# The New PubMed is Here: Tips and Tricks to Optimize Your Use

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# OBJECTIVES

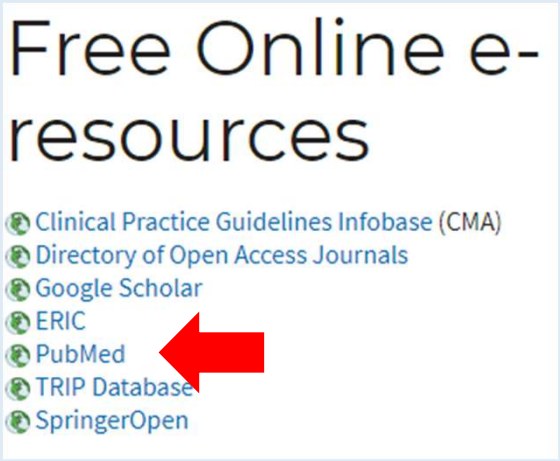
- PubMed is a key biomedical database.
- A new version of PubMed became the default PubMed in early 2020.
- You can still access the old / legacy PubMed for a little while.

At the end of this workshop you should:

- Be more familiar the new PubMed and understand how it is different from legacy PubMed.

- Be able to conduct a successful search in the new PubMed using Automatic Term Mapping, PubMed Clinical Queries, & Advanced Search.

# Getting to the database




@ CIUSSS Installations (Other than JGH):

- JGH Health Sciences Library Website Homepage > Free Online e-resources > **PubMed**
- Or go directly to: pubmed.ncbi.nlm.nih.gov

# “Painless” PubMed

1. Basic Search: Using Automatic Term Mapping
2. The Differences Between Legacy and New PubMed
3. Basic Search: Using PubMed Clinical Queries
4. Advanced Search
5. Reminder & References

# What is PubMed?

PubMed is:

- The 1st biomedical database most health professionals learn how to use.
- Multidisciplinary.
- Freely accessible on the internet.
- Includes MEDLINE (peer reviewed journal selection) and PubMed Central (open access full text, the institutional repository of the national institute of health in the US).

| | |
|---|---|
| **Producer** | National Library of Medicine, U.S. |
| **Coverage & Updating** | 1950 to present, updated daily<br>5246 + journals indexed |
| **Full text** | Many Open Access/Free by PubMed Central and from publishers (more available if subscription to journal is held by your institution) |
| **# of references** | 30 million +<br>1 million + added every year |
| **Languages** | 58+ |
| **Content** | PubMed provides access to bibliographic information that includes MEDLINE, as well as:<br>▪Citations that precede the date that a journal was selected for MEDLINE indexing.<br>▪Some additional life science journals that submit full text to PubMed Central and receive a qualitative review by NLM.<br>▪PubMed Central- Open Access (= the institutional repository of the national institute of health)<br>▪Bookshelf |
| **Search Options** | ▪Subject headings (MeSH) and subheadings, AND, OR, limit by date, type of publication, age group, etc.<br>▪Keywords<br>▪Truncation using * |

# Scenario

- You are looking for literature on vocational rehabilitation for patients with traumatic brain injury.

# Identifying Key Concepts

Look at your question. Remove all extra words:

You are looking for literature on vocational rehabilitation for patients with traumatic brain injury.

.

~~You are looking for literature on~~ vocational rehabilitation ~~for patients with~~ traumatic brain injury.

# 1. Basic Search: Using Automatic Term Mapping

# Automatic Term Mapping

- What is Automatic Term Mapping?

The algorithm behind the basic search box in PubMed. It was designed by librarians at the National Library of Medicine in the US designed to help you find what you are looking for quickly without needing to know how a biomedical database functions.

