

Finding the Evidence

In PubMed (MEDLINE)

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<http://www.mclibrary.duke.edu>
April, 2011

Introduction

This tutorial is designed to help you find evidence-based answers to clinical questions using the PubMed database. It covers basic searching concepts and focuses on retrieving data from quantitative studies and syntheses of the evidence, following a structured search process. A structured approach such as this can also be applied to searches of a non-clinical nature and can serve as a general framework for searching in other databases.

PubMed and other biomedical databases are available to Duke users from the Duke University Medical Center Library (DUMCL) website at <http://www.mclibrary.duke.edu/>.

A variety of handouts, tutorials, and other training materials are linked from our *Tutorials & Training* page at <http://www.mclibrary.duke.edu/training>.

PubMed

- is the search system for citations to the biomedical journal literature developed by the U.S. National Library of Medicine (NLM)
- covers the literature of medicine, nursing, dentistry, health services research, and more; includes > 20 million citations from > 5000 journals, in multiple languages
- includes all the content indexed for MEDLINE, plus newer references whose Medical Subject Headings (MeSH) have not yet been assigned

While you are affiliated with Duke, you should use the version of PubMed available from the DUMCL Website (<http://www.mclibrary.duke.edu/>). It contains links to full-text journal articles accessible to Duke.

Before looking for the “evidence,” you should become familiar with basic features of the PubMed search system.

- **PubMed Basics** brochure, with information about searching, displaying and printing results, and more -- <http://nnlm.gov/training/resources/pmtri.pdf>
- Other PubMed resources on the **DUMCL Tutorials & Training** page -- <http://www.mclibrary.duke.edu/training/pubmed>
- NLM’s complete **PubMed Help** manual, including *Quick Start* guide -- <http://www.ncbi.nlm.nih.gov/books/NBK3827/>

Other things you should know before starting to search ...

Indexing Terminology: MeSH and more

Human indexers read the articles referenced in MEDLINE and assign standardized terms called **Medical Subject Headings**, or **MeSH**, to describe the items. After an article citation has been fully indexed with MeSH and other terms, it displays with the tag **[PubMed - indexed for MEDLINE]**. New citations whose indexing is not yet complete (i.e., their MeSH terms haven't been assigned yet) display with the tag **[PubMed - in process]**. Citations received electronically from publishers display with the tag **[PubMed - as supplied by publisher]**. Most of these go on to be fully indexed for MEDLINE.

Topical MeSH terms: These subject headings are assigned to facilitate retrieval, since topics can often be expressed in multiple ways. For ex., cancer might also be referred to as tumors, neoplasia, malignancy, etc. NLM uses the MeSH heading ***Neoplasms*** for the broad concept of cancer. Headings for many specific types of cancer are also available, and the PubMed system automatically includes narrower terms when you search using a broad heading. This is known as **“exploding” a term.** Special qualifying terms called **Subheadings** are also used with MeSH terms to get at specific aspects of a topic. An article about drugs used to treat cancer would thus be indexed with the MeSH heading/subheading combination *Neoplasms/drug therapy*. These official vocabulary terms are always nouns or noun phrases.

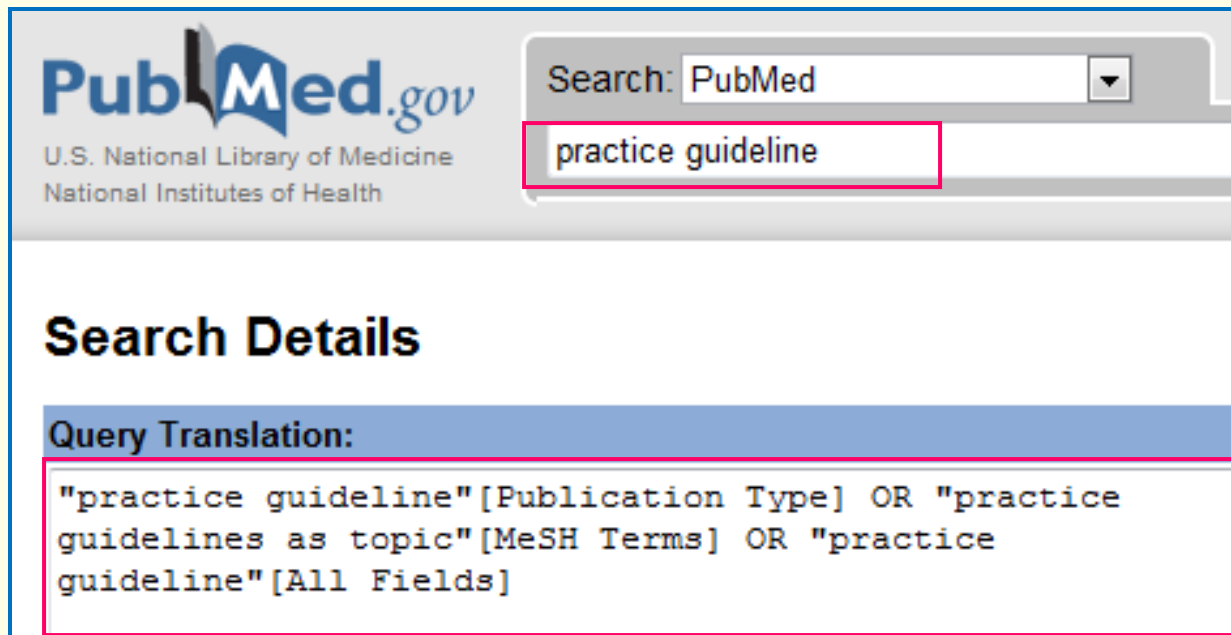
Publication Types: This is another category of standardized terms that describe the type of item being indexed, rather than the topic or subject matter of the item. There are several publication types that are helpful for retrieving the evidence from studies: *Clinical Trial*; *Meta-Analysis*; *Multicenter Study*; *Practice Guideline*; and *Randomized Controlled Trial*. There is not a publication type for every study design, however!

In cases where there is both a topical MeSH term and publication type for a study design or type of material, the terms are slightly different. For example, an article that talks about how to conduct randomized controlled trials would be indexed with the MeSH term "**randomized controlled trials as topic**"[MeSH Terms]. An article that is the report of an actual RCT would be indexed with the publication type "**randomized controlled trial**"[Publication Type]. An article that describes a specific RCT and also talks about the recruitment strategies for RCTs of that type might be indexed with both terms.

When there is no publication type corresponding to a particular study design, the indexer will use a topical MeSH term. An example of this is the MeSH term *Cohort Studies*. The indexer will assign this MeSH term to describe an article that reports the results of an actual cohort study (since there is no publication type for a cohort study) or an article that talks about cohort studies in general.

Automatic Term Mapping: PubMed uses this process to try to maximize the retrieval of indexed records as well as new “in process” citations that don’t yet have MeSH headings. When you enter terms into the main search box, the system looks for them in “all fields,” including textwords used by the author in the title and abstract. It also tries to translate (“map”) your words into MeSH terms, subheadings, publication types, and other official terminology. To determine how PubMed has translated and executed your search, you should always look at the **Search details** box on the lower right of the Results screen. If you click on [See more...](#) below the box, you can view a larger **Search Details** screen.

Ex.: ***Practice guideline*** as a search term will map to the Publication Type, the MeSH Term, or the phrase in all fields, as shown in the Query Translation box on the Search Details screen below. The terms are combined with **OR**, meaning that any of them could be present in the items retrieved.



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

Search: PubMed

practice guideline

Search Details

Query Translation:

```
"practice guideline"[Publication Type] OR "practice guidelines as topic"[MeSH Terms] OR "practice guideline"[All Fields]
```

Note: Several things will **turn off the automatic mapping**, and official MeSH terms will **not** be included in your search. These should be used with caution.

- Putting an asterisk (*) on a word root as a wildcard or truncation symbol

Ex.: *diagnos** as a search term picks up the words *diagnosis*, *diagnostic*, *diagnose*, etc., in all fields. However, it doesn't map to, nor automatically explode, the broad MeSH term **Diagnosis**. Without the automatic explosion, you will miss narrower MeSH terms related to diagnostic errors (e.g., **False Negative Reactions**), diagnostic techniques (e.g., **Physical Examination**, **Immunologic Tests**), and more.

Search tip: To maximize your retrieval and increase the chances of retrieving new items that haven't yet been indexed, you could search using both the MeSH term and truncated word root, as in **diagnosis OR diagnos***

- Putting a phrase in quotes

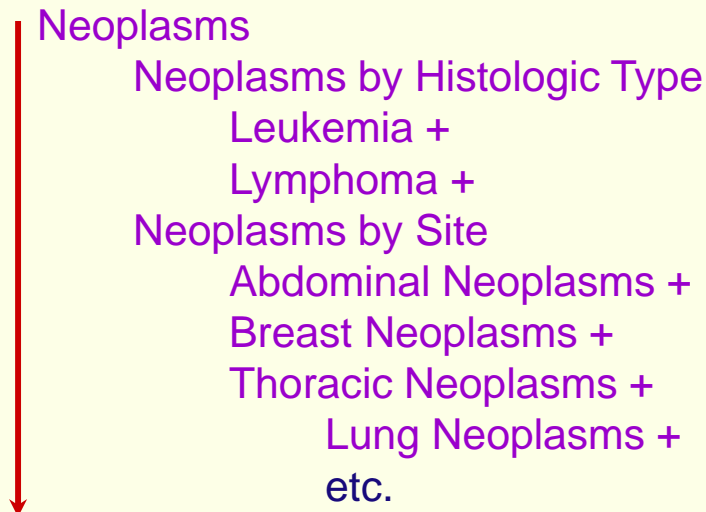
Ex.: Searching on the quoted phrase "*diagnostic imaging*" will find that exact phrase in all fields, but it turns off the automatic mapping to and explosion of the MeSH term **Diagnostic Imaging**. Without the automatic explosion, you will miss the narrower MeSH terms for specific imaging modalities (**Magnetic Resonance Imaging**, **Radionuclide Imaging**, etc.).

Search tip: Searching on a quoted phrase can sometimes help you find concepts for which there isn't a good MeSH term, but first be sure there aren't relevant subject headings.

MeSH Database

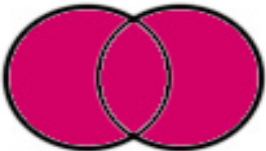
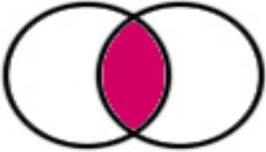
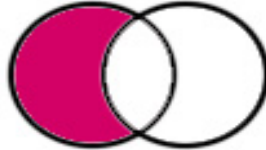
To explore NLM's controlled vocabulary, identify MeSH terms to use in a search, see the hierarchy of broader and narrower headings (sometimes called the "tree" structure), and learn what will be included in your search by the "explosion" of a broad MeSH term, you can use the **MeSH Database**. It also offers some advanced searching features. The MeSH Database can be accessed from links on the main PubMed search screen or Advanced Search screen or by changing the drop-down menu above the search box from PubMed to MeSH. We'll talk more about the MeSH Database when we do an actual search.

