

Search Strategy

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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.

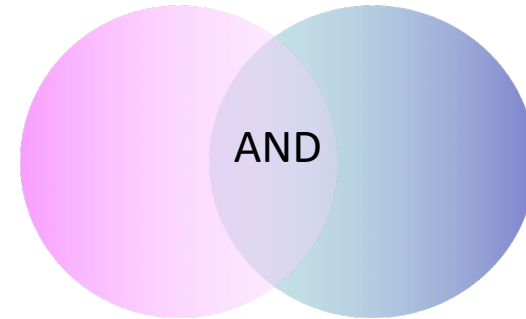
Database Used — PubMed

- Examples are based on the PubMed database
 - PubMed is:
 - is Free
 - is available to anyone 24/7 on the Internet
 - has 25+ million records from over 5,500 publications
 - is updated daily
 - covers fields of:
 - medicine, nursing, dentistry, veterinary medicine, pharmacology, health care system, and allied health
 - is international in scope

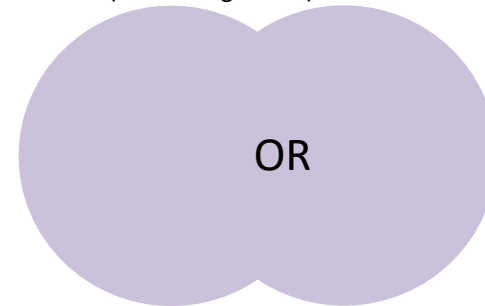
Boolean Operators—Glossary

- [Boolean Operators](#) —
logic system used to
combine search terms
 - AND
 - OR
 - NOT

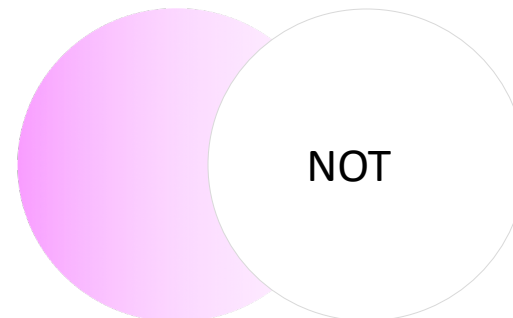
AND: retrieves **only** the middle section (intersection)



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



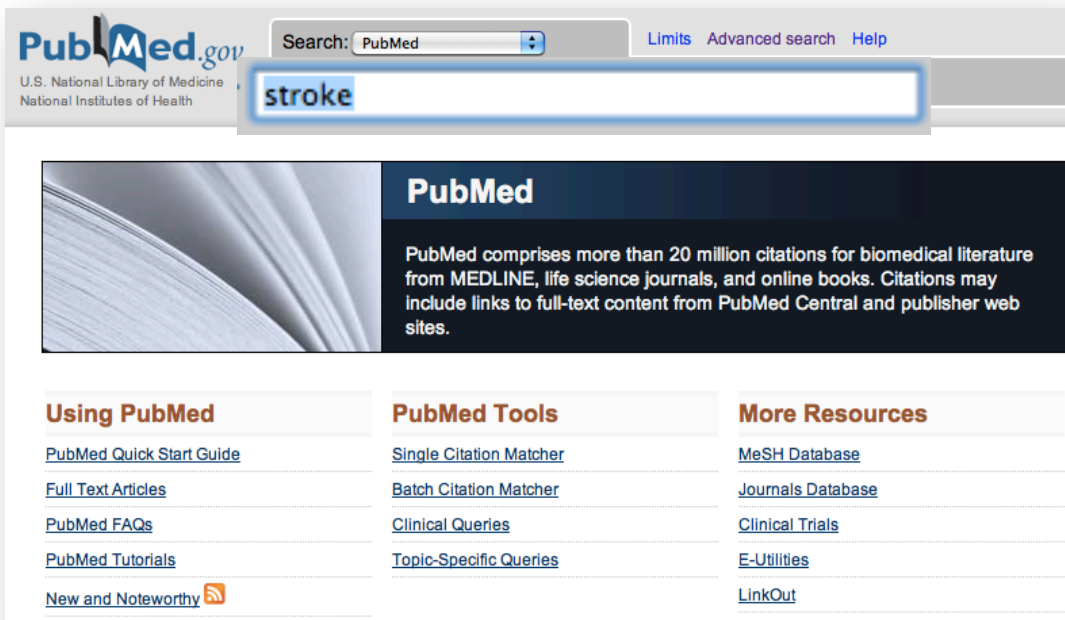
NOT: **excludes**, only pink section is retrieved. Should use sparingly.



Less is More!

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

Keywords



- Stroke (Keyword)

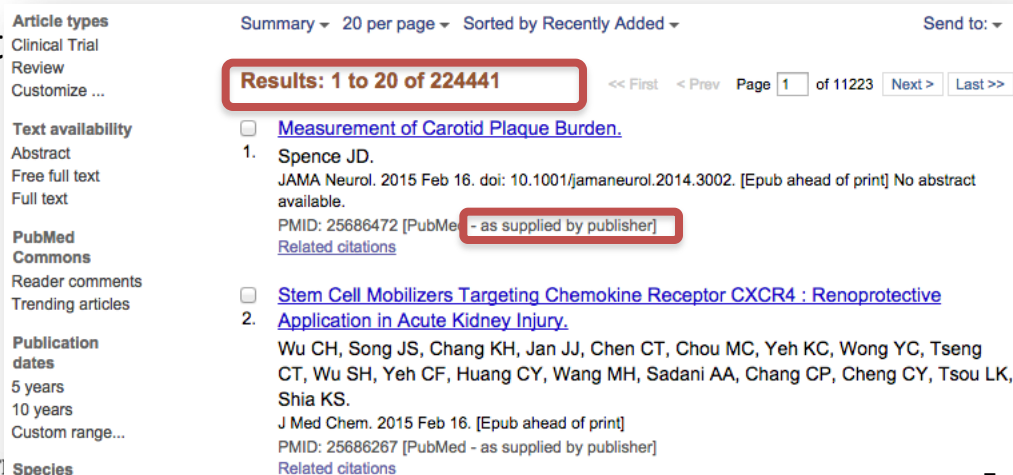
- retrieves 224,000+ records

- 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*.

NOTE: Results numbers were valid on the day the PPT was created. The database is updated daily so the numbers may change.



Medical Subject Headings (MeSH)

The screenshot shows the MeSH (Medical Subject Headings) website. At the top, there's a search bar with 'MeSH' in the dropdown and 'Stroke'[Mesh] in the input field. Below the search bar, there's a section for 'Stroke' with a description: '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)'. Below this, there's a 'PubMed search builder' section with buttons for 'Add to search builder' and 'Search PubMed'. An orange arrow points from the 'Add to search builder' button to a red box at the bottom right. The 'Add to search builder' button is highlighted with a red border. Below the search builder, there's a section for 'All links from this record' with links to 'PubMed', 'PubMed - Major Topic', 'Clinical Queries', and 'NLM MeSH Browser'. Below that, there's a 'Recent activity' section showing 'Stroke (13)'. On the left side, there's a list of subheadings for 'Stroke' with checkboxes next to them. The subheadings are organized into three columns. The first column includes: blood, cerebrospinal fluid, chemically induced, classification, complications, congenital, diagnosis, diet therapy, drug therapy, economics, embryology, enzymology, and epidemiology. The second column includes: ethnology, etiology, genetics, history, immunology, metabolism, microbiology, mortality, nursing, parasitology, pathology, and physiopathology. The third column includes: prevention and control, psychology, radiography, radionuclide imaging, radiotherapy, rehabilitation, surgery, therapy, ultrasonography, urine, veterinary, and virology. At the bottom left, there are two checkboxes: 'Restrict to MeSH Major Topic.' and 'Do not include MeSH terms found below this term in the MeSH hierarchy.'

