopwords

	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(The Medical Subject Headings)

Examples of MeSH Headings:

- **Body Weight**
- **Dental Cavity Preparation**
- **Radioactive Waste**
- **Kidney**
- **Self Medication**
- **Brain Edema**



http://www.youtube.com/watch?v=uyF8uQY9wys

Exercise

- Use the MeSH Database to build a strategy that will find citations to references discussing the economics of community-acquired pneumonia.

Exercise

- Use the NLM Catalog Journal search page to see if PubMed includes the journal, *Molecular Microbiology*. If so, retrieve all PubMed citations from this journal.

Exercise

- Use the Clinical Queries to find systematic reviews for accidents caused by sleep deprivation.

Search

- What role does pain have in sleep disorders?

Search

- To search for citations to articles written by Bonnie W. Ramsey about gene therapy for cystic fibrosis

Search

- To search for citations to articles about drosophila in the journal Molecular Biology of the Cell

Exercise

- Find citations to articles about the ethics of liver transplantation. Check Details to see how the terms are mapped. Filter to review articles. Select a few items and add them to the Clipboard. Go to the Clipboard and view the selected items in Abstract format to see the assigned MeSH terms.

Exercise

- Use the MeSH Database to build a strategy that will find citations to articles about schizophrenia resulting from prenatal exposure to influenza. Schizophrenia and influenza should be the major topics of the articles.


361,987
عدد مرات مشاهدة الفيديو
4,783
من المشتركين
4,782
اشتراك
NCBI YouTube Channel
NCBI
البحث في القناة
تصفح مقاطع الفيديو
مقاطع فيديو مميزة
حول NCBI YouTube Channel
Videos from the National Center for Biotechnology Information including presentations and tutorials about NCBI biomolecular and biomedical literature databases and tools.
ncbi.nlm.nih.gov
Our privacy policy
بواسطة NCBINLM
تاريخ الانضمام
19/02/2010
البلد
الولايات المتحدة
Builder
All Fields
AND
All Fields
Search
or Add to history
History
Search
Add to builder
Query
#1
Add
Search hyperglycemia[MeSH Terms] AND newborn
AND in builder
OR in builder
NOT in builder
Delete from history
Show search results
Show search details
Save in My NCBI
You are here: NCBI > Literat
GETTING STARTED
POPULAR
FEATURED
0:00 / 2:27
PubMed Advanced Search Builder