Below is part of the "tree" for the broad MeSH term *Neoplasms* (used for the concept of cancer), showing some of the narrower terms that would be included in a search by the automatic explosion of *Neoplasms*.



The terms indented under a broad heading are the narrower headings also picked up by the automatic explosion.

Combining terms or search sets with Boolean operators OR & AND

Operator	Example search	The search will find...	Venn diagram results shown in pink (dark)
<p style="text-align: center;">OR</p> <p>Use OR to combine terms that are similar in meaning or when you don't care which term appears in the results</p>	<p style="text-align: center;">dizziness OR vertigo</p>	<p>items containing either "dizziness" or "vertigo" or both. OR broadens a search, resulting in more hits.</p>	
<p style="text-align: center;">AND</p> <p>Use AND to combine terms for different concepts, when you want all the terms to appear in the results</p>	<p style="text-align: center;">north carolina AND lyme disease</p>	<p>items containing both "North Carolina" and "Lyme disease." AND narrows a search, resulting in fewer hits.</p>	
<p style="text-align: center;">NOT</p> <p>Can be used to exclude items, but this is risky!</p>	<p style="text-align: center;">mexico NOT new mexico</p>	<p>items containing "Mexico" but not "New Mexico." <i>Use with caution!</i> It's easy to exclude relevant items.</p>	

Limiting Features

PubMed offers various options for limiting a search and reducing your retrieval. The **Limits** link is above the search box. Frequently used limits include: **Dates**; **Type of Article** (= publication type); **Languages**; **Subsets** (inc. journal groups, such as Nursing journals, and other subsets, such as AIDS and Systematic Reviews). Another important limit is **Ages**. This is the preferred way to find articles about a specific age group, such as a pediatric or elderly population.

Note: Selected limits remain active until you change or remove them.

Limits

Dates

Published in the Last:

Type of Article

- Letter
- Meta-Analysis
- Practice Guideline
- Randomized Controlled Trial
- Review

Languages

- English
- French
- German
- Italian
- Japanese

Species

- Humans
- Animals

Sex

- Male
- Female

Subsets

- History of Medicine
- MEDLINE
- Nursing journals
- Systematic Reviews
- Toxicology

Ages

- All Infant: birth-23 months
- All Child: 0-18 years
- All Adult: 19+ years
- Newborn: birth-1 month
- Infant: 1-23 months

“Clinical Queries” in PubMed

A feature we'll talk more about later is the **Clinical Queries**, which are specialized searches related to types of clinical questions (etiology, diagnosis, therapy, prognosis, and clinical prediction guides), as well as systematic reviews and medical genetics. These stored search strategies are intended to help you find relevant information on clinical topics. For each clinical study category, the search can be either broad and sensitive, or narrow and specific.

Links to the Clinical Queries are on the main PubMed page and toward the bottom of the Advanced Search page.



You can start a search on the Clinical Queries page, but it is often more useful to take the results of a well-constructed search and use the Clinical Queries as a way to reduce or “filter” the retrieval. After doing your search, enter the set number you wish to filter (from the Search History in Advanced Search) into the search box on the Clinical Queries page. Ex: **Search**

Caveat: The Clinical Queries work better for some categories of questions than others. It's always a good idea to look at the “**filter**” table (<http://www.ncbi.nlm.nih.gov/entrez/query/static/clinicaltable.html>) linked from the Clinical Queries page to see what the corresponding search strategy includes so that you can decide whether it is relevant to your search.

Type of question and type of study

The study design most likely to provide the best data (“evidence”) for answering a clinical question varies according to the type of question. Categories of questions and the original study designs most appropriate for answering them are shown in the following schematic:

Type of question	Suggested best type of study
Therapy	Randomized Controlled Trial (RCT)
Diagnosis	Prospective, blind comparison to a gold standard
Prognosis	Cohort Study > Case Control > Case Series
Etiology/Harm	RCT > Cohort Study > Case Control > Case Series
Prevention	RCT > Cohort Study > Case Control > Case Series
Cost-analysis	Economic Analysis

[from the DUMCL EBM Subject Guide - <http://www.mclibrary.duke.edu/subject/ebm?tab=questionable>;
see Types of Studies at bottom of page]

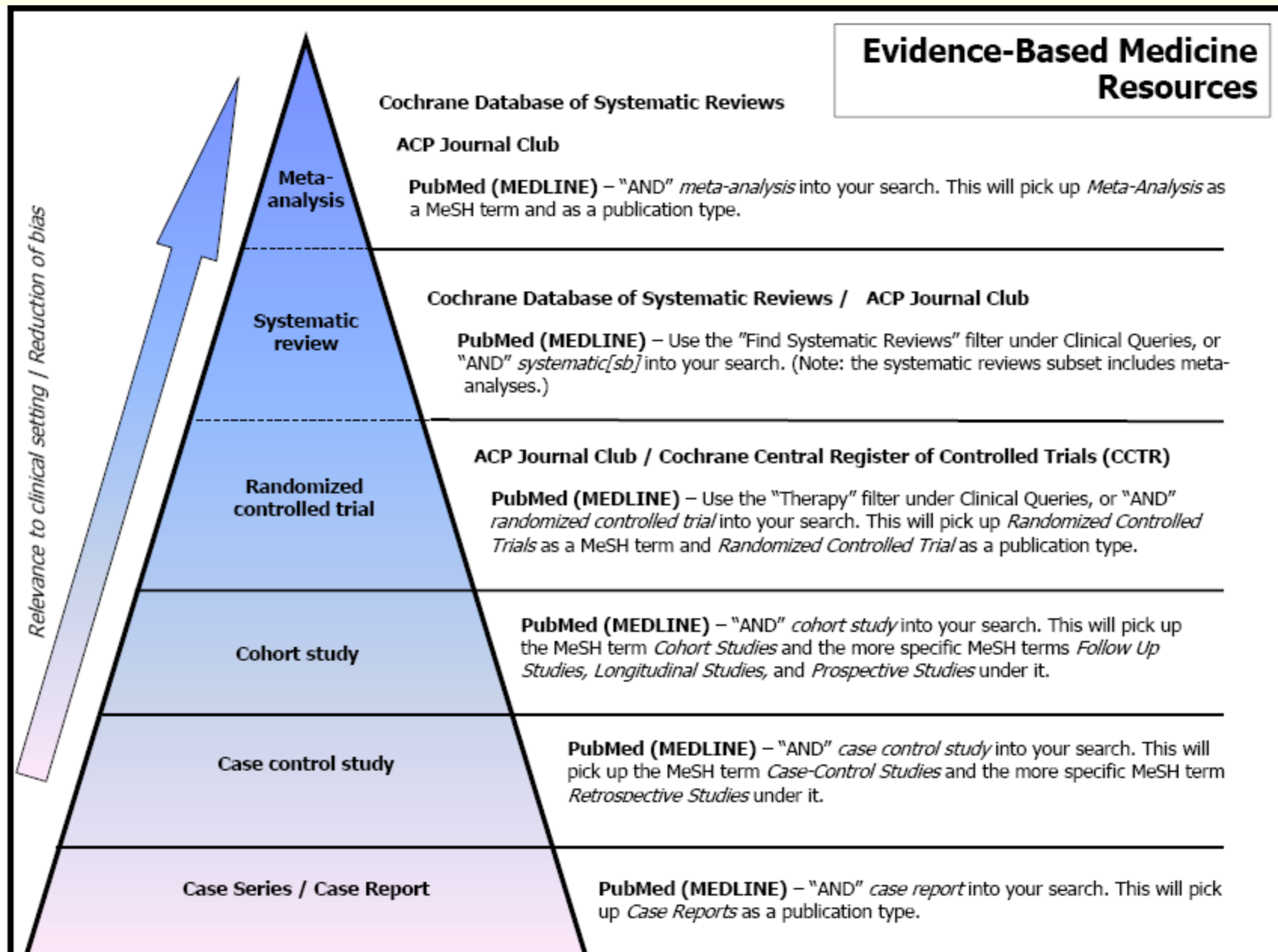
In addition, syntheses of the evidence may be available in the form of systematic reviews, meta-analyses, and evidence-based practice guidelines.

A search for evidence in PubMed should take into account the type of study that will provide the best data to answer your question.

Note: For more about study designs and levels of evidence, see <http://www.mclibrary.duke.edu/subject/ebm?tab=searching&extra=design>

The “Evidence Pyramid” and hierarchy of evidence

[from the DUMCL EBM Subject Guide - <http://www.mclibrary.duke.edu/subject/ebm/searching/ebmresources.pdf>]



Approach to the Search

- Think carefully about your search question/topic and its key concepts, such as patient problem/condition, intervention, outcomes, etc.. PICO(TT) is a mnemonic often used to help structure clinical searches, though it is not suitable for every topic. **The important thing is to identify the essential components of your topic and use them to guide your search!** You may find it helpful to jot down the key elements before starting to search.
- Think of different ways to get at each concept.
(e.g., critical care OR intensive care units)
- What type of study is best suited to answer the type of question you're asking?
- Search each concept separately.
- Combine concepts using the *Search History* (in *Advanced Search*) and Boolean operators OR & AND.

Tip: First combine similar concepts with OR. Then combine different concepts with AND to get your final results.

- Look at MeSH terms on relevant articles for other ideas about search terms.
- Limit to language, dates, age groups, publication types, etc., at the end.

PICO(TT) Framework for Developing Search Strategy

PATIENT OR PROBLEM

How would you describe a group of patients similar to yours? What are the most important characteristics of this patient population? What is the problem or condition of interest?

INTERVENTION, EXPOSURE, PROGNOSTIC FACTOR

What main intervention (diagnostic test, prevention strategy, treatment, etc.) are you considering? Is there an exposure, risk, or prognostic factor of interest?

COMPARISON (if applicable)

What is the main alternative being considered, if any?

OUTCOME

What are you trying to accomplish, measure, improve, or affect?

Type of question being asked

Type of study needed

Search scenario:

You're concerned about the number of critically ill patients in your hospital who've recently developed pressure ulcers, significantly adding to the morbidity, mortality, and cost associated with their hospitalization. You'd like more information about factors or characteristics that increase the risk of developing pressure sores in this population, and evidence about the effectiveness of interventions to prevent pressure sores in critically ill patients.

Before you attempt to search the literature, convert your information need into a focused, answerable question, based on the PICO(TT) framework (as appropriate).