MeSH
NLM Controlled Vocabulary

Search: MeSH Limits Advanced search Help

"Stroke"[Mesh] Search Clear

Display Settings: Full Send to:

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

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

PubMed search builder

Add to search builder AND

Search PubMed

All links from this record

PubMed

PubMed - Major Topic

Clinical Queries

NLM MeSH Browser

Recent activity

Stroke (13)

- Stroke (MeSH)
 - retrieves 88,000 + 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.

“Add to search builder” to retrieve all articles indexed with this subject heading or concept.

Major Headings

MeSH
NLM Controlled
Vocabulary

Search:

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

[Display Settings:](#) ☒ Full [Send to:](#) ☐

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

☒ **Restrict Search to Major Topic headings only.**
☐ Do not include MeSH terms found below this term in the MeSH hierarchy.

PubMed search builder

All links from this record
[PubMed](#)
[PubMed - Major Topic](#)
[Clinical Queries](#)
[NLM MeSH Browser](#)

Recent activity
 [stroke \(13\)](#)
 [Stroke](#)
 [Stroke \(13\)](#)

- **Stroke (Major)**
 - Retrieves 60,300+ 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 than when searching with MeSH; however, these articles are focused and more relevant to your search.

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

Example of MeSH Relationship

A Anatomy

- A1 Body Regions
- A2 Musculoskeletal System
- A3 Digestive System
- A4 Respiratory System
- A5 Urogenital System
- A6 Endocrine System
- A7 Cardiovascular System
- A8 Nervous System
- A9 Sense Organs
- A10 Tissues
- A11 Cells
- A12 Fluids and Secretions
- A13 Animal Structures
- A14 Stomatognathic System
- A15 Hemic and Immune Systems
- A16 Embryonic Structures
- A17 Integumentary System

All MeSH Categories

Anatomy Category

Body Regions

Abdomen

Abdominal Cavity +

Abdominal Wall

Groin

Inguinal Canal

Umbilicus

Back

Lumbosacral Region

Sacroccocygeal Region

Breast

Mammary Glands, Human

Nipples

Extremities

Amputation Stumps

Lower Extremity +

Upper Extremity +

Head

Ear

Face +

Scalp

Skull Base +

Face

Cheek

Chin

Eye

Eyebrows

Eyelids +

Forehead

Mouth

Lip

Nose

Parotid Region

- 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”

☐ enzymology
☐ epidemiology

☐ physiopathology

☐ urine
☐ veterinary
☐ 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 +](#)

[Stroke, Lacunar](#)

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

- 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.

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"/> ethnology | <input type="checkbox"/> prevention and control |
| <input type="checkbox"/> cerebrospinal fluid | <input type="checkbox"/> etiology | <input type="checkbox"/> psychology |
| <input type="checkbox"/> chemically induced | <input type="checkbox"/> genetics | <input type="checkbox"/> radiography |
| <input type="checkbox"/> classification | <input type="checkbox"/> history | <input type="checkbox"/> radionuclide imaging |
| <input type="checkbox"/> complications | <input type="checkbox"/> immunology | <input type="checkbox"/> radiotherapy |
| <input type="checkbox"/> congenital | <input type="checkbox"/> metabolism | <input type="checkbox"/> rehabilitation |
| <input type="checkbox"/> diagnosis | <input type="checkbox"/> microbiology | <input type="checkbox"/> surgery |
| <input type="checkbox"/> diet therapy | <input type="checkbox"/> mortality | <input checked="" type="checkbox"/> therapy |
| <input type="checkbox"/> drug therapy | <input type="checkbox"/> nursing | <input type="checkbox"/> ultrasonography |
| <input type="checkbox"/> economics | <input type="checkbox"/> parasitology | |
| <input type="checkbox"/> embryology | <input type="checkbox"/> pathology | |

PubMed search builder

"Stroke/therapy"[Mesh]

Add to search builder

AND

Search PubMed

All links from this record

PubMed

PubMed - Major Topic

Clinical Queries

NLM MeSH Browser

Recent activity

stroke (13)

Stroke

- Stroke (MeSH) with subheading: *"therapy"*
 - Retrieves 37,200+ records
- Stroke (Majr) with subheading: *"therapy"*
 - Retrieves 25,600+ records

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



Select as many descriptors as you need.

PubMed search builder

"Stroke/therapy"[Majr]

Add to search builder

AND

Search PubMed

MeSH Subheadings

Abnormalities	Deficiency	History	Organization	Secondary
Administration & dosage	Diagnosis	Immunology	Parasitology	Secretion
Adverse effects	Diagnostic use	Injuries	Pathogenicity	Standards
Agonists	Diet therapy	Innervation	Pathology	Statistics & numerical data
Analogs & derivatives	Drug effects	Instrumentation	Pharmacokinetics	Supply & distribution
Analysis	Drug therapy	Isolation	Pharmacology	Surgery
Anatomy & histology	Economics	Legislation	Physiology	Therapeutic use
Antagonists & inhibitors	Education	Manpower	Physiopathology	Therapy
Biosynthesis	Embryology	Metabolism	Poisoning	Toxicity
Blood	Epidemiology	Methods	Prevention & control	Transmission
Blood supply	Ethics	Microbiology	Psychology	Transplantation
Cerebrospinal fluid	Ethnology	Mortality	Radiation effects	Ultrasonography
Chemical synthesis	Etiology	Nursing	Radiography	Ultrastructure
Chemically induced	Genetics		Radionuclide imaging	Urine
Chemistry	Growth & development		Radiotherapy	Utilization
Classification			Rehabilitation	Veterinary
Complications				Virology
Congenital				
Contraindications				
Cytology				

NOTE: Some subject/subheading combinations are not available
e.g., STROKE/therapeutic use

- Subheadings **NARROW** the subject heading.
- Usually they are combined with the subject heading
 - e.g., **Stroke/therapy**
("stroke" is the subject heading & "therapy" the subheading.)

Subheadings:

☐ diagnosis
☐ diet therapy
☐ drug therapy
☐ economics
☐ embryology

☐ microbiology
☐ mortality
☐ nursing
☐ parasitology
☐ pathology

☐ radiotherapy
☐ rehabilitation
☐ surgery
☒ therapy
☐ ultrasonography

Advanced Search

Builder

All Fields

AND

AND

Search or [Add to history](#)

History

[Download history](#) [Clear](#)

Search	Add to builder	Query	Items found
#9	Add	Search ("Stroke/therapy"[Majr]) AND patient care team[MeSH Terms]	433
#8	Add	Search patient care team[MeSH Terms]	55627
#7	Add	Search "Stroke/therapy"[Majr]	25694
#6	Add	Search "Stroke/therapy"[Mesh]	37221
#5	Add	Search "Stroke"[Majr]	66352
#4	Add	Search "Stroke"[Mesh]	88185
#1	Add	Search stroke	224441

The Advanced Search page shows your search strategies and search results. These search statement numbers (e.g. #4 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!

Filters – used to narrow down topic

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

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

Article types

Clinical Trial
Review
Customize ...

Text availability

Abstract
Free full text
Full text

Publication dates

5 years
10 years
Custom range...

