Filters
Filters are available in the left navigation column and may be used to focus search results. Click on a filter to activate or deactivate the filter. Multiple filters can be used at the same time.

To reveal additional filter options, click Show Additional Filters or Customize under each filter type. Check desired selections then click the button.

Advanced Searching
The Advanced link provides two options to refine a search:
1. Use the PubMed Advanced Search Builder to create a search using AND, OR, or NOT. Apply a specific field to your term using the drop down menu. The Show Index List displays the search field index and the number of citations for each term.

2. History tracks and numbers each of your previous search strategies. Click on “Add to Builder” to add previous searches to your Advanced Search Builder.

MeSH Database
[PubMed – indexed for MEDLINE] citations are indexed using a powerful vocabulary called Medical Subject Headings (MeSH).

Use the Drop-Down Search menu to access the MeSH Database. Search for a term or concept and click Search. Click on the desired term to view that term (when multiple items are retrieved) and select subheadings and other options.

Click Add to Search Builder button on the right side of the page to start a PubMed search. Other MeSH Searches may be added. Click the Search PubMed button to complete the search.

Clinical Queries
Clinical Queries makes it easy to find articles that report applied clinical research. You can search for Systematic Reviews, Medical Genetics, or Clinical Study Categories.
1. Click on the link from the PubMed homepage
2. Enter a search term in the box.
3. Click the Search Button
4. Click See All at the bottom of the page to return to PubMed.

PubMed Features
• Sophisticated search capabilities, including spell checker, Advanced Search Builder, and tools to search for clinical topics.
• Find Search terms using the MeSH (Medical Subject Heading) database of MEDLINE’s controlled vocabulary.
• Store citation collections and receive e-mail updates from saved searches using PubMed’s My NCBI.
• Link to full-text articles, information library holdings, and other NLM databases and search interfaces

Assistance and Training
PubMed Searching
To search PubMed, type a word or phrase into the search box (e.g., a subject, author, and/or journal). Then click the Search button or Enter key.

Optional: combine search terms with connector words: AND, OR, or NOT using upper case letters.

An Auto Suggest drop-down menu appears when entering words and the Titles with Your Search Terms option may appear in your search results.

Once you run your search, PubMed displays a list of results in Summary format. To change how results are displayed, click on Format: Summary to change the format.

Search Details
Search Details is located on the right navigation column. This box provides information on how PubMed ran the search. PubMed looks first for the entire word or phrase as:
1. Medical Subject Heading (MeSH) term
2. Journal Titles
3. Author(s)

PubMed finally will search All Fields for the word(s). Update a search by making changes in the Search Details box and click Search to run the new search strategy.

Sensors
Sensors display results in a shaded area above the regular PubMed search results.
- Citation Sensor: matches search terms with citation elements (e.g. blood choi 2009)
- Gene Sensor: identifies gene symbols linking to gene citations and databases (e.g. CFTR)

Similar Articles
This feature searches for citations similar to the one selected. In the Summary format, click on the Similar Articles link under each citation.

Clipboard
The Clipboard feature stores selected citations from one or more searches for eight hours. Select citations by clicking the check box next to each citation. From the Send To menu, select Clipboard, then click “Add to Clipboard.”

Access Full-Text
Many PubMed citations offer links to the full text of articles through PubMed Central (PMC), a free digital archive of life sciences journal literature, to library holdings, and to publisher websites. Loansome Doc allows registered users to order copies of articles from a medical library. Contact your librarian for details or visit https://nlm.gov for more information.

Print, Email, and Download
After selecting Citations (e.g. from checked boxes or Clipboard), identify a format (click on Summary for additional formats and print directly from your browser.

My NCBI
My NCBI is a free tool that retains user information and database preferences to provide a customized service for many NCBI databases, including PubMed.

PubMed's My NCBI features:
- Save searches
- Set personal preferences and display formats
- Store search strategies and citation collections
- Develop personal filter options.
- Create alerts by offering automatic e-mail updates and RSS Feeds of saved searches
Combine MeSH Terms to Search PubMed

Use the PubMed Search Builder to combine multiple MeSH terms and subheadings.