Note: For more about the well-built clinical question and PICO(TT), see <http://www.mclibrary.duke.edu/subject/ebm?tab=questiontable>

What are the two main questions we want information about, and what types of questions (etiology/harm, prevention, diagnosis, prognosis, therapy, etc.) are they?

- 1. *In critically ill patients, what factors or characteristics increase the risk of developing pressure sores?*** [This is an *etiology/harm* question, in that it deals with causes of or factors associated with an adverse outcome.]
- 2. *In critically ill patients, what are effective interventions for preventing pressure sores?*** [This is both a *prevention* and *therapy* question, related to the effectiveness of preventive interventions.]

This is what the PICO(TT) might look like for the first question we want to address:

In critically ill patients, what factors or characteristics increase the risk of developing pressure sores?

P = critically ill patients (or related ideas)

I = [no *specific* factors or characteristics to search for]

C = [none specified]

O = pressure sores (esp., what increases the risk of development)

T (type of question) = etiology/harm*

T (type of study that best answers a question of this type) =
RCT > cohort > case control > case series

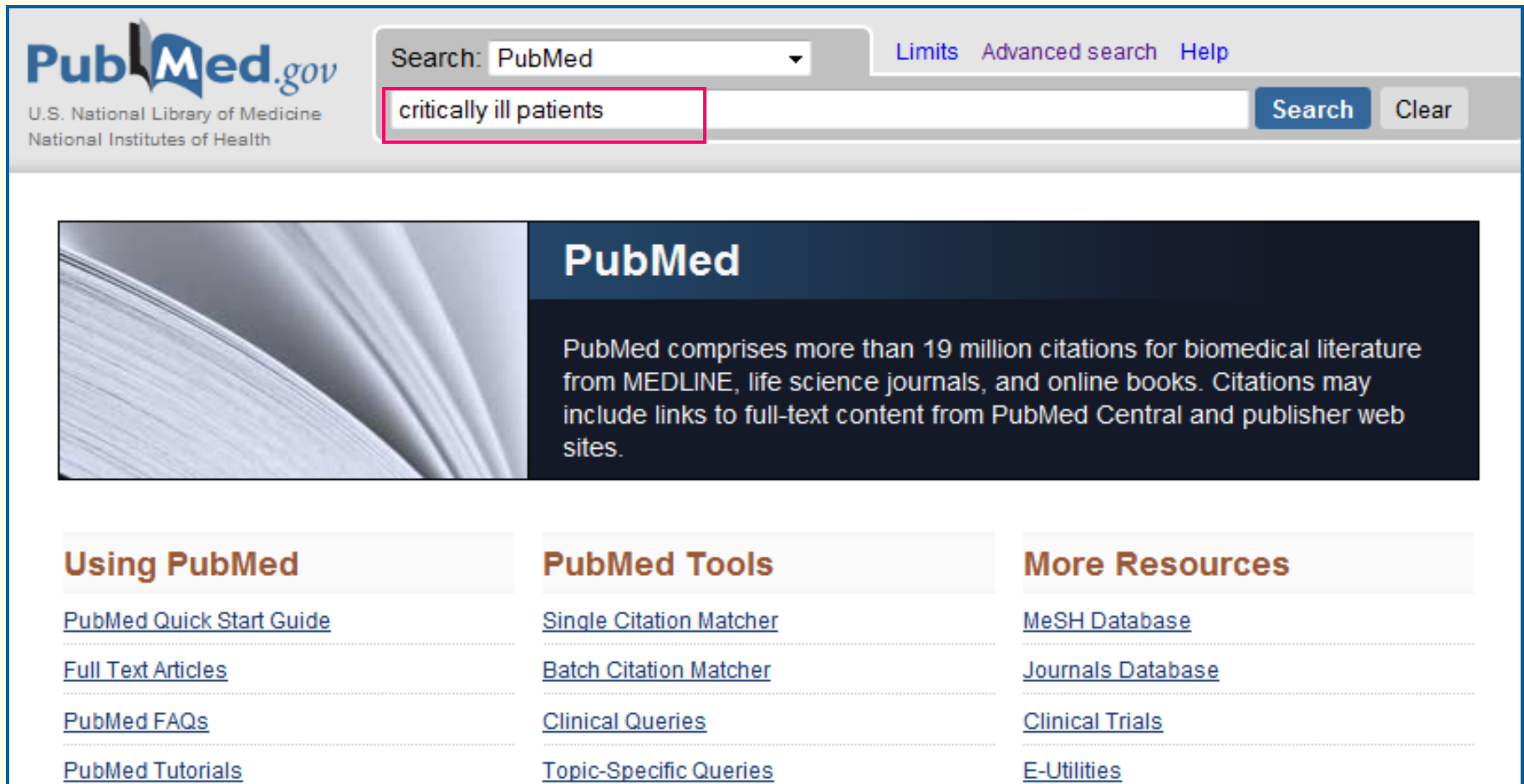
*Note: The type of question doesn't necessarily have to be included in the search strategy. Its main purpose is to help you think about the study design that is best suited (least likely to introduce bias, etc.) for answering a question of this type.

The search

Using the PICO framework as a guide, the first concept (P) in our search relates to the patient population or problem of interest, which is *critically ill patients*.

- Search on ***critically ill patients*** in the main PubMed search box.

Note: Terms that appear below the search box as you type are NOT necessarily official MeSH terms or even good search terms! They are just terms other people have typed into the box. If this feature is distracting, you may turn it off.



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

Search: PubMed

Limits Advanced search Help

critically ill patients

Search Clear

PubMed

PubMed comprises more than 19 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](#)

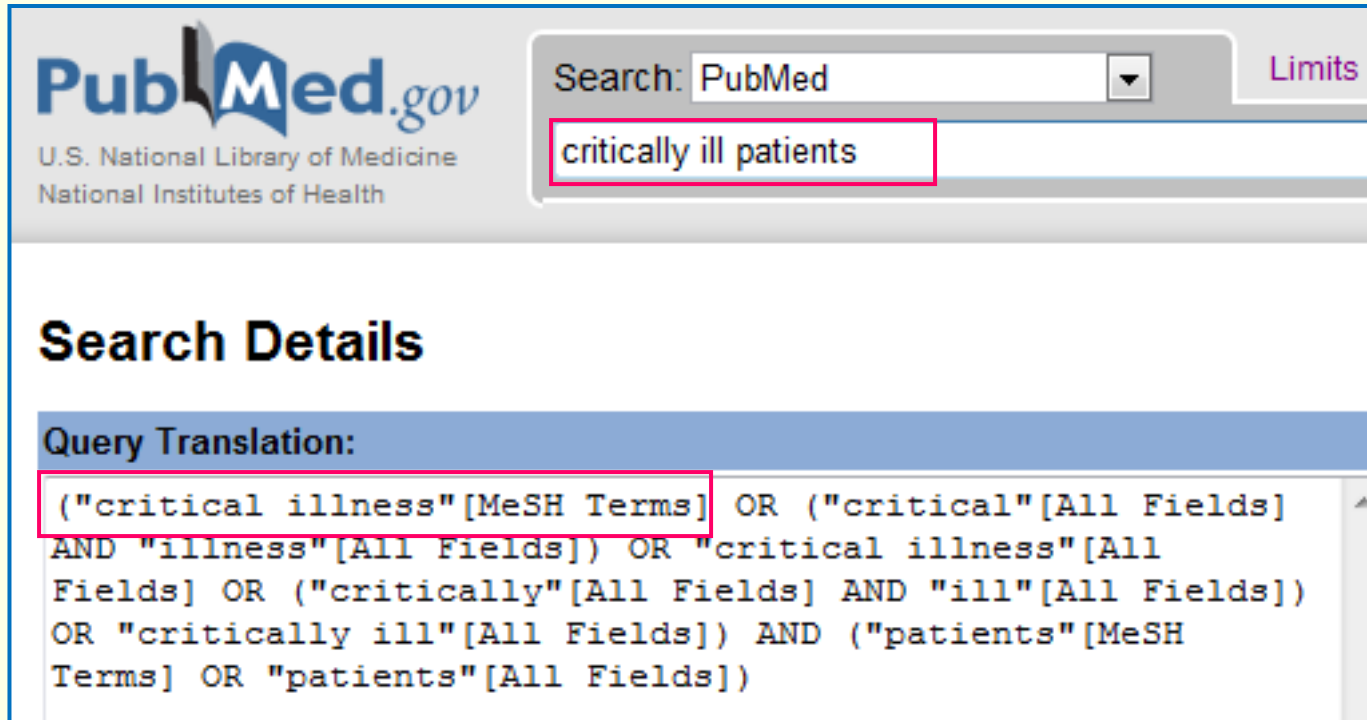
PubMed Tools

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

More Resources

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

- After searching on *critically ill patients*, look at **Search Details** to see how the system translated (“mapped”) your phrase and whether it found a relevant MeSH term (Medical Subject Heading).



The screenshot shows the PubMed.gov search interface. The search bar contains the text "critically ill patients". Below the search bar, the "Search Details" section is visible, with a sub-section titled "Query Translation:". The translated query is displayed in a text area, with the first part, ("critical illness"[MeSH Terms], highlighted by a red box.