Species

Humans
Other Animals

[Clear all](#)

[Show additional filters](#)

Additional filters

- ☒ Article types
- ☒ Text availability
- ☐ PubMed Commons
- ☒ Publication dates
- ☒ Species
- ☒ Languages
- ☒ Sex
- ☐ Subjects
- ☐ Journal categories
- ☒ Ages
- ☐ Search fields

Show

To activate filters; select and click on on needed ones. Once **blue**, they are active.

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

Article types

Clinical Trial
Review
Customize ...

Text availability

Abstract
Free full text
Full text

Publication dates

5 years
10 years
Custom range...

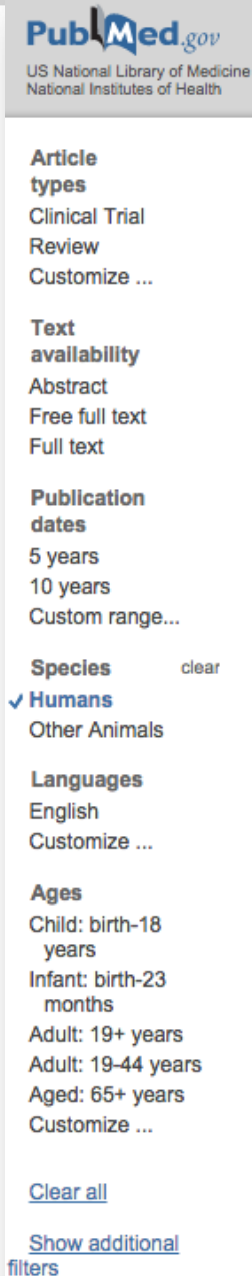
Species

☒ Humans clear
Other Animals

[Clear all](#)

[Show additional filters](#)

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 practice guideline from the “Articles Types” grouping retrieves articles of either publication type.

The Boolean Operator “AND” is the default operator between groupings.

e.g., English from the “Languages” grouping combined with “Adult: 19+ years” retrieve articles that are in English and deal with adults over 19 years of age. All concepts must be present for retrieval.

[See Boolean Slide](#)

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 2/8/16 a search for Zika Virus Infections results in 48 articles
 - So you don't have to narrow down.
 - Today 2/8/16 there are 952,781 articles on Heart Disease
 - 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 "African Americans"[Mesh]

IT DEPENDS ON THE QUESTION!

- The indexers index/tag 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]) = 9,310 articles (2/8/16)
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 "African Americans"[Mesh] = 11

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 (2 MeSH terms) also narrows your topic.

Recognition and Management of Hypertension in Older Persons: Focus on African Americans.

Still CH^{1,2}, Ferdinand KC³, Ogedegbe G⁴, Wright JT Jr^{2,5}.

Author information

Abstract

Hypertension is the most commonly diagnosed condition in persons aged 60 and older and is the single most important risk factor for cardiovascular disease (ischemic heart disease, heart failure, and stroke), kidney disease, and dementia. More than half of individuals with hypertension in the United States are aged 60 and older. Hypertension disproportionately affects African Americans, with all age groups, including elderly adults, having a higher burden of hypertension-related complications than other U.S.

POPULATIONS: Multiple clinical trials have demonstrated the beneficial effects of blood pressure (BP) reduction on cardiovascular morbidity and mortality, with most of the evidence in individuals aged 60 and older. Several guidelines have recently been published on the specific management of hypertension in individuals aged 60 and older, including in high-risk groups such as African Americans. Most recommend careful evaluation, thiazide diuretics and calcium-channel blockers for initial drug therapy in most African Americans, and angiotensin-converting enzyme inhibitors and angiotensin receptor blockers in those with chronic kidney disease or heart failure. Among the areas of controversy is the recommended target BP in African Americans aged 60 and older. A recent U.S. guideline recommended raising the systolic BP target from less than 140 mmHg to less than 150 mmHg in this population. This article will review the evidence and current guideline recommendations for hypertension treatment in older African Americans, including the rationale for continuing to recommend a SBP target of less than 140 mmHg in this population.

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KEYWORDS: African Americans; clinical trials; hypertension; management of hypertension

Comment in

The Highs and Lows of Blood Pressure Targets in Elderly Adults and Other High-Risk Populations. [J Am Geriatr Soc. 2015]

PMID: 26480975 [PubMed - indexed for MEDLINE]

This article was one of the results of strategy...
("Myocardial Infarction"[Mesh]) AND "African Americans"[Mesh]

On the right side we have the indexing MeSH terms for this article

(N.B. Myocardial Ischemia is a more specific type of Myocardial infarction and was automatically included in our search that's why Myocardial Infarction does not show up here)

Publication Types, MeSH Terms, Substances, Grant Support

Publication Types

Research Support, N.I.H., Extramural
Review

MeSH Terms

[African Americans/statistics & numerical data](#)
[Aged](#)
[Antihypertensive Agents*/classification](#)
[Antihypertensive Agents*/therapeutic use](#)
[Blood Pressure/drug effects](#)
[Clinical Trials as Topic](#)
[Cost of Illness*](#)
[Disease Management](#)
[Drug Therapy, Combination/methods](#)
[Female](#)
[Humans](#)
[Hypertension*/complications](#)
[Hypertension*/diagnosis](#)
[Hypertension*/ethnology](#)
[Hypertension*/psychology](#)
[Hypertension*/therapy](#)
[Kidney Diseases*/etiology](#)
[Kidney Diseases*/mortality](#)
[Male](#)
[Middle Aged](#)
[Myocardial Ischemia*/etiology](#)
[Myocardial Ischemia*/mortality](#)
[Outcome Assessment \(Health Care\)](#)
[Practice Guidelines as Topic](#)
[Prevalence](#)
[Risk Factors](#)
[Risk Reduction Behavior](#)
[United States/epidemiology](#)

Substances

[Antihypertensive Agents](#)

THE FOLLOWING SLIDES AND EXAMPLES WILL HELP YOU
TO PRACTICE USING THESE CONCEPTS

**Search
Question:**

This form can help organize your thought process.

Databases:

1	↔	AND	2	↔	AND	3	↔	AND	4
<div>↑ OR ↓</div>									

Do you need... ?

limiters such as:

