U.S. National Library of Medicine

Advanced PubMed® Searching Resource Packet

Additional PubMed and NLM-related resources:

MEDLINE®/PubMed Resources Guide: https://www.nlm.nih.gov/bsd/pmresources.html

PubMed® Online Training: https://learn.nlm.nih.gov/rest/training-packets/T0042010P.html
Including Quick Tours, tutorial brochures: *PubMed Basics*; *PubMed My NCBI*; and *Searching PubMed with MeSH*;

Additional NN/LM Materials linked to PubMed

Drugs Information @ NLM: https://nnlm.gov/training/resources/drugstri.pdf
MedlinePlus® for Health Professionals: https://nnlm.gov/trifolds/mp4hptri.pdf

MeSH® Subheadings and Related Abbreviations

Note: Diagnostic Imaging (DG) replaces as a subheading Radiography, Radionuclide imaging and Ultrasonography. Please update any saved searches and alerts.

Abbr.	MeSH Subheading	Abbr.	MeSH Subheading
AB	Abnormalities	IS	Instrumentation
AD	Administration and Dosage	IP	Isolation and Purification
AE	Adverse Effects	LJ	Legislation and Jurisprudence
AG	Agonists	MA	Manpower
AA	Analogs and Derivatives	ME	Metabolism
AN	Analysis	MT	Methods
AH	Anatomy and Histology	MI	Microbiology
AI	Antagonists and Inhibitors	MO	Mortality
BI	Biosynthesis	NU	Nursing
BS	Blood Supply	OG	Organization and Administration
BL	Blood	PS	Parasitology
CF	Cerebrospinal Fluid	PY	Pathogenicity
CS	Chemical Synthesis	PA	Pathology
CI	Chemically Induced	PK	Pharmacokinetics
CH	Chemistry	PD	Pharmacology
CL	Classification	PH	Physiology
CO	Complications	PP	Physiopathology
CN	Congenital	PO	Poisoning
CY	Cytology	PC	Prevention and Control
DF	Deficiency	PX	Psychology
DI	Diagnosis	RE	Radiation Effects
DG	Diagnostic Imaging	RT	Radiotherapy
DH	Diet Therapy	RH	Rehabilitation
DE	Drug Effects	SC	Secondary
DT	Drug Therapy	SE	Secretion
EC	Economics	ST	Standards
ED	Education	SN	Statistics and Numerical Data
EM	Embryology	SD	Supply and Distribution
EN	Enzymology	SU	Surgery
EP	Epidemiology	TU	Therapeutic Use
ES	Ethics	TH	Therapy
EH	Ethnology	TO	Toxicity
ET	Etiology	TM	Transmission
GE	Genetics	TR	Transplantation
GD	Growth and Development	TD	Trends
HI	History	UL	Ultrastructure
IM	Immunology	UR	Urine
IN	Injuries	UT	Utilization
IR	Innervation	VE	Veterinary
		VI	Virology

Available at: https://www.ncbi.nlm.nih.gov/books/NBK3827/table/pubmedhelp.T.mesh_subheadings/

PubMed® Qualifier Hierarchies / Families of Subheading Explosions

Searching on these subheadings searches the narrower subheadings as well. * are top level terms.
Not all subheadings are available for all MeSH® terms.

Adverse Effects-AE
  Poisoning-PO
  Toxicity-TO

Analysis-AN
  Blood-BL
  Cerebrospinal fluid-CF
  Isolation & purification-IP
  Urine-UR

*Anatomy & Histology-AH
  Blood Supply-BS
  Cytology-CY
    Ultrastructure-UL
  Embryology-EM
    Abnormalities-AB
  Innervation-IR
  Pathology-PA

*Chemistry-CH
  Agonists-AG
  Analogs & derivatives-AA
  Antagonists & inhibitors-AI
  Chemical synthesis-SC

Complications-CO
  Secondary-SC

Cytology-CY
  Ultrastructure-UL

*Diagnosis-DI
  Diagnostic imaging-DG

Embryology-EM
  Abnormalities-AB

Epidemiology-EP
  Ethnology-EH
  Mortality-MO

*Etiology-ET
  Chemically induced-CI
  Complications-CO
    Secondary-SC
  Congenital-CN
  Embryology-EM
  Genetics-GE
  Immunology-IM
  Microbiology-MI
    Virology-VI
  Parasitology-PS
  Transmission-TM

Metabolism-ME
  Biosynthesis-BI
  Blood-BL
  Cerebrospinal fluid-CF
  Deficiency-DF
  Enzymology-EN
  Pharmacokinetics-PK
  Urine-UR

