BASIC TUTORIAL FOR BIBLIOGRAPHIC SEARCH

PUBMED USE

1st Edition
2021

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PARTNERSHIP

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Preface

Bibliographic Research in Databases - Basic Tutorial for Using PubMed, 1st edition, is the first e-book in a collection for students and researchers in the areas of health and biological sciences.

The objective of this tutorial is to help students and researchers to improve the results of bibliographic searches of scientific articles more quickly and efficiently. The content was prepared in accessible language and organized into topics to facilitate access to information.

The reader will get to know the PubMed database, learn how to perform a simple search by topic of interest and by author, as well as techniques that enable search optimization and, finally, how to store articles.

We hope that through the distribution of this material, digitally and free of charge, it will enable a more democratic access to knowledge.

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Source: shutterstock.com

What is PubMed?

PubMed is an open-access scientific database that contains over 22 million citations from MEDLINE, natural science journals, and online books..

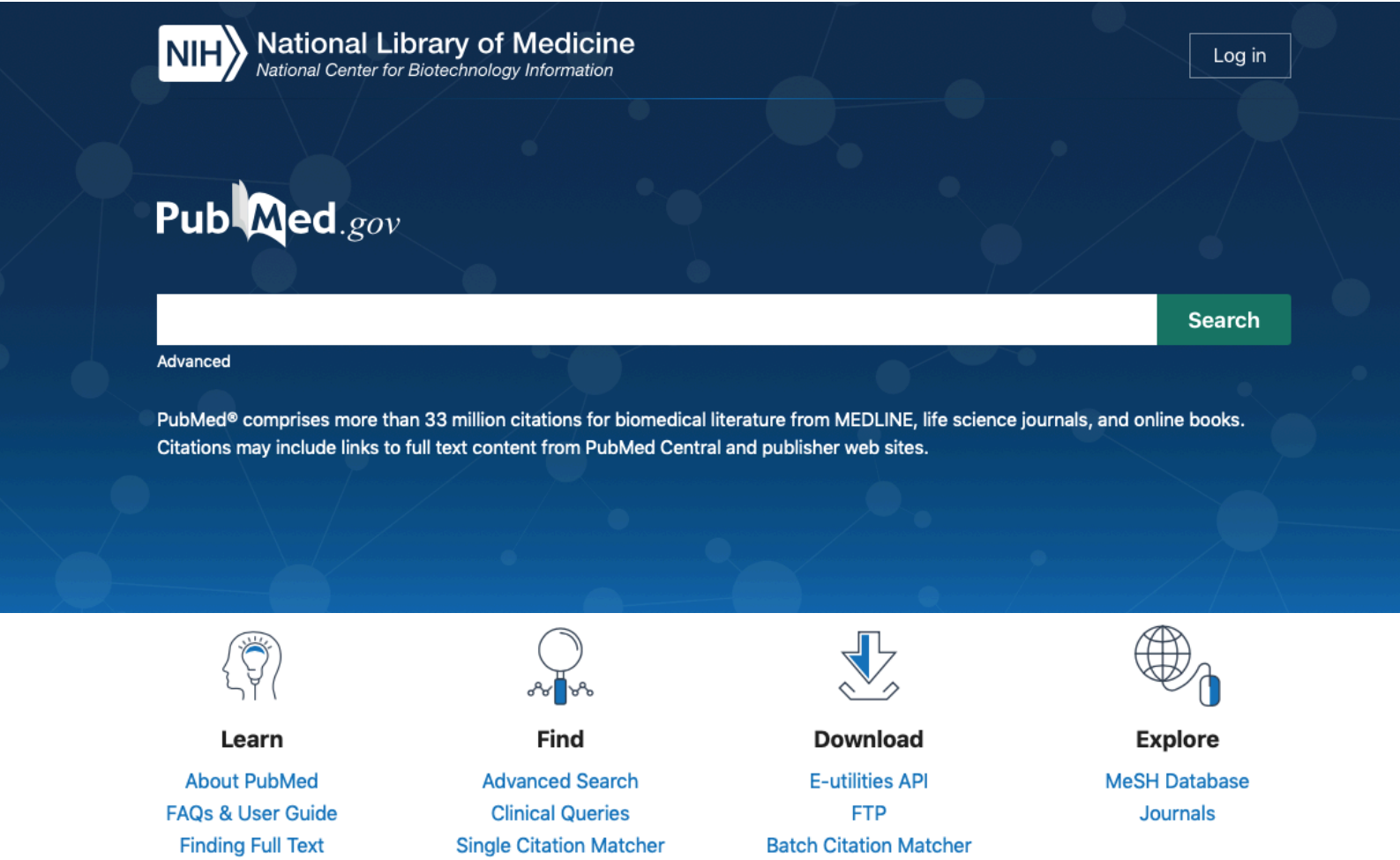
It is developed and maintained by the NCBI (National Center for Biotechnology Information) and on this platform you can find molecular and bibliographic databases as part of the National Library of Medicine (NLM).

Citations, abstracts, articles and books on the platform cover topics in the fields of biomedicine, health sciences, natural sciences, behavioral sciences, chemistry and bioengineering.