age groups

subheadings

language

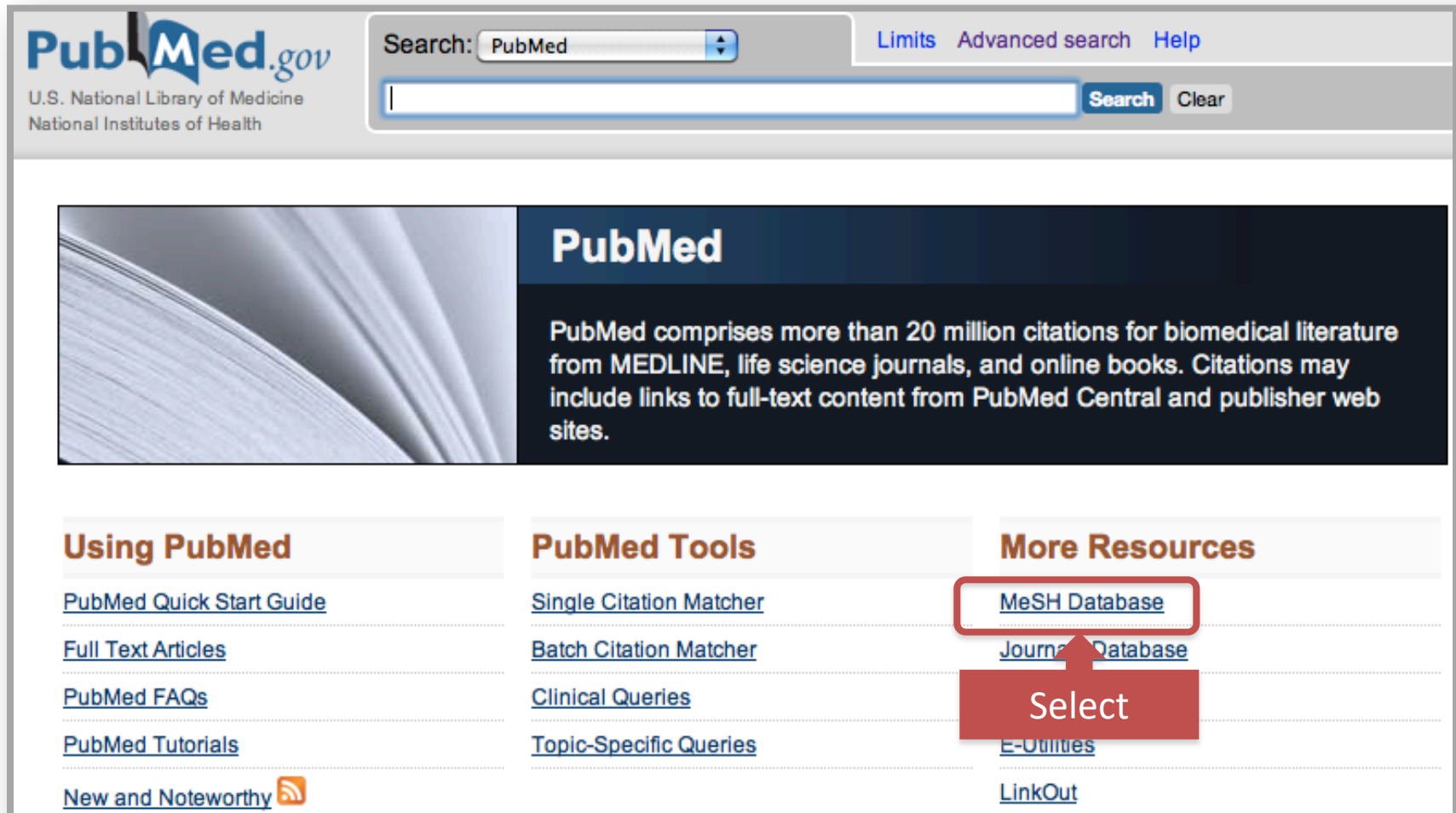
publication types

dates

**human or
animal**

journal subsets

PubMed: How to Search Step-by-Step



From the PubMed homepage *Click* on MeSH Database...to search by concept.

Review Point

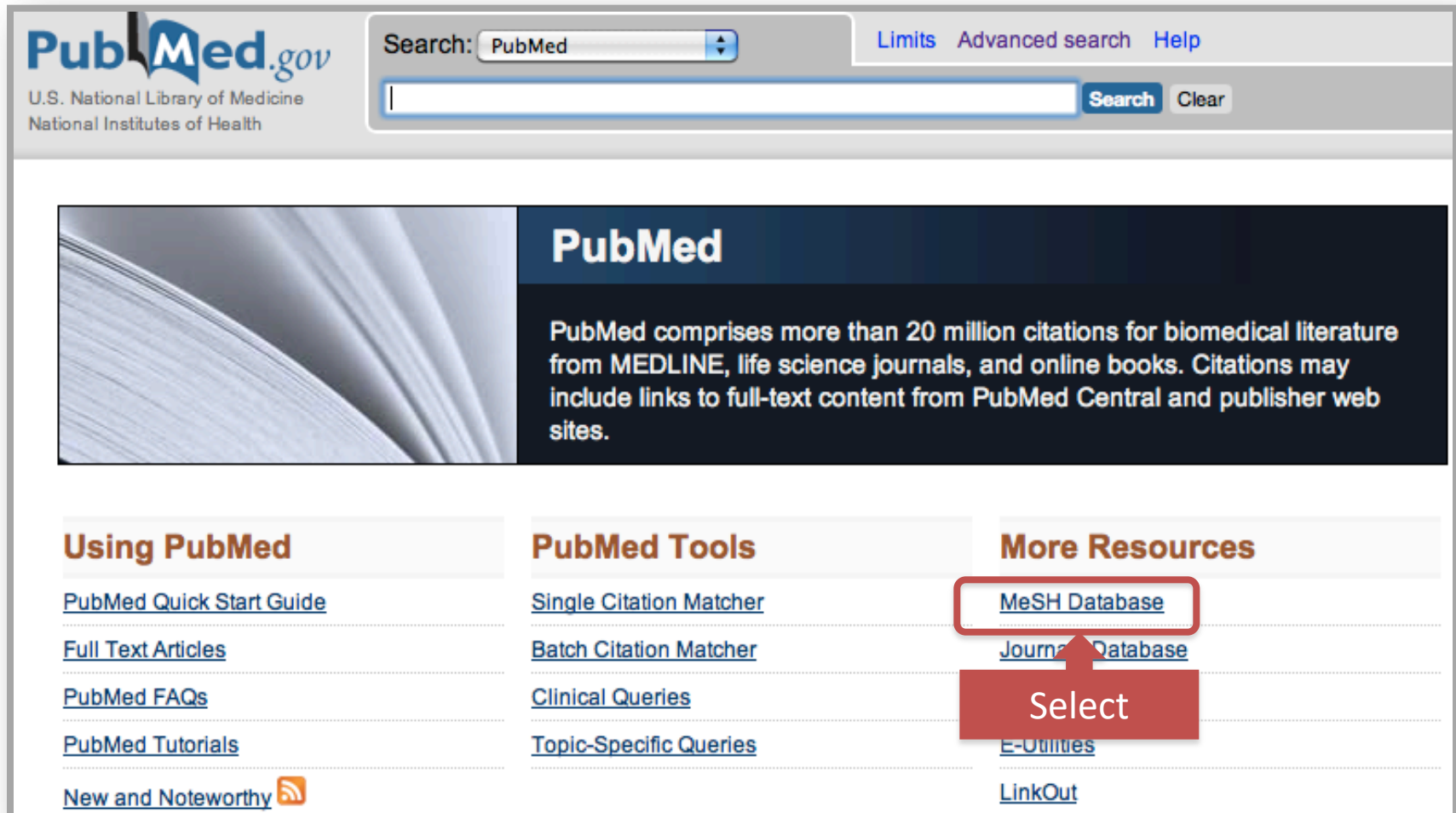
- Using the major Boolean operators “And,” “Or,” and “Not,” a search strategy can be refined to effectively locate articles on specific topics.
 - True or false: The Boolean operator “And” means that an article MUST be indexed for “Both” terms
 - (e.g., HELLP Syndrome “And” Pregnancy...both concepts 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](#)

PubMed: How to Search Step-by-Step



The screenshot shows the PubMed.gov homepage. At the top left is the PubMed.gov logo and the text "U.S. National Library of Medicine National Institutes of Health". To the right is a search bar with "PubMed" entered, and links for "Limits", "Advanced search", and "Help". Below the search bar is a large banner with the PubMed logo and a description: "PubMed comprises more than 20 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 banner are three columns of links. The first column, "Using PubMed", includes "PubMed Quick Start Guide", "Full Text Articles", "PubMed FAQs", "PubMed Tutorials", and "New and Noteworthy". The second column, "PubMed Tools", includes "Single Citation Matcher", "Batch Citation Matcher", "Clinical Queries", and "Topic-Specific Queries". The third column, "More Resources", includes "MeSH Database", "Journal Database", "E-Utilities", and "LinkOut". A red box highlights the "MeSH Database" link, and a red arrow points to it with the word "Select" in a red box.