Microbiology-MI
  Virology-VI

*Organization & administration - OG
  Economics-EC
  Legislation & jurisprudence-LJ
  Manpower-MA
  Standards-ST
  Supply & distribution-SD
  Trends-TD
  Utilization-UT

Pharmacology-PD
  Administration & dosage-AD
  Adverse Effects-AE
    Poisoning-PO
    Toxicity-TO
  Agonists-AG
  Antagonists & inhibitors-AI
    Pharmacokinetics-PK

*Physiology-PH
  Genetics-GE
  Growth & Development-GD
  Immunology-IM
  Metabolism-ME
    Biosynthesis-BI
    Blood-BL
    Cerebrospinal Fluid-CF
    Deficiency-DF
    Enzymology –EN
    Pharmacokinetics-PK
    Urine-UR
  Physiopathology-PP
  Secretion-SE

*Statistics & numerical data-SN
  Epidemiology-EP
    Ethnology –EH
    Mortality MO
  Supply & distribution-SD
  Utilization-UT

Surgery-SU
  Transplantation-TR

*Therapeutic use-TU
  Administration & dosage-AD
  Adverse effects-AE
    Poisoning-PO
    Toxicity-TO
  Poisoning-PO

*Therapy-TH
  Diet Therapy-DH
  Drug Therapy-DT
  Nursing-NU
  Prevention & control-PC
  Radiotherapy-RT
  Rehabilitation-RH
  Surgery-SU
    Transplantation-T

Additional and non-exploding subheadings: classification-CL, drug effects-DE, education-ED, ethics-ES, history-HI, injuries-IN, instrumentation-IS, methods-MT, pathogenicity-PY, psychology-PX, radiation effects-RE, veterinary-VE
          Available at: https://www.nlm.nih.gov/mesh/subhierarchy.html with links to definitions.

PubMed® Subset Searching

Topic and Filter Subsets

Available subset search terms (use [sb])
  aids [sb] – AIDS**
  bioethics [sb] – Bioethics**
  cancer [sb] – Cancer**
  cam [sb] – Complementary Medicine**
  dietsuppl [sb] – Dietary Supplements**
  effectiveness [sb] – Comparative Effectiveness Research
  history [sb] – History of Medicine**
  medline [sb] – MEDLINE® ***
  reportresearch [sb] – Research Reporting Guidelines and Initiatives
  space [sb] – Space Life Sciences
  systematic [sb] – Systematic Reviews*, **
  tox [sb] – Toxicology**
  veterinary [sb] – Veterinary Science**

Additional Special Queries
  ALTBIB – Alternatives bibliography
  CAM on PubMed
  Clinical Queries
  Comparative Effectiveness Research
  Electronic Health Records
  Health Disparities
  Health Literacy
  Health Services Research (HSR) Queries
  Healthy People 2020
  MedlinePlus Health Topics
  National Institutes of Health Funding Support
  Population Health
  Retracted Publication*
  Smallpox
  TOXNET

(Also available as a filter under: *Article types*, **Subjects*, and/or ***Journal categories*)
https://www.nlm.nih.gov/bsd/pubmed_subsets.html and https://www.nlm.nih.gov/bsd/special_queries.html

Journal/Citation Subsets

For the following, use jsubset*code* without the [sb]; e.g. *jsubsetk*

Code	Description
AIM	*** Abridged Index Medicus - list created 20 years ago and includes 119 core clinical English language journals; corresponds to "Core clinical journals" filter under Journal categories
D	*** Dentistry journals (also available as a filter under Journal Categories)
E	Citations from bioethics journals or selected bioethics citations from other journals
H	Health administration journals, non-Index Medicus
IM	Index Medicus journals
K	Consumer health journals, non-Index Medicus
N	*** Nursing journals (also available as a filter under Journal Categories)
OM	OLDMEDLINE citations from the Cumulated Index Medicus (CIM) and the Current List of Medical Literature (CLML) - 1947-1965 (plus some earlier) - not available in NLM Catalog
Q	History of medicine journals and selected citations from other journals
QIS	Citations from non-Index Medicus journals in the field of history of medicine
S	Citations from space life sciences journals and selected citations from other journals
T	Health technology assessment journals, non-Index Medicus
X	AIDS/HIV journals (selected citations from other journals 1980-2000)

(***Available as a filter under *Journal categories*)
https://www.ncbi.nlm.nih.gov/books/NBK3827/table/pubmedhelp.T.journalcitation_subsets/ and
https://www.nlm.nih.gov/databases/databases_oldmedline.html