PubMed access site

https://pubmed.ncbi.nlm.nih.gov

Source: **carececo.org**

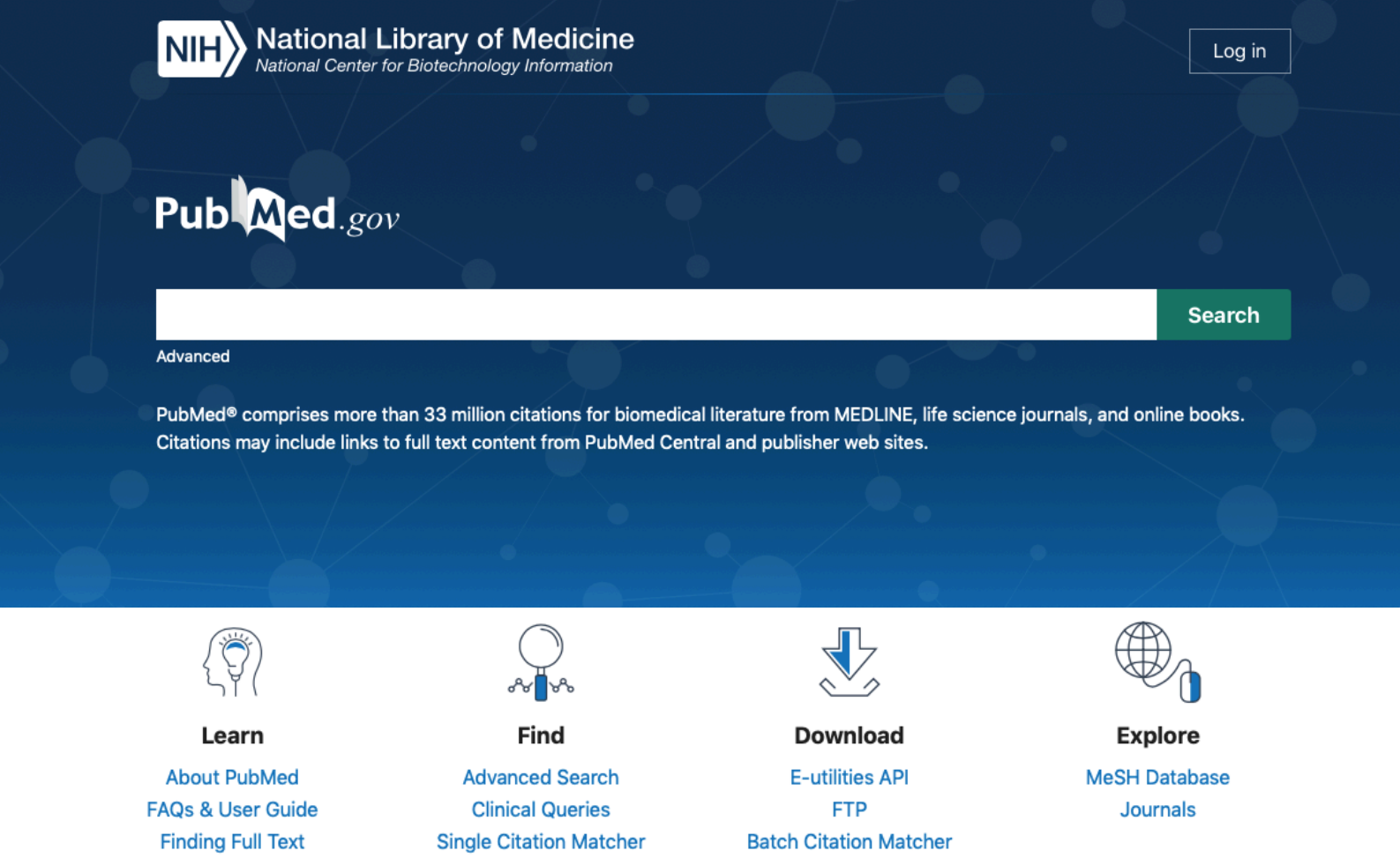


Homepage

After accessing the site, this is the PubMed initial screen, where the user has at his disposal several features to improve his search for articles, descriptor search or MESH terms, indexed journals and database.

As we will see in the following figure, in the drop-down menu (on the left), there is a search box with several database options for research in areas of biomedicine such as PubMed Central (PMC) and molecular biology (NCBI).

If the user has difficulty finding results or needs specific results, for searches with metagenome or transcriptome, he should opt for database selection.



In 2019, Pubmed updated its interface and some features on its platform, this new version proves to be more intuitive, accessible and uncomplicated. To access the new layout, just click on the button labeled New PubMed that is highlighted by the arrow on this page.

A positive difference in the new layout of the platform is that below the initial search bar we find 4 icons for different tools and functionalities such as the "FIND" icon we have the advanced search tool and the "EXPLORE" icon we have the "MESH" tool TERMS.

Such highlighted icons prove to be more didactic to the user, if we compare with the previous “layout.” Just below we see two columns showing the articles, the featured articles and the most recent literature of the journals.

National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed.gov

Search

Advanced

PubMed® comprises more than 33 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.

Learn

About PubMed
FAQs & User Guide
Finding Full Text

Find

Advanced Search
Clinical Queries
Single Citation Matcher

Download

E-utilities API
FTP
Batch Citation Matcher

Explore

MeSH Database
Journals

Trending Articles

PubMed records with recent increases in activity

COVID-19 Mortality Risk Correlates Inversely with Vitamin D3 Status, and a Mortality Rate Close to Zero Could Theoretically Be Achieved at 50 ng/mL 25(OH)D3: Results of a Systematic Review and Meta-Analysis.
Borsche L, et al. Nutrients. 2021. PMID: 34684596 **Free PMC article.**
Review.

Hospital Outbreak of the SARS-CoV-2 Delta Variant in Partially and Fully Vaccinated Patients and Healthcare Workers in Toronto, Canada.
Susky EK, et al. Infect Control Hosp Epidemiol. 2021. PMID: 34706787

SARS-CoV-2 Y453F is not the "cluster 5" variant.
Lassaunière R. J Biol Chem. 2021. PMID: 34700073 **Free PMC article.**
No abstract available.

Ticagrelor versus Clopidogrel in *CYP2C19* Loss-of-Function Carriers with Stroke or TIA.
Wang Y, et al. N Engl J Med. 2021. PMID: 34708996

The Association between Vitamin D and Zinc Status and the Progression of Clinical Symptoms among Outpatients Infected with SARS-CoV-2 and Potentially Non-Infected Participants: A Cross-Sectional Study.
Golabi S, et al. Nutrients. 2021. PMID: 34684369 **Free PMC article.**

Latest Literature

New articles from highly accessed journals

Blood (1)

Cancer Res (5)

Cell (7)

Cochrane Database Syst Rev (1)

J Biol Chem (8)

JAMA (3)

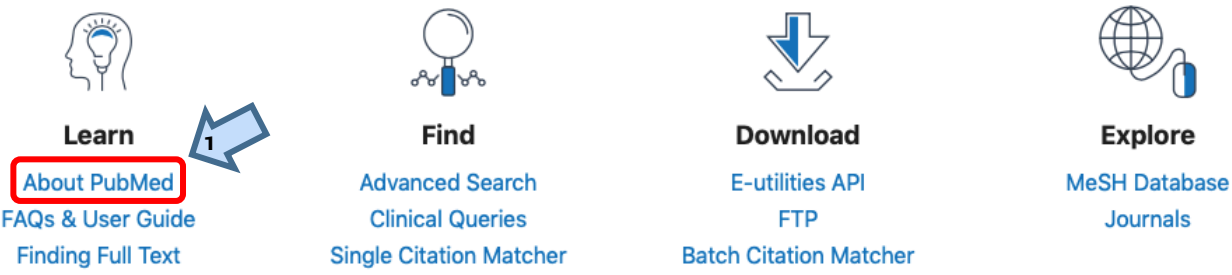
Nature (6)

PLoS One (64)