KSU Academic Digital Library

http://library.ksu.edu.sa

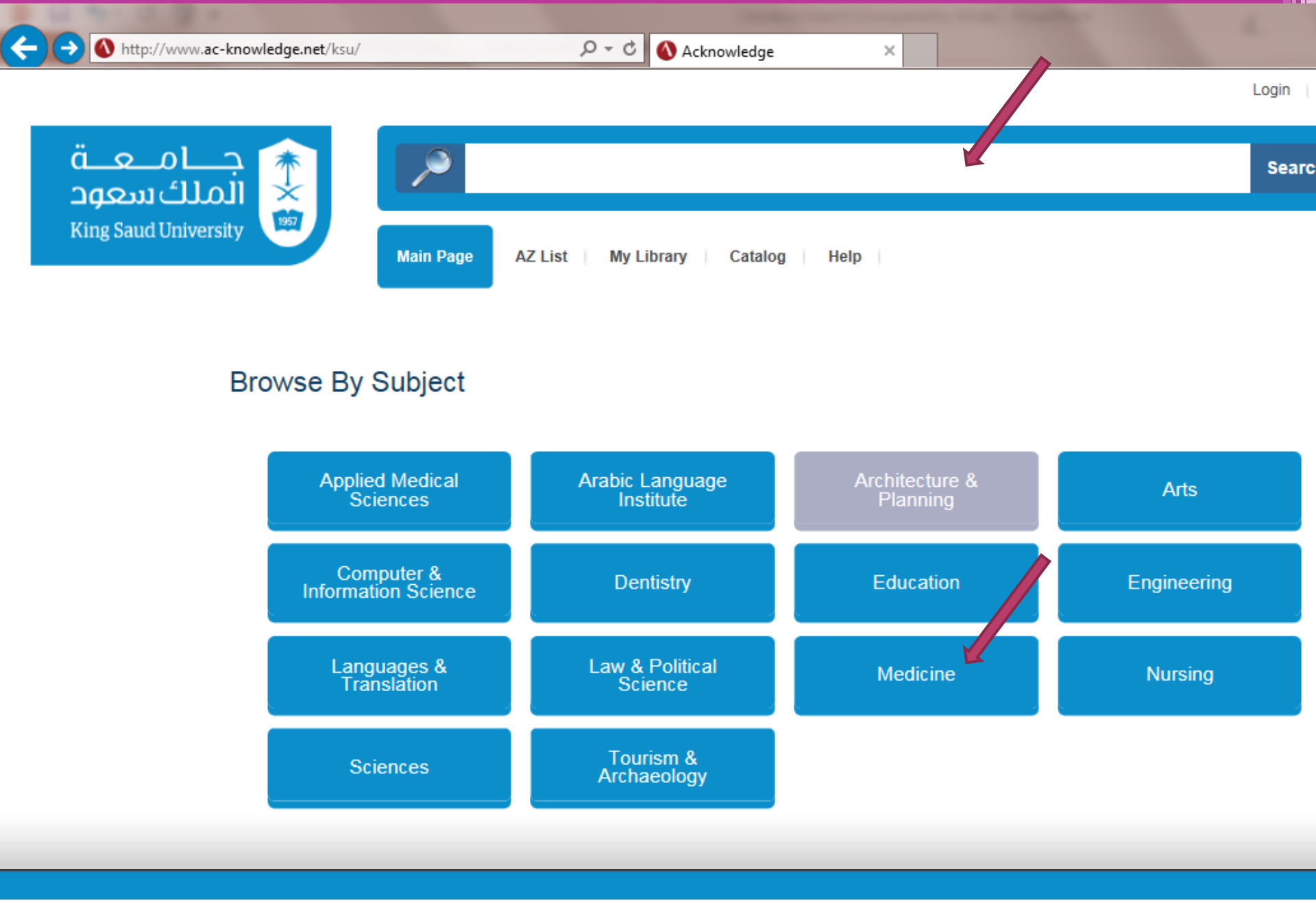
جامعة الملك سعود
King Saud University

Deanship of Library Affairs

Home | Deanship | Departments | Libraries | Contact us

- catalog
- البحث
- Databases
- Theses
- Manuscript

Site News


http://www.ac-knowledge.net/ksu/
Acknowledge
Login
جامعة الملك سعود
King Saud University
1957
Search
Main Page
AZ List
My Library
Catalog
Help
Browse By Subject
Applied Medical Sciences
Arabic Language Institute
Architecture & Planning
Arts
Computer & Information Science
Dentistry
Education
Engineering
Languages & Translation
Law & Political Science
Medicine
Nursing
Sciences
Tourism & Archaeology

Returned Records 86887

0-9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z All

Include Open Access

- Databases (76)
- Books (52300)
- Journals (33668)
- Videos (843)

Apply

Subjects

- Medicine (4074)
- Engineering (1861)
- Business Administration (1420)
- Physics (1227)
- Chemistry (1192)

Apply | Show More...

Sources

- EBSCO - Business Source Complete (31590)
- SpringerLink (24450)
- EBSCO - Academic Search Complete (11464)
- Gale - General OneFil (8933)
- Wiley-Blackwell (6709)

Apply | Show More...

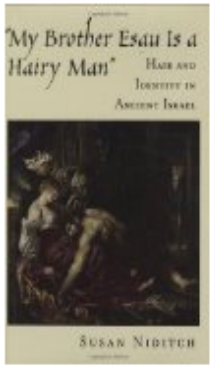
Books

" My Brother Esau Is a Hairy Man "

Niditch
ISBN:019518114X

Available from :

Oxford University Press: Oxford Scholarship Online (OSO)



Books

(Endo)symbiotic Methanogenic Archaea

Johannes H.P. Hackstein
Springer-Verlag Berlin Heidelberg 2011
ISBN:3642136141

Available from :

SpringerLink

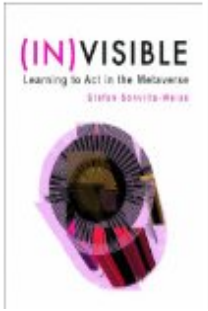
Books

(IN)VISIBLE

Stefan Sonvilla-Weiss.
Springer Vienna 2009
ISBN:3211785388

Available from :