More: Selected Subsets and Filters

all [sb] – All citations in PubMed
free full text [sb] – Citations which include links to free full text articles (also filter under **Text availability**)
hasabstract or hasstructuredabstract – Citations with abstracts or structured abstracts (no [sb])
has-user-comments [sb] – Comments added by participants of PubMed Commons
loprov*medlib* [sb] – LinkOut holdings in medical library, e.g. *loprovuiclib [sb]*; see provider names and abbreviations at: https://www.ncbi.nlm.nih.gov/projects/linkout/journals/htmllists.cgi?type_id=6
pubmed pmc [sb] or loprovpmc [sb] – Free full-text article available in PMC (formerly PubMed Central)
pubmed pubmed pmh cited [sb] – Citations cited in PubMed Health

https://www.ncbi.nlm.nih.gov/books/NBK3827/#pubmedhelp.Text_availability and https://www.ncbi.nlm.nih.gov/books/NBK148671/#LinkOut.Access
https://www.ncbi.nlm.nih.gov/books/NBK3827/#pubmedhelp.Filter_FILTER_SB

Citation Status Tags and Search Terms

Search Term	Status Tag	Description
publisher [sb]	PubMed - as supplied by publisher	Citation as supplied by publisher, not yet indexed (may be an E-Pub ahead of print)
pubstatusaheadofprint	PubMed - as supplied by publisher	E-Pub - citations available in advance of journal issue's print release (no [sb])
inprocess [sb]	PubMed - in process	Citation from a MEDLINE journal in the review process
medline [sb]	Indexed for MEDLINE	Fully indexed and cross-linked citations (also a filter under Journal Categories)
pubmednotmedline [sb]	PubMed	Processed, not indexed for MEDLINE
pubstatusnihms pubstatuspmcsd	PubMed	Author manuscript or publisher-supplied citation from non-MEDLINE journal submitted PMC under the NIH Public Access Policy (no [sb])
pmcbook pmcbooktitle pmcbookchapter	PubMed	Citations of books and book chapters available on the Bookshelf (no [sb]) – Books on the PubMed drop-down Menu

https://www.ncbi.nlm.nih.gov/books/NBK3827/table/pubmedhelp.T.status_subsets/ and
https://www.ncbi.nlm.nih.gov/books/NBK3827/#pubmedhelp.Ahead_of_Print_Citations

Publication Types Found in PubMed®

In addition to the *Clinical Queries* search, use bolded publication types for **evidence-based medicine** (EBM) searches.
For the following, use [publication type] OR [PT]; e.g. *clinical trial [pt]* (also available as a Filter, under Article types)
For an EBM search, also consider: ***epidemiologic studies [mh]***

Addresses
Adaptive Clinical Trial
Autobiography
Bibliography
Biography
Case Reports
Classical Article (republished)
Clinical Conference (reports of clinical case conferences)
Clinical Study
Clinical Trial (all types/phases)
  Clinical Trial, phase I
  Clinical Trial, phase II
  Clinical Trial, phase III
  Clinical Trial, phase IV
Collected Works
Comment
Comparative Study
Congresses
Controlled Clinical Trial
Consensus Development …
  Conference
  Conference, NIH
Corrected and Republished Article
Dataset
Dictionary
Directory
Duplicate Publication

Editorial
English Abstract (foreign article)
Equivalence Trial
Evaluation Studies
Expression of Concern
Festschrift
Government Publications
Guideline (administrative or procedural)
Historical Article
Interactive Tutorial
Interview
Introductory Journal Article
Journal Article (excludes letter, editorial, news, etc.)
Lectures
Legal Cases
Legislation
Letter
Meta-Analysis
Multicenter Study
News (medical or scientific)
Newspaper Article
Observational Study
Overall (collection of articles)
Patient Education Handout
Periodical Index
Personal Narratives

Portraits
Practice Guideline (health care)
Pragmatic Clinical Trial
Publication Components
Publication Formats
Publication Type Category
Published Erratum
Randomized Controlled Trial
Research Support,
  American Recovery and Reinvestment Act
  N.I.H., Extramural
  N.I.H., Intramural
  Non-U.S. Gov't
  U.S. Gov't, Non-P.H.S.
  U.S. Gov't, P.H.S.
Retracted Publication
Retraction of Publication (author's statement)
Review
Scientific Integrity Review (US)
Study Characteristics
Support of Research
Technical Report
Twin Study
Validation Studies
Video-Audio Media
Webcasts