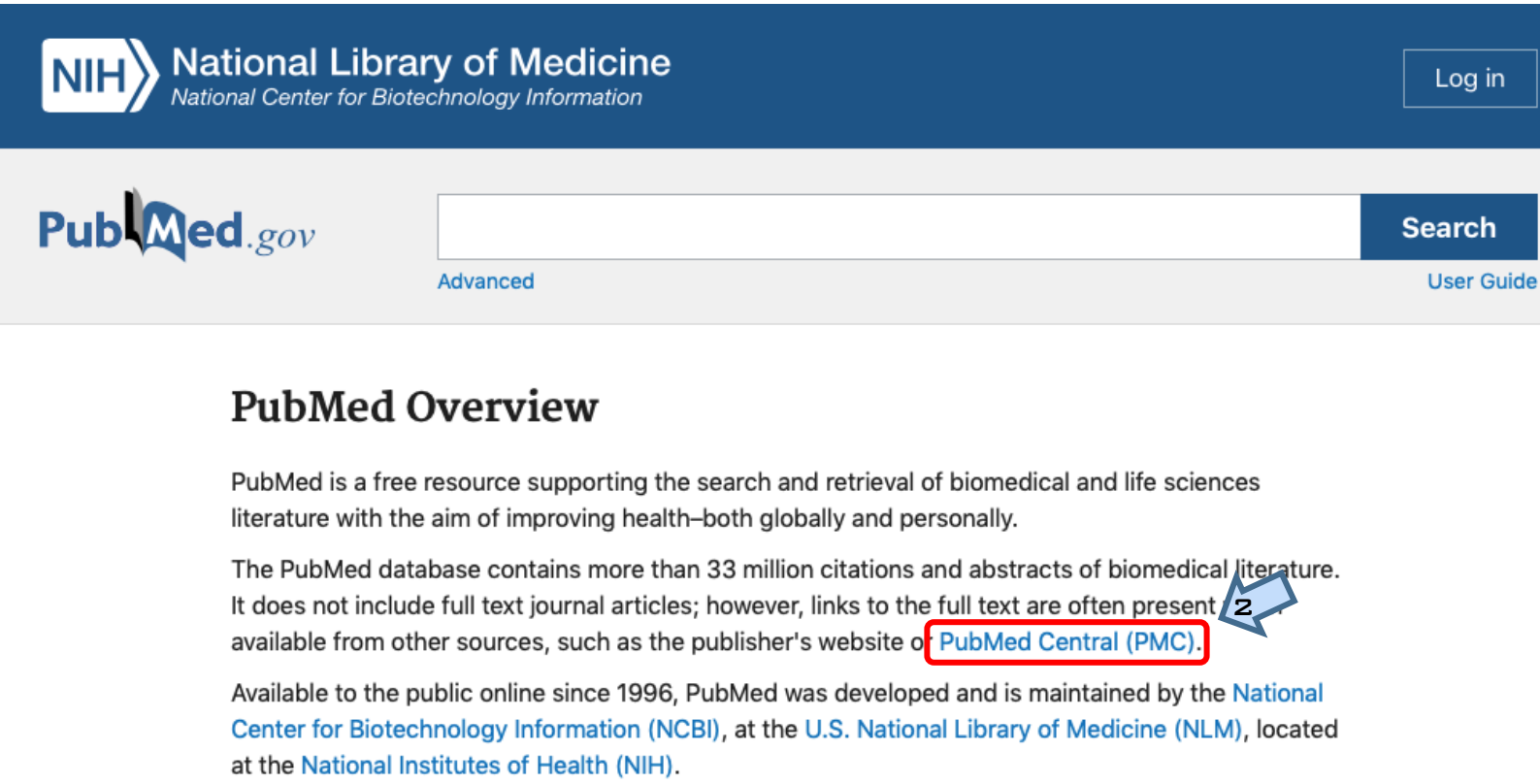
Pediatrics (2)

Proc Natl Acad Sci U S A (5)

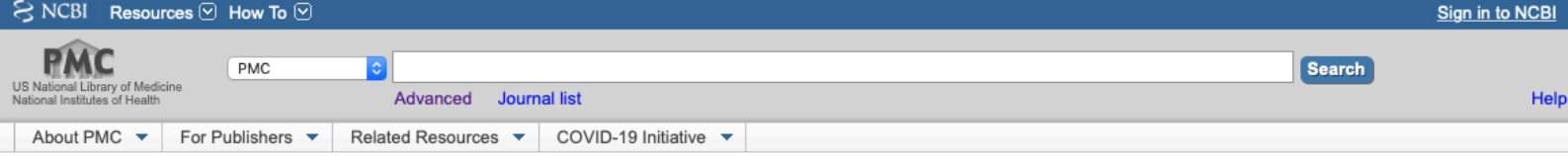
PubMed Central



1 To access PubMed Central (PMC), go to the home screen and scroll to the "About PubMed" option, select to access the PMC platform.



2 On the "About PubMed" page, click the PubMed Central link to access the PMC homepage. The PMC is a free, full-text archive of the U.S. National Institutes of Health (NIH/NLM) National Library of Medicine and Life Sciences journal literature accessible to anyone, anywhere via a web browser.



PMC Overview

PubMed Central® (PMC) is a free full-text archive of biomedical and life sciences journal literature at the U.S. National Institutes of Health's National Library of Medicine (NIH/NLM). In keeping with NLM's legislative mandate to collect and preserve the biomedical literature, PMC serves as a digital counterpart to NLM's extensive print journal collection.

PMC was developed and is managed by NLM's National Center for Biotechnology Information (NCBI).

About the Content

Since its inception in 2000, PMC has grown from comprising only two journals, *PNAS: Proceedings of the National Academy of Sciences* and *Molecular Biology of the Cell*, to an archive of articles from thousands of journals.

Today, PMC contains more than 6 million full-text records, spanning several centuries of biomedical and life science research (late 1700s to present). Content is added to the archive through

Its content is linked to other databases such as NCBI and accessed through the *entrez* search and retrieval systems, increasing the user's ability to freely discover, read and build their portfolio of biomedical knowledge.

Documents included in the PMC undergo indexing and formatting to improve metadata and unique identifiers that enrich structured data and results for each bibliography search on specific topics.

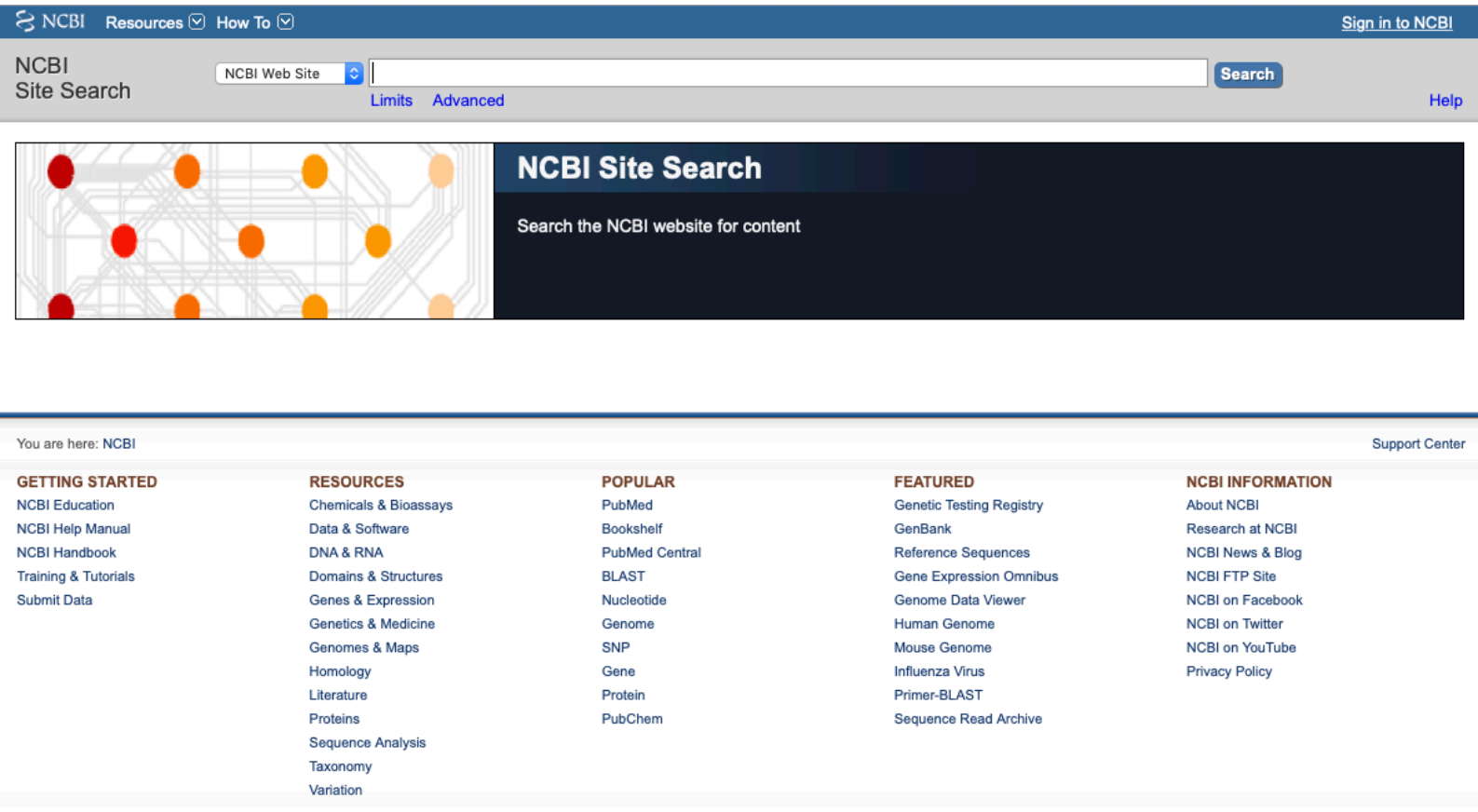
PMC is not the same platform as PubMed, this difference is based on the fact that files and articles found in PubMed are physically stored elsewhere, which is not the case with PMC.

