

Search Strategy

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TEXAS TECH UNIVERSITY



HEALTH SCIENCES CENTER™

Goals & Objectives

Improve students' ability to construct strong search strategies in PubMed:

- Basic terminology is explained
- Appropriate usage examples are presented
- Questions are supplied for practice

Introduction

The old saying “Garbage in, garbage out” holds true for developing strong searching skills.

If you “Ask” the right question, you will “Acquire” the information you are seeking.

Database Used - PubMed

Examples are based on the PubMed database

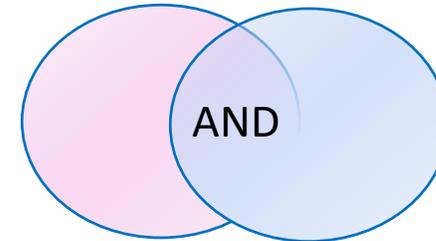
- PubMed is:
 - is free
 - has 36+ million records from over 5,200 publications
 - is updated daily
 - covers fields of:
 - medicine, nursing, dentistry, veterinary medicine, pharmacology, health care system, and allied health
 - is international in scope

Boolean Operators - Glossary

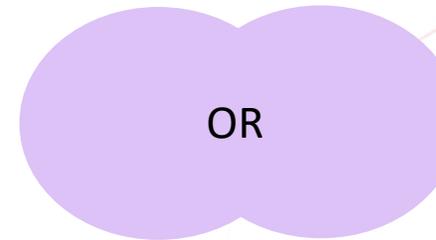
Boolean Operators:
logic system used to
combine search terms

- AND
- OR
- NOT

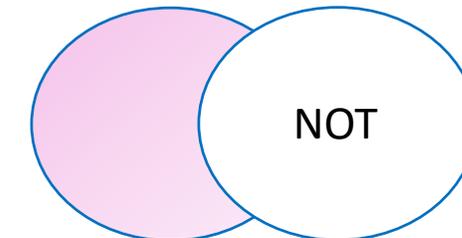
AND: retrieves **only** the middle section (intersection)



OR: retrieves **all** (left and right side)



NOT: **excludes**, only pink section is retrieved. Use sparingly.



Less is More!

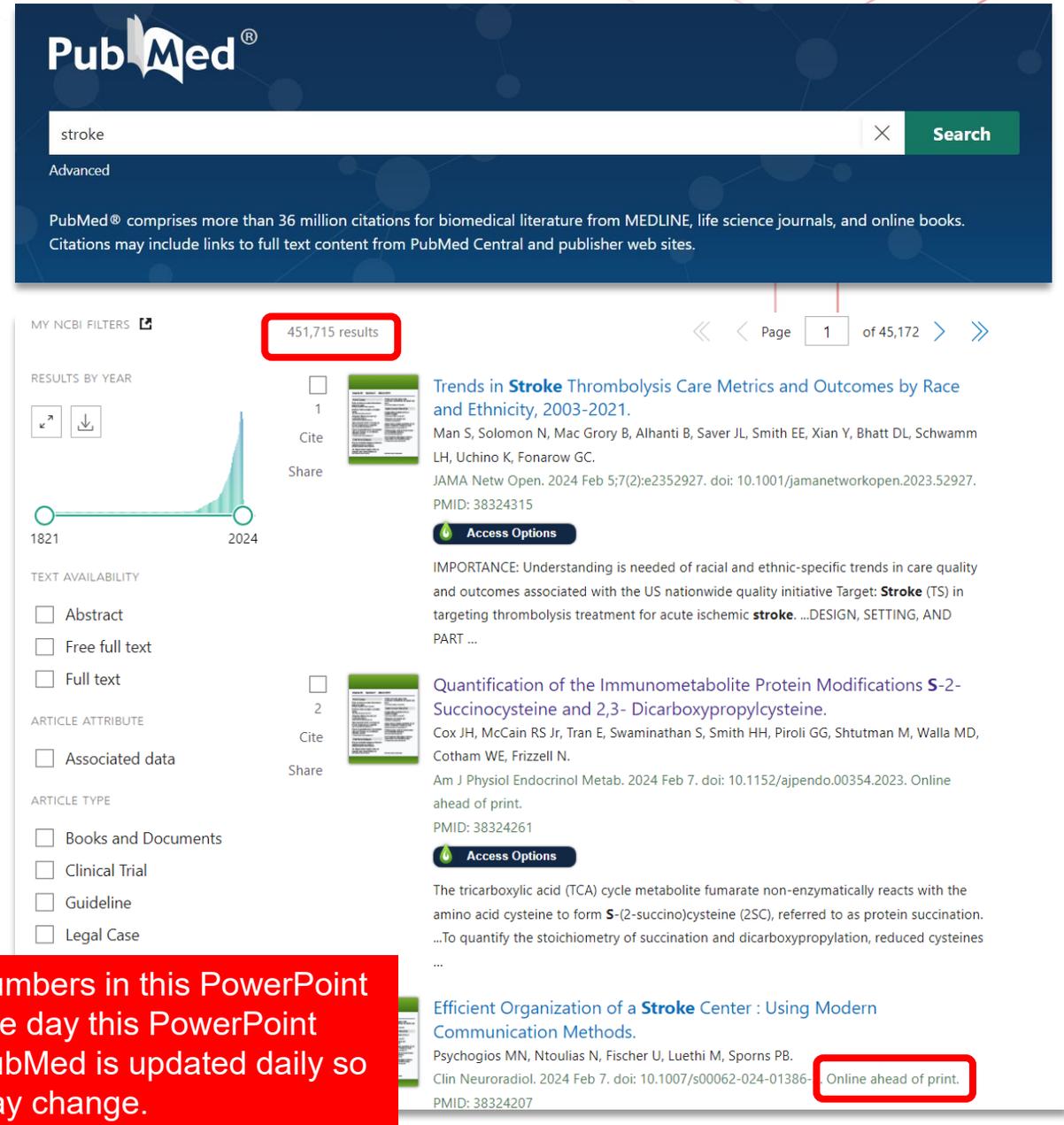
If you focus on your topic, even though you have fewer numbers of results, your results will be more relevant!

Keywords

Stroke (keyword) retrieves 451,000+ results

- Keyword searching locates the term anywhere in the electronic record, *even when the article's focus is on another topic.*
- “Swimming strokes” will also appear in the results of this search on “stroke”.

Keyword searching *also* locates very recent articles that have not yet been indexed or tagged with *Subject Headings*.



PubMed®

stroke

Advanced

PubMed® comprises more than 36 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.

MY NCBI FILTERS 

451,715 results

Page 1 of 45,172

RESULTS BY YEAR

1821 2024

TEXT AVAILABILITY

Abstract

Free full text

Full text

ARTICLE ATTRIBUTE

Associated data

ARTICLE TYPE

Books and Documents

Clinical Trial

Guideline

Legal Case

1 Cite Share

Trends in **Stroke Thrombolysis Care Metrics and Outcomes by Race and Ethnicity, 2003-2021.**

Man S, Solomon N, Mac Grory B, Alhanti B, Saver JL, Smith EE, Xian Y, Bhatt DL, Schwamm LH, Uchino K, Fonarow GC.

JAMA Netw Open. 2024 Feb 5;7(2):e2352927. doi: 10.1001/jamanetworkopen.2023.52927. PMID: 38324315

Access Options

IMPORTANCE: Understanding is needed of racial and ethnic-specific trends in care quality and outcomes associated with the US nationwide quality initiative Target: **Stroke** (TS) in targeting thrombolysis treatment for acute ischemic **stroke**. ...DESIGN, SETTING, AND PART ...

2 Cite Share

Quantification of the Immunometabolite Protein Modifications S-2-Succinocysteine and 2,3- Dicarboxypropylcysteine.

Cox JH, McCain RS Jr, Tran E, Swaminathan S, Smith HH, Piroli GG, Shtutman M, Walla MD, Cotham WE, Frizzell N.

Am J Physiol Endocrinol Metab. 2024 Feb 7. doi: 10.1152/ajpendo.00354.2023. Online ahead of print. PMID: 38324261

Access Options

The tricarboxylic acid (TCA) cycle metabolite fumarate non-enzymatically reacts with the amino acid cysteine to form S-(2-succino)cysteine (2SC), referred to as protein succination. ...To quantify the stoichiometry of succination and dicarboxypropylation, reduced cysteines ...

Efficient Organization of a **Stroke Center : Using Modern Communication Methods.**

Psychogios MN, Ntoulas N, Fischer U, Luethi M, Sporns PB.

Clin Neuroradiol. 2024 Feb 7. doi: 10.1007/s00062-024-01386-1. **Online ahead of print.** PMID: 38324207

NOTE: result numbers in this PowerPoint were valid on the day this PowerPoint was created. PubMed is updated daily so the numbers may change.

Medical Subject Headings (MeSH)

Stroke (MeSH) retrieves
178,000+ records

- MeSH is the controlled vocabulary or thesaurus used in PubMed to organize articles.
- Use MeSH headings to locate articles that are indexed or tagged for a specific concept.
- Related words or synonyms are included.
- Subject headings are easily modified using subheadings.

The screenshot shows the MeSH search interface on the National Library of Medicine website. The search term 'stroke' is entered in the search box, and the results are displayed in a list of subheadings. A red box highlights the 'Add to search builder' button, and a red arrow points to it from a red text box. The text box contains the text: "Add to search builder" to retrieve all articles indexed with this subject heading or concept.