- How does it work?
- In the basic search box, if you search: vocational rehabilitation traumatic brain injury
- PubMed Searches:
  - ("rehabilitation, vocational"[MeSH Terms] OR ("rehabilitation"[All Fields] AND "vocational"[All Fields]) OR "vocational rehabilitation"[All Fields] OR ("vocational"[All Fields] AND "rehabilitation"[All Fields])) AND ("brain injuries, traumatic"[MeSH Terms] OR ("brain"[All Fields] AND "injuries"[All Fields] AND "traumatic"[All Fields]) OR "traumatic brain injuries"[All Fields] OR ("traumatic"[All Fields] AND "brain"[All Fields] AND "injury"[All Fields]) OR "traumatic brain injury"[All Fields])

# Steps to a successful quick search

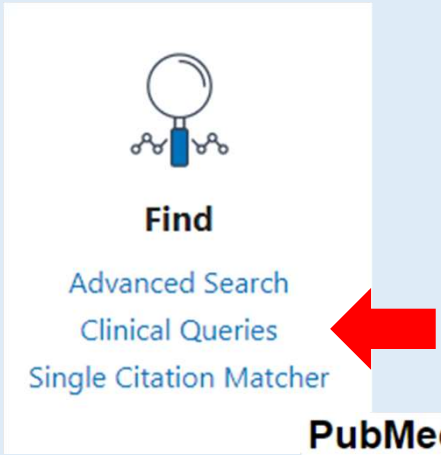
1) Identify the key concepts that you want to use
2) Enter the key concepts into the search bar using no punctuation or Boolean operators
3) Click search
4) Use the filters on the left hand side of the page to limit your results
   (for example to only results in English and French, All adults, last 5 years…)

# 2. The Differences Between Legacy and New PubMed

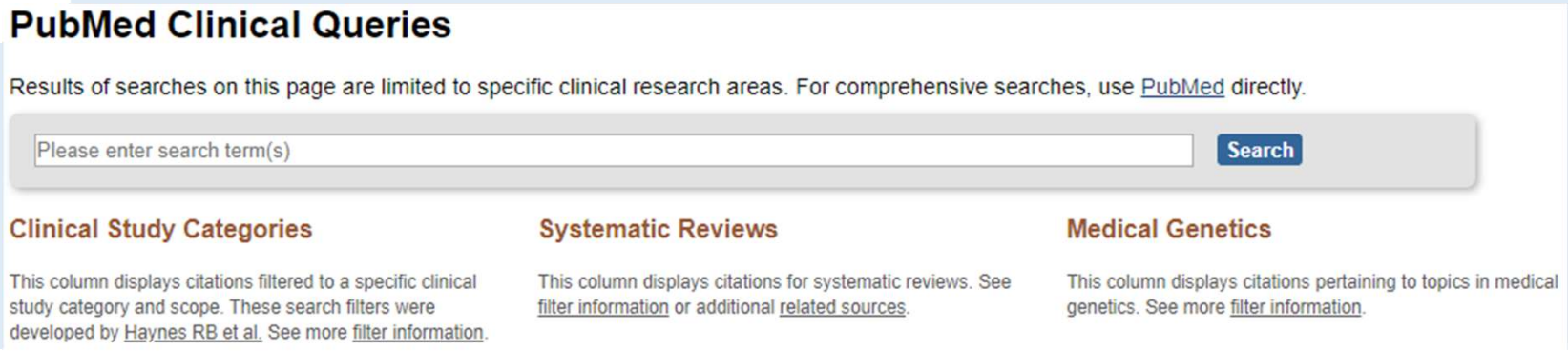
| Changed Item | New PubMed | Legacy PubMed |
|---|---|---|
| Default Sort Order | Best Match | Most Recent |
| Display of Results: abstract | By default the part of the abstract (or abstract “snippet”) that is relevant to your search is displayed in the result list | By default you do not see the abstract in the result list |
| Display of Results: results per page | 10 | 20 |
| Display of Results: navigate between results | to see more results click more at the bottom of the page or change the default settings | Pick the page you want to go to |
| Send to Citation Manager | Multiple Results: Save to RIS format<br>Individual Articles: “Cite” Button | Send to Citation Manager |
| Advanced Search Functions | More Powerful Suggestion in Advanced Search Bar | Less Powerful / Alphabetical Suggestions in Advanced Search Bar |

# 3. Basic Search: Using PubMed Clinical Queries

# What is PubMed Clinical Queries ?




- The PubMed Clinical Queries Page is an evidence based tool within PubMed designed to help you quickly find the information / evidence you are looking for.
- It is designed limit one search by three clinical research areas: Clinical Study Categories, Systematic Reviews, or Medical Genetics.