Despite PubMed's layout change, the PMC remains with the old design, so the bibliographic search strategies have not undergone considerable changes..

National Center for Biotechnology Information or NCBI

The National Center for Biotechnology Information or NCBI is a database that provides a vast set of online resources, information and biological data, including the GenBank Nucleic Acid Sequence Database®.

In addition to the data contained in GenBank®, the NCBI contains biomedical research articles as well as other types of information relevant to research in the fields of biotechnology.



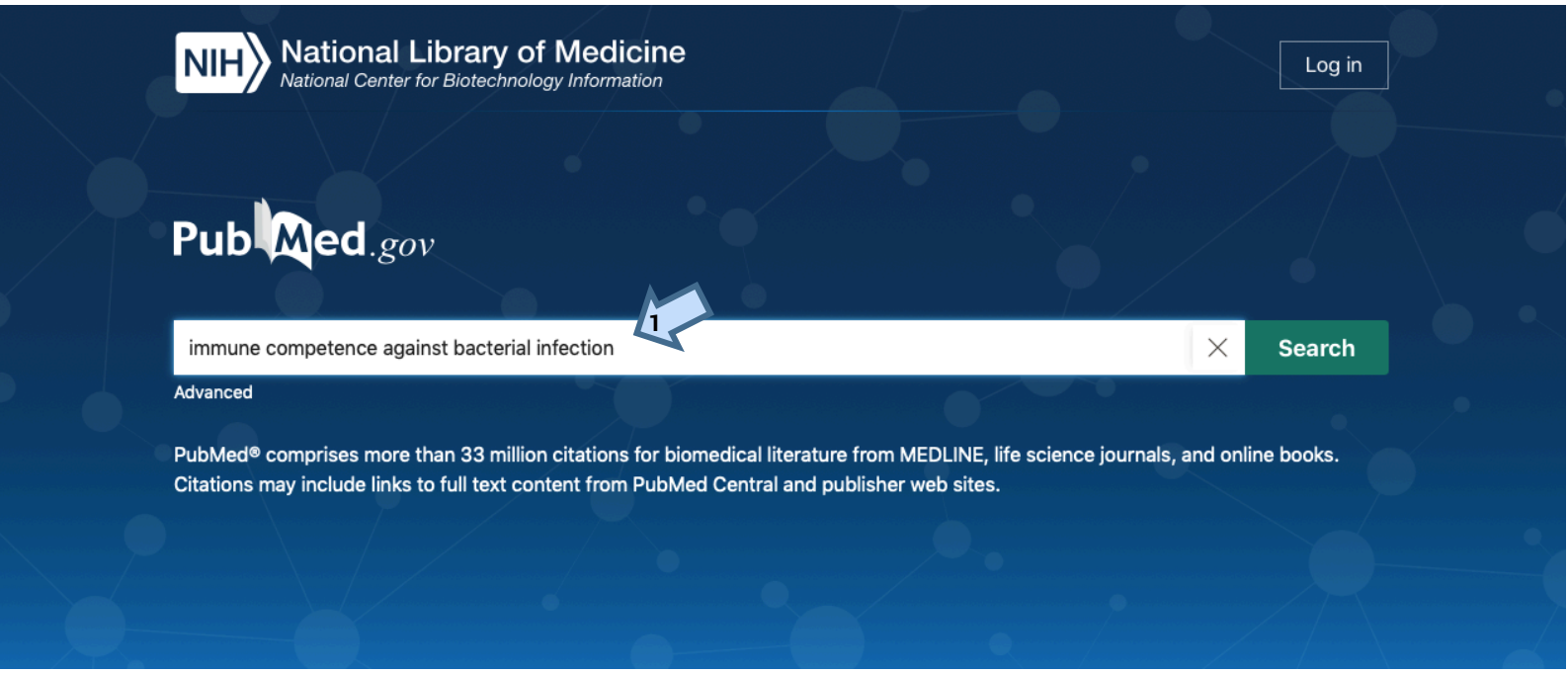
Initial Research

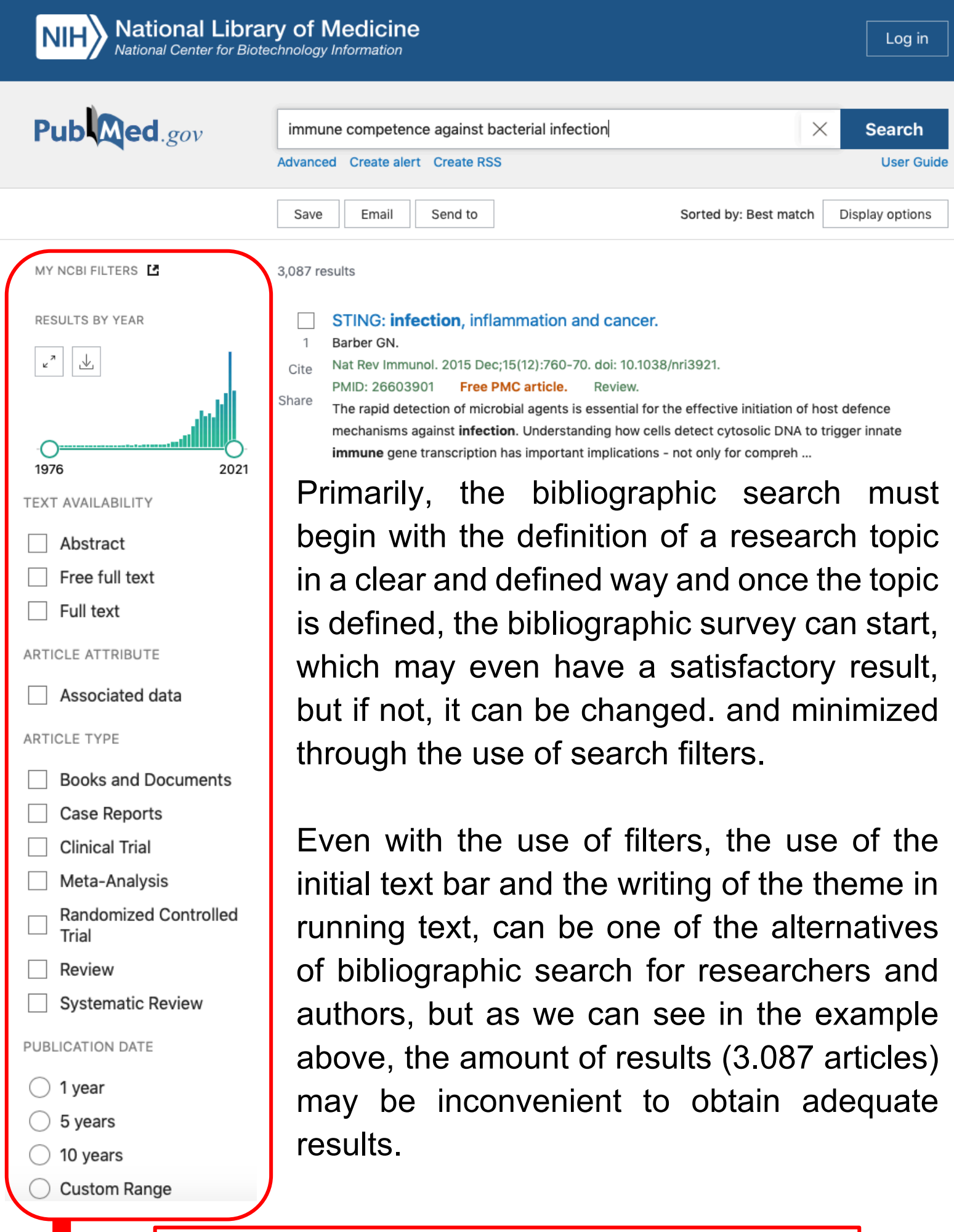
To start a simple search on the PubMed homepage just follow these steps:

1. Identifying the key concepts of your research is a critical step. For example, if the research topic is “immune competence against bacterial infection”, the key concepts of this research will be “immune system” and “bacterial infection”;