NIH National Library of Medicine
National Center for Biotechnology Information

MeSH MeSH stroke Search

Full ▾ Send to: PubMed Search Builder

Stroke
A group of pathological conditions characterized by sudden, non-convulsive loss of neurological function due to BRAIN ISCHEMIA or INTRACRANIAL HEMORRHAGES. Stroke is classified by the type of tissue NECROSIS, such as the anatomic location, vasculature involved, etiology, age of the affected individual, and hemorrhagic vs. non-hemorrhagic nature. (From Adams et al., Principles of Neurology, 6th ed, pp777-810)
Year introduced: 2008 (2000)

PubMed search builder options
[Subheadings:](#)

<input type="checkbox"/> blood	<input type="checkbox"/> enzymology	<input type="checkbox"/> parasitology
<input type="checkbox"/> cerebrospinal fluid	<input type="checkbox"/> epidemiology	<input type="checkbox"/> pathology
<input type="checkbox"/> chemically induced	<input type="checkbox"/> ethnology	<input type="checkbox"/> physiopathology
<input type="checkbox"/> classification	<input type="checkbox"/> etiology	<input type="checkbox"/> prevention and control
<input type="checkbox"/> complications	<input type="checkbox"/> genetics	<input type="checkbox"/> psychology
<input type="checkbox"/> congenital	<input type="checkbox"/> history	<input type="checkbox"/> radiotherapy
<input type="checkbox"/> diagnosis	<input type="checkbox"/> immunology	<input type="checkbox"/> surgery
<input type="checkbox"/> diagnostic imaging	<input type="checkbox"/> metabolism	<input type="checkbox"/> therapy
<input type="checkbox"/> diet therapy	<input type="checkbox"/> microbiology	<input type="checkbox"/> urine
<input type="checkbox"/> drug therapy	<input type="checkbox"/> mortality	<input type="checkbox"/> veterinary
<input type="checkbox"/> economics	<input type="checkbox"/> nursing	
<input type="checkbox"/> embryology		

Restrict to MeSH Major Topic.
 Do not include MeSH terms found below this term in the MeSH hierarchy.

Tree Number(s): C10.228.140.300.775, C14.907.253.855
MeSH Unique ID: D020521
Entry Terms:

- Strokes
- Cerebrovascular Accident
- Cerebrovascular Accidents
- CVA (Cerebrovascular Accident)

Add to search builder AND ▾
Search PubMed

Related information

- PubMed
- PubMed - Major Topic
- Clinical Queries
- NLM MeSH Browser
- dbGaP Links
- MedGen

ff Clear MeSH e more...

Major Headings

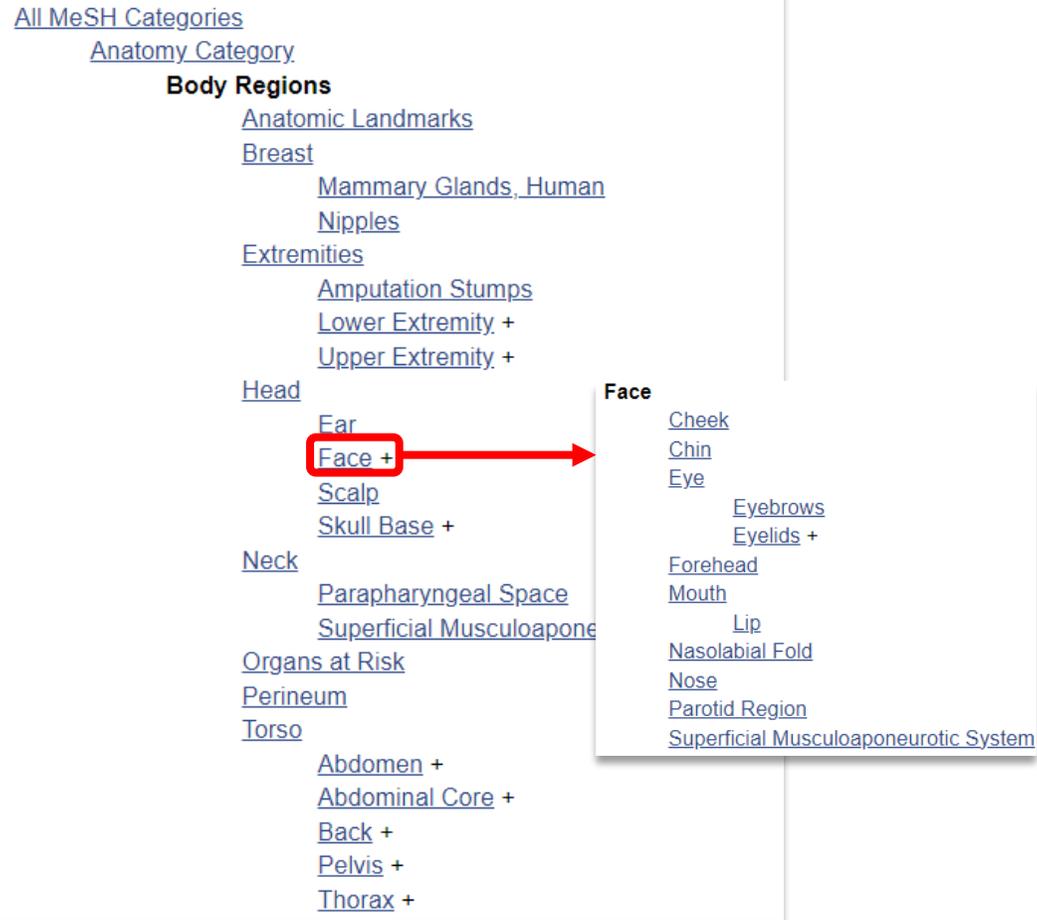
Stroke (Majr) retrieves
141,000+ records

- Limiting the subject heading to “Major Topic” locates only those articles where the focus of the article is on this main concept.
- NOTE: Fewer articles are located with Major Topic than when searching with MeSH; however, these articles are focused and more relevant to your search.

The screenshot shows the National Library of Medicine (NIH) MeSH interface. At the top, the NIH logo and 'National Library of Medicine National Center for Biotechnology Information' are visible. A user profile 'shannon.harris.ml...' is in the top right. The main search area has 'MeSH' selected in a dropdown menu, with a search box and a 'Search' button. Below the search bar, there are links for 'Limits' and 'Advanced'. The main content area displays the term 'Stroke' with a definition: 'A group of pathological conditions characterized by sudden, non-convulsive loss of neurological function due to BRAIN ISCHEMIA or INTRACRANIAL HEMORRHAGES. Stroke is classified by the type of tissue NECROSIS, such as the anatomic location, vasculature involved, etiology, age of the affected individual, and hemorrhagic vs. non-hemorrhagic nature. (From Adams et al., Principles of Neurology, 6th ed, pp777-810) Year introduced: 2008 (2000)'. Below the definition are 'PubMed search builder options' and a link to 'Subheadings:'. A grid of subheadings is listed with checkboxes, including 'blood', 'cerebrospinal fluid', 'chemically induced', 'classification', 'complications', 'congenital', 'diagnosis', 'diagnostic imaging', 'diet therapy', 'drug therapy', 'economics', 'embryology', 'enzymology', 'epidemiology', 'ethnology', 'etiology', 'genetics', 'history', 'immunology', 'metabolism', 'microbiology', 'mortality', 'nursing', 'parasitology', 'pathology', 'physiopathology', 'prevention and control', 'psychology', 'radiotherapy', 'surgery', 'therapy', 'urine', 'veterinary', and 'virology'. At the bottom of the subheadings list, there is a checkbox labeled 'Restrict to MeSH Major Topic' which is checked and highlighted with a red box. Below this is an unchecked checkbox 'Do not include MeSH terms found below this term in the MeSH hierarchy.' Further down, 'Tree Number(s): C10.228.140.300.775, C14.907.253.855' and 'MeSH Unique ID: D020521' are shown. 'Entry Terms:' include 'Strokes', 'Cerebrovascular Accident', and 'Cerebrovascular Accidents'. On the right side, there is a 'PubMed Search Builder' section with an empty search box, 'Add to search builder' and 'Search PubMed' buttons, and an 'AND' dropdown. Below that is a 'Related information' section with links to 'PubMed', 'PubMed - Major Topic', 'Clinical Queries', 'NLM MeSH Browser', 'dbGaP Links', and 'MedGen'. At the bottom right, there is a 'Recent Activity' section with a 'Turn Off' and 'Clear' button, and a search for 'adolescent (32)'.

Check this box to select “Major Topic” when limiting articles to “Major Topic” only.

Example of MeSH Relationship



- MeSH is organized into thematic hierarchical categories.
- Themes are broken down into more specific concepts.
 - i.e. subject headings.
- Articles are indexed (tagged) for the most specific concept.
- “+” signifies that there are more specific terms available.
 - e.g. Face +
- MeSH vocabulary is updated annually.
- Most articles are tagged with 10-15 subject headings.

“Do not include indented MeSH terms”

economics

embryology

nursing

virology

Restrict to MeSH Major Topic.

Do not include MeSH terms found below this term in the MeSH hierarchy.

[All MeSH Categories](#)

[Diseases Category](#)

[Nervous System Diseases](#)

[Central Nervous System Diseases](#)

[Brain Diseases](#)

[Cerebrovascular Disorders](#)

Stroke

[Brain Infarction](#)

[Brain Stem Infarctions +](#)

[Cerebral Infarction +](#)

[Hemorrhagic Stroke](#)

[Ischemic Stroke](#)

[Embolic Stroke](#)

[Thrombotic Stroke +](#)

- All subject headings indented and below the chosen subject heading “Stroke” will automatically be included in the search strategy *unless* the “Do not include...” option is selected.
- Automatic inclusion of these terms broadens the search as related subject headings are added automatically.

i.e., Brain Infarction etc. is not included in this search because of our selection above.