PubMed.gov
U.S. National Library of Medicine
National Institutes of Health


Search: PubMed

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

PubMed

PubMed comprises more than 20 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.

Using PubMed

- [PubMed Quick Start Guide](#)
- [Full Text Articles](#)
- [PubMed FAQs](#)
- [PubMed Tutorials](#)
- [New and Noteworthy](#) 

PubMed Tools

- [Single Citation Matcher](#)
- [Batch Citation Matcher](#)
- [Clinical Queries](#)
- [Topic-Specific Queries](#)

More Resources

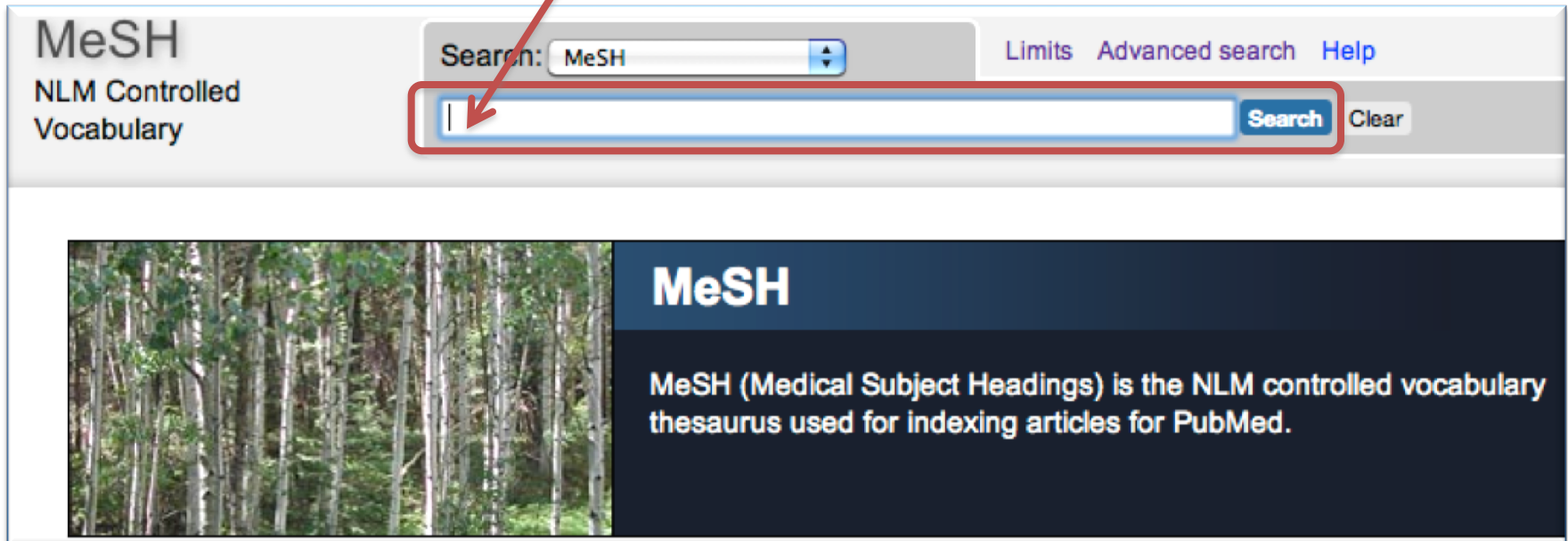
- [MeSH Database](#)
- [Journal Database](#)
- [E-Utilities](#)
- [LinkOut](#)

Select

To search by subject heading from the PubMed homepage *Click* on MeSH Database...

Using MeSH

Step 1) On the MeSH page: *Type* needed term. Then *Click* “Search”



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 still having difficulties locating an appropriate MeSH term, consult your librarian.

PubMed: How to Search Step-by-step

Step 1) From the MeSH page: *Type* needed term. *Click* “Search”

Step 2)

Select subheading(s)
(optional) based on your
search needs.

Step 3)

“Add to search builder”

Step 4)

Then: “Search PubMed”

MeSH

stroke

Search

Limits Advanced

Help

Display Settings: Full

Send to: PubMed Search Builder

Add to search builder AND

Search PubMed

Add to search builder AND

Search PubMed

Stroke

Ag BR **Subheadings:** erized by sudden, non-convulsive loss of neurological funct MORRHAGES. Stroke is classified by the type of tissue NE such as the anatomic location, vasculature involved, etiology, age of the affected individual, and hemo vs. non-hemorrhagic nature. (From Adams et al., Principles of Neurology, 6th ed, pp777-810)

Year introduced: 2008 (2000)

PubMed search builder options

Subheadings:

- ☐ analysis
- ☐ anatomy and histology
- ☐ chemically induced
- ☐ classification
- ☐ complications
- ☐ congenital
- ☐ cytology
- ☐ diagnosis
- ☐ diet therapy
- ☐ drug therapy
- ☐ economics
- ☐ embryology
- ☐ enzymology
- ☐ epidemiology
- ☐ ethnology
- ☐ etiology
- ☐ genetics
- ☐ history
- ☐ immunology
- ☐ metabolism
- ☐ microbiology
- ☐ mortality
- ☐ nursing
- ☐ organization and administration
- ☐ parasitology
- ☐ pathology
- ☐ physiology
- ☐ physiopathology
- ☐ prevention and control
- ☐ psychology
- ☐ radiography
- ☐ radionuclide imaging
- ☐ radiotherapy
- ☐ rehabilitation
- ☐ statistics and numerical data
- ☐ surgery
- ☒ therapy
- ☐ ultrasonography
- ☐ urine
- ☐ veterinary
- ☐ virology

☒ Restrict to MeSH Major Topic.

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

HEALTH SCIENCES CENTER

Related information

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

Recent Activity

Stroke

stroke (15)

PubMed: Results 1st Concept

1) 1st subject heading results



The screenshot shows the PubMed.gov search results page. The search query is "Stroke/therapy"[Majr]. The results are displayed as "Results: 1 to 20 of 23314". A red arrow points from the text "1st subject heading results" to the number "23314" in the results count. The left sidebar contains links for Article types, Text availability, PubMed Commons, and Publication. The main content area shows filters activated (Humans) and a list of results, with the first result being "Screening for asymptomatic carotid artery stenosis." by Weyer GW, Davis AM.

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

PubMed

"Stroke/therapy"[Majr]

RSS Save search Advanced

Article types
Clinical Trial
Review
Customize ...

Text availability
Abstract
Free full text
Full text

PubMed Commons
Reader comments

Publication

Summary 20 per page Sorted by Recently Added

Send to:

Results: 1 to 20 of 23314 << First < Prev Page 1 of 1166 Next > Last >>

Filters activated: Humans. [Clear all](#) to show 25694 items.