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

Search: PubMed Limits

critically ill patients

Search Details

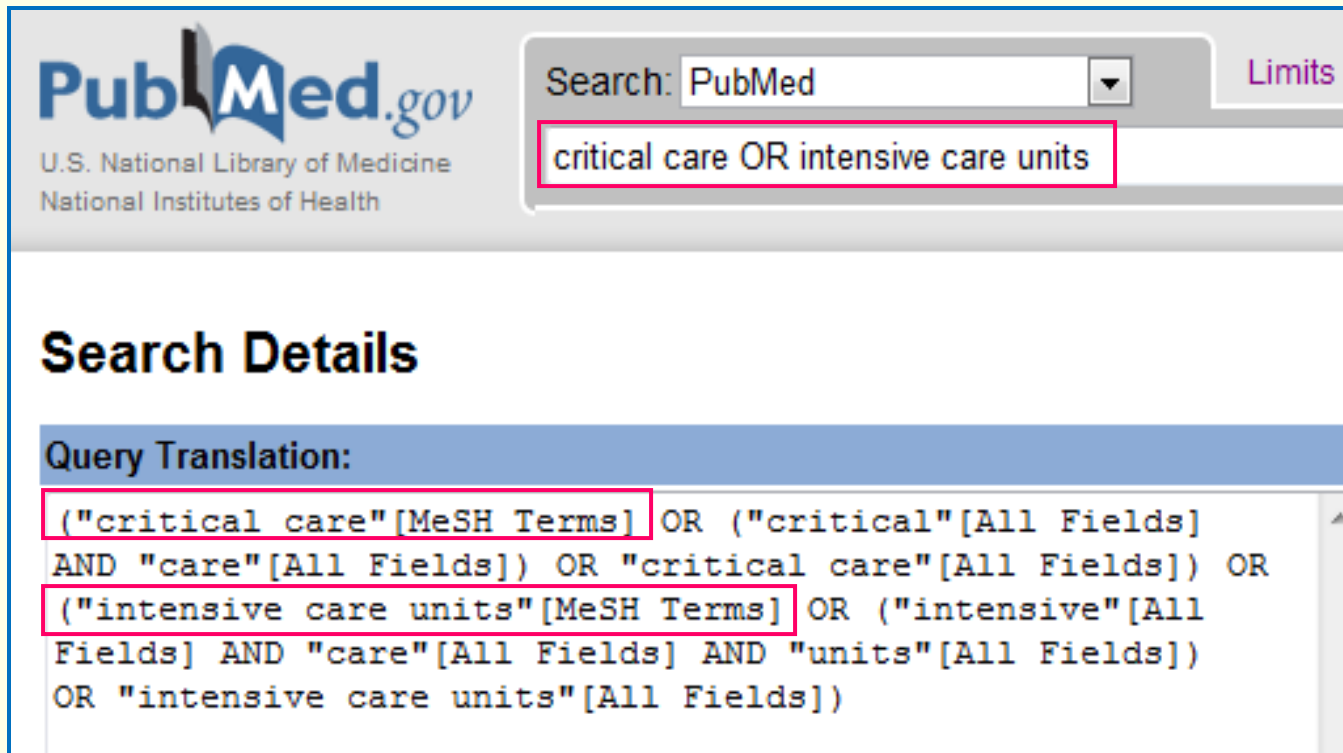
Query Translation:

```
("critical illness"[MeSH Terms] OR ("critical"[All Fields] AND "illness"[All Fields]) OR "critical illness"[All Fields] OR ("critically"[All Fields] AND "ill"[All Fields]) OR "critically ill"[All Fields]) AND ("patients"[MeSH Terms] OR "patients"[All Fields])
```

You will notice that the system did not find an exact MeSH term for *critically ill patients*, but it did find a MeSH term **critical illness** and combined it with terms for patients. This seems appropriate.

There is often more than one way to get at a concept. Other ways to retrieve items related to critically ill patients might be to search on *critical care* (the type of care they receive) or *intensive care units* (the settings in which they receive care).

- To increase the chances of retrieving relevant articles, search on the terms ***critical care OR intensive care units*** in the main PubMed search box. Be sure to look at **Search Details** to see whether your search included relevant MeSH terms. Note: The Boolean operators OR & AND should be capitalized.



The screenshot shows the PubMed.gov search interface. The search box contains the query "critical care OR intensive care units". Below the search box, the "Search Details" section is visible, showing the "Query Translation" as follows:

```
("critical care"[MeSH Terms] OR ("critical"[All Fields] AND "care"[All Fields]) OR "critical care"[All Fields]) OR ("intensive care units"[MeSH Terms] OR ("intensive"[All Fields] AND "care"[All Fields] AND "units"[All Fields]) OR "intensive care units"[All Fields])
```

In this case, the terms we used correspond to official MeSH terms that were incorporated into the search by PubMed's automatic term mapping .

Remember: When PubMed includes a MeSH term in a search, it automatically **explodes** the term to pick up narrower, more specific terms in the hierarchy of headings. (For ex., the explosion of the broad heading *Critical Care* also picks up the heading *Intensive Care*.) The **MeSH Database** enables you to identify and learn more about headings, see broader and narrower terms, and use advanced search features. In our scenario, to determine whether there are specific types of *intensive care units* picked up by the automatic explosion of the broad heading ...

- Go to the **MeSH Database** from the main PubMed search screen or PubMed Advanced Search.
- Search for MeSH terms that correspond to the concept *intensive care units*.
- Click on the broadest heading you find, which is [Intensive Care Units](#).

The screenshot shows the MeSH Database search interface. At the top left, there is a box labeled "MeSH NLM Controlled Vocabulary". To the right, there is a search bar with "MeSH" selected in a dropdown menu and "intensive care units" entered in the search field. A "Search" button is visible. Above the search bar are links for "Save search", "Limits", "Advanced search", and "Help". Below the search bar, there are options for "Display Settings" (set to "Summary") and "Send to" (checked). The search results are displayed under the heading "Results: 3". The first result is "Intensive Care Units", which is highlighted in yellow. Below it, the description reads: "1. Hospital units providing continuous surveillance and care to acutely ill patients. Year introduced: 1966(1963)". To the right of the results is a "PubMed search builder" section with a large empty box and buttons for "Add to search builder" and "AND".

After clicking on [Intensive Care Units](#) in the MeSH Database, you'll see more information about the term, including the narrower terms picked up by the explosion. So... when the system includes this broad heading in a search, it is also searching for articles about [Burn Units](#) OR [Coronary Care Units](#) OR [Intensive Care Units, Pediatric](#), etc. (Any of these headings could be present in retrieved citations.)

Intensive Care Units

Hospital units providing continuous surveillance and care to acutely ill patients.

Year introduced: 1966(1963)

PubMed search builder options

[Subheadings:](#)

- | | | |
|--|--|--|
| <input type="checkbox"/> classification | <input type="checkbox"/> legislation and jurisprudence | <input type="checkbox"/> statistics and numerical data |
| <input type="checkbox"/> economics | <input type="checkbox"/> manpower | <input type="checkbox"/> supply and distribution |
| <input type="checkbox"/> ethics | <input type="checkbox"/> methods | <input type="checkbox"/> trends |
| <input type="checkbox"/> history | <input type="checkbox"/> organization and administration | <input type="checkbox"/> utilization |
| <input type="checkbox"/> instrumentation | <input type="checkbox"/> standards | |

Restrict to MeSH Major Topic.

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

[All MeSH Categories](#)

[Health Care Category](#)

[Health Care Facilities, Manpower, and Services](#)

[Health Facilities](#)

[Hospital Units](#)

Intensive Care Units

[Burn Units](#)

[Coronary Care Units](#)

[Intensive Care Units, Pediatric](#)

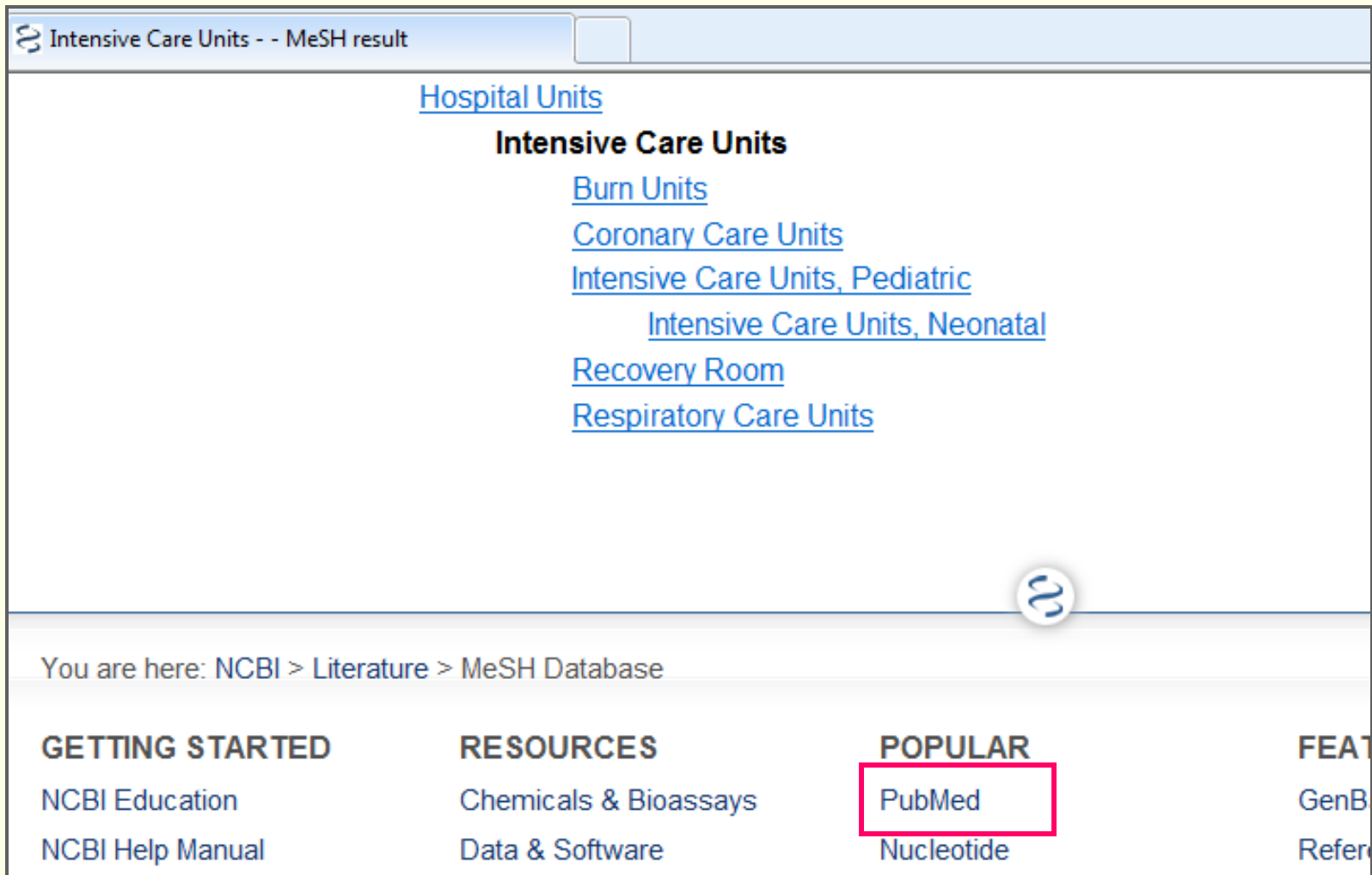
[Intensive Care Units, Neonatal](#)

[Recovery Room](#)

[Respiratory Care Units](#)

Getting out of the MeSH Database:

If you've been exploring the MeSH Database and want to get back to the main PubMed search screen, you can change the drop-down Search menu at the top from MeSH to PubMed and click Search (as long as the search box is empty), **or** click on [PubMed](#) at the bottom of the page, under POPULAR (shown below).



The screenshot shows a web browser window with the title "Intensive Care Units - - MeSH result". The main content area displays a list of related MeSH terms under the heading "Hospital Units". The terms listed are: "Intensive Care Units", "Burn Units", "Coronary Care Units", "Intensive Care Units, Pediatric", "Intensive Care Units, Neonatal", "Recovery Room", and "Respiratory Care Units". A circular logo with a stylized 'N' is visible on the right side of the page. Below the main content, a breadcrumb trail reads "You are here: NCBI > Literature > MeSH Database". At the bottom, there is a navigation menu with four columns: "GETTING STARTED" (with links for "NCBI Education" and "NCBI Help Manual"), "RESOURCES" (with links for "Chemicals & Bioassays" and "Data & Software"), "POPULAR" (with "PubMed" highlighted by a red box and "Nucleotide" below it), and "FEAT" (with "GenB" and "Refer" visible).