MeSH Subheadings

Stroke

A group of pathological conditions characterized by sudden, non-convulsive loss of neurological function due to BRAIN ISCHEMIA or INTRACRANIAL HEMORRHAGES. Stroke is classified by the type of tissue NECROSIS, such as the anatomic location, vasculature involved, etiology, age of the affected individual, and hemorrhagic vs. non-hemorrhagic nature. (From Adams et al., Principles of Neurology, 6th ed, pp777-810)

Year introduced: 2008 (2000)

PubMed search builder options

[Subheadings:](#)

- | | | |
|--|---------------------------------------|---|
| <input type="checkbox"/> blood | <input type="checkbox"/> enzymology | <input type="checkbox"/> parasitology |
| <input type="checkbox"/> cerebrospinal fluid | <input type="checkbox"/> epidemiology | <input type="checkbox"/> pathology |
| <input type="checkbox"/> chemically induced | <input type="checkbox"/> ethnology | <input type="checkbox"/> physiopathology |
| <input type="checkbox"/> classification | <input type="checkbox"/> etiology | <input type="checkbox"/> prevention and control |
| <input type="checkbox"/> complications | <input type="checkbox"/> genetics | <input type="checkbox"/> psychology |
| <input type="checkbox"/> congenital | <input type="checkbox"/> history | <input type="checkbox"/> radiotherapy |
| <input type="checkbox"/> diagnosis | <input type="checkbox"/> immunology | <input type="checkbox"/> surgery |
| <input type="checkbox"/> diagnostic imaging | <input type="checkbox"/> metabolism | <input checked="" type="checkbox"/> therapy |
| <input type="checkbox"/> diet therapy | <input type="checkbox"/> microbiology | <input type="checkbox"/> urine |
| <input type="checkbox"/> drug therapy | <input type="checkbox"/> mortality | <input type="checkbox"/> veterinary |
| <input type="checkbox"/> economics | <input type="checkbox"/> nursing | <input type="checkbox"/> virology |

PubMed Search Builder

"Stroke/therapy"[Mesh]

Add to search builder AND ▾

Search PubMed

YouTube Tutorial

Related information

- PubMed
- PubMed - Major Topic
- Clinical Queries
- NLM MeSH Browser
- dbGaP Links
- MedGen

- Stroke (MeSH) with subheading: "therapy" retrieves 65,840+ results
- Stroke (Majr) with subheading: "therapy" retrieves 48,180+ records

Subheadings **NARROW** the subject heading.
e.g., diagnosis of stroke or genetics of stroke or therapy of stroke

Select as many subheadings as you need.

PubMed Search Builder

"Stroke/therapy"[Majr]

Add to search builder AND ▾

Search PubMed

MeSH Subheadings/Qualifiers

Abnormalities
Administration & Dosage
Adverse Effects
Agonists
Analogues & Derivatives
Analysis
Anatomy & Histology
Antagonists & Inhibitors

Blood
Blood Supply

Cerebrospinal Fluid
Chemical Synthesis
Chemically Induced
Chemistry
Classification
Complications
Congenital
Cytology

Deficiency
Diagnosis
Diagnostic Imaging
Diet Therapy
Drug Effects
Drug Therapy

Economics
Education
Embryology
Enzymology
Epidemiology
Ethics
Ethnology
Etiology

Genetics
Growth & Development

History

Immunology
Injuries
Innervation
Instrumentation
Isolation & Purification

Legislation & Jurisprudence

Metabolism
Methods
Microbiology
Mortality

Nursing

Organization & Administration

Parasitology
Pathogenicity
Pathology
Pharmacokinetics
Pharmacology
Physiology
Physiopathology
Poisoning
Prevention & Control
Psychology

Radiation Effects
Radiotherapy
Rehabilitation

Secondary
Standards
Statistics & Numerical Data
Supply & Distribution
Surgery

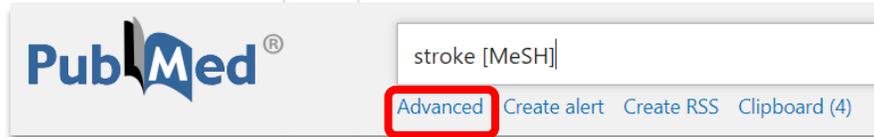
Therapeutic Use
Therapy
Toxicity
Transmission
Transplantation
Trends

Ultrastructure
Urine

Veterinary
Virology

- Subheadings **NARROW** the subject heading.
- Usually they are combined with the subject heading.
 - e.g., **Stroke/therapy** (“stroke” is the subject heading and “therapy” is the subheading.)
- Not all subheadings are available for all terms.
 - e.g., **Stroke/therapeutic use**
- Subheading definitions:
https://www.nlm.nih.gov/mesh/qualifiers_scopenotes.html

PubMed Advanced Search



The Advanced Search Page shows your search history, strategies, and search results. These search statement numbers (e.g. #5 or #6) can be combined with each other, [AND], or with new search terms [#X] using Boolean logic operators “AND”, “OR”, “NOT”.

Note: The result numbers in your search sets may be different since the database is updated daily.

A screenshot of the PubMed Advanced Search Builder interface. The top section is titled "PubMed Advanced Search Builder" and includes the PubMed logo and a "User Guide" link. Below this, there is a section for adding terms to the query box, with a dropdown menu set to "All Fields" and a text input field for "Enter a search term". An "ADD" button is next to the input field, and a "Show Index" link is below it. The "Query box" section has a text input field for "Enter / edit your search query here" and an "Add to History" button. The bottom section is titled "History and Search Details" and includes "Download" and "Delete" icons. It contains a table with search history entries.

Search	Actions	Details	Query	Results	Time
#6	...	>	Search: ("Patient Care Team"[Mesh]) AND ("Stroke/therapy"[Majr]) Sort by: Most Recent	439	11:59:47
#5	...	>	Search: "Patient Care Team"[Mesh] Sort by: Most Recent	73,212	11:59:11
#4	...	>	Search: "Stroke/therapy"[Majr] Sort by: Most Recent	48,223	11:58:43
#3	...	>	Search: "Stroke/therapy"[Mesh] Sort by: Most Recent	65,883	11:58:26
#2	...	>	Search: "Stroke"[Majr] Sort by: Most Recent	143,075	11:58:10
#1	...	>	Search: "Stroke"[Mesh] Sort by: Most Recent	180,526	11:57:56

Filters – used to narrow down topic

Filters are located on the left side of the results page.

Activate filters by clicking checkboxes. Filters are active when the checkbox is blue.

TEXT AVAILABILITY

Abstract

Free full text

Full text

ARTICLE ATTRIBUTE

Associated data

ARTICLE TYPE

Books and Documents

Clinical Trial

Meta-Analysis

Randomized Controlled Trial

Review

Systematic Review

PUBLICATION DATE

1 year

5 years

10 years

Custom Range

Additional filters

ARTICLE TYPE

SPECIES

ARTICLE LANGUAGE

SEX

AGE

OTHER

Azerbaijani

Bosnian

Bulgarian

Catalan

Chinese

Croatian

Czech

Danish

Dutch

English

Esperanto

Estonian

Finnish

French

Macedonian

Malay

Malayalam

Maori

Multiple Languages

Norwegian

Persian

Polish

Portuguese

Pushto

Romanian

Russian

Sanskrit

Scottish gaelic

Cancel Show

Click Additional Filters to add other filters such as Humans, English, or Age Groups.

Filters – used to narrow down topic

- Commonly used modifiers are located within the Filters options.
- The Boolean operator OR is the default operator *within* groups.
 - e.g., **Meta-Analysis** or **Clinical Trial** from the Article Type grouping retrieves articles of either publication type.
- The Boolean operator AND is the default operator *between* groupings.
 - e.g. **English** from the Article Language grouping combined with **Adult 19+ years** from the Age grouping retrieves articles that are in English and deal with adults 19 years old and older. All concepts must be present for retrieval.

[See Boolean Operators slide.](#)

ARTICLE TYPE

- Books and Documents
- Clinical Trial
- Meta-Analysis
- Randomized Controlled Trial
- Review
- Systematic Review

PUBLICATION DATE

- 1 year
- 5 years
- 10 years
- Custom Range

ARTICLE LANGUAGE

- English

AGE

- Adult: 19+ years

Additional filters

WHEN DO I USE...

- **Use MeSH** when unfamiliar with the topic and don't know how much has been written on the subject. It will give you the broadest search for your term as a **concept**.
- **Use Major:** If you find too much on the subject then go back to the MeSH database and start filtering (narrowing down) by choosing to only get those articles that are focused on your topic (Major).
- **Attach subheadings** to either MeSH or Major: when you are interested in a particular facet of your concept.

Most importantly, you will use pieces of the database to construct what you hope will give you the answer to your question.

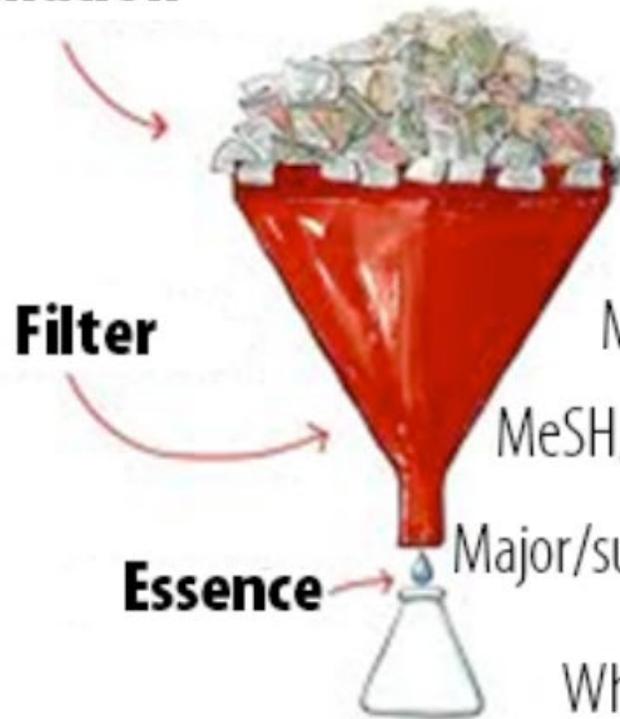
IT DEPENDS ON THE QUESTION!

- Sometimes your topic may be so small and already narrow that you only need to use MeSH.
 - Today (4/5/24) a search for Rhinosinusitis results in 180 articles
 - So will only need minimal work to narrow down.
 - Today (4/5/24) there are 1,295,057 articles on Heart Diseases
 - You will definitely want to narrow this down.
- **How?** Maybe you are interested in population, then locate a 2nd MeSH term.
 - e.g. African Americans and combine.
 - ("Heart Diseases"[Mesh]) AND "Black or African American"[Mesh]

IT DEPENDS ON THE QUESTION!