# Clinical Study Categories

- This column, situated on the left hand side of the page, offers five categories by which to limit your search:
  - Therapy (default): will retrieve clinical studies that discuss the treatment of disease.
  - Diagnosis: will retrieve clinical studies addressing disease diagnosis.
  - Etiology: will retrieve clinical studies addressing causation/harm in disease and diagnostics.
  - Prognosis: will retrieve clinical studies addressing disease prognosis.
  - Clinical Prediction Guides: will retrieve clinical studies which discuss methods for predicting the likelihood of disease presence or absence.

- The scope can be defined as Broad or Narrow:
  - Broad (default) : more articles = will include more results with a maximum of relevant articles but will probably also include some that will be less relevant.
  - Narrow: fewer articles = will retrieve fewer and more targeted articles, but might not include all relevant articles.

# Steps to search by Clinical Study Category

1) Identify the key concepts that you want to use
2) Go to PubMed Clinical Queries, it is on the welcome page of PubMed, in the middle of the page under the column “Find”
3) Enter the key concepts into the search bar using no punctuation or Boolean operators
4) Click search
5) Select a category in the Colum on the left hand side of the page “Clinical study category” according to the type of clinical studies you wish to retrieve
6) Review the 1st 5 results and decide if you need to change the scope from broad to narrow to better target your topic
7) If you would like to see all the results, click on “see all” under the 1st 5 results in the clinical study column on the left hand side of the page

# Systematic Reviews

- This column helps you locate systematic reviews and similar articles.
- It is a good tool to use if you need to quickly find the best evidence on your topic.
- It limits your search to results identified in PubMed as systematic reviews, meta-analyses, reviews of clinical trials, evidence-based medicine, consensus development conferences, and guidelines.

# Steps to Search for Systematic Reviews

1) Identify the key concepts that you want to use
2) Go to PubMed Clinical Queries, it is on the welcome page of PubMed, in the middle of the page under the column “Find”
3) Enter the key concepts into the search bar using no punctuation or Boolean operators
4) Click search
5) The systematic review filter is automatically applied to your search, the results are in the middle column of the page
6) If you would like to see all the results, click on “see all” under the 1st 5 results in the systematic review column in the middle of the page

# Medical Genetics

- This column helps you filter your search to studies in the field of Medical Genetics.
- You can choose from the following topics: Diagnosis, Differential Diagnosis, Clinical Description, Management, Genetic Counseling, Molecular Genetics, Genetic Testing, or All(of the listed topics).

# 4. Advanced Search

# Keywords

- Keywords are words that appear in the record
- They are usually words in the title or abstract of the article and are in the authors vocabulary
- You will only find your keyword if it is in the article's record exactly as you have entered it (exact spelling, no plural, no synonyms…)
- You can use truncation *
- In PubMed advanced search you can search for keywords by using "all fields" or the Textword field

Examples of Keywords:

Cancer, Cancers, Cancerous, Tumor, Tumour, Tumors, Tumours, Carcinoma, Sarcoma, Neoplasm, Neoplasms, Neoplastic (…)

# Subject Headings

- Subject headings are **controlled vocabularies** used to index contents in different databases,
- MeSH is the name of the controlled vocabulary used in MEDLINE,
- MEDLINE articles are indexed with MeSH by librarians at the National Library of Medicine in the US,
- PubMed Central Articles are not indexed with MeSH if they are not part also part of MEDLINE,
- If the indexing is perfect, when you search a subject heading, you will find all the articles about this topic,
- **MeSH is organized in a tree**
- To explore the MeSH vocabulary you can use the MeSH browser.