SpringerLink



- [ ] EBSCO - Business Source Complete (31590)
- [ ] SpringerLink (24450)
- [ ] EBSCO - Academic Search Complete (11464)
- [ ] Gale - General OneFile (8933)
- [ ] Wiley-Blackwell (5709)
- [ ] ProQuest ABI/INFORM Global (3961)
- [ ] Oxford University Press: Oxford Scholarship Online (OSO) (2201)
- [ ] ScienceDirect (2169)
- [ ] ProQuest Science Journals (1374)
- [ ] IGI Global (1198)
- [ ] EBSCO - CINAHL Plus with Full Text (1055)
- [ ] KhanAcademy (886)
- [ ] Ovid - Books@Ovid (837)
- [ ] Sage Journals (654)
- [ ] EBSCO - Communication & Mass Media Complete (581)
- [ ] ProQuest Biology Journals (424)
- [ ] Cambridge Journals (280)
- [ ] IEEE Xplore (221)
- [ ] Applied Science & Technology Full Text (H.W. Wilson) (192)
- [ ] ScienceDirect - Open Access (159)
- [ ] McGraw Hill Access Medicine (122)
- [ ] ProQuest Technology Collection (42)
- [ ] Thieme eJournals (35)
- [ ] ISI Web of Knowledge (1)
- [ ] GreenFILE (Ebsco) (1)
- [ ] Humanities International Index (Ebsco) (1)
- [ ] Ovid - YourJournals@Ovid (1)
- [ ] English Language Learner (Ebsco) (1)
- [ ] Noon (1)
- [ ] Emerald (1)
- [ ] RSC - Royal Society of Chemistry Journals (1)
- [ ] ProQuest Dissertations & Theses (PQDT) (1)
- [ ] LexisNexis Academic (1)
- [ ] Proquest ebrary e-book (1)
- [ ] Uptodate (1)
- [ ] Environment Index (Ebsco) (1)
- [ ] Political Science Complete (Ebsco) (1)
- [ ] Consumer Health Information - Arabic (Ebsco) (1)
- [ ] Art & Architecture Index (Ebsco) (1)
- [ ] American Institute of Physics (Scitation) (1)
- [ ] Scopus (1)
- [ ] ProQuest - Central (1)
- [ ] Dentistry & Oral Sciences Source (Ebsco) (1)
- [ ] Nutrition and Food Sciences (CABI) (1)
- [ ] Education Research Complete (Ebsco) (1)
- [ ] CAB Direct (1)
- [ ] Proquest - Eric (1)
- [ ] ProQuest Library and Information Science Abstracts (LISA) (1)
- [ ] Reaxys (1)
- [ ] MD Consult (1)
- [ ] American Society of Civil Engineers (ASCE-Library) (1)
- [ ] Al Manhal (1)
- [ ] Passport (1)
- [ ] المكتبة الرقمية لجامعة الملك سعود (1)
- [ ] IOP Journals (1)
- [ ] Computer Science Index (Ebsco) (1)
- [ ] Regional Business News (Ebsco) (1)
- [ ] BMJ: British Medical Journal (1)
- [ ] CAB Reviews (CABI) (1)
- [ ] Descriptions of Fungi and Bacteria (CABI) (1)
- [ ] EcoLink (1)
- [ ] IslamicInfo (1)
- [ ] Applied Science & Technology Source (Ebsco) (1)
- [ ] Environment Complete (Ebsco) (1)
- [ ] AskZad (1)
- [ ] EduSearch (1)
- [ ] MathSciNet (1)
- [ ] Proquest - Medline (1)
- [ ] Business Insights: Global (Gale) (1)
- [ ] Clinical Key (1)
- [ ] E-marifah (1)
- [ ] American Institute of Physics Publishing (1)
- [ ] DynaMed (Ebsco) (1)
- [ ] المكتبة الرقمية السعودية (SDL) 1)
- [ ] Medline (Ebsco) (1)
- [ ] Hospitality & Tourism Index (Ebsco) (1)
- [ ] AraBase (1)

Welcom King Saud University | User Profile | عربي

SDL

Home
Back To Home Page

About SDL
SDL Profile

Training
Cources and Training

Upload Theses
Theses Management System

Media Center
Images and Information

Policy
Policy and User Guide

Unified Saud Dgital Library Search

Search

Advanced Search

Arabic DataBases

English DataBases

eBooks

Universities Theses

By Category

Help

Ask

By Subject

آلية البحث

Enter

Add Ticket

View Ticket

News

حاجة الكتب الإلكترونية إلى المزيد من الاهتمام من قبل ناشريها

Fri, 20 Dec 2013 — الخبر كاملاً — اضافة تعليق

مكتبة ريديك توسع نطاق الوصول إلى الكتب الإلكترونية

Thu, 19 Dec 2013 — الخبر كاملاً — اضافة تعليق

تجربة "جون ليتج" في نشر كتبه إلكترونيًا

Wed, 18 Dec 2013 — الخبر كاملاً — اضافة تعليق

تطبيق Google Play Books يتيح لك الآن تحميل الكتب الإلكترونية على جهاز Android الخاص بك

Tue, 17 Dec 2013 — الخبر كاملاً — اضافة تعليق

Read more...

Saudi Digital Library Chaneel

follow us

find the information researchers need.

Snapshots Series - ProQuest

Used by institutions around the world, The Snapshots Series includes over 8,890 market reports across 43 industries in 40 countries, spanning the UK, Western Europe, Eastern Europe, Asia Pacific, North America, and Latin America. It's a unique source for market research data, offering worldwide market data for a broad range of industries and regions.

: Full Text
: Coverage

Social Science Journals - ProQuest

This database offers indexing and full text for hundreds of academic journals, providing extensive coverage across a wide range of social science disciplines including anthropology, criminology, economics, education, political science, psychology, social work and sociology.

: Full Text
: Coverage

SpringerLink - Springer

Providing researchers with access to millions of scientific documents from journals, books, series, protocols and reference works.