- Articles are indexed/tagged to the most specific level of subject heading.
 - Heart diseases is very broad so narrow the strategy to a more specific term: myocardial infarction [MeSH]
 - You are interested in prevention:
 - There is a subheading for prevention and control that can be used with myocardial infarction
 - ("Myocardial Infarction/prevention and control"[Mesh]) = 11,188 articles (4/5/24) **Still too many!**
- So you may relook at your question and realize that what you really want are articles on the prevention of Myocardial Infarction in the African American population.
 - (2 MeSH headings and one of the MeSH headings has a subheading attached)
 - ("Myocardial Infarction/prevention and control"[Mesh]) AND "Black or African American"[Mesh] = 14

Information



MeSh Headings = Broadest

Major will narrow topic

MeSH/subheading further narrows

Major/subheading = narrowest

When there is little information then MeSH will be enough!

REMEMBER: Combining two concepts (two MeSH terms) also narrows your topic.

Comment > Evid Based Med. 2016 Feb;21(1):33-4. doi: 10.1136/ebmed-2015-110258.

Epub 2015 Nov 25.

ACE inhibitors in African Americans with hypertension associated with worse outcomes as compared to other antihypertensives



Lars H Lund ¹

Affiliations + expand

PMID: 26608476 DOI: 10.1136/ebmed-2015-110258



Article Link



View Complete Issue

This article was one the results of the strategy: (“Myocardial Infarction/prevention and control”[Mesh] AND “Black or African Americans”[Mesh])

Publication types

> Comment

MeSH terms

- > Angiotensin-Converting Enzyme Inhibitors / therapeutic use*
- > Antihypertensive Agents / therapeutic use*
- > Black or African American*
- > Female
- > Humans
- > Hypertension / drug therapy*
- > Male
- > Myocardial Infarction / prevention & control*
- > Stroke / prevention & control*

Substances

- > Angiotensin-Converting Enzyme Inhibitors
- > Antihypertensive Agents

The following slides and examples will help you to practice using these concepts

**Search
Question:**

Databases:

1 ↔ AND 2 ↔ AND 3 ↔ AND 4

↑
OR
↓

Do you need... ?

subheadings

dates

limiters such as:

language

human or animal

age groups

publication types

journal subsets

This form
can help
organize
your thought
process.

PubMed: How to Search Step-by-Step

- Access PubMed from library homepage <https://ttuhsc.libguides.com/new> to be connected to library subscriptions (more full text articles).
- From the PubMed homepage, click on **MeSH Database** to search by concept, or subject heading.

The screenshot shows the PubMed homepage with the NIH logo and the text "National Library of Medicine National Center for Biotechnology Information". A "Log in" button is in the top right. The PubMed logo is prominently displayed. Below it is a search bar with a green "Search" button. Under the search bar, the word "Advanced" is visible. A paragraph of text states: "PubMed® comprises more than 36 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." At the bottom, there are four main navigation categories: "Learn" (with a lightbulb icon), "Find" (with a magnifying glass icon), "Download" (with a download arrow icon), and "Explore" (with a globe icon). Under "Explore", the "MeSH Database" link is highlighted with a red box and a red arrow points to it from the left.

Learn	Find	Download	Explore
About PubMed	Advanced Search	E-utilities API	MeSH Database
FAQs & User Guide	Clinical Queries	FTP	Journals
Finding Full Text	Single Citation Matcher	Batch Citation Matcher	

Review Point

- Using the major Boolean operators “AND,” “OR,” and “NOT,” a search strategy can be refined to effectively locate articles on specific topics.
- True or false: The Boolean operator “AND” means that an article **MUST** be indexed for both terms.
 - (e.g., HELLP Syndrome “AND” Pregnancy means that both concepts will be in all the articles)

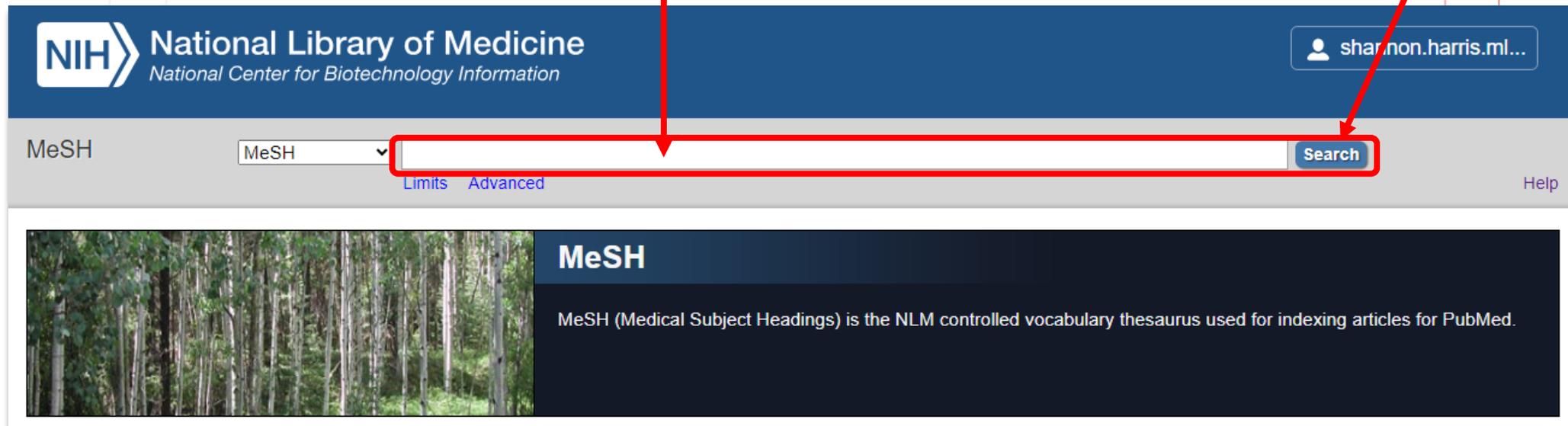
Review Point

- **True**
- When using the Boolean operator “AND”, articles are indexed for both terms. Only the articles in the intersection will be retrieved.

[See Boolean Operators slide.](#)

Using MeSH

Step 1: On the MeSH page, type needed term. Then click Search.



The screenshot shows the MeSH website interface. At the top, the NIH logo and "National Library of Medicine National Center for Biotechnology Information" are displayed. A user profile "shannon.harris.ml..." is visible in the top right. Below the header, the "MeSH" label is on the left, followed by a search input field containing "MeSH" and a dropdown arrow. A red box highlights the search input field and the "Search" button. A red arrow points from the text "type needed term" to the search input field, and another red arrow points from "click Search" to the "Search" button. Below the search bar, there are links for "Limits" and "Advanced". On the far right, there is a "Help" link. The main content area features a photograph of a forest on the left and a dark blue box on the right with the text: "MeSH (Medical Subject Headings) is the NLM controlled vocabulary thesaurus used for indexing articles for PubMed."

If your term does not show up, consider using synonyms and if they are MeSH headings they will display. Next, consider a broader term that may be helpful. If you are still having difficulties locating an appropriate MeSH term, consult a librarian.

PubMed: How to Search Step-by-Step

Step 2: Select subheadings (optional) and/or restrict to Major Topic (optional) based on your search needs.

Step 3: Click **Add to Search Builder**.

Step 4: Click **Search PubMed**.

The screenshot shows the MeSH (Medical Subject Headings) interface. At the top, there is a search bar with 'MeSH' selected and a 'Search' button. Below the search bar, there are links for 'Limits' and 'Advanced'. The main content area displays the term 'Stroke' with its definition and PubMed search builder options. The 'Subheadings' section lists various categories, with 'therapy' selected. The 'Restrict to MeSH Major Topic' checkbox is also checked. On the right side, there is a 'PubMed Search Builder' section with a text input field containing 'Stroke/therapy' [Majr], an 'Add to search builder' button, and a 'Search PubMed' button. Below this, there is a 'Related information' section with links to PubMed, PubMed - Major Topic, Clinical Queries, NLM MeSH Browser, dbGaP Links, and MedGen. At the bottom, there is a 'Recent Activity' section with a list of search results for 'Stroke' and 'stroke (20)'. The 'Add to search builder' and 'Search PubMed' buttons are highlighted with red boxes.

PubMed: Results for 1st Concept

1st concept results:

The screenshot shows the PubMed search interface for the query "Stroke/therapy"[Majr]. The search bar at the top contains the query and a "Search" button. Below the search bar, there are options for "Advanced", "Create alert", and "Create RSS", along with a "User Guide" link. The results section shows 48,223 results, with a "Sort by: Best match" dropdown and a "Display options" gear icon. The results are displayed in a list format, with the first three results visible. The first result is "Pathophysiology and Treatment of Stroke: Present Status and Future Perspectives." by Kuriakose D, Xiao Z. The second result is "Stroke in the elderly." by Sharrief A, Grotta JC. The third result is "Mirror therapy in chronic stroke survivors with severely impaired upper limb function: a randomized controlled trial." The interface also includes a "MY NCBI FILTERS" section, a "RESULTS BY YEAR" bar chart showing an increase in results from 1964 to 2024, and a "TEXT AVAILABILITY" section with checkboxes for "Abstract", "Free full text", and "Full text".

PubMed®

"Stroke/therapy"[Majr] X Search

Advanced Create alert Create RSS User Guide

Save Email Send to Sort by: Best match Display options

MY NCBI FILTERS 48,223 results Page 1 of 4,823

RESULTS BY YEAR

1964 2024

TEXT AVAILABILITY

Abstract

Free full text

Full text

ARTICLE ATTRIBUTE

Associated data

1 Pathophysiology and Treatment of Stroke: Present Status and Future Perspectives. Kuriakose D, Xiao Z. Int J Mol Sci. 2020 Oct 15;21(20):7609. doi: 10.3390/ijms21207609. PMID: 33076218

Download PDF View Complete Issue Free PMC article.

Review.