☐ [Screening for asymptomatic carotid artery stenosis.](#)

1. Weyer GW, Davis AM.
JAMA. 2015 Jan 13;313(2):192-3. doi: 10.1001/jama.2014.16804. No abstract available.
PMID: 25585331 [PubMed - indexed for MEDLINE]
[Related citations](#)


Using MeSH – 2nd Concept

1) Repeat steps/selections with 2nd concept

MeSH
NLM Controlled
Vocabulary

Search: 

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



MeSH

Using MeSH – 2nd concept

2) 2nd concept selections, “Add to search builder”

MeSH

MeSH patient care team Search

Save search Limits Advanced

Display Settings: ☒ 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"/> legislation and jurisprudence	<input type="checkbox"/> standards
<input type="checkbox"/> economics	<input type="checkbox"/> manpower	<input type="checkbox"/> statistics and numerical data
<input type="checkbox"/> education	<input type="checkbox"/> methods	<input type="checkbox"/> trends
<input type="checkbox"/> ethics	<input type="checkbox"/> organization and administration	<input type="checkbox"/> utilization
<input type="checkbox"/> history		

Send to: ☒

PubMed Search Builder

Add to search builder AND

Search PubMed

YouTube Tutorial

Related information

PubMed

PubMed - Major Topic

3) 2nd concept results

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

PubMed "Patient Care Team"[Mesh]

RSS Save search Advanced

Article types
Clinical Trial
Review
Customize ...

Text availability
Abstract
Free full text
Full text

PubMed Commons
Reader comments

Publication dates
5 years
10 years
Custom range...

Summary 20 per page Sorted by Recently Added

Send to: ▼

Results: 1 to 20 of 51827 << First < Prev Page 1 of 2592 Next > Last >>

Filters activated: Humans. [Clear all](#) to show 55627 items.

- [The process of consultation to a health visiting team based on the Solihull Approach: a critical reflection.](#)
Lumsden V, Sarankin M.
Community Pract. 2014 Oct;87(10):34-6.
PMID: 25619068 [PubMed - indexed for MEDLINE]
[Related citations](#)
- [Bridging the hospitalist-primary care divide through collaborative care.](#)
Goroll AH, Hunt DP.
N Engl J Med. 2015 Jan 22;372(4):308-9. doi: 10.1056/NEJMp1411416. No abstract

Using Advanced Search with “And”

Add to builder	Query	Items found
Add	Search "Patient Care Team"[Mesh]	55627
Add	Search "Patient Care Team"[Mesh] Filters: Humans	51827
Add	Search "Stroke/therapy"[Majr]	25694
Add	Search "Stroke/therapy"[Majr] Filters: Humans	23314

1) Click on “Add” to enter into ‘Search Builder

2) Repeat with 2nd term

3) Then *Click* on SEARCH

Builder

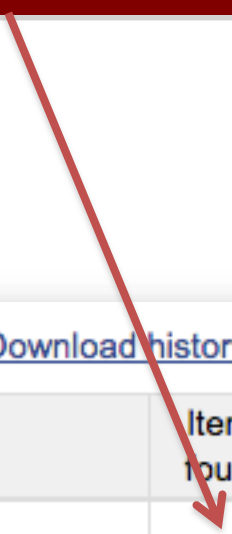
All Fields ▾ "Patient Care Team"[Mesh]

AND ▾ All Fields ▾ "Stroke/therapy"[Majr]

AND ▾ All Fields ▾

Search or [Add to history](#)

Results after using Boolean “And”



Search	Add to builder	Query	Items found
#10	Add	Search ("Patient Care Team"[Mesh]) AND "Stroke/therapy"[Majr]	433
#9	Add	Search ("Patient Care Team"[Mesh]) AND "Stroke/therapy"[Majr] Filters: Humans	430
#8	Add	Search "Patient Care Team"[Mesh]	55627
#7	Add	Search "Patient Care Team"[Mesh] Filters: Humans	51827
#5	Add	Search "Stroke/therapy"[Majr]	25694
#4	Add	Search "Stroke/therapy"[Majr] Filters: Humans	23314

In order to narrow the topic further, the filters on the next screen can be applied. So *Click* on the “Items found” that you want to manipulate and then select filters from the filters list (next screen).

Results – Before filters

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

PubMed

("Patient Care Team"[Mesh]) AND "Stroke/therapy"[M

RSS Save search Advanced

Article types
Clinical Trial
Review
Customize ...

Text availability
Abstract
Free full text
Full text

Publication dates
5 years
10 years
Custom range...

Species
Humans
Other Animals

Languages
English
Customize ...

Ages
Child: birth-18 years
Infant: birth-23 months
Adult: 19+ years
Adult: 19-44 years
Aged: 65+ years
Customize ...

Clear all
Show additional filters

Summary 20 per page Sorted by Recently Added

Send to:

Results: 1 to 20 of 433 << First < Prev Page 1 of 22 Next > Last >>

☐ [\[Optimal stroke prevention in the geriatric patient with atrial fibrillation: position paper of an interdisciplinary expert panel\].](#)
1. Bahrmann P, Wehling M, Ropers D, Flohr J, Leischker A, Röther J. MMW Fortschr Med. 2014 Oct 9;156 Suppl 3:84-8. German. PMID: 25417446 [PubMed - indexed for MEDLINE]
[Related citations](#)

☐ [\[GISE/AIAC position paper on percutaneous left atrial appendage occlusion in patients with nonvalvular atrial fibrillation: recommendations for patient selection, facilities, competences, organizing and training requirements\].](#)
2. Berti S, Themistoclakis S, Santoro G, De Ponti R, Danna P, Zecchin M, Bedogni F, Padeletti L; Societa Italiana di Cardiologia Invasiva; Associazione Italiana di Aritmologia e Cardioritmo. G Ital Cardiol (Rome). 2014 Sep;15(9):508-19. doi: 10.1714/1640.17978. Italian. PMID: 25298359 [PubMed - indexed for MEDLINE]
[Related citations](#)

☐ [Access to in-patient stroke services and multidisciplinary team \(MDT\) rehabilitation: current demands and capacity.](#)
3. O'Sullivan EJ, Williams DJ, Shanahan-O'Connell J, Kirrane K, Armitage D, Leahy W, O'Flaherty E, Horgan NF. Ir Med J. 2014 Jun;107(6):171-3. PMID: 24988832 [PubMed - indexed for MEDLINE]
[Related citations](#)

☐ [Common caregiver issues and nursing interventions after a stroke.](#)
4. Grant JS, Hunt CW, Steadman L. Stroke. 2014 Aug;45(8):e151-3. doi: 10.1161/STROKEAHA.114.005094. Epub 2014 Jun 19. Review. No abstract available. PMID: 24947288 [PubMed - indexed for MEDLINE]
[Related citations](#)

Results after using “Filters”

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

PubMed

RSS [Save search](#) [Advanced](#)

Article types **Summary**

Randomized Controlled Trial
[Customize ...](#)

Text availability

Publication dates
5 years

Species

Languages
English

Ages

Middle Aged + Aged: 45+ years

[Clear all](#)
[Show additional filters](#)

Results: 2

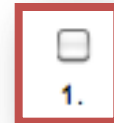
Filters activated: Randomized Controlled Trial, published in the last 5 years, English, Middle Aged + Aged: 45+ years. [Clear all](#) to show 433 items.