Intensive Care Units - - MeSH result

[Hospital Units](#)

Intensive Care Units

- [Burn Units](#)
- [Coronary Care Units](#)
- [Intensive Care Units, Pediatric](#)
- [Intensive Care Units, Neonatal](#)
- [Recovery Room](#)
- [Respiratory Care Units](#)

You are here: NCBI > Literature > MeSH Database

GETTING STARTED	RESOURCES	POPULAR	FEAT
NCBI Education	Chemicals & Bioassays	PubMed	GenB
NCBI Help Manual	Data & Software	Nucleotide	Refer

Now let's get back to our PubMed search and merge the searches related to critically ill pts. –

- Leave the MeSH Database and go to the **PubMed Advanced Search** screen. (The Advanced Search link is above the search box on the main PubMed page.)
- Look under **Search History** for the searches we've already done.
- To combine the two search sets, type **#1 OR #2** into the search box and click **Search**. (The order doesn't matter.) We use **OR**, not **AND**, because we don't care which of these similar concepts appears in the final results. Combining similar concepts with **OR** ensures that overlapping references only appear once in the merged results.

PubMed Advanced Search

Search Box [Limits](#) [Details](#) [Help](#)

#1 OR #2

Search History

Search	Most Recent Queries	Time	Result
#3	Search #1 OR #2	15:40:09	144494
#2	Search critical care OR intensive care units	15:03:44	135309
#1	Search critically ill patients	15:02:59	23201

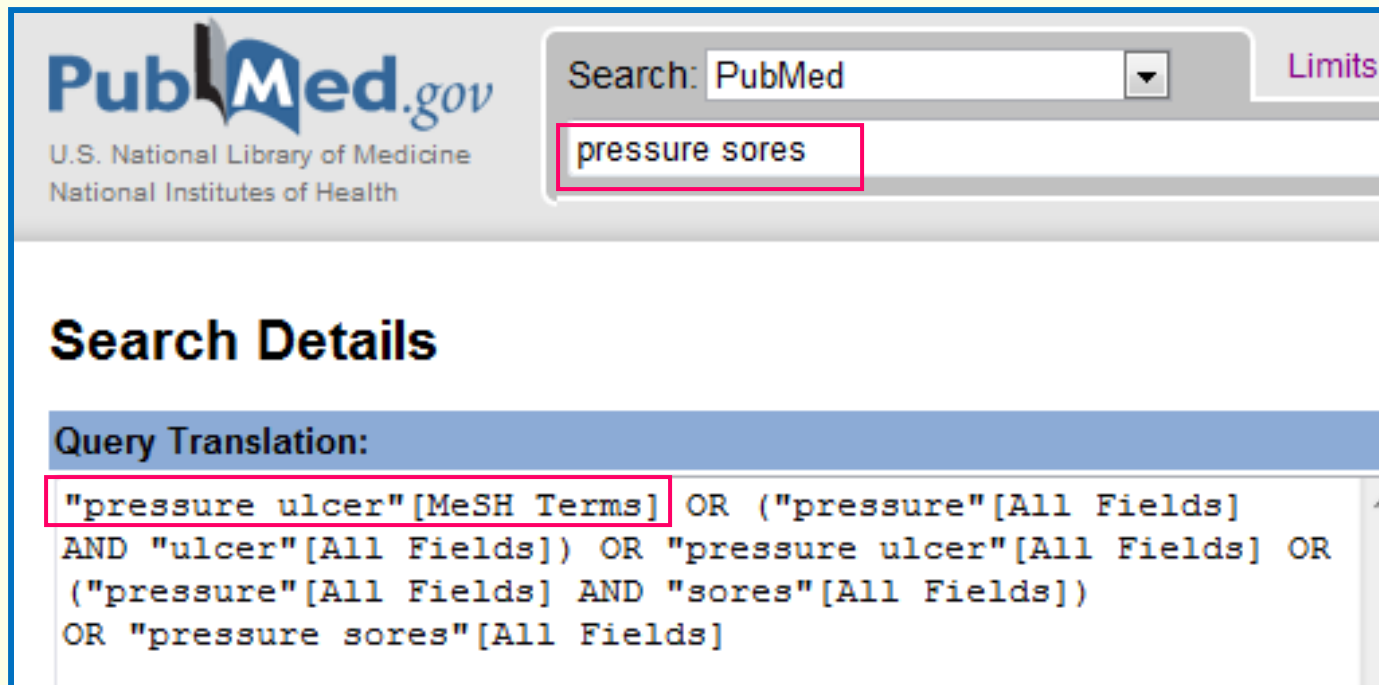
[Search History Instructions](#)

- Search History will be lost after eight hours of inactivity.
- The maximum number of searches held in History is 100.
- Search numbers may not be continuous; all searches are represented.
- To save search indefinitely, click query # and select Save in My NCBI.
- To combine searches use #search, e.g., #2 AND #3 or click query # for more options.

Click on **Search History Instructions** for important information about this screen and how to use search sets in the History.

Our search questions have to do with pressure sores in critically ill patients. Following the PICO framework, there aren't any *specific* terms related to I (Interventions or other factors) and C (Comparison) to include in this search. Pressure sores are the Outcome (O) of interest.

- Search on the term **pressure sores**, then look at **Search Details** to see how the system interpreted the concept.



The screenshot shows the PubMed.gov search interface. The search bar contains the text "pressure sores". Below the search bar, the "Search Details" section is visible, featuring a "Query Translation" box. The query translation text is: `"pressure ulcer"[MeSH Terms] OR ("pressure"[All Fields] AND "ulcer"[All Fields]) OR "pressure ulcer"[All Fields] OR ("pressure"[All Fields] AND "sores"[All Fields]) OR "pressure sores"[All Fields]`. The first part of the query, `"pressure ulcer"[MeSH Terms]`, is highlighted with a red box.

Note that the system translated our term into the official MeSH term **pressure ulcer**. It also looked in all fields (which include title and abstract) for the terms *pressure ulcer* OR *pressure sores*. This increases our chances of finding relevant articles.

At this point we might want to combine our different concepts – critically ill patients (or similar) and pressure sores (pressure ulcers) – and see what we get.

- Go to **Advanced Search** and combine the relevant sets, using the Boolean operator **AND**. We use **AND** here because we want to be sure that **both** concepts are included in the articles we retrieve.

PubMed Advanced Search

[« Back to PubMed](#)

Search Box

#3 AND #4

[Limits](#) [Details](#) [Help](#)

Search

Preview

Clear

Search Builder

Search History

Search	Most Recent Queries	Time	Result
#5	Search #3 AND #4	16:37:31	411
#4	Search pressure sores	16:16:40	11799
#3	Search #1 OR #2	15:40:09	144494
#2	Search critical care OR intensive care units	15:03:44	135309
#1	Search critically ill patients	15:02:59	23201

Clear History

[Search History Instructions](#)

One area of interest to us is factors or characteristics that increase the risk of developing pressure sores. Although we could browse the >400 articles we've retrieved, we can do a more targeted search by adding in the concept of *risk*. Other terms to consider are *etiology* (for causative factors) or *epidemiology* (for factors related to distribution and incidence of a condition).

- Search on the terms ***risk OR etiology OR epidemiology*** and look at **Search Details** to see how the system interpreted your query.

Search Details

Query Translation:

```
("risk"[MeSH Terms] OR "risk"[All Fields]) OR  
("etiology"[Subheading] OR "etiology"[All Fields]  
OR "causality"[MeSH Terms] OR "causality"[All Fields]) OR  
("epidemiology"[Subheading] OR "epidemiology"[All Fields]  
OR "epidemiology"[MeSH Terms])
```

Our search finds the MeSH term ***risk***. (The automatic explosion of ***risk*** also picks up the narrower headings ***risk assessment***, ***risk factors***, or ***logistic models***.) Note that ***etiology*** and ***epidemiology*** have also been searched as *Subheadings*, special qualifying terms used with MeSH terms to focus on specific aspects of a topic.

- Now we'll add this concept to our search by going to **Advanced Search** and combining the relevant sets using the Boolean operator **AND**.

Note: The Search History normally displays 5 sets at a time. You can toggle between **More History**, to show more of your search sets, and **Less History**.

PubMed Advanced Search

[« Back to PubMed](#)

Search Box

[Limits](#) [Details](#) [Help](#)

#5 AND #6

Search

Preview

Clear

Search Builder

Search History

Search	Most Recent Queries	Time	Result
#7	Search #5 AND #6	14:43:03	300
#6	Search risk OR etiology OR epidemiology	14:35:38	6985159
#5	Search #3 AND #4	14:30:56	411
#4	Search pressure sores	14:29:31	11803
#3	Search #1 OR #2	14:26:08	144533
#2	Search critical care OR intensive care units	14:25:29	135341
#1	Search critically ill patients	14:24:49	23213