: Full Text
: Coverage

Telecommunications - ProQuest

ProQuest Telecommunications™ is an essential resource for anyone researching the industry or its technology. Whether you're looking for the latest news on WAP technology, following market penetration of new technologies, or gathering information about the key players in this field, ProQuest Telecommunications helps you stay one step ahead.

: Full Text
1995 : Coverage

References

- J. Ebbert, et al, Searching the Medical Literature Using PubMed: A Tutorial, Concise Review for Clinicians, Mayo Clin Proc. 2003;78:87-91
- A Sood, AK Ghosh, Literature Search Using PubMed: An Essential Tool for Practicing Evidence- Based Medicine, JAPI, vol. 54, April 2006
- NLM training: PubMed, US National Library of Medicine, April 2011
- The literature review, Deakin University Library, retrieved on 24.09.2011 http://www.deakin.edu.au/library/findout/research/litrev.php#Bruce,_C
- H. Abdulghani, Effective Electronic Search, Department of Medical Education, College of Medicine, King Saud University, June 2012
- Armen Torchyan, Literature Review: Search Engines, Department of Family and Community Medicine, College of Medicine, King Saud University, August 2015

Managing your findings

- A meticulous search must be coupled with meticulous record keeping.

Citation Management Tools

- Managing the references you find and use in your review will take a significant amount of work

- Using a citation management tool like RefWorks or EndNote will save you much time and effort
  - Organize and store references
  - Make in-text citations based on required style (ex. APA)
  - Create a list of references based on required style

EndNote X5

لتثبيت البرنامج اتبع الخطوات التالية :

- حمل البرنامج
- شغل الـ ENX5Inst
- اكمل باقي الخطوات كما يطلب منك

لا يحتاج إلى تفعيل .