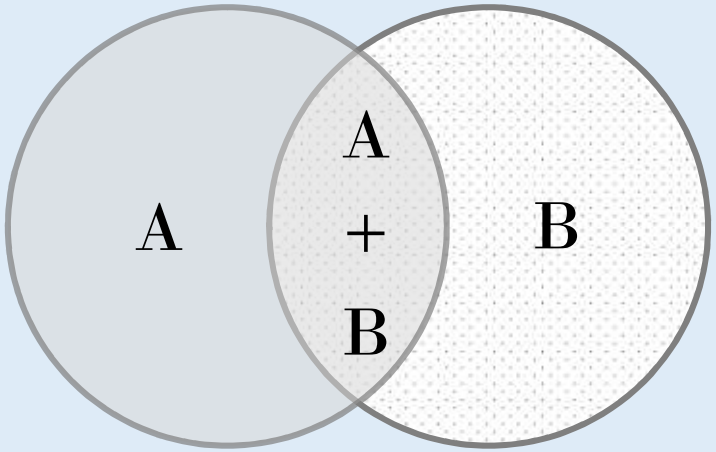
Example of MeSH: Neoplasms

# Which should I use?

# BOTH

- Indexing is never perfect as it usually done by humans
- There may not be a subject heading for your concept
  - Example: Concepts like “72 hours” or a very rare disease may not have a corresponding subject heading
- Searching using subject headings and keywords together works like building blocks: take one concept at a time and build your search
- Searching using only keywords is more imprecise:
  - Formulating a search with both subject headings and keywords will give you the best chance of getting as many relevant results as possible without having too many irrelevant results

# BOOLEAN OPERATORS




Use Boolean operators to combine your concepts (Subject headings/keywords)

AND = A+B (both concepts must be included - use to build your final search, based on the PICO if you have one)

OR = A, A+B, B (either of selected concepts are included - use to combine Subject heading/keyword synonyms)

NOT = A only (use to see what has been excluded from one search combination compared