Less History

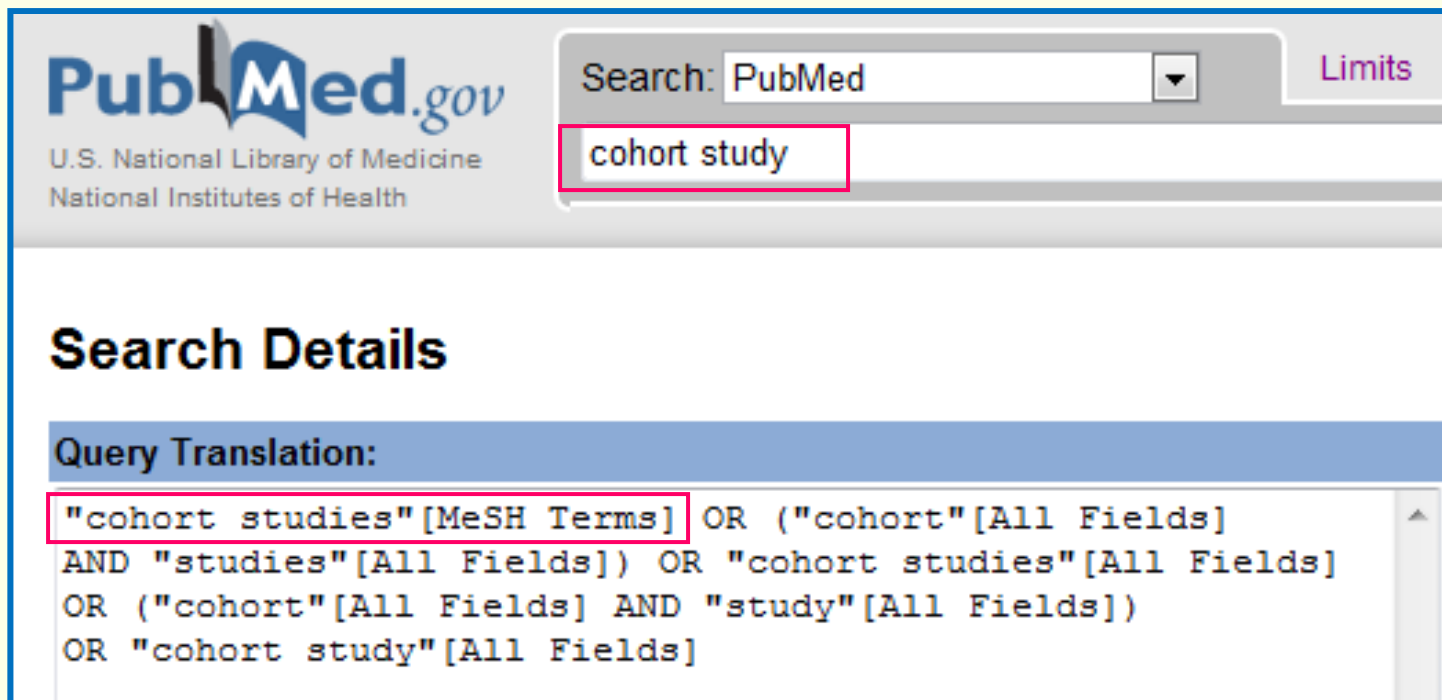
Clear History

[Search History Instructions](#)

- Search History will be lost after eight hours of inactivity.

Many articles will talk about risk factors associated with development of pressure ulcers. However, if we want evidence (quantitative data) to substantiate this, we can look for clinical studies. While it's possible that an RCT could supply this, the most likely study design to provide evidence for a harm question such as this one is an observational study, preferably a **cohort study** that follows subjects prospectively for development of the outcome of interest.

- To find evidence from a cohort study related to the risk of developing pressure ulcers, search on the phrase **cohort study**. **Search Details** reveals that *cohort study* maps to **cohort studies [MeSH Terms]**.



The screenshot shows the PubMed.gov search interface. The search bar contains the text "cohort study". Below the search bar, the "Search Details" section is visible, showing the query translation: `"cohort studies"[MeSH Terms] OR ("cohort"[All Fields] AND "studies"[All Fields]) OR "cohort studies"[All Fields] OR ("cohort"[All Fields] AND "study"[All Fields]) OR "cohort study"[All Fields]`. The term `"cohort studies"[MeSH Terms]` is highlighted with a red box.

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

Search: PubMed Limits

cohort study

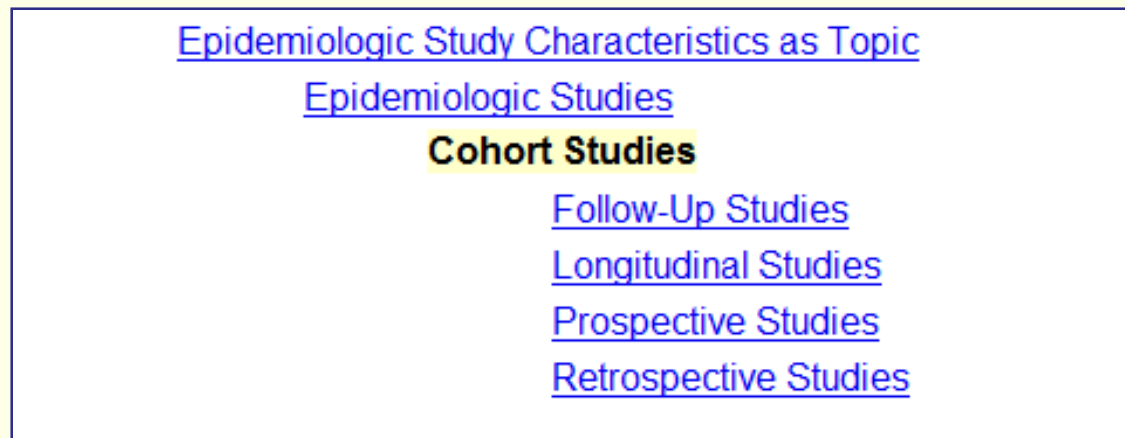
Search Details

Query Translation:

```
"cohort studies"[MeSH Terms] OR ("cohort"[All Fields] AND "studies"[All Fields]) OR "cohort studies"[All Fields] OR ("cohort"[All Fields] AND "study"[All Fields]) OR "cohort study"[All Fields]
```

It's important to know whether there are more specific (narrower) subject headings being picked up by the automatic explosion of the heading **Cohort Studies**. We can learn this by going to the MeSH Database. There we find the following headings indented under the broad heading *Cohort Studies*: *Follow-Up Studies*; *Longitudinal Studies*; *Prospective Studies*; *Retrospective Studies*. Because of the automatic explosion, any of these headings will be retrieved by our search.

From the MeSH Database “tree” display for the heading *Cohort Studies*:



Note: Although many cohort studies are prospective studies, there are also retrospective (aka “historical”) cohort studies. Be sure to read the description of a study’s methods and look at all the headings used to describe it to determine whether it is a prospective or retrospective study.

- As the next step in our search, we'll combine the *cohort study* set with previous results by going to **Advanced Search** and using the Boolean operator **AND**.

PubMed Advanced Search

[« Back to PubMed](#)

Search Box

[Limits](#) [Details](#) [Help](#)

#7 AND #8

Search

Preview

Clear

Search Builder

Search History

Search	Most Recent Queries	Time	Result
#9	Search #7 AND #8	14:51:53	79
#8	Search cohort study	14:50:04	805838
#7	Search #5 AND #6	14:48:39	300
#6	Search risk OR etiology OR epidemiology	14:47:37	7000101
#5	Search #3 AND #4	14:46:06	412
#4	Search pressure sores	14:45:07	11818
#3	Search #1 OR #2	14:44:48	144942
#2	Search critical care OR intensive care units	14:44:01	135715
#1	Search critically ill patients	14:43:20	23296

Less History

Clear History

[Search History Instructions](#)

Example of a study retrieved by this search, in Abstract display format. Note the presence of many of our search terms in the abstract and MeSH areas. (To see MeSH and other indexing terms in the Abstract display format, click on the + next to *Publication Types, MeSH Terms* .)

1: [Crit Care Med](#). 2001 Feb;29(2):283-90.

[Related Articles](#), [Link](#)



Incidence of pressure ulcers in a neurologic intensive care unit.

[Fife C](#), [Otto G](#), [Capsuto EG](#), [Brandt K](#), [Lyssy K](#), [Murphy K](#), [Short C](#).

Department of Anesthesiology, The University of Texas Health Science Center, Houston, TX 77030, USA.

OBJECTIVES: To determine the risk factors for pressure ulceration in an intensive care setting, to evaluate the Braden scale as a predictor of pressure ulcer risk in critically ill patients, and to determine whether pressure ulcers are likely to occur early in the hospital stay. DESIGN: Cohort study of patients with no preexisting ulcers with a 3-month enrollment period. SETTING: The neurologic intensive care unit and the neurologic intermediate unit at a primary

(abstract abbreviated)

MeSH Terms: (MeSH Terms/subheadings used to describe the content of this article)

- [Body Mass Index](#)
- [Incidence](#)
- [Intensive Care Units*](#)
- [Length of Stay/statistics & numerical data](#)
- [Likelihood Functions](#)
- [Nursing Assessment/standards*](#)
- [Nursing Evaluation Research](#)
- [Nutritional Status](#)
- [Predictive Value of Tests](#)
- [Pressure Ulcer/epidemiology*](#)
- [Pressure Ulcer/etiology*](#)
- [Pressure Ulcer/nursing](#)
- [Pressure Ulcer/prevention & control](#)
- [Prospective Studies](#)
- [Risk Factors](#)
- [Time Factors](#)

Another approach to locating evidence related to etiology/harm questions (rather than searching on the study type *cohort study*) is to use the Clinical Queries search filters for **etiology**. To access these, click on **Clinical Queries** at the bottom of the PubMed Advanced Search page. Choose the **Category** and **Scope** you want. Enter the **set number** (from the Search History in Advanced Search) that you want to “filter,” and click on **Search**. (Note: In addition to clinical study category, it automatically searches for systematic reviews and items related to medical genetics.)

PubMed Clinical Queries

Search

Results of searches on this page are limited to specific clinical research areas. For comprehensive searches, use [PubMed](#)

Clinical Study Categories

Category:

Scope:

Systematic Reviews

Medical Genetics

Topic:

Results: 5 of 37

Incidence and risk factors of pressure ulcers in seven neonatal intensive care units in Japan: a multisite prospective cohort study. [Int Wound J. 2010]

Risk factors related to the development of pressure ulcers in the critical care setting. [J Clin Nurs. 2010]

Pressure ulcer incidence and risk factors in ventilated intensive care patients. [J Crit Care. 2009]

Results: 5 of 41

[Guidelines of treatment for peptic ulcer disease in special conditions] [Korean J Gastroenterol. 2009]

Pressure ulcers: a critical review of definitions and classifications. [Ostomy Wound Manage. 2009]

The relationship between short-term mortality and quality of care for hip fracture: a meta-analysis of clinical pathways for hip fracture [J Am Geriatr Soc. 2009]

Results: 0 of 0

[Filter](#) citations to topics in

The Clinical Queries **Filter** table (<http://www.ncbi.nlm.nih.gov/entrez/query/static/clinicaltable.html>) shows the search strategies incorporated into your search by the various filters. Note that the **etiology** filters use some of the same terms we used in our search (terms related to *risk OR cohort studies*). However, you may retrieve items that talk about *risk* without being actual studies. Therefore, you may get the best results by doing both - using the Clinical Queries and also doing a search where you enter the study design yourself.