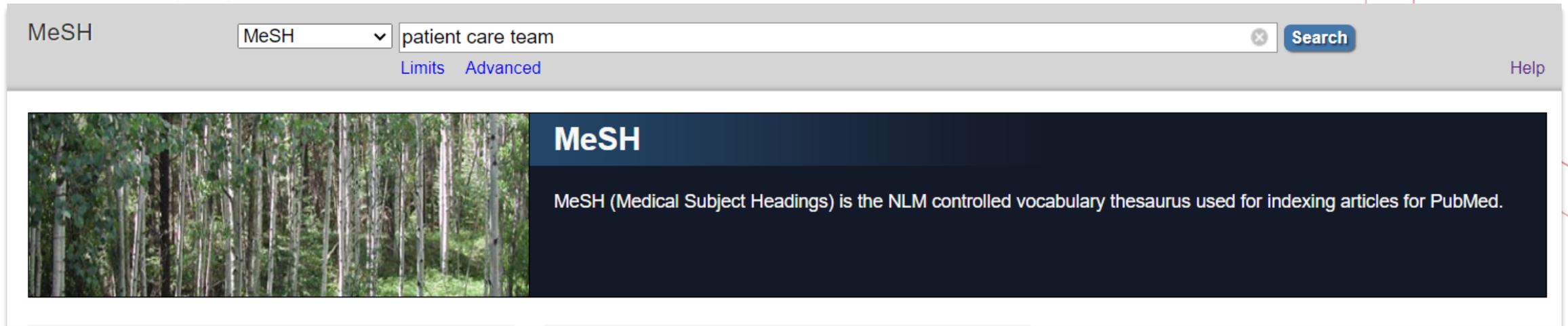
2 Stroke in the elderly. Sharrief A, Grotta JC. Handb Clin Neurol. 2019;167:393-418. doi: 10.1016/B978-0-12-804766-8.00021-2. PMID: 31753145

Access Options Review.

3 Mirror therapy in chronic stroke survivors with severely impaired upper limb function: a randomized controlled trial.

Using MeSH: 2nd Concept

Repeat steps/selections with 2nd concept.



MeSH

MeSH patient care team Search

[Limits](#) [Advanced](#) [Help](#)

MeSH

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

Using MeSH: 2nd Concept

Choose 2nd concept selections, click **Add to search builder** and click **Search PubMed**.

2nd concept results:

MeSH [Create alert](#) [Limits](#) [Advanced](#) [Help](#)

Full

Patient Care Team
Care of patients by a multidisciplinary team usually organized under the leadership of a physician; each member of the team has specific responsibilities and the whole team contributes to the care of the patient.
Year introduced: 1968

PubMed search builder options
[Subheadings:](#)

<input type="checkbox"/> classification	<input type="checkbox"/> history	<input type="checkbox"/> standards
<input type="checkbox"/> economics	<input type="checkbox"/> legislation and jurisprudence	<input type="checkbox"/> statistics and numerical data
<input type="checkbox"/> ethics	<input type="checkbox"/> organization and administration	<input type="checkbox"/> trends

AND

[YouTube Tutorial](#)

Related information
PubMed

PubMed [Advanced](#) [Create alert](#) [Create RSS](#) [User Guide](#)

Sort by:

MY NCBI FILTERS

RESULTS BY YEAR

Interdisciplinary approach to chronic pain management.
Danilov A, Danilov A, Barulin A, Kurushina O, Latysheva N.
Postgrad Med. 2020 Nov;132(sup3):5-9. doi: 10.1080/00325481.2020.1757305. Epub 2020 May 5.
PMID: 32298161

Using Advanced Search with “AND”

1. For 1st term, click on **dots** under **Action** and select **Add Query**.
2. For 2nd term, click on **dots** under **Action** and select **Add with AND**.
3. Click arrow and **Add to History** to add numbers to your search history.

Query box

Enter / edit your search query here Search

History and Search Details Download Delete

Search	Actions	Details	Query	Results	Time
#5	...	Add query	Patient Care Team"[Mesh]	73,212	13:22:41
#4	...	Delete	Stroke/therapy"[Majr]	48,223	13:13:42
#8	...	Create alert	Stroke [MeSH] Sort by: Most Recent	180,526	12:13:20

Query box

"Patient Care Team"[Mesh] × Search

History and Search Details Download Delete

Search	Actions	Details	Query	Results	Time
#5	...	>	Search: "Patient Care Team"[Mesh]	73,212	13:22:41
#4	...	Add with AND	Stroke/therapy"[Majr]	48,223	13:13:42
#8	...	Add with OR	Stroke [MeSH] Sort by: Most Recent	180,526	12:13:20
#7	...	Add with NOT	Stroke Sort by: Most Recent	456,818	12:13:11
#3	...	Delete	Stroke/therapy"[Mesh] Sort by: Most Recent	65,883	11:58:26
		Create alert			

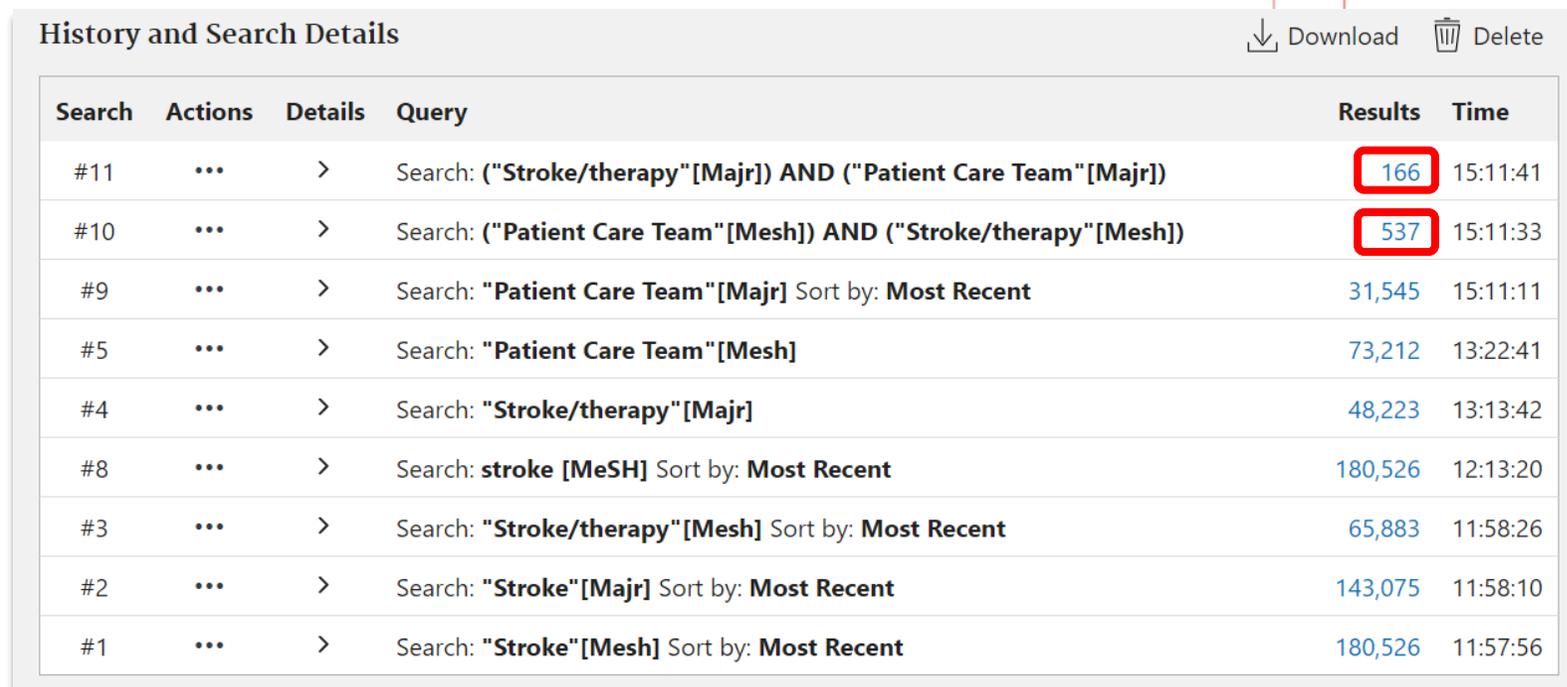
Query box

("Patient Care Team"[Mesh]) AND ("Stroke/therapy"[Majr]) × Search

Add to History

Results after using Boolean “AND”

Notice the search has been done with MeSH headings (Search String #10, with 537 results) and then refined more using Major Headings (Search String #11, with 166 results).



Search	Actions	Details	Query	Results	Time
#11	...	>	Search: ("Stroke/therapy"[Majr]) AND ("Patient Care Team"[Majr])	166	15:11:41
#10	...	>	Search: ("Patient Care Team"[Mesh]) AND ("Stroke/therapy"[Mesh])	537	15:11:33
#9	...	>	Search: "Patient Care Team"[Majr] Sort by: Most Recent	31,545	15:11:11
#5	...	>	Search: "Patient Care Team"[Mesh]	73,212	13:22:41
#4	...	>	Search: "Stroke/therapy"[Majr]	48,223	13:13:42
#8	...	>	Search: stroke [MeSH] Sort by: Most Recent	180,526	12:13:20
#3	...	>	Search: "Stroke/therapy"[Mesh] Sort by: Most Recent	65,883	11:58:26
#2	...	>	Search: "Stroke"[Majr] Sort by: Most Recent	143,075	11:58:10
#1	...	>	Search: "Stroke"[Mesh] Sort by: Most Recent	180,526	11:57:56

In order to narrow the topic further, the filters on the next screen can be applied. Click on the number of results that you want to manipulate and then select filters from the filters list (next slide).

Results, before filters

The screenshot shows a PubMed search interface. At the top, the search query is `("Patient Care Team"[Mesh]) AND ("Stroke/therapy"[Mesh])`. Below the search bar, there are options for "Advanced", "Create alert", and "Create RSS", along with a "User Guide" link. The results section shows "537 results" (highlighted with a red box) and "Page 1 of 54". The results are sorted by "Best match".