2. Translate the key concepts into English “immune competence against bacterial infection”;

3. 3. Then fill in the text box on the home page and to start your bibliographic search, just click on **Search**, as in the following example. 1

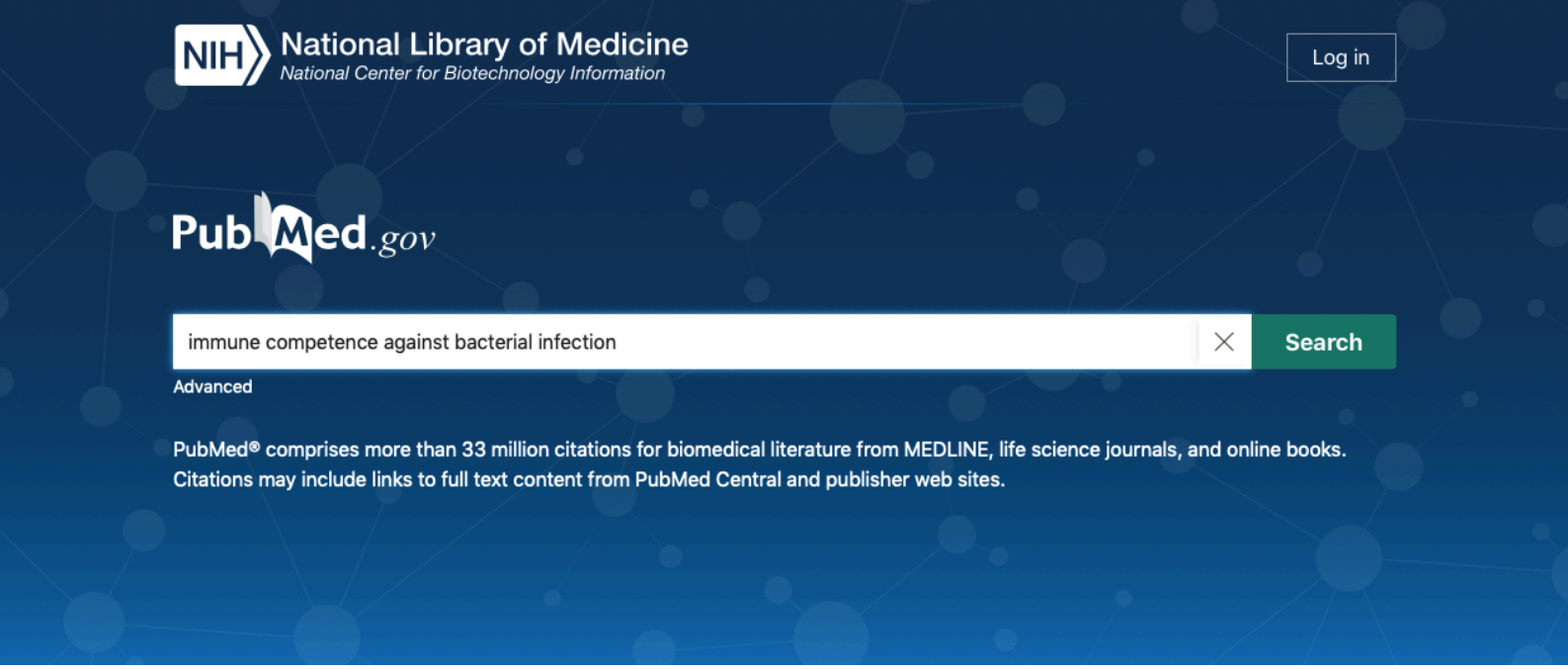




Primarily, the bibliographic search must begin with the definition of a research topic in a clear and defined way and once the topic is defined, the bibliographic survey can start, which may even have a satisfactory result, but if not, it can be changed. and minimized through the use of search filters.

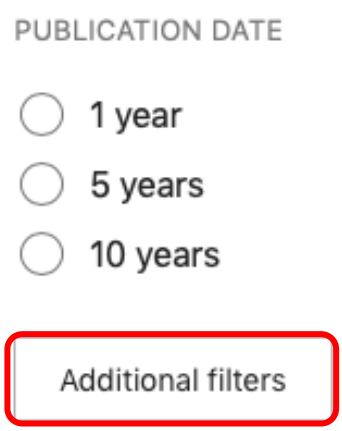
Even with the use of filters, the use of the initial text bar and the writing of the theme in running text, can be one of the alternatives of bibliographic search for researchers and authors, but as we can see in the example above, the amount of results (3.087 articles) may be inconvenient to obtain adequate results.