Clinical Queries using Research Methodology Filters

Category	Optimized For	Sensitive/ Specific	PubMed Equivalent
therapy	sensitive/broad	99%/70%	((clinical[Title/Abstract] AND trial[Title/Abstract]) OR clinical trials[MeSH Terms] OR clinical trial[Publication Type] OR random*[Title/Abstract] OR random allocation[MeSH Terms] OR therapeutic use[MeSH Subheading])
	specific/narrow	93%/97%	(randomized controlled trial[Publication Type] OR (randomized[Title/Abstract] AND controlled[Title/Abstract] AND trial[Title/Abstract]))
diagnosis	sensitive/broad	98%/74%	(sensitiv*[Title/Abstract] OR sensitivity and specificity[MeSH Terms] OR diagnos*[Title/Abstract] OR diagnosis[MeSH:noexp] OR diagnostic * [MeSH:noexp] OR diagnosis,differential[MeSH:noexp] OR diagnosis[Subheading:noexp])
	specific/narrow	64%/98%	(specificity[Title/Abstract])
etiology	sensitive/broad	93%/63%	(risk*[Title/Abstract] OR risk*[MeSH:noexp] OR risk * [MeSH:noexp] OR cohort studies[MeSH Terms] OR group*[Text Word])
	specific/narrow	51%/95%	((relative[Title/Abstract] AND risk*[Title/Abstract]) OR (relative risk[Text Word]) OR risks[Text Word] OR cohort studies[MeSH:noexp] OR (cohort[Title/Abstract] AND stud*[Title/Abstract]))
prognosis	sensitive/broad	90%/80%	(incidence[MeSH:noexp] OR mortality[MeSH Terms] OR follow up studies[MeSH:noexp] OR prognos*[Text Word] OR predict*[Text Word] OR course*[Text Word])
	specific/narrow	52%/94%	(prognos*[Title/Abstract] OR (first[Title/Abstract] AND episode[Title/Abstract]) OR cohort[Title/Abstract])
clinical prediction	sensitive/broad	96%/79%	(predict*[tiab] OR predictive value of tests[mh] OR scor*[tiab] OR observ*[tiab] OR observer variation[mh])

Although generally considered less desirable than a prospective cohort study, another study design sometimes used to gather data related to harm is a **case-control study**. In our example, we could search on **case control study** and combine those results with our earlier results from set #7. Search Details would show that our term *case control study* mapped to the MeSH term **case-control studies**. A MeSH Database search would reveal that the automatic explosion of **Case-Control Studies** also picks up the narrower heading *Retrospective Studies*.

PubMed Advanced Search

[« Back to PubMed](#)

Search Box

#7 AND #10

[Limits](#) [Details](#) [Help](#)

Search

Preview

Clear

Search Builder

Search History

Search	Most Recent Queries	Time	Result
#11	Search #7 AND #10	15:18:04	26
#10	Search case control study	15:14:59	509472
#9	Search #7 AND #8	14:51:53	79
#8	Search cohort study	14:50:04	805838
#7	Search #5 AND #6	14:48:39	300
#6	Search risk OR etiology OR epidemiology	14:47:37	7000101
#5	Search #3 AND #4	14:46:06	412
#4	Search pressure sores	14:45:07	11818
#3	Search #1 OR #2	14:44:48	144942
#2	Search critical care OR intensive care units	14:44:01	135715
#1	Search critically ill patients	14:43:20	23296

Example of a study retrieved by this search, in Abstract display format. Note the presence of many of our search terms in the abstract and MeSH areas. (To see MeSH and other indexing terms, click on the + next to *Publication Types*, *MeSH Terms*, *Grant Support* in Abstract format.)

1: [J Gerontol A Biol Sci Med Sci](#). 2008 Apr;63(4):408-13.

[Related Articles,](#)
[Links](#)



Extrinsic risk factors for pressure ulcers early in the hospital stay: a nested case-control study.

[Baumgarten M](#), [Margolis DJ](#), [Localio AR](#), [Kagan SH](#), [Lowe RA](#), [Kinosian B](#), [Abbuhl SB](#), [Kavesh W](#), [Holmes JH](#), [Ruffin A](#), [Mehari T](#).

Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania School of Medicine, Philadelphia, USA.
mbaumgar@epi.umaryland.edu

BACKGROUND: Little is known about the impact of extrinsic factors on pressure ulcer **risk**. The objective of this study was to determine whether risk of pressure ulcers early in the hospital stay is associated with extrinsic factors such as longer emergency department (ED) stays, night or weekend admission, potentially immobilizing procedures and medications, and admission to an intensive care unit (ICU). METHODS: A nested **case-control study** was performed in two teaching hospitals in Philadelphia, (abstract abbreviated)

MeSH Terms: (MeSH Terms/subheadings used to describe the content of this article)

- [Aged](#)
- [Aged, 80 and over](#)
- [Case-Control Studies](#)
- [Emergency Medical Services/statistics & numerical data](#)
- [Female](#)
- [Immobilization/statistics & numerical data](#)
- [Intensive Care Units/statistics & numerical data](#)
- [Length of Stay/statistics & numerical data*](#)
- [Male](#)
- [Pressure Ulcer/epidemiology*](#)
- [Risk Factors](#)
- [Time Factors](#)

Let's move on to the second question we wanted to address in our original scenario:

In critically ill patients, what are effective interventions for preventing pressure sores? [This is both a prevention and therapy question, focusing on effectiveness of preventive therapies or interventions.]

P = critically ill patients (or related ideas)
I = [no *specific* intervention to search for]
C = [none specified]
O = prevention of pressure sores

T (type of question) = prevention/therapy

T (type of study that best answers a question of this type) = randomized controlled trial*

* Note: While RCTs are usually considered the optimal study design for evaluating the efficacy of therapies, this is not to say that they are the only study design relevant to a question such as ours. In reality, observational studies may also contribute to the evidence base for this question.

This search will be identical to our earlier search up through set #5. However, now we're interested in interventions that will prevent pressure ulcers.

- Search for the concept of ***prevention***.

Note: Looking at the Search Details box on the Results page would reveal that the word *prevention* automatically maps to the important subheading ***prevention and control***.

- Now combine those results (set #6 below) with our results from set #5, using AND.

PubMed Advanced Search

[« Back to PubMed](#)

Search Box

[Limits](#) [Details](#) [Help](#)

#5 AND #6

Search

Preview

Clear

Search Builder

Search History

Search	Most Recent Queries	Time	Result
#7	Search #5 AND #6	12:03:53	254
#6	Search prevention	12:02:36	995932
#5	Search #3 AND #4	12:00:48	412
#4	Search pressure sores	12:00:10	11820
#3	Search #1 OR #2	11:59:45	144973
#2	Search critical care OR intensive care units	11:59:20	135741
#1	Search critically ill patients	11:58:47	23305

Now let's see if we can find evidence from a randomized controlled trial that has studied interventions for preventing pressure ulcers. It isn't necessary to search on the word *interventions*. By looking for RCTs, our results are already likely to be studies about interventions or therapies.

- Search on the phrase ***randomized controlled trial***. Using Search Details, note how the system translates this. (Other ways to retrieve RCTs will be discussed later.)



The screenshot shows the PubMed.gov search interface. At the top left is the PubMed.gov logo with the text "U.S. National Library of Medicine" and "National Institutes of Health" below it. To the right is a search bar with "PubMed" selected in a dropdown menu and a "Limits" button. Below the search bar, the search term "randomized controlled trial" is entered. The "Search Details" section is highlighted in blue, and the "Query Translation:" section shows the following text: "randomized controlled trial"[Publication Type] OR "randomized controlled trials as topic"[MeSH Terms] OR "randomized controlled trial"[All Fields] OR "randomised controlled trial"[All Fields].

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

Search: PubMed Limits

randomized controlled trial

Search Details

Query Translation:

```
"randomized controlled trial"[Publication Type]  
OR "randomized controlled trials as topic"[MeSH Terms]  
OR "randomized controlled trial"[All Fields] OR "randomised  
controlled trial"[All Fields]
```

Because RCTs are such an important study design, there is a **Publication Type** for them. As previously explained, it is assigned by indexers to indicate an article that describes an *actual RCT*, not just an article that talks *about* RCTs.

When you search on the phrase ***randomized controlled trial***, the system finds articles

- with ***randomized controlled trial*** as the Publication Type
- that have the MeSH term ***randomized controlled trials as topic*** (which means they are about RCTs but may not be reports of actual RCTs)
- that have either the American (randomized) or British (randomised) spelling of the phrase in any field, including the title and abstract written by the author

One advantage of this method for finding randomized controlled trials is that it will help you retrieve newer “in process” records whose MeSH terms and publication types haven’t been assigned yet but that have the phrase in the title or abstract.

You should not search on the acronym RCT. It does not map to the official MeSH terms!

Here is our strategy after combining the *randomized controlled trial* set (#8) with our previous results (#7), using the Boolean operator AND.

PubMed Advanced Search

[« Back to PubMed](#)

Search Box

[Limits](#) [Details](#) [Help](#)

#7 AND #8

Search

Preview

Clear

Search Builder

Search History

Search	Most Recent Queries	Time	Result
#9	Search #7 AND #8	15:19:45	17
#8	Search randomized controlled trial	12:49:57	353575
#7	Search #5 AND #6	12:03:53	254
#6	Search prevention	12:02:36	995932
#5	Search #3 AND #4	12:00:48	412
#4	Search pressure sores	12:00:10	11820
#3	Search #1 OR #2	11:59:45	144973
#2	Search critical care OR intensive care units	11:59:20	135741
#1	Search critically ill patients	11:58:47	23305

Less History

Clear History

[Search History Instructions](#)

Example of a study retrieved by this search, with indexing terms displayed. Note the presence of *Randomized Controlled Trial* as a Publication Type and use of the subheading *prevention & control* with the MeSH Term *Pressure Ulcer*.

[Anaesthesia](#). 2005 Apr;60(4):395-9.



Pressure ulcer prevention in intensive care - a randomised control trial of two pressure-relieving devices.

[Theaker C](#), [Kuper M](#), [Soni N](#).

Intensive Care Unit, Chelsea & Westminster Hospital, 369 Fulham Road, London, SW10 9NH, UK.

Abstract

Pressure sores are a potential complication of intensive care. Modern methods of pressure sore prevention centre around the use of pressure-relieving devices. Few studies exist that confirm the effectiveness of these devices. This study evaluates the effectiveness of two devices, the Hill-Rom Duo mattress and the KCI TheraPulse. High-risk patients were randomly assigned to receive one of two devices. [abstract abbreviated]

PMID: 15766343 [PubMed - indexed for MEDLINE]

Publication Types:

- [Clinical Trial](#)
- [Randomized Controlled Trial](#)

MeSH Terms:

- [Adult](#)
- [Aged](#)
- [Aged, 80 and over](#)
- [Analysis of Variance](#)
- [Beds*](#)
- [Equipment Design](#)
- [Female](#)
- [Humans](#)
- [Intensive Care/methods*](#)
- [Male](#)
- [Middle Aged](#)
- [Pressure Ulcer/prevention & control*](#)
- [Prospective Studies](#)
- [Time Factors](#)
- [Treatment Outcome](#)

Other Ways to Find Randomized Controlled Trials (RCTs)

In addition to “ANDing” *randomized controlled trial* into your search strategy, there are several other ways to locate RCTs.