تحميل

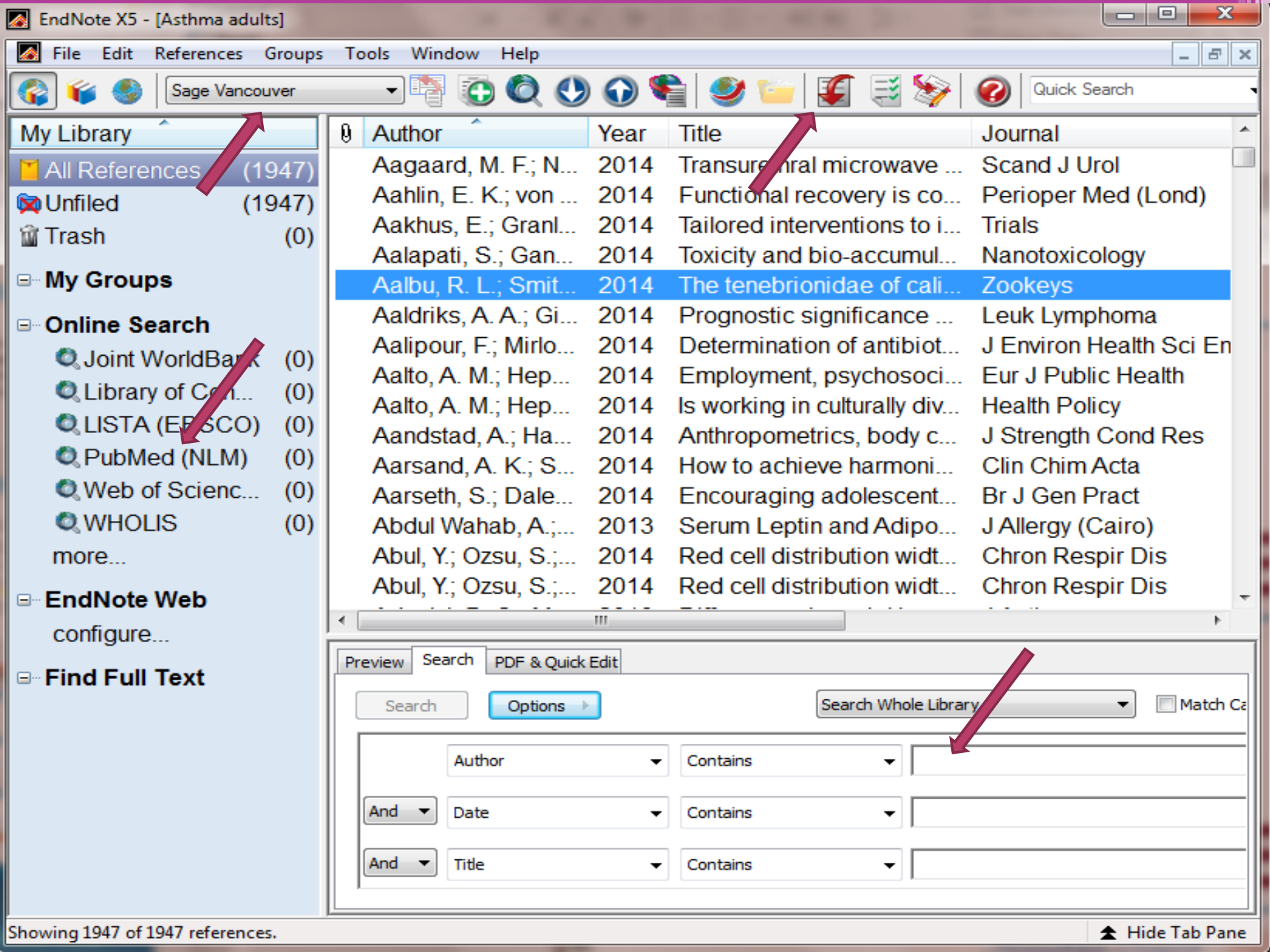
EndNote X4 للماك

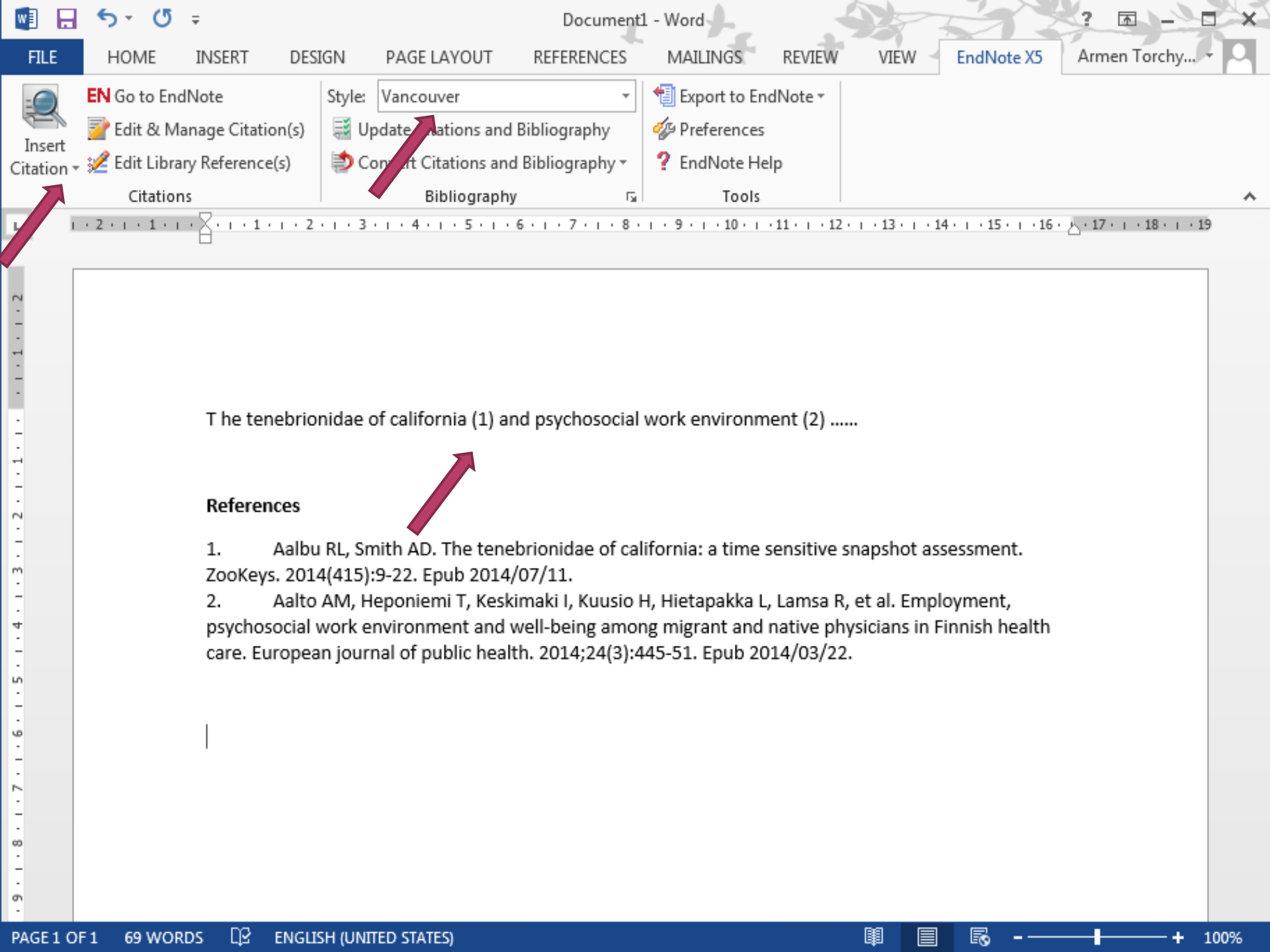
برنامج فهرسة البحوث والمراجع لا غنى عنه, يساعدك على تخزين مراجعك و مصادرك للرجوع إليها لاحقا عند كتابة ورقة علمية أو تقرير الماجستير أو الدكتوراة.