RESULTS BY YEAR

The bar chart shows a significant increase in results starting around 2010, peaking around 2015, and then declining. The x-axis is labeled with 1982 and 2024.

TEXT AVAILABILITY

- Abstract
- Free full text
- Full text

ARTICLE ATTRIBUTE

- Associated data

ARTICLE TYPE

1 **Organised inpatient (stroke unit) care for stroke.**
Stroke Unit Trialists' Collaboration.
Cochrane Database Syst Rev. 2013 Sep 11;2013(9):CD000197. doi: 10.1002/14651858.CD000197.pub3. PMID: 24026639
[Download PDF](#) [View Complete Issue](#) [Free PMC article.](#)
Updated. Review.

2 **Organised inpatient (stroke unit) care for stroke: network meta-analysis.**
Langhorne P, Ramachandra S; Stroke Unit Trialists' Collaboration.
Cochrane Database Syst Rev. 2020 Apr 23;4(4):CD000197. doi: 10.1002/14651858.CD000197.pub4. PMID: 32324916 [Free PMC article.](#)

3 **Effect of a Coordinated Community and Chronic Care Model Team Intervention vs Usual Care on Systolic Blood Pressure in Patients With Stroke or Transient Ischemic Attack: The SUCCEED Randomized Clinical Trial.**

Results after using filters

- There are 4 articles focused on your specific topic (these numbers change over time).
- To view further information on article(s), click on small box(es) next to numbers(s).
- To change to Abstract view, select **Display options** and then select format of interest in pull down menu.
- When interested in just one article, click on the title to view the abstract.

Abstract
 Free full text
 Full text

ARTICLE ATTRIBUTE

Associated data

ARTICLE TYPE

Books and Documents
 Clinical Trial
 Meta-Analysis
 Randomized Controlled Trial
 Review
 Systematic Review

PUBLICATION DATE

1 year
 5 years
 10 years
 Custom Range

ARTICLE LANGUAGE

English

AGE

Adult: 19+ years
 Middle Aged + Aged: 45+ years

Additional filters

Save Email Send to Sort by: Best match **Display options**

4 results Page 1 of 1

Filters applied: Randomized Controlled Trial, in the last 5 years, English, Middle Aged + Aged: 45+ years. [Clear all](#)

1  [Effect of a Coordinated Community and Chronic Care Model Team Intervention vs Usual Care on Systolic Blood Pressure in Patients With Stroke or Transient Ischemic Attack: The SUCCEED Randomized Clinical Trial.](#)
Cite
Share
Towfighi A, Cheng EM, Ayala-Rivera M, Barry F, McCreath H, Ganz DA, Lee ML, Sanossian N, Mehta B, Dutta T, Razmara A, Bryg R, Song SS, Willis P, Wu S, Ramirez M, Richards A, Jackson N, Wacksman J, Mittman B, Tran J, Johnson RR, Ediss C, Sivers-Teixeira T, Shaby B, Montoya AL, Corrales M, Mojarro-Huang E, Castro M, Gomez P, Muñoz C, Garcia D, Moreno L, Fernandez M, Lopez E, Valdez S, Haber HR, Hill VA, Rao NM, Martinez B, Hudson L, Valle NP, Vickrey BG; Secondary Stroke Prevention by Uniting Community and Chronic Care Model Teams Early to End Disparities (SUCCEED) Investigators.
JAMA Netw Open. 2021 Feb 1;4(2):e2036227. doi: 10.1001/jamanetworkopen.2020.36227. PMID: 33587132
[Download PDF](#) [View Complete Issue](#) [Free PMC article.](#)
Clinical Trial.

2  [Implementation and Analysis of a Free Water Protocol in Acute Trauma and Stroke Patients.](#)
Cite
Share
Kenedi H, Campbell-Vance J, Reynolds J, Foreman M, Dollaghan C, Graybeal D, Warren AM, Bennett M.
Crit Care Nurse. 2019 Jun;39(3):e9-e17. doi: 10.4037/ccn2019238. PMID: 31154338
[Download PDF](#) [View Complete Issue](#) Clinical Trial.

3  [Comparative effectiveness of team-based care with a clinical decision support system versus team-based care alone on cardiovascular risk reduction among patients with diabetes: Rationale and design of the DAC trial.](#)
Cite

Abstract Format

This is the format you will see when you click an article title to view the abstract.

Randomized Controlled Trial > Crit Care Nurse. 2019 Jun;39(3):e9-e17. doi: 10.4037/ccn2019238.

Implementation and Analysis of a Free Water Protocol in Acute Trauma and Stroke Patients



Helen Kenedi ¹, JoBeth Campbell-Vance ², Jenny Reynolds ², Michael Foreman ²,
Christine Dollaghan ², Dion Graybeal ², Ann Marie Warren ², Monica Bennett ²

Affiliations + expand

PMID: 31154338 DOI: 10.4037/ccn2019238



Download PDF



View Complete Issue

Abstract

Background: Free water protocols allow patients who aspirate thin liquids and meet eligibility criteria to have access to water or ice according to specific guidelines. Limited research is available concerning free water protocols in acute care settings.

Objectives: To compare rates of positive clinical outcomes and negative clinical indicators of a free water protocol in the acute care setting and to continue monitoring participants discharged into the hospital system's rehabilitation setting. Positive clinical outcomes were diet upgrade, fewer days to diet upgrade, and fewer days in the study. Negative clinical indicators were pneumonia, intubation, and diet downgrade.

Methods: A multidisciplinary team developed and implemented a free water protocol. All eligible stroke and trauma patients (n = 104) treated over a 3-year period were randomly assigned to an experimental group with access to water and ice or a control group without such access. Trained study staff recorded data on positive outcomes and negative indicators; statistical analyses were conducted with blinding.

Results: No significant group differences in positive outcomes were found (all *P* values were > .40). Negative clinical indicators were too infrequent to allow for statistical comparison of the 2 groups. Statistical analyses could not be conducted on the small number (n = 15) of patients followed into rehabilitation, but no negative clinical indicators occurred in these patients.

Conclusions: Larger-scale studies are needed to reach decisive conclusions on the positive outcomes and negative indicators of a free water protocol in the acute care setting.

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FULL TEXT LINKS

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Abstract

Similar articles

Publication types

MeSH terms

LinkOut - more resources

Access Info on Abstract Page

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- **Check TTUHSC:** This article is available electronically. May be available upon click or may need to request via Interlibrary Loan.

LibKey Nomad Links (under article title/author info):

- **Download PDF** offers immediate, free access to article.
- **View Complete Issue** allows you access to issue that includes the article.

FULL TEXT LINKS

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 View Complete Issue

Email Results

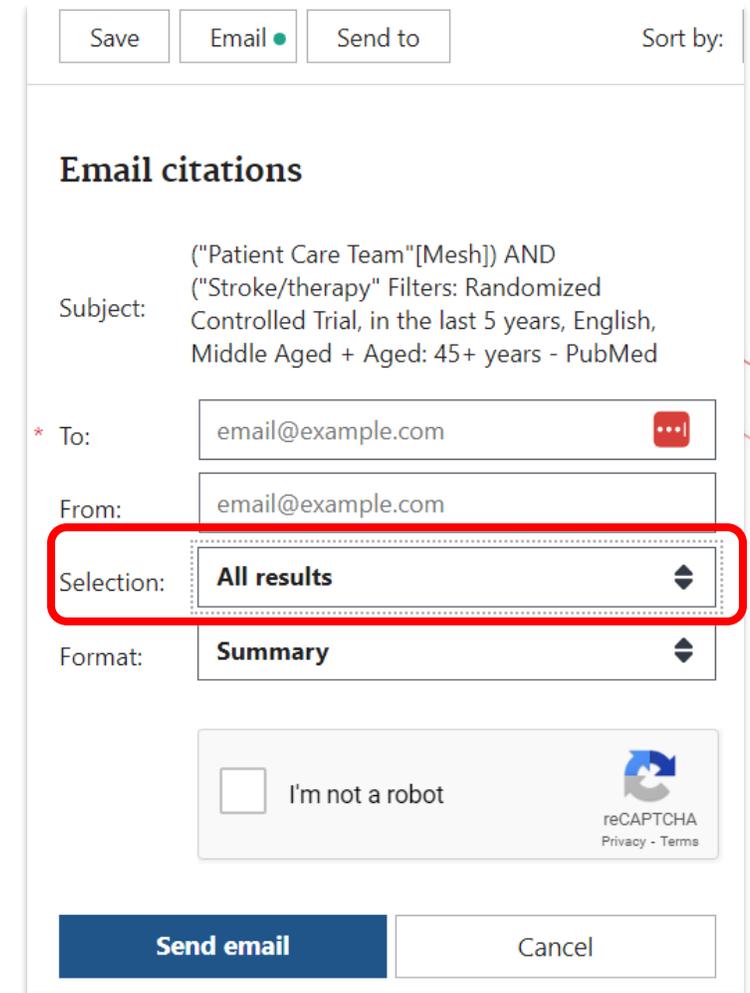
Using the checkboxes next to each article, select the articles from your results that you would like to email. If you don't select any articles, you will be able to email all results.

Once you have made your selection, click **Email** under the search bar at the top of the page.

If you want all results emailed, choose **All results** under **Selection**.