# SEARCH ALGORITHM FOR BIOMEDICAL DATABASES

Subject Heading

OR

Keyword

AND

Subject Heading

OR

Keyword

=

Results

# SEARCH ALGORITHM FOR PubMed

MeSH
OR
Textword

AND

MeSH
OR
Textword

=

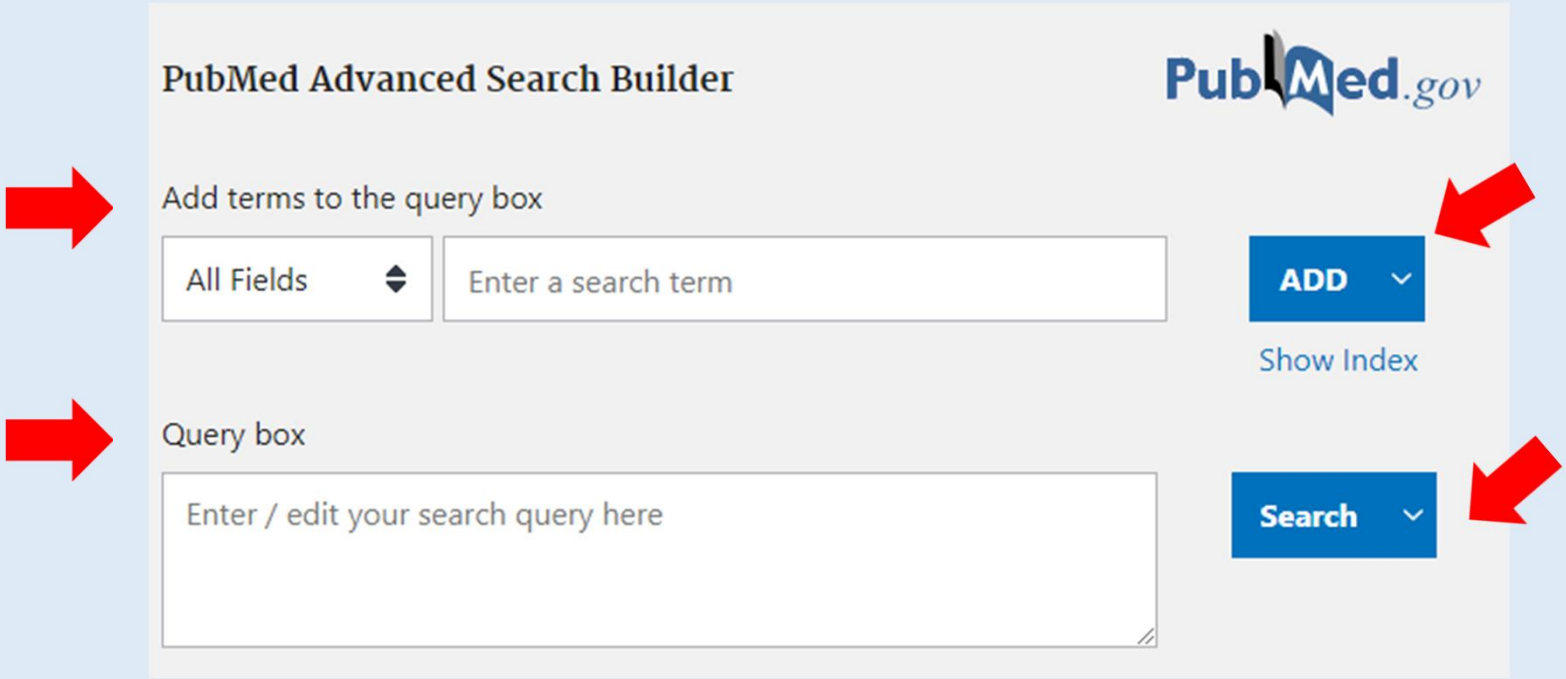
Results

# Concept Map

| | Concept 1 | AND Concept 2 | AND Concept 3 | AND Concept 4 | |
|---|---|---|---|---|---|
| | | | | | SYNONYMS |
| OR | | | | | |
| OR | | | | | |
| OR | | | | | |

# PubMed Advanced Search

# PubMed Advanced Search Builder



# Steps to Search Using the Advanced Search

1) Under the search box on the welcome page in PubMed, click on **Advanced**
2) In the box **Add terms to the query box:** Search for your 1st concept using the MeSH Terms field
3) Look at the suggestions and select the most relevant one and/ or Click on **Show Index** and select your concept
4) If your concept isn't appearing as a suggested MeSH term use the MeSH browser to find the appropriate MeSH term to search
5) Click **ADD,** this will add your MeSH term to the query box
6) Search for your 1st concept using the textword field
7) Look at the suggestions and select the most relevant one / or Click on **Show Index** and select your concept
8) Beside the **Add terms to the query box**: Click the arrow beside AND, select **ADD with OR,** this will add your textword to the query box
9) Repeat until you have included all possible MeSH Terms and Keywords for your 1st concept

# Steps to Search Using the Advanced Search

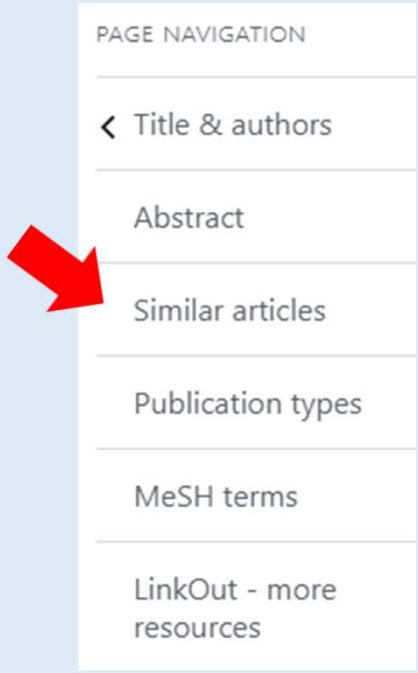
10) Beside the **Query Box**: Click the arrow on the search button and select **Add to History**
11) Repeat for each concept
12) Once you have added each concept to your History, go to your search history
13) Under the section **Actions**, click **Add to Query** for your 1st concept
14) To add your next concepts to the Query box, for each additional concept, under the section **Actions** click : **Add with AND**
15) When you are done adding your concepts to the query box: Click **Search**
16) Use the filters on the left hand side of the result page to limit your results