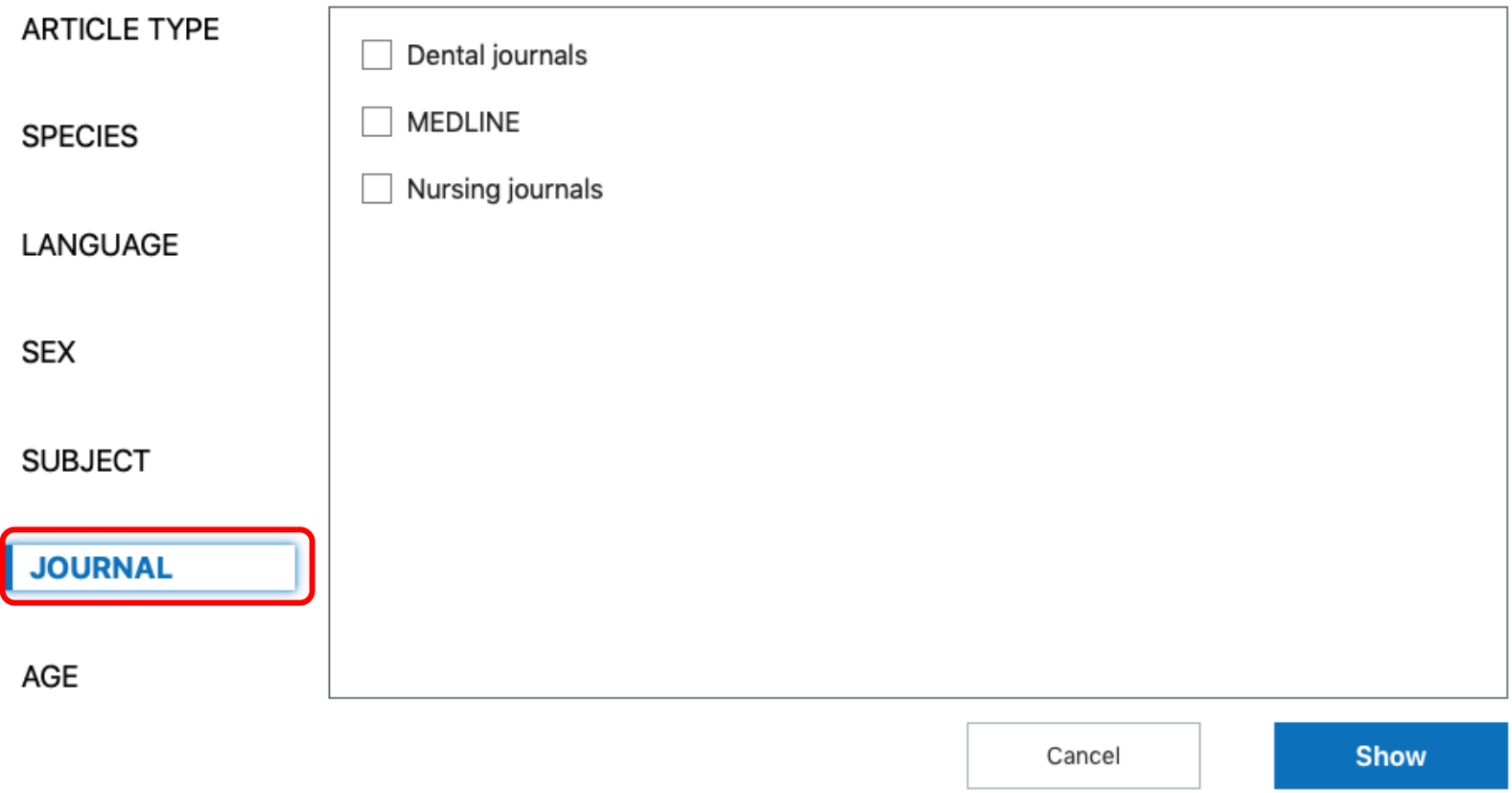
In the sidebar on the left, we can see options for refining the search. The refinement can be done regarding the type of article or study, publication date, text availability, language and other filters.