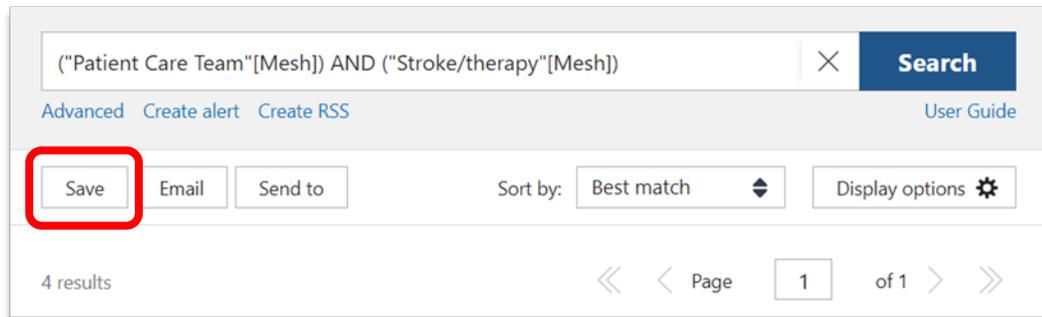
The screenshot shows a search bar containing the query: ("Patient Care Team"[Mesh]) AND ("Stroke/therapy"[Mesh]). Below the search bar are links for "Advanced", "Create alert", "Create RSS", and "User Guide". Below these are buttons for "Save", "Email" (highlighted with a red box), and "Send to". To the right of these buttons are "Sort by: Best match" and "Display options" with a gear icon. At the bottom of this section, it says "4 results" and "Page 1 of 1".



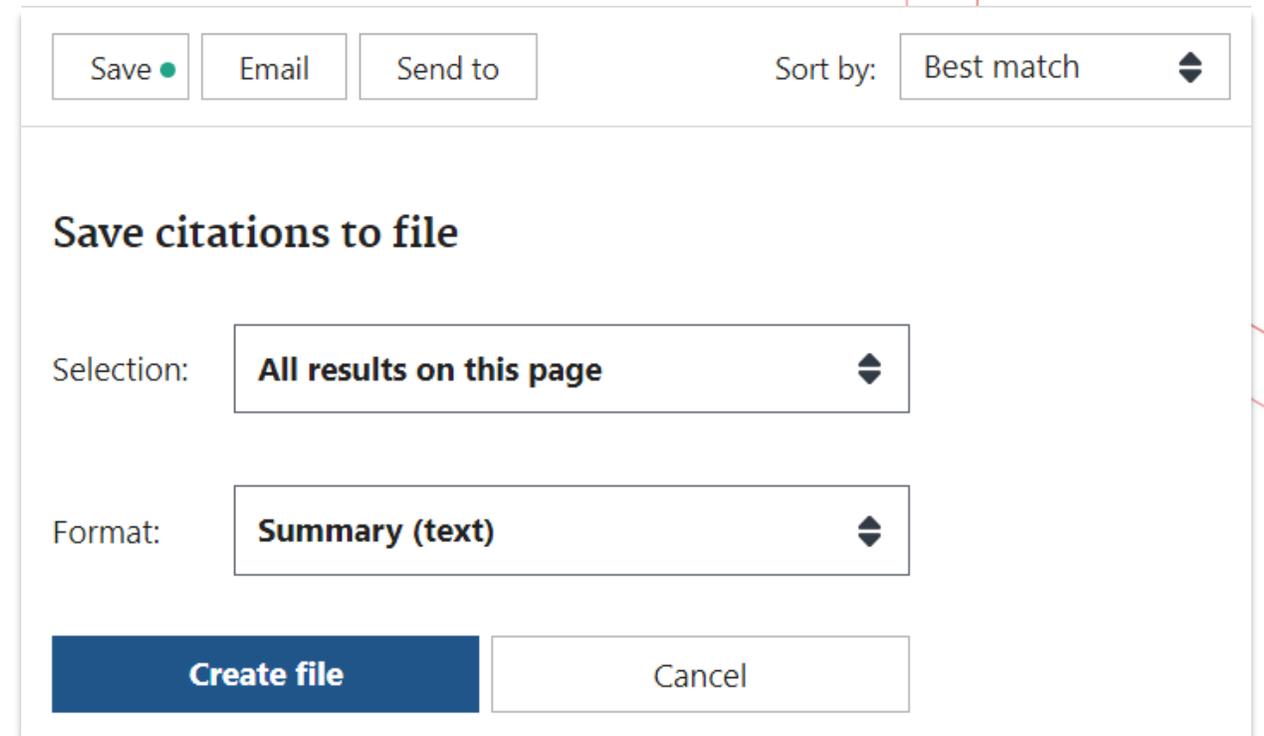
The screenshot shows the email selection and sending interface. At the top are buttons for "Save", "Email" (with a checked radio button), and "Send to". To the right is "Sort by:". Below this is the "Email citations" section. The subject line is: ("Patient Care Team"[Mesh]) AND ("Stroke/therapy" Filters: Randomized Controlled Trial, in the last 5 years, English, Middle Aged + Aged: 45+ years - PubMed. The "To:" field contains "email@example.com" and the "From:" field contains "email@example.com". The "Selection:" dropdown is set to "All results" and is highlighted with a red box. Below it is the "Format:" dropdown set to "Summary". At the bottom, there is a reCAPTCHA "I'm not a robot" checkbox and a "Send email" button (highlighted with a blue box) and a "Cancel" button.

Save Results

You can save your results as a Summary, CSV file, or other options.



Search interface showing a search query: ("Patient Care Team"[Mesh]) AND ("Stroke/therapy"[Mesh]). The search results are displayed on page 1 of 1. The "Save" button is highlighted with a red box. Other options include "Email", "Send to", "Sort by: Best match", and "Display options".

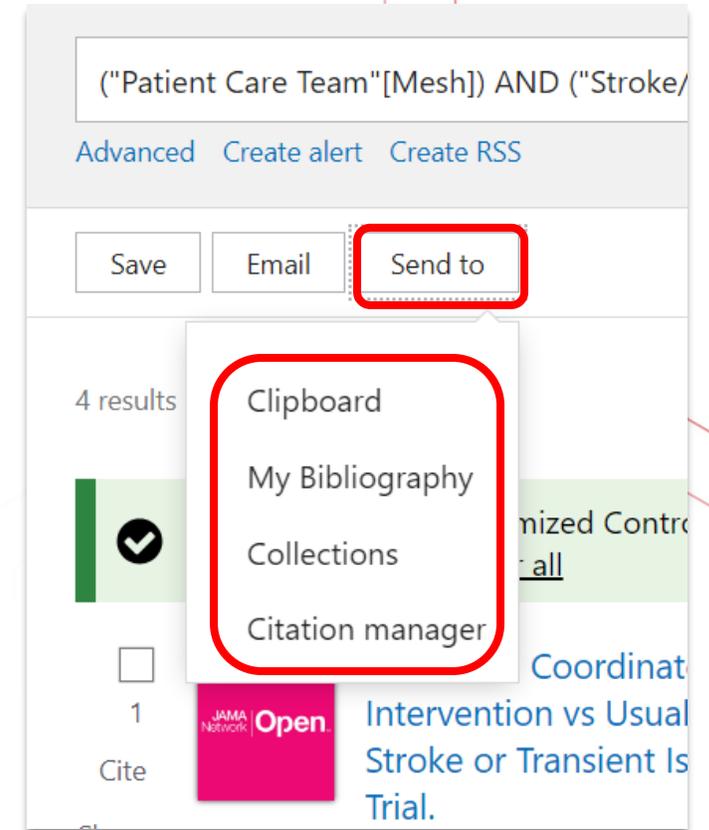
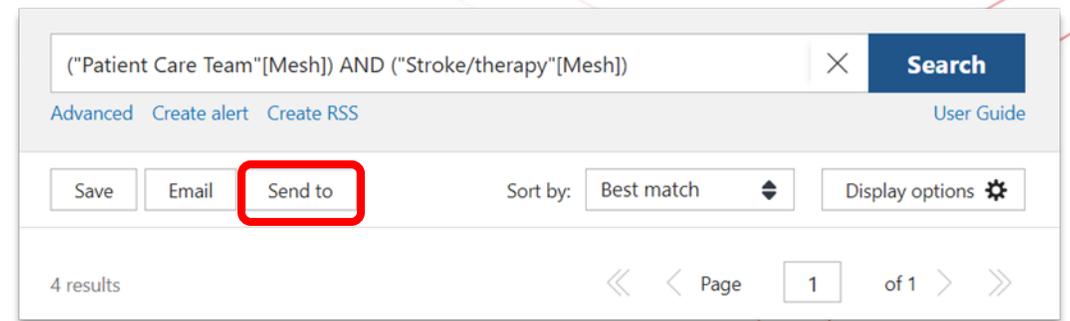


Save citations to file dialog box. The "Save" button is active. The "Sort by" dropdown is set to "Best match". The "Save citations to file" section has two dropdown menus: "Selection" set to "All results on this page" and "Format" set to "Summary (text)". The "Create file" button is highlighted in blue, and the "Cancel" button is also visible.

Send To: Results

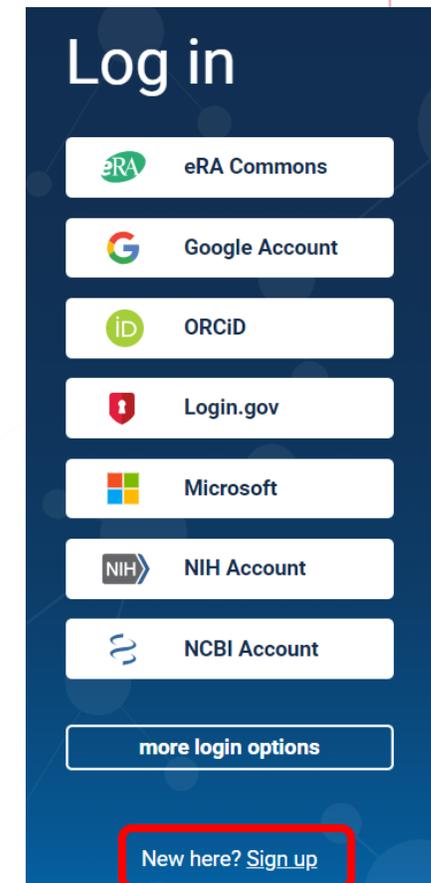
You have options to send your results to:

- **Clipboard**– an area inside PubMed that holds your result selections temporarily for 8 hours.
- **My Bibliography**– when logged into PubMed, saving to My Bibliography allows you to save results indefinitely.
- **Collections**– when logged into PubMed, saving to Collections allows you to save results indefinitely. Can create multiple collections.
- **Citation manager**– creates a download file that can be imported into citation managers like EndNote.