تحميل

EndNote

- **EndNote is an online search tool**
- **EndNote is a reference and full text organizer with a collaborative Web tool**
- **EndNote is a bibliography maker**


EndNote X5 - [Asthma adults]
File Edit References Groups Tools Window Help
Sage Vancouver
Quick Search
My Library
All References (1947)
Unfiled (1947)
Trash (0)
My Groups
Online Search
Joint WorldBank (0)
Library of Con... (0)
LISTA (EBSCO) (0)
PubMed (NLM) (0)
Web of Scienc... (0)
WHOLIS (0)
more...
EndNote Web
configure...
Find Full Text
Author Year Title Journal
Aagaard, M. F.; N... 2014 Transurethral microwave ... Scand J Urol
Aahlin, E. K.; von ... 2014 Functional recovery is co... Perioper Med (Lond)
Aakhus, E.; Granl... 2014 Tailored interventions to i... Trials
Aalapati, S.; Gan... 2014 Toxicity and bio-accumul... Nanotoxicology
Aalbu, R. L.; Smit... 2014 The tenebrionidae of cali... Zookeys
Aaldriks, A. A.; Gi... 2014 Prognostic significance ... Leuk Lymphoma
Aalipour, F.; Mirlo... 2014 Determination of antibiot... J Environ Health Sci En
Aalto, A. M.; Hep... 2014 Employment, psychosoci... Eur J Public Health
Aalto, A. M.; Hep... 2014 Is working in culturally div... Health Policy
Aandstad, A.; Ha... 2014 Anthropometrics, body c... J Strength Cond Res
Aarsand, A. K.; S... 2014 How to achieve harmoni... Clin Chim Acta
Aarseth, S.; Dale... 2014 Encouraging adolescent... Br J Gen Pract
Abdul Wahab, A.;... 2013 Serum Leptin and Adipo... J Allergy (Cairo)
Abul, Y.; Ozsu, S.;... 2014 Red cell distribution widt... Chron Respir Dis
Abul, Y.; Ozsu, S.;... 2014 Red cell distribution widt... Chron Respir Dis
Preview Search PDF & Quick Edit
Search Options Search Whole Library Match Ca
Author Contains
And Date Contains
And Title Contains
Showing 1947 of 1947 references.
Hide Tab Pane


Document1 - Word
FILE
HOME
INSERT
DESIGN
PAGE LAYOUT
REFERENCES
MAILINGS
REVIEW
VIEW
EndNote X5
Armen Torchy...
Insert Citation
Go to EndNote
Edit & Manage Citation(s)
Edit Library Reference(s)
Citations
Style:
Vancouver
Update Citations and Bibliography
Convert Citations and Bibliography
Bibliography
Export to EndNote
Preferences
EndNote Help
Tools
T he tenebrionidae of california (1) and psychosocial work environment (2) .....
References
1. Aalbu RL, Smith AD. The tenebrionidae of california: a time sensitive snapshot assessment. ZooKeys. 2014(415):9-22. Epub 2014/07/11.
2. Aalto AM, Heponiemi T, Keskimaki I, Kuusio H, Hietapakka L, Lamsa R, et al. Employment, psychosocial work environment and well-being among migrant and native physicians in Finnish health care. European journal of public health. 2014;24(3):445-51. Epub 2014/03/22.
PAGE 1 OF 1
69 WORDS
ENGLISH (UNITED STATES)
100%

Carcinogenesis. 2014 Sep 6. pii: bgu187. [Epub ahead of print]

Dietary compound isoliquiritigenin targets GRP78 to ch… cancer stem cells via β-catenin/ABCG2 signaling.

Wang N[1], Wang Z[2], Peng C[3], You J[1], Shen J[1], Han S[4], Chen J[5].

Author information

Abstract

Accumulating evidence suggests that β-catenin signaling in breast cancer… correlated to chemoresistance and ATP binding cassette subfamily G2 (A… aberrant β-catenin signaling in CSCs has become a promising strategy to… cancer treatment. In a pilot screening study, we found that the natural con… blocked β-catenin transcription activity with the highest inhibition ratio. He… chemosensitizing effects of ISL on breast CSCs and the underlying mechanisms regulating the β-catenin pathway. ISL could have synergistic effects with chemotherapeutic drugs to inhibit breast cancer cell proliferation and colony formation. In addition, ISL could significantly limit the side population and CSC ratios in breast cancer cells, accompanied by inhibited self-renewal and multi-differentiation abilities. A mechanistic study revealed that ISL could inhibit β-catenin/ABCG2 signaling by activating the proteasome degradation pathway. The drug affinity responsive target stability (DARTS) strategy further identified GRP78 as the direct target of ISL. Subsequent molecular docking analysis and functional studies demonstrated that ISL could dock into the ATP domain of GRP78 and thereby inhibit its ATPase activity, resulting in its dissociation from β-catenin. An in vivo study also suggested that ISL could chemosensitize breast CSCs via the GRP78/β-catenin/ABCG2 pathway, with little toxicity in normal tissues and mammary stem cells. Taken together, the data from this study not only suggest ISL as a natural candidate to …ensitivity but also highlight the significance of GRP78 in mediating cancer drug resistance and β-catenin signaling in CSCs.