Advanced PubMed Searches with Field Tags

Search PubMed directly by using specific MeSH headings, subheadings, and other qualifier codes (not case sensitive). For the complete list, visit PubMed Help and the Search Field Descriptions and Tags link.

- **MeSH Headings**: [mh] or [MeSH] may be added to a term to restrict your PubMed search to only MeSH terms (e.g., knee [mh])
- **Subheadings**: Two letters may be used for subheadings. Therapy is th, to search for articles on cancer therapies, you can use "Neoplasms/therapy" [MeSH] or Neoplasms/th as equivalent searches.
- **Do not include MeSH terms found below this term in the MeSH hierarchy; use [mshnoexp], [majmshexp], or [shmshexp] to restrict searches to articles focused on the broadest MeSH term.

Assistance and Training


Features in MeSH

MeSH contains over 27,000 descriptors. It is updated weekly and reviewed annually.

- Use MeSH terms to search citations Indexed for MEDLINE. (Nearly 90% of the PubMed database.)
- Limit searches to citations where the MeSH term is the focus of the article.
- Broaden/Narrow a search using the MeSH hierarchy.
- Use subheadings to build complex and focused search strategies.
- Focus searches using other types of MeSH terms including publication types [pt], pharmacologic actions [pa], or substance names [nm].

Funded in whole or in part with Federal funds from the National Library of Medicine (NLM), National Institutes of Health (NIH), under cooperative agreement No. U54LM012340 with the University of Maryland, Baltimore. This resource is freely available at: https://nlm.nih.gov/training/resources/meshrz.pdf

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Getting Started
Access MeSH in PubMed from the dropdown menu or click on the MeSH Database from the PubMed homepage.

Enter a topic in the search bar and click the Search button. Results will vary from a single term (prognosis), multiple terms (measles), or related terms (cancer).

1. Neoplasms
   New abnormal growth of tissue.

Note: Verify that the definition of the term matches the expected definition.

Refine a Search
The MeSH Database offers options to clarify and focus searches. Click the selected MeSH term (Neoplasms in this example) to view:
- Definition, often with the year introduced.
- Check boxes including:
  - Subheadings
  - Restrict Search to MeSH Major Topic
  - Do not include MeSH terms found below this term in the MeSH hierarchy.
- Entry Terms (similar terms used by authors)
- See Also related and linked terms
- MeSH hierarchy of linked terms.

The MeSH Hierarchy
MeSH terms are arranged hierarchically by subject categories with more specific (narrower) terms arranged beneath broader terms. PubMed automatically searches to include all narrower terms.

An unrestricted search for neoplasms will include articles which focus on the main term (neoplasms), but also include the narrower terms (e.g., urachal cyst).

Check Do not include MeSH terms found below this term in the MeSH hierarchy for articles focused only on the main term and eliminate the narrower terms.

NOTE: Focus a search by using the MeSH hierarchy to identify appropriate broader or narrower terms or to find additional search terms. Click on terms to access them.

Related Information
Search MeSH and select one specific term. Use Related Information to search with the term.
- PubMed
- PubMed – Major Topic
- Clinical Queries
- NLM MeSH Browser

Major Topic Headings
Subject analysts examine each article and assign the most specific MeSH terms applicable, with a related subheading, typically ten to twelve headings per citations. In PubMed, the major topic is represented by an asterisk.

- MeSH Terms
  - Fentanyl
  - Neoplasms/therapy*

To view MeSH terms for a selected article in PubMed, click on the link to MeSH Terms below the citation in the Abstract Format.

Publication Types, MeSH Terms, Substances

In the MeSH Database, use Restrict to MeSH Major Topic to limit a search to citations where that term is the major focus of the article. The term is added to the search builder will be followed by [MAJR] (e.g., “Neoplasms” [MAJR])

Subheadings (Qualifiers)
Subheadings help describe more completely a particular aspect of a topic. In the MeSH database, subheadings logically paired with the main heading are presented. Check the appropriate box(es), then use the Add to Search Builder button with OR to build a search.

- Subheadings:
  - analysis
  - epidemiology
  - antagonists and
  - ethology
  - inhibitors
  - etiology

In this example, the search would include: (“Neoplasms/analysis”[MeSH]) OR (“Neoplasms/epidemiology”[MeSH])