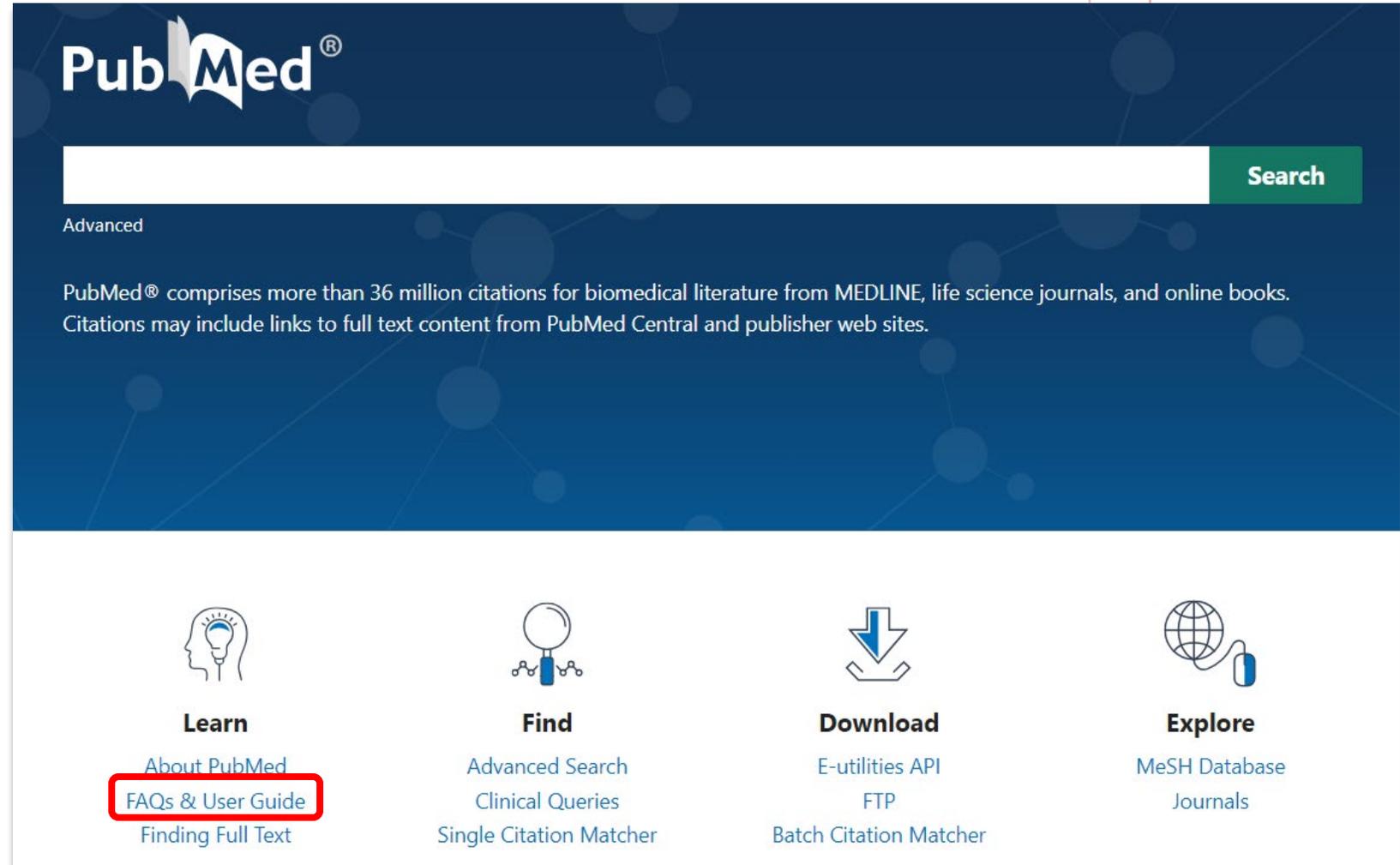
PubMed Account

- Logging in to PubMed allows you to save results and search strategies indefinitely and refer back to them as needed.
- PubMed requires the use of a third-party login.
- To create your login, click **Log In** on the PubMed homepage.
- Select **New here? Sign up** to create your account.
 - You will not be able to use your TTUHSC email address.
 - Google Account works best.



Future Study

- From PubMed homepage, select **FAQs & User Guide** under Learn.
- You will find information on how best to use PubMed.



The screenshot shows the PubMed homepage with a dark blue header. The PubMed logo is in the top left. Below it is a search bar with a green 'Search' button. Under the search bar, the word 'Advanced' is written. A paragraph of text describes PubMed's content: 'PubMed® comprises more than 36 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.'

Below the text are four main navigation categories, each with an icon and a list of links:

- Learn** (lightbulb icon):
 - About PubMed
 - FAQs & User Guide** (highlighted with a red box)
 - Finding Full Text
- Find** (magnifying glass icon):
 - Advanced Search
 - Clinical Queries
 - Single Citation Matcher
- Download** (download arrow icon):
 - E-utilities API
 - FTP
 - Batch Citation Matcher
- Explore** (globe icon):
 - MeSH Database
 - Journals

Practice Question #1

1. Research the use of telemedicine in rural health care services in Texas.

Possible answer is on next page.

You may want to try searching this topic before moving on.

Answer: Practice Question #1

1. Research the use of telemedicine in rural health care services in Texas.

This is a possible strategy to answer Practice Question #1. Read strategy from bottom up.

Locating the correct subject heading or MeSH term and then using appropriate subheadings, if applicable, creates a good strategy for research questions.

History and Search Details Download Delete

Search	Actions	Details	Query	Results	Time
#4	...	>	Search: (("Texas"[Mesh]) AND ("Rural Health Services"[Mesh])) AND ("Telemedicine"[Mesh])	14	11:28:24
#3	...	>	Search: "Telemedicine"[Mesh] Sort by: Most Recent	47,090	11:28:13
#2	...	>	Search: "Rural Health Services"[Mesh] Sort by: Most Recent	14,236	11:27:51
#1	...	>	Search: "Texas"[Mesh] Sort by: Most Recent	29,145	11:27:36

Practice Question #2

2. Does use of finasteride prevent the risk of developing prostate cancer in the male population over 65 years of age? Limit to Randomized Controlled Trial, English and Human.

Possible answer is on the next page.

You may want to try searching for this topic before moving on.

Answer #1: Practice Question #2

2. Does use of finasteride prevent the risk of developing prostate cancer in the male population over 65 years of age? Limit to Randomized Controlled Trial, English and Human.

Two possible strategies to answer this question. This is possible strategy #1: three MeSH terms without subheadings.

Possible strategy #2 is on the next slide.

History and Search Details Download Delete

Search	Actions	Details	Query	Results	Time
#7	...	>	Search: (("Finasteride"[Mesh]) AND ("Prostatic Neoplasms"[Mesh])) AND ("Risk"[Mesh]) Filters: Randomized Controlled Trial, English, Humans Sort by: Most Recent	32	17:33:15
#4	...	>	Search: (("Finasteride"[Mesh]) AND ("Prostatic Neoplasms"[Mesh])) AND ("Risk"[Mesh]) Sort by: Most Recent	107	17:32:57
#3	...	>	Search: "Risk"[Mesh] Sort by: Most Recent	1,406,783	17:32:47
#2	...	>	Search: "Prostatic Neoplasms"[Mesh] Sort by: Most Recent	152,557	17:32:34
#1	...	>	Search: "Finasteride"[Mesh] Sort by: Most Recent	2,470	17:32:20

Answer #2: Practice Question #2

2. Does use of finasteride prevent the risk of developing prostate cancer in the male population over 65 years of age? Limit to Randomized Controlled Trial, English and Human.

This is possible strategy #2: three MeSH terms, two with subheadings, and one MeSH term that was Majored.

You will notice there are fewer results here than in possible strategy #1, but these results are more precise.

History and Search Details Download Delete

Search	Actions	Details	Query	Results	Time
#7	...	>	Search: (("Finasteride/therapeutic use"[Mesh]) AND ("Risk"[Mesh])) AND ("Prostatic Neoplasms/prevention and control"[Majr]) Filters: Randomized Controlled Trial, English, Humans Sort by: Most Recent	16	17:38:43
#4	...	>	Search: (("Finasteride/therapeutic use"[Mesh]) AND ("Risk"[Mesh])) AND ("Prostatic Neoplasms/prevention and control"[Majr]) Sort by: Most Recent	66	17:38:30
#3	...	>	Search: "Prostatic Neoplasms/prevention and control"[Majr] Sort by: Most Recent	2,815	17:38:12
#2	...	>	Search: "Risk"[Mesh] Sort by: Most Recent	1,406,783	17:37:24
#1	...	>	Search: "Finasteride/therapeutic use"[Mesh] Sort by: Most Recent	1,728	17:37:13

Practice Question #3

3. Can better communication among staff in the operating room prevent medical errors?

Possible answer is on the next page.

You may want to try searching for this topic before moving on.

Answer: Practice Question #3

3. Can better communication among staff in the operating room prevent medical errors?

Sometimes locating the best subject heading is not easy. Consider other synonyms that have similar meaning.

History and Search Details Download Delete

Search	Actions	Details	Query	Results	Time
#4	...	>	Search: (("Interprofessional Relations"[Mesh]) AND ("Operating Rooms"[Mesh])) AND ("Medical Errors/prevention and control"[Mesh]) Sort by: Most Recent	66	17:47:03
#3	...	>	Search: "Medical Errors/prevention and control"[Mesh] Sort by: Most Recent	22,266	17:45:46
#2	...	>	Search: "Operating Rooms"[Mesh] Sort by: Most Recent	16,191	17:45:25
#1	...	>	Search: "Interprofessional Relations"[Mesh] Sort by: Most Recent	72,826	17:43:45

Summary: Final Points

- Using database tools appropriately increases relevancy and accuracy of results.
 - Boolean operators
 - Subject headings (MeSH)
 - Subheadings
 - Major headings
 - Filters