Tips

- Keep track of the search items you use so that your search can be replicated
- Keep a list of papers whose pdfs you cannot access immediately (so as to retrieve them later with alternative strategies)
- Use a paper management system (e.G., Mendeley, papers, qiqqa, sente), define early in the process some criteria for exclusion of irrelevant papers (these criteria can then be described in the review to help define its scope), and do not just look for research papers in the area you wish to review, but also seek previous reviews.

When searching the literature for pertinent papers and reviews, the usual rules apply:

- Be thorough.
- Use different keywords and database sources (e.G., DBLP, google scholar, ISI proceedings, JSTOR search, medline, scopus, web of science).
- Look at who has cited past relevant papers and book chapters.

Marco Pautasso, Ten Simple Rules for Writing a Literature Review, PLoS Comput Biol. 2013 Jul; 9(7): e1003149.

How To Read the Material

- Reading for the big picture
  - Read the easier works first
  - Skim the document and identify major concepts
  - After you have a broad understanding of the 10 to 15 papers, you can start to see patterns:
    - Groups of scientists argue or disagree with other groups.

    For example, Some researchers think x causes y, others that x is only a moderating variable

(Carroll, 2006)

Narrow your focus

- Start from new material to old, general to specific
  - starting with general topic will provide leads to specific areas of interest and help develop understanding for the interrelationships of research
  - Note quality of journal, output of author
- As you read and become more informed on the topic, you will probably need to go back and do more focused searches
- Think, analyze, and weed out
- Arrange to spend some review time with an experienced researcher in the field of study to get feedback and to talk through any problems encountered

(Mauch & Birch, 1993)

Read the Material Closer

- Step 1: read the abstract
  - Decide whether to read the article in detail
- Step 2: read introduction
  - It explains why the study is important
  - It provides review and evaluation of relevant literature
- Step 3: read Method with a close, critical eye
  - Focus on participants, measures, procedures
- Step 4: Evaluate results
  - Do the conclusions seem logical
  - Can you detect any bias on the part of the researcher?
- Step 5: Take discussion with a grain of salt
  - Edges are smoothed out
  - Pay attention to limitations

(Carroll, 2006)

Analyze the Literature

- Take notes as you read through each paper that will be included in the review
- In the notes include:
  - purpose of study reviewed
  - synopsis of content
  - research design or methods used in study
  - brief review of findings
- Once notes complete organize common themes together. Some people do this in a word document, others use index cards so they can shuffle them.
- Some people construct a table of info to make it easier to organize their thoughts.
- As you organize your review, integrate findings elicited from note taking or table making process.

(Green, Johnson, & Adams, 2006)

Take Notes While Reading

- start writing down interesting pieces of information, insights about how to organize the review, and thoughts on what to write.
- by the time you have read the literature you selected, you will already have a rough draft of the review.
- Of course, this draft will still need much rewriting, restructuring, and rethinking.

Marco Pautasso, Ten Simple Rules for Writing a Literature Review, PLoS Comput Biol. 2013 Jul; 9(7): e1003149.

Take Notes While Reading

- Be careful when taking notes to use quotation marks if you are provisionally copying verbatim from the literature.
- It is advisable then to reformulate such quotes with your own words in the final draft.
- It is important to be careful in noting the references already at this stage, so as to avoid misattributions.
- Using referencing software from the very beginning of your endeavour will save you time.

Marco Pautasso, Ten Simple Rules for Writing a Literature Review, PLoS Comput Biol. 2013 Jul; 9(7): e1003149.

Be Critical and Consistent

- Reviewing the literature is not stamp collecting!
- A good review does not just summarize the literature, but discusses it critically, identifies methodological problems, and points out research gaps.

Marco Pautasso, Ten Simple Rules for Writing a Literature Review, PLoS Comput Biol. 2013 Jul; 9(7): e1003149.

After having read a review of the literature, a reader should have a rough idea of:

- The major achievements in the reviewed field.
- The main areas of debate.
- The outstanding research questions.

Marco Pautasso, Ten Simple Rules for Writing a Literature Review, PLoS Comput Biol. 2013 Jul; 9(7): e1003149.

Literature reviews should comprise the following elements:

- An overview of the subject, issue or theory under consideration, along with the objectives of the literature review

Find a Logical Structure

- Like a well-baked cake, a good review has a number of telling features:
  - It is worth the reader's time, timely, systematic, well written, focused, and critical.
  - It also needs a good structure.