☐ 1. [Implementation of evidence-based treatment protocols to manage fever, hyperglycaemia, and swallowing dysfunction in acute stroke \(QASC\): a cluster randomised controlled trial.](#)
Middleton S, McElduff P, Ward J, Grimshaw JM, Dale S, D'Este C, Drury P, Griffiths R, Cheung NW, Quinn C, Evans M, Cadilhac D, Levi C; QASC Trialists Group.
Lancet. 2011 Nov 12;378(9804):1699-706. doi: 10.1016/S0140-6736(11)61485-2. Epub 2011 Oct 11.
PMID: 21996470 [PubMed - indexed for MEDLINE]
[Related citations](#)

☐ 2. [A multidisciplinary group programme in rural settings for community-dwelling chronic stroke survivors and their carers: a pilot randomized controlled trial.](#)
Marsden D, Quinn R, Pond N, Golledge R, Neilson C, White J, McElduff P, Pollack M.
Clin Rehabil. 2010 Apr;24(4):328-41. doi: 10.1177/0269215509344268. Epub 2010 Feb 22.
PMID: 20176772 [PubMed - indexed for MEDLINE]
[Related citations](#)

There are 2 articles focused on your specific research topic!
(These numbers may change over time.)

To view further information on article(s), click on small box(es) next to number(s).



To view “Abstract”, select “Summary” and then select format of interest in pulldown menu.

When just interested in One article *Click* on the title to view abstract.

Abstract Format

[Lancet](#). 2011 Nov 12;378(9804):1699-706. doi: 10.1016/S0140-6736(11)61485-2. Epub 2011 Oct 11.

Implementation of evidence-based treatment protocols to manage fever, hyperglycaemia, and swallowing dysfunction in acute stroke (QASC): a cluster randomised controlled trial.

Middleton S¹, McElduff P, Ward J, Grimshaw JM, Dale S, D'Este C, Drury P, Griffiths R, Cheung NW, Quinn C, Evans M, Cadilhac D, Levi C; QASC Trialists Group.

Author information

Abstract

BACKGROUND: We assessed patient outcomes 90 days after hospital admission for stroke following a multidisciplinary intervention targeting evidence-based management of fever, hyperglycaemia, and swallowing dysfunction in acute stroke units (ASUs).

METHODS: In the Quality in Acute Stroke Care (QASC) study, a single-blind cluster randomised controlled trial, we randomised ASUs (clusters) in New South Wales, Australia, with immediate access to CT and on-site high dependency units, to intervention or control group. Patients were eligible if they spoke English, were aged 18 years or older, had had an ischaemic stroke or intracerebral haemorrhage, and presented within 48 h of onset of symptoms. Intervention ASUs received treatment protocols to manage fever, hyperglycaemia, and swallowing dysfunction with multidisciplinary team building workshops to address implementation barriers. Control ASUs received only an abridged version of existing guidelines. We recruited pre-intervention and post-intervention patient cohorts to compare 90-day death or dependency (modified Rankin scale [mRS] ≥ 2), functional dependency (Barthel index), and SF-36 physical and mental component summary scores. Research assistants, the statistician, and patients were masked to trial groups. All analyses were done by intention to treat. This trial is registered at the Australia New Zealand Clinical Trial Registry (ANZCTR), number ACTRN12608000563369.

FINDINGS: 19 ASUs were randomly assigned to intervention (n=10) or control (n=9). Of 6564 assessed for eligibility, 1696 patients' data were obtained (687 pre-intervention; 1009 post-intervention). Results showed that, irrespective of stroke severity, intervention ASU patients were significantly less likely to be dead or dependent (mRS ≥ 2) at 90 days than control ASU patients (236 [42%] of 558 patients in the intervention group vs 259 [58%] of 449 in the control group, p=0.002; number needed to treat 6.4; adjusted absolute difference 15.7% [95% CI 5.8-25.4]). They also had a better SF-36 mean physical component summary score (45.6 [SD 10.2] in the intervention group vs 42.5 [10.5] in the control group, p=0.002; adjusted absolute difference 3.4 [95% CI 1.2-5.5]) but no improvement was recorded in mortality (21 [4%] of 558 in intervention group and 24 [5%] of 451 in the control group, p=0.36), SF-36 mean mental component summary score (49.5 [10.9] in the intervention group vs 49.4 [10.6] in the control group, p=0.69) or functional dependency (Barthel Index ≥ 60 : 487 [92%] of 532 patients vs 380 [90%] of 423 patients; p=0.44).

INTERPRETATION: Implementation of multidisciplinary supported evidence-based protocols initiated by nurses for the management of fever, hyperglycaemia, and swallowing dysfunction delivers better patient outcomes after discharge from stroke units. Our findings show the possibility to augment stroke unit care.

FUNDING: National Health & Medical Research Council ID 353803, St Vincent's Clinic Foundation, the Curran Foundation, Australian Diabetes Society-Servier, the College of Nursing, and Australian Catholic University.

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[Review](#) Organised interdisciplinary Database System

[Review](#) Continuous v. intermittent Database System

Related citations in PubMed

Fever, hyperglycaemia, and swallowing dysfunction in acute stroke units [Implement

Quality in Acute Stroke Care (QASC): process [Int J Stroke

Death, dependency and quality of life at 90 days [Intern Med

[Review](#) Redesigning the acute stroke unit [Health Technol Assess

[Review](#) Improving the quality of acute stroke care [Health Technol Assess

Cited by 14 PubMed Central articles

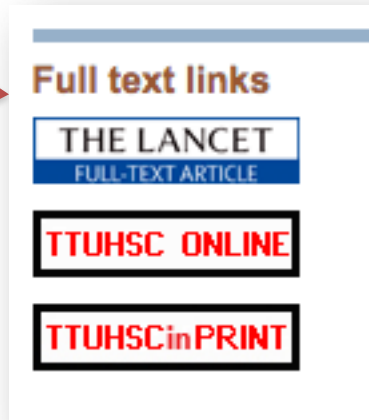
Implementation of evidence-based protocols in acute stroke units [J Multidiscip He

Organising health care for acute stroke [BMC Health Serv Res

Effects of tight computerised glucose control on acute stroke [Crit

Access Information

- Icons

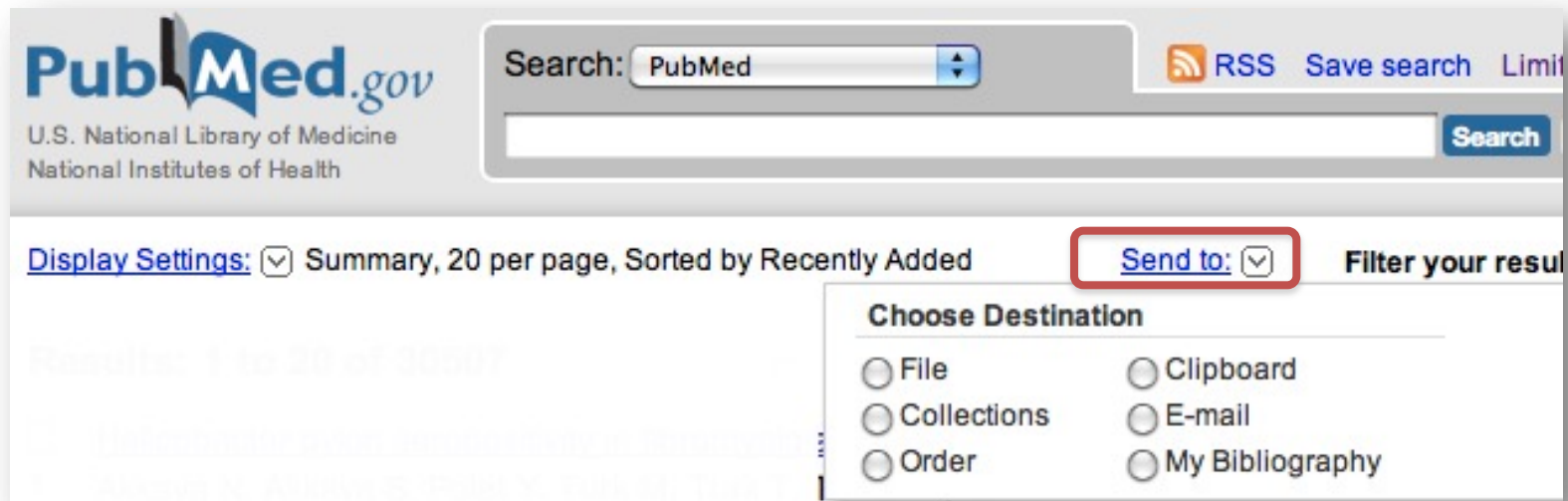


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- **Publisher Site** - Access may be FREE or there may be CHARGES.