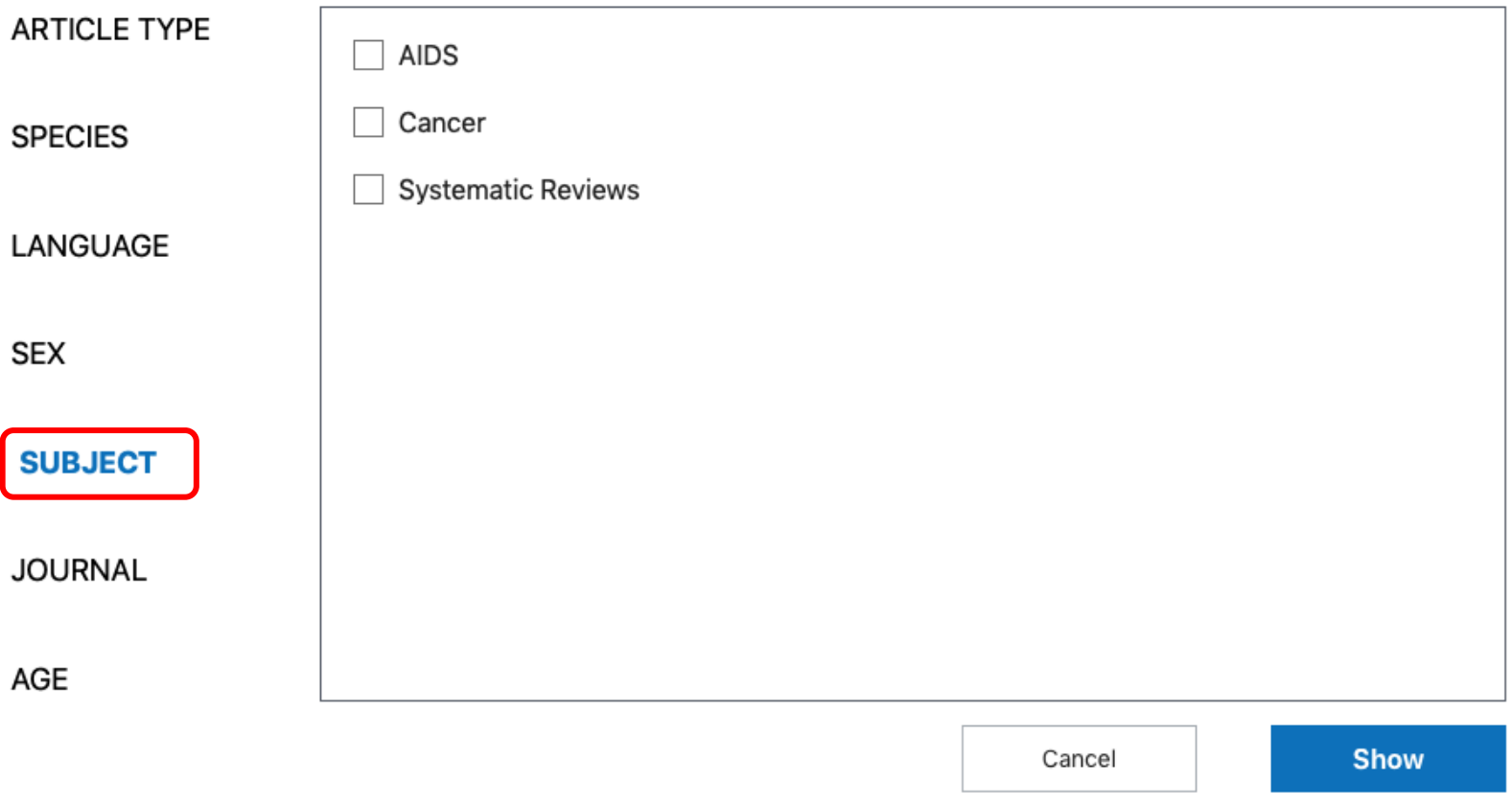


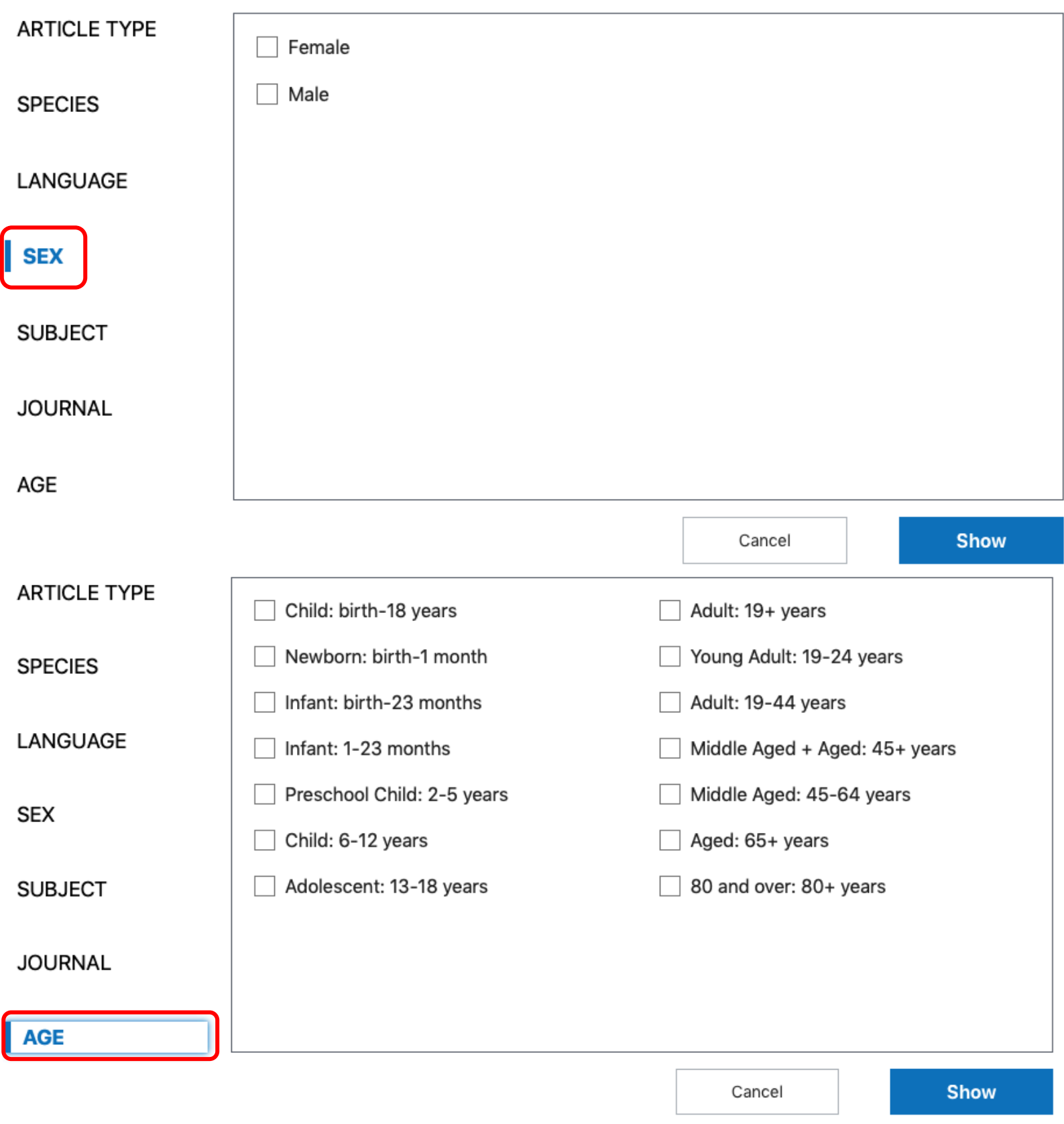
When performing a simple search, as demonstrated on page 13, we see more changes in the interface where we can see a graph to refine the publication date of the search. The other search filters such as article or study type or text availability remain the same.

The novelty of the new interface is the addition of “Sex” filters; “Subject”; “Journal” and “Age” which will optimize the user's search, as the user can choose more than one filter option, as well as reset their filters by clicking on the **Reset filters** button. To access the new filters folder, click on the button **Additional filters** which will be in the lower left corner of the screen and is marked on the following page.




ARTICLE TYPE
SPECIES
LANGUAGE
SEX
SUBJECT
JOURNAL
AGE
Dental journals
MEDLINE
Nursing journals
Cancel
Show