- Using the **Limits** feature. With the result set you want to limit showing in the search box, click on the **Limits** link, choose **Randomized Controlled Trial** under **Type of Article** (i.e., publication type), and click on **Search**.

Note: This will restrict your retrieval to fully indexed articles, and you will not retrieve newer “in process” records!

The screenshot displays the PubMed.gov search interface. At the top left is the PubMed.gov logo with the text "U.S. National Library of Medicine National Institutes of Health". To the right is a search box containing "PubMed" and a dropdown arrow, with "Advanced search" and "Help" links. Below this is a search input field containing "#5 AND #6" and a "Search" button. The main content area is titled "Limits" and contains several filter sections: "Dates" with a "Published in the Last:" dropdown set to "Any date"; "Type of Article" with a list of checkboxes where "Randomized Controlled Trial" is checked and highlighted with a red box; and "Languages" with a list of checkboxes for English, French, German, Italian, and Japanese.

- **Using the Clinical Queries.** After doing your search, click on **Clinical Queries** at the bottom of the Advanced Search page. Choose Category **Therapy** and Scope **Narrow**. Enter the **set number** (from the Search History in Advanced Search) that you want to “filter,” and click on **Search**. The “therapy/narrow” filter looks for *randomized controlled trial* as a publication type or the words *randomized AND controlled AND trial* in the title or abstract of the article. This will help you find newer “in process” records. (Note: In addition to the clinical study category, it automatically searches for systematic reviews and items related to medical genetics.)

PubMed Clinical Queries

Search

Results of searches on this page are limited to specific clinical research areas. For comprehensive searches, use [PubMed](#) directly.

Clinical Study Categories	Systematic Reviews	Medical Gene
Category: <input type="text" value="Therapy"/> <input type="button" value="v"/> Scope: <input type="text" value="Narrow"/> <input type="button" value="v"/>		Topic: <input type="text" value="All"/>
Results: 5 of 17 A pilot randomised controlled trial comparing reactive air and active alternating pressure mattresses in the prevention and treatment of pressure ulcers an [J Tissue Viability. 2010] [Prevention of heel pressure sores with a foam body-support device. A randomized controlled trial in a medical intensive care unit] [Presse Med. 2008] A diet enriched in eicosapentanoic acid, gamma-linolenic acid and antioxidants in the prevention of new pressure ulcer formation in critically ill patients with ac [Clin Nutr. 2007] Use of polarised light as a method of pressure ulcer prevention in an adult intensive care unit. [J Wound Care. 2007]	Results: 5 of 30 Pressure ulcers: a critical review of definitions and classifications. [Ostomy Wound Manage. 2009] The relationship between short-term mortality and quality of care for hip fracture: a meta-analysis of clinical pathways for hip fracture. [J Am Geriatr Soc. 2009] [Physician documentation responsibility. Decubitus ulcer—a forensic medicine gray zone] [Zentralbl Chir. 2009] Using hospital administrative data to evaluate the knowledge-to-action gap in pressure ulcer preventive care. [J Eval Clin Pract. 2009]	Results: 0 of 0 Filter citations to top

- Add a **Therapy/Narrow filter link** using your personal **My NCBI** account. When you are logged into your account, this link will display beside your results and allow you to quickly see the RCTs. (This is the same as using the Therapy/Narrow Clinical Query, but faster.) You may have up to 15 filters attached to your account. For more about filters, see <http://www.mclibrary.duke.edu/training/pubmed/pubmedfilters.pdf>.

NCBI Resources ▾ How To ▾ power003demo My NCBI Sign Out

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

Search: PubMed ▾ RSS Save search Limits Advanced search Help

#5 AND #6 Search Clear

[Display Settings:](#) Summary, 20 per page, Sorted by Recently Added

[Send to:](#)

Results: 1 to 20 of 254

<< First < Prev Page 1 Next > Last >>

- [Tips for protecting critically ill patients from pressure ulcers.](#)
 1. Jankowski IM.
Crit Care Nurse. 2010 Apr;30(2):S7-9. No abstract available.
PMID: 20360445 [PubMed - indexed for MEDLINE]
[Related citations](#)
- [Qualitative study of principles pertaining to lifestyle and pressure ulcer risk in adults with spinal cord injury.](#)
 2. Jackson J, Carlson M, Rubayi S, Scott MD, Atkins MS, Blanche EI, Saunders-Newton C, Mielke S, Wolfe MK, Clark FA.
Disabil Rehabil. 2010;32(7):567-78.
PMID: 20136475 [PubMed - indexed for MEDLINE]
[Related citations](#)
- [Can meaningful quality benchmarks be derived from pressure ulcer prevalence data?](#)
 - 3.

Filter your results:

All (254)

[Review \(53\)](#)

[dukemlib \(167\)](#)

[Nursing Journals \(157\)](#)

[Systematic Reviews \(30\)](#)

[Therapy/Narrow \(17\)](#)

[Manage Filters](#)

Clicking on the Therapy/Narrow link will take you quickly from all 254 results to the RCTs.

Find items

Search details

Finding Systematic Reviews

In cases where there has been a fairly large body of research on a topic, you may want to look for **systematic reviews** that provide a synthesis of the evidence.

There are several ways to find systematic reviews in PubMed:

- Add a link to the **filter for Systematic Reviews** using your personal My NCBI account. When you are logged into your account, this link will display beside your results and allow you to go quickly to the systematic reviews. (See previous slide for example.)
- On the **Limits** screen, choose **Systematic Reviews**, under **Subsets**.
- Search on **systematic [sb]** and combine with previous results in your search strategy, using Boolean operator AND.
- Systematic Reviews are also automatically displayed when you use the **Clinical Queries**.

These methods all retrieve the same Systematic Reviews subset in PubMed, which is based on a broad search strategy that looks for **systematic reviews, meta-analyses, reviews of clinical trials, evidence-based medicine, consensus development conferences, guidelines**, and citations to articles from journals specializing in review studies of value to clinicians. The entire strategy can be viewed at http://www.nlm.nih.gov/bsd/pubmed_subsets/sysreviews_strategy.html.

Finding Meta-Analyses and Practice Guidelines

Although the Systematic Reviews subset in PubMed includes meta-analyses and evidence-based practice guidelines, you may want to look for these separately.

For **meta-analyses**:

- Combine the search term ***meta-analysis*** with previous results in your search strategy, using the Boolean operator AND. This will look for "*meta-analysis*" [*Publication Type*] OR "*meta-analysis as topic*" [*MeSH Terms*] OR "*meta-analysis*" [*All Fields*]. It will help you retrieve newer "in process" records. Note: This will retrieve some items that talk *about* meta-analysis without actually *being* meta-analyses.

PubMed Advanced Search

[« Back to PubMed](#)

Search Box [Limits](#) [Details](#) [Help](#)

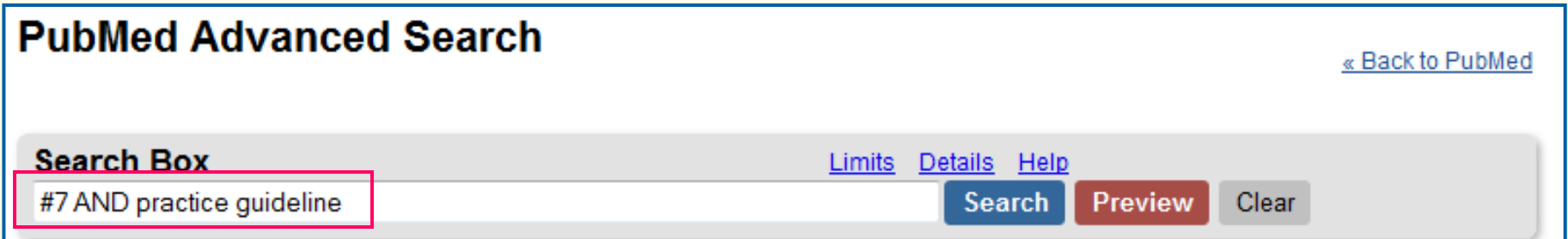
#7 AND meta-analysis

Or...

- On the **Limits** screen, choose **Meta-Analysis** under **Type of Article** (i.e., publication type). Note: This will find fully indexed articles that are actual meta-analyses. It will not retrieve newer "in process" records, however.

For practice guidelines:

- Combine the search term **practice guideline** with previous results in your search strategy, using the Boolean operator AND. This will look for *"practice guideline"[Publication Type] OR "practice guidelines as topic"[MeSH Terms] OR "practice guideline"[All Fields]*. It will help you find newer “in process” records. Be aware that this approach can retrieve articles that talk about how guidelines were used or the need for guidelines, in addition to actual practice guidelines.



PubMed Advanced Search [← Back to PubMed](#)

Search Box [Limits](#) [Details](#) [Help](#)

#7 AND practice guideline

Or...

- On the **Limits** screen, choose **Practice Guideline** under **Type of Article** (i.e., publication type). This will find fully indexed articles that are actual practice guidelines. You will not retrieve newer “in process” records, however. One thing to remember about guidelines issued by professional organizations is that they often address broad topics. For instance, if you don’t find guidelines for preventing pressure ulcers in critically ill patients, you might look for guidelines on pressure ulcer prevention in general.

Getting to the Articles

PubMed contains article citations but not complete articles. However, when you are using the version of PubMed linked off the DUMC Library website, you will see the buttons shown below. Some full-text online articles are accessible for free, though most are available only to subscribing institutions. If Duke does not have access to a journal in electronic or paper format, Duke users may order the articles, for a fee, through the Interlibrary Loan service of their home library. For off campus access, Duke users will need to connect through the VPN. Visit the Library's website (<http://www.mclibrary.duke.edu/>) for more information about *Ordering an Article or Book* (Document Delivery/Interlibrary Loan) and *Remote Access* options.



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Gives information about availability of the item in all formats in all the Duke libraries. May sometimes provide online access to articles that don't have the DUMCL Online button. For journals not at Duke, the interlibrary loan option will be offered.

The End!

This concludes our tutorial on finding the evidence in PubMed. We've looked at how to locate the evidence from randomized controlled trials, cohort studies, and case-control studies, as well as syntheses of the evidence in the form of systematic reviews, meta-analyses, and practice guidelines.

A personal **My NCBI account** can be a very useful tool for PubMed searchers. In addition to adding filters to your results, you can save and rerun search strategies, set up email alerts for new references on your topic, and save and share references in collections. See the PubMed section of the **DUMCL Tutorials & Training page** for additional information about My NCBI, advanced searching features, and more - <http://www.mclibrary.duke.edu/training/pubmed>.

Librarians are also available to assist Duke users in a number of ways. For more information about getting help, take a look at the **Ask a Librarian** page at <http://www.mclibrary.duke.edu/services/reform.html>.

Good luck, and we hope you'll enjoy searching for the best evidence to incorporate into your practice!