Search PubMed Help for Publication Types; or visit: https://www.ncbi.nlm.nih.gov/books/NBK3827/table/pubmedhelp.T.publication_types/
Complete list of types and links to definitions of terms: https://www.nlm.nih.gov/mesh/pubtypes.html
Publication Characteristics in the Mesh Tree: https://meshb.nlm.nih.gov/search

Search Field Descriptions and Tags

And related MEDLINE®/PubMed® Data Element (Field) Descriptions; Capitalization not required

Date Searching (Use: YYYY/MM/DD where month and day are optional)

Search Tag	Tag Name	Search Tag Description	MEDLINE data element
[CRDT]	Create Date	Date the citation record was first created*	CRDT
[DP] or [PDAT]	Publication Date	Date article was first published in either electronic or print format; default PubMed search	DP, DEP
[EDAT]	Entrez Date	Date citation was added to PubMed*	EDAT
[EPDAT]	Electronic Publication Date	Date article was published electronically (often in advance of availability)	DEP
[MHDA]	MeSH Date	Date MeSH terms were added to the citation*	MHDA
[PPDAT]	Print Publication Date	Date of publication on the citation (whether a print or electronic journal)	DP

* Defaults to publication date for records entering PubMed more than one year after publication date.

Other Search Tags

Search Tag	Tag Name	Search Tag Description	MEDLINE data element
[affiliation] or [AD]	Affiliation	Publisher supplied institutional affiliation/address/ email of author(s); before 2014, first author only	AD
[AID]	Article Identifier	Article ID values supplied by the publisher including DOI codes (must use full code)	AID
[all fields] or [ALL]	All Fields	All searchable PubMed fields except place of publication, transliterated title and date fields	---
[author] or [AU]	Author	Author(s), searches all author field options	AU, FAU
[author – corporate] or [corporate author] or [CN]	Corporate Author	Corporate or collective authorship	CN
[author – identifier] or [AUID]	Author Identifier	Unique identifier of an author, corporate or investigator name, supplied by publisher	AUID
[author – first] or [first author] or [1AU]	First Author Name	First personal author name in a citation	AU, FAU
[author – full] or [full author] or [FAU]	Full Author Name	Full author names (for citations added beginning 2002)	FAU
[author – last] or [last author] or [LASTAU]	Last Author Name	Last personal author name in a citation	AU, FAU
[BOOK]	Book	Book citation title (must be exact)	BTI
[editor] or [ED]	Editor	Editors for book or chapter citations from Bookshelf	ED
[FILTER]	Filter	Technical tags used by LinkOut (see also subsets); some searches use either [sb] or [filter]	---
[grant number] or [GR]	Grant Number	Research grant numbers and/or contract numbers (See https://www.nlm.nih.gov/bsd/grant_acronym.html)	GR
[issue] or [IP]	Issue	Number of the issue, part, or supplement	IP
[investigator] or [IR]	Investigator	NASA-funded principal investigator	FIR, IR
[investigator - full] or [FIR]	Full Investigator Name	Names of principal investigator(s) or collaborator(s) who contributed to the research	FIR
[ISBN]	ISBN	ISBN for book or book chapters	ISBN
[JID]	NLM Unique ID	Unique journal ID in NLM's catalog	JID
[journal] or [TA]	Journal title abbreviation	May be used with journal title or journal title abbreviation or ISSN or JID	JT, TA, IS, JID
[language] or [LA]	Language	Language in which the article was published	LA
[LID]	Location Identifier	Location ID data from publishers (e.g. Digital Object Identifier (DOI) or other publisher ID)	LID
[mesh] or [mesh terms] or [MH]	MeSH Terms	NLM's MeSH controlled vocabulary	MH
[mesh major topic] or [MAJR]	MeSH Major Topic	One of the main topics discussed in the article	MH