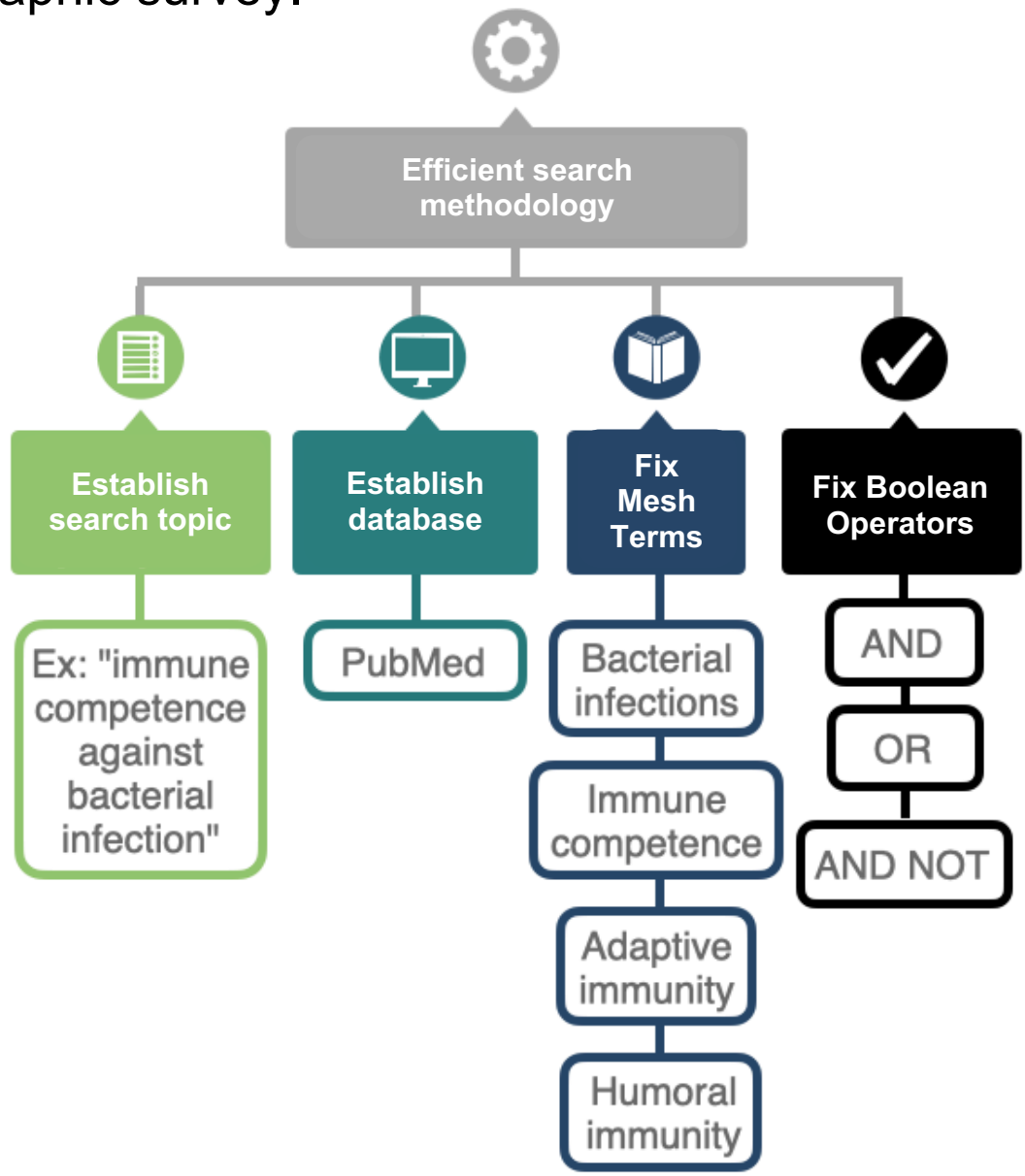

ARTICLE TYPE
SPECIES
LANGUAGE
SEX
SUBJECT
JOURNAL
AGE
AIDS
Cancer
Systematic Reviews
Cancer
Show

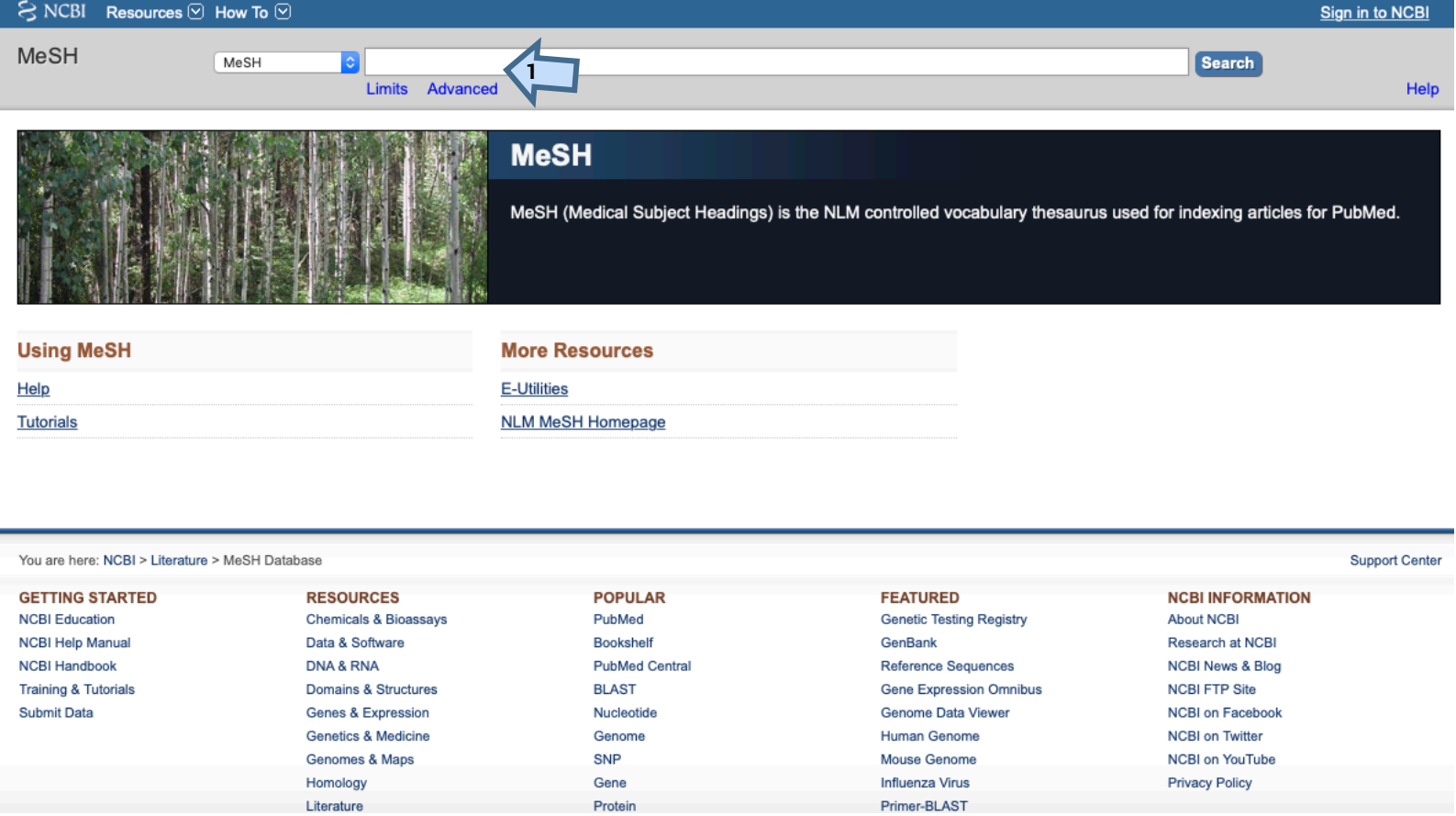

ARTICLE TYPE
SPECIES
LANGUAGE
SEX
SUBJECT
JOURNAL
AGE
Female
Male
Cancel
Show

ARTICLE TYPE
SPECIES
LANGUAGE
SEX
SUBJECT
JOURNAL
AGE
Child: birth-18 years
Newborn: birth-1 month
Infant: birth-23 months
Infant: 1-23 months
Preschool Child: 2-5 years
Child: 6-12 years
Adolescent: 13-18 years
Adult: 19+ years
Young Adult: 19-24 years
Adult: 19-44 years
Middle Aged + Aged: 45+ years
Middle Aged: 45-64 years
Aged: 65+ years
80 and over: 80+ years
Cancel
Show

Bibliographic Search Optimization

In the first step of the bibliographic search, after selecting the research topic, it is recommended to select a research language (generally the use of the English language due to the universal language factor), identify the descriptors or mesh terms or keywords that will express the content desired, select the Boolean operators that will unite the previously selected descriptors and define the informational source, such a strategy can improve the chances of more satisfactory results of the bibliographic survey.