# Create a Personal Account for PubMed: MyNCBI


- Click Log In
- If you don't yet have an account you will be prompted to create one
- When you are logged in to your account you can:
- Save your searches
- Set up search alerts to stay informed of the latest developments on topics of particular interest to you
- Personalize PubMed default Settings

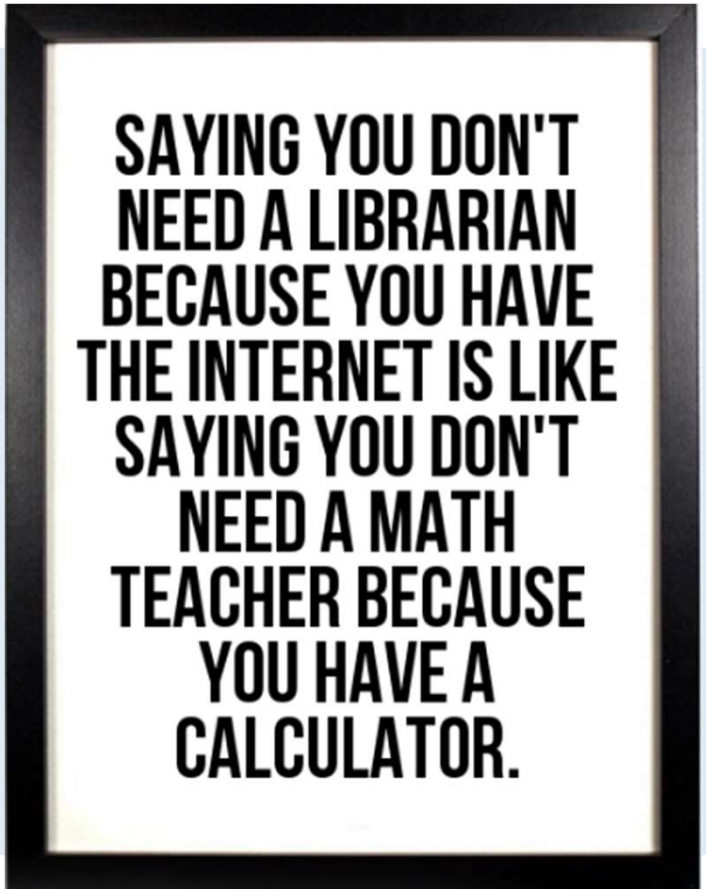
# What to do when you are stuck?

- If you find one relevant article use it as a lead to find more:
  - Look at the subject headings used to index the article - reformulate your search
  - Find synonyms in the title or abstract
  - Snowball:
    - Use the “Similar Articles” function
    - Look at the references
  - Try another database
  - Try Uptodate (On site #@JGH Only), Google, or Google Scholar to learn more about the topic and maybe find more literature
- This is an iterative process



# 5. Reminder & References

# REMINDER


SAYING YOU DON'T NEED A LIBRARIAN BECAUSE YOU HAVE THE INTERNET IS LIKE SAYING YOU DON'T NEED A MATH TEACHER BECAUSE YOU HAVE A CALCULATOR.

# REMINDER

- A Librarian is available to provide one-on-one instruction and help:
  @ JGH: **Kendra Johnston**, 514 340 8222 x22453
  kendra.johnston.ccomtl@ssss.gouv.qc.ca
  @Constance Lethbridge: **David Farley Chevrier**, 514 487 1891 x220
  david.farley-chevrier.clethb@ssss.gouv.qc.ca
- To access this presentation:
  https://www.jgh.ca/care-services/health-sciences-library/instruction/workshop-presentations-handouts/

# REFERENCES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5. Collins, M. (2019, October 02). A New PubMed: Highlights for Information Professionals. Retrieved from https://www.youtube.com/watch?v=O0Dg8eGfeRg

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