Search Tag	Tag Name	Search Tag Description	MEDLINE data element
[mesh subheading] or [subheading] or [SH]	MeSH Subheading	Describe more completely an aspect of a subject	MH
[mh:noexp] or [sh:noexp] or [majr:noexp]	Do not explode	Use only the most general MeSH term without accessing the narrower terms below it	---
[other term] or [OT]	Other Term	Non-MeSH subject terms (e.g. author keywords)	OT
owner*name*	Owner + acronym	Organization supplying citation data (e.g. *ownernasa*)	OWN
[pharmacological action] or [PA]	Pharmacological Action	MeSH Term – List of substances known to have a particular pharmacologic action	MH, RN
[page] or [PG]	Pagination	Full pagination, searches first page of citation	PG
[PL]	Publication Place	Journal's country of publication	PL
[PMID]	PubMed Unique Identifier	Unique number (UID) assigned to each citation	PMID
PMC*number*	PMC Identifier	Unique number assigned to item in PMC	PMC
[PS]	Personal Name as Subject	Individual is the subject of the article	FPS, PS
[publication type] or [PT]	Publication Type	Type of material the work represents	PT
[publisher] or [PUBN]	Publisher	Publisher's name of citations on the Bookshelf	PB
[subset] or [SB]	Subset	Specified subset values (see above)	SB
[RN]	Registry Number	FDA Unique Ingredient Identifier (UNII) [formerly Enzyme Commission or CAS Registry Number]	RN, RR
[SI]	Secondary Source Identifier	Secondary source databanks and accession numbers (e.g. *clinicaltrials.gov [si]*)	SI
[supplementary concept] or [substance] or [NM]	Supplementary Concept	Chemical, protocol or disease terms; this search does not explode, but synonyms are mapped	RN
[title] or [TI]	Title	Title of the article	TI
[title/abstract] or [TIAB]	Title/Abstract	Words and numbers included in a citation's title, collection title, abstract, other abstract and keywords	TI, AB
[TT]	Transliterated Title	Title in the published non-English language	TT
[text word] or [text words] or [TW]	Text Words	Identified as text by PubMed (does not search affiliation, journal or most author fields)	AB, MH, OT, RN, TI
[volume] or [VI]	Volume	Volume number of the journal	VI

PubMed® Stopwords

(Words ignored by PubMed even in "quoted phrases", unless those phrases are a MeSH term or known to PubMed)

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

Searching for PubMed Journals in the NLM Catalog

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

General Information

Access the NLM Catalog from
- **Journals in NCBI Databases** link on the PubMed homepage
- Or from **NLM Catalog** in the drop-down menu of the NCBI (PubMed) Search box

Recommended: when searching for journals to send to PubMed:
- Check the **PubMed journals** under **PubMed/PMC journals** in the left navigation filters menu
- Or use the search tag: **nlmcatalog pubmed [sb]**

Journal Subsets and Broad Subject Terms

In additional to searching by a specific journal name, two subset options are available:
- Identify journals by using an existing **Journal Subset** (e.g. *jsubsetd*)
  Use AIM, D, E, H, IM, K, N, Q, QIS, S, T, or X, with jsubset*code*
  For more information, visit: https://www.ncbi.nlm.nih.gov/books/NBK3799/table/catalog.T.journal_subsets/

- Use **Broad Subject Terms** [ST]: Subject terms are assigned by NLM to MEDLINE journals to describe the journal's overall scope (e.g., cardiology, genetics); Not all journals have subject terms
  - Access the Broad Subject Terms list for Indexed Journals:
    - From the direct **Broad Subject Terms** link on the NLM Catalog homepage
    - Or directly at: https://wwwcf.nlm.nih.gov/serials/journals/
    - Or use the **NLM Catalog Advanced Search Builder** drop-down menu under the **Advanced** link
  - Or use a known subject term code (e.g. *cardiology[st]* or *cell biology [st]*) in the search

Note: Access the **Consumer health** topic from **Show additional filters, Publication Type;** this subset includes part of jsubsetk with additional journals that are not currently indexed for MEDLINE.

Status Search Codes

Filter/Subset	Filter/Subset Description	NLM Catalog tag
ncbijournals	*Journals referenced in the NCBI databases (including PubMed)	---
nlmcatalog pubmed [sb]	*PubMed journals	---
currentlyindexed	*Journals currently indexed for MEDLINE	Current Indexing Status
notcurrentlyindexed	Journals not currently indexed for MEDLINE	Current Indexing Status
reportedmedline	*Journals currently or previously indexed in MEDLINE	Current Indexing Status
journalspmc	*Journals currently in PMC	PMC Availability
journalspmcforthcoming	*PMC forthcoming journals	PMC Availability

*Available as a filter under Journal subsets, click **Customize** to see all options.
https://www.nlm.nih.gov/pubs/techbull/nd10/nd10_mms_nlm_catalog.html

Journal resources include:

- Search Field Descriptions and Tags (including books in the NLM Catalog): https://www.ncbi.nlm.nih.gov/books/NBK3799/#catalog.Search_Field_Descriptions_and_Ta
- MEDLINE® Journal Selection (general information): https://www.nlm.nih.gov/pubs/factsheets/jsel.html
- Specifically for publishers
  - Information for Publishers: https://www.ncbi.nlm.nih.gov/pmc/pub/pubinfo/
  - FAQ: Journal Selection for MEDLINE® Indexing at NLM: https://www.nlm.nih.gov/pubs/factsheets/j_sel_faq.html