Marco Pautasso, Ten Simple Rules for Writing a Literature Review, PLoS Comput Biol. 2013 Jul; 9(7): e1003149.

Construct The Literature Review

- Summarize individual studies or articles
  - Use as much or as little detail as each merits according to its comparative importance in the literature
  - Space (length) denotes significance.
  - Don't need to provide a lot of detail about the procedures used in other studies.
  - Most literature reviews only describe the main findings, relevant methodological issues, and/or major conclusions of other research.

- Discuss major areas of agreement or disagreement

- Tie the study into the current body of lit, make logical interpretations from the lit reviewed.
  - If there is no discussion of the relevance of the overview to other work in the field, or if there is no interpretation of the literature, it may signal the author has not thoroughly investigated the topic.

(University of Wisconsin, 2006)

Organization of the Review

Introduction to the lit review

- Content - what is covered
- Structure - how it is organized
- Boundaries - what is outside of its scope

Body of the Lit Review

SECTION 1

The most important topic or a key concept

- discussed and evaluated
- summarized and related to your research project

SECTION 2

The next most important topic or a key concept

- discussed and evaluated
- summarized and related to your research project

ADDITIONAL SECTIONS

- Follow the same pattern

Conclusion

From each of the section summaries,

- highlight the most relevant points
- relate these back to the need for research
- reiterate what these mean for the research design

(Golden-Biddle & Locke, 1997)

An Effective Literature Review

- Places each work in the context of its contribution to the understanding of the subject under review
- Describes the relationship of each work to the others under consideration
- Identifies new ways to interpret, and shed light on any gaps in, previous research
- Resolves conflicts amongst seemingly contradictory previous studies
- Identifies areas of prior scholarship to prevent duplication of effort
- Points the way forward for further research
- Places one's original work (in the case of theses or dissertations) in the context of existing literature

(Lyons, 2005)

Be accurate and thorough

- Your review acts as a guide of your topic for others.
- Take care to make your review:
  - Accurate: e.g., Citations correct, findings attributed to authors correct.
    - Make sure someone can track down the article and that you have provided a reliable representation
  - Complete: i.e., include all important papers (not every paper written on the topic).

After completing this session, you will know how:

- Conduct preliminary research to develop an overview
- Able to do literature review

References

- Asian Institute of Technology. *Writing up research: Using the literature*. Retrieved 1/22/2009, 2009, from http://www.languages.ait.ac.th/EL21LIT.HTM
- Burge, C., *7.16 Experimental Molecular Biology: Biotechnology II, Spring 2005*. (Massachusetts Institute of Technology: MIT OpenCouseWare), Retrieved 12/15/2008, from http://ocw.mit.edu. License: Creative Commons BY-NC-SA
- Carrol, J., *15.301 Managerial Psychology, Fall 2006*. (Massachusetts Institute of Technology: MIT OpenCouseWare). Retrieved 12/15/2008, from http://ocw.mit.edu. License: Creative Commons BY-NC-SA
- Golden-Biddle, K, & Locke, K (1997). *Composing Qualitative Research*. Thousand Oaks, CA: Sage.
- Green, B. N., Johnson, C. D., & Adams, A. (2006). Writing narrative literature reviews for peer-reviewed journals: Secrets of the trade. *Journal of Chiropractic Medicine, 5*(3), 101-117.
- Lyons, K. (2005). *UCSC library - how to write a literature review*. Retrieved 1/22/2009, 2009, from http://library.ucsc.edu/ref/howto/literaturereview.html
- Mauch, J. E., & Birch, J. W. (1993). *Guide to the successful thesis and dissertation : A handbook for students and faculty* (3rd , rev. and expand ed.). New York: Marcel Dekker.
- University of Wisconsin. (2006). *UW-madison writing center writer's handbook*. Retrieved 1/22/2009, 2009, from http://www.wisc.edu/writing/Handbook/ReviewofLiterature.html

Planning your Project

1. Define your research question
2. Make sure your idea is original
3. Draw up a research proposal
4. Decide what methodology you should use
5. Find out what skills you will need
6. Work out what resources you will need
7. Work out what help you will need.
8. Get ethics committee approval
9. Establish proper research governance
10. Pilot or die

Common Mistakes

- Failure to provide the proper context to frame the research question.
- Failure to delimit the boundary conditions for your research.
- Failure to cite landmark studies.
- Failure to stay focused on the research question.
- Failure to develop a coherent and persuasive argument for the proposed research.
- Too much detail on minor issues, but not enough detail on major issues.
- Too much rambling — going "all over the map" without a clear sense of direction. (The best proposals move forward with ease and grace like a seamless river.)
- Too many citation lapses and incorrect references.
- Too long or too short- You MUST keep to the word limit.
- Failure to reference appropriately.
- Sloppy writing.


Thank You!