Email Results

From the PREVIOUS list of results:


select ☐ (the little boxes) of the articles needed to print, email or order.



The screenshot shows the PubMed.gov website interface. At the top left is the PubMed.gov logo and the text "U.S. National Library of Medicine National Institutes of Health". To the right is a search bar with "PubMed" entered and a "Search" button. Further right are links for "RSS", "Save search", and "Limit". Below the search bar, there is a "Display Settings:" section with a dropdown menu set to "Summary, 20 per page, Sorted by Recently Added". To the right of this is a "Send to:" dropdown menu, which is highlighted with a red box. Below the "Send to:" menu is a "Choose Destination" section with six radio button options: "File", "Clipboard", "Collections", "E-mail", "Order", and "My Bibliography". The "E-mail" option is the one intended for this tutorial.

Then select: ☐ [Send to:](#) ☐ and choose appropriate button for needed activity.

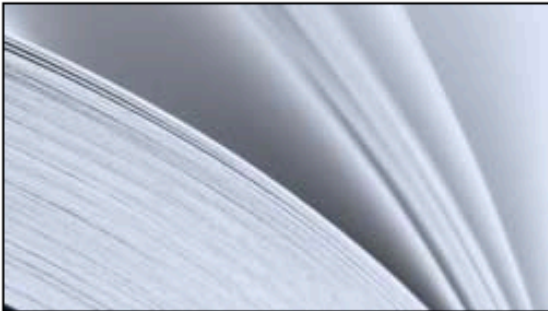
Future Study



U.S. National Library of Medicine
National Institutes of Health

Search:


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



PubMed

PubMed comprises more than 20 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.

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PubMed Tools

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- [Topic-Specific Queries](#)

More Resources

- [MeSH Database](#)
- [Journals Database](#)
- [Clinical Trials](#)
- [E-Utilities](#)
- [LinkOut](#)

From Library Home Page> Databases> PubMed then select: Tutorials.

Practice Question #1

- Research current trends and utilization of health care services in rural Texas.
- POSSIBLE ANSWER is on the next page.
- You may want to try searching for this topic before moving on.

Answer: Practice Question #1

Search History

Search	Most Recent Queries
#7 Search (#3) AND #6	
#6 Search "Texas"[Mesh]	
#3 Search ("Rural Health Services/trends"[Mesh] OR "Rural Health Services/utilization"[Mesh])	

This is a possible strategy to answer Practice question #1.
(Read strategy from the bottom up.)

NOTE: As the database is updated daily the “Results” numbers may change.
Therefore the document retrieval numbers have been removed.

This strategy located 5 articles
on February 17, 2015

Locating the correct subject heading or
MeSH term and then using appropriate
subheadings creates a good strategy for
this question.

Practice question #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.

Practice Question 2: Strategy 1

Keeping it simple and to the point works!

History		Download history Clear	
Search	Add to builder	Query	Items found
#13	Add	Search ((finasteride[MeSH Terms]) AND "Prostatic Neoplasms"[Mesh]) AND risk[MeSH Terms]	90
#14	Add	Search ((finasteride[MeSH Terms]) AND "Prostatic Neoplasms"[Mesh]) AND risk[MeSH Terms] Filters: Randomized Controlled Trial	21
#12	Add	Search risk[MeSH Terms]	852216
#11	Add	Search "Prostatic Neoplasms"[Mesh]	94534
#7	Add	Search finasteride[MeSH Terms]	1821

However, if your results are too many...try the next strategy on the following slide.

This is a possible strategy to answer Practice question #2 .

(Read strategy from the bottom up.)

NOTE: As the database is updated daily the "Results" numbers may change.

This strategy located 21 articles on February 17, 2015

Results: 1 to 20 of 21 << First < Prev Page 1 of 2 Next > Last >>

Filters activated: Randomized Controlled Trial. [Clear all](#) to show 90 items.

- ☐ [Predicting risk of prostate cancer in men receiving finasteride: effect of prostate volume, number of biopsy cores, and American Urological Association symptom score.](#)
Ankerst DP, Till C, Boeck A, Goodman PJ, Tangen CM, Thompson IM.
Urology. 2013 Nov;82(5):1076-81. doi: 10.1016/j.urology.2013.07.041. Epub 2013 Sep 20.
PMID: 24055241 [PubMed - indexed for MEDLINE] [Free PMC Article](#) [Related citations](#)
- ☐ [Insulin-like growth factors and insulin-like growth factor-binding proteins and prostate cancer risk: results from the prostate cancer prevention trial.](#)

Practice Question 2: Strategy 2

2. Filters further refine results.

Search	Add to builder	Query	Items found
#16	Add	Search (("Prostatic Neoplasms/prevention and control"[Mesh])) AND "Finasteride/therapeutic use"[Majr]	149
#17	Add	Search (("Prostatic Neoplasms/prevention and control"[Mesh])) AND "Finasteride/therapeutic use"[Majr] Filters: Randomized Controlled Trial	23
#15	Add	Search "Prostatic Neoplasms/prevention and control"[Mesh]	3691
#14	Add	Search "Finasteride/therapeutic use"[Majr]	783

1. Subheadings and use of [Majr] concept narrows results.

Search	Add to builder	Query	Items found
#16	Add	Search (("Prostatic Neoplasms/prevention and control"[Mesh])) AND "Finasteride/therapeutic use"[Majr]	149
#15	Add	Search "Prostatic Neoplasms/prevention and control"[Mesh]	3691
#14	Add	Search "Finasteride/therapeutic use"[Majr]	783

This is a possible strategy to answer Practice question #2.
(Read strategy from the bottom up.)

NOTE: As the database is updated daily the "Results" numbers may change.

This strategy located 23 articles on February 17, 2015

Practice Question #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

History		Download history Clear	
Search	Add to builder	Query	Items found
#23	Add	Search (("Interprofessional Relations"[Mesh]) AND "Surgical Procedures, Operative"[Mesh]) AND ("Medical Errors/prevention and control"[Mesh])	52
#22	Add	Search "Medical Errors/prevention and control"[Mesh]	14783
#20	Add	Search "Surgical Procedures, Operative"[Mesh]	2427796
#17	Add	Search "Interprofessional Relations"[Mesh]	56272

This is a possible strategy to answer Practice question #3.
(Read strategy from the bottom up.)

NOTE: As the database is updated daily the “Results” numbers may change.
Therefore the document retrieval numbers have been removed.

This strategy located 52 articles
on February 17, 2015

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

Summary...Final Points

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

- If you have some topics that you would like covered please send a note to “Ask a Librarian.”
- Links to “Ask a Librarian” are located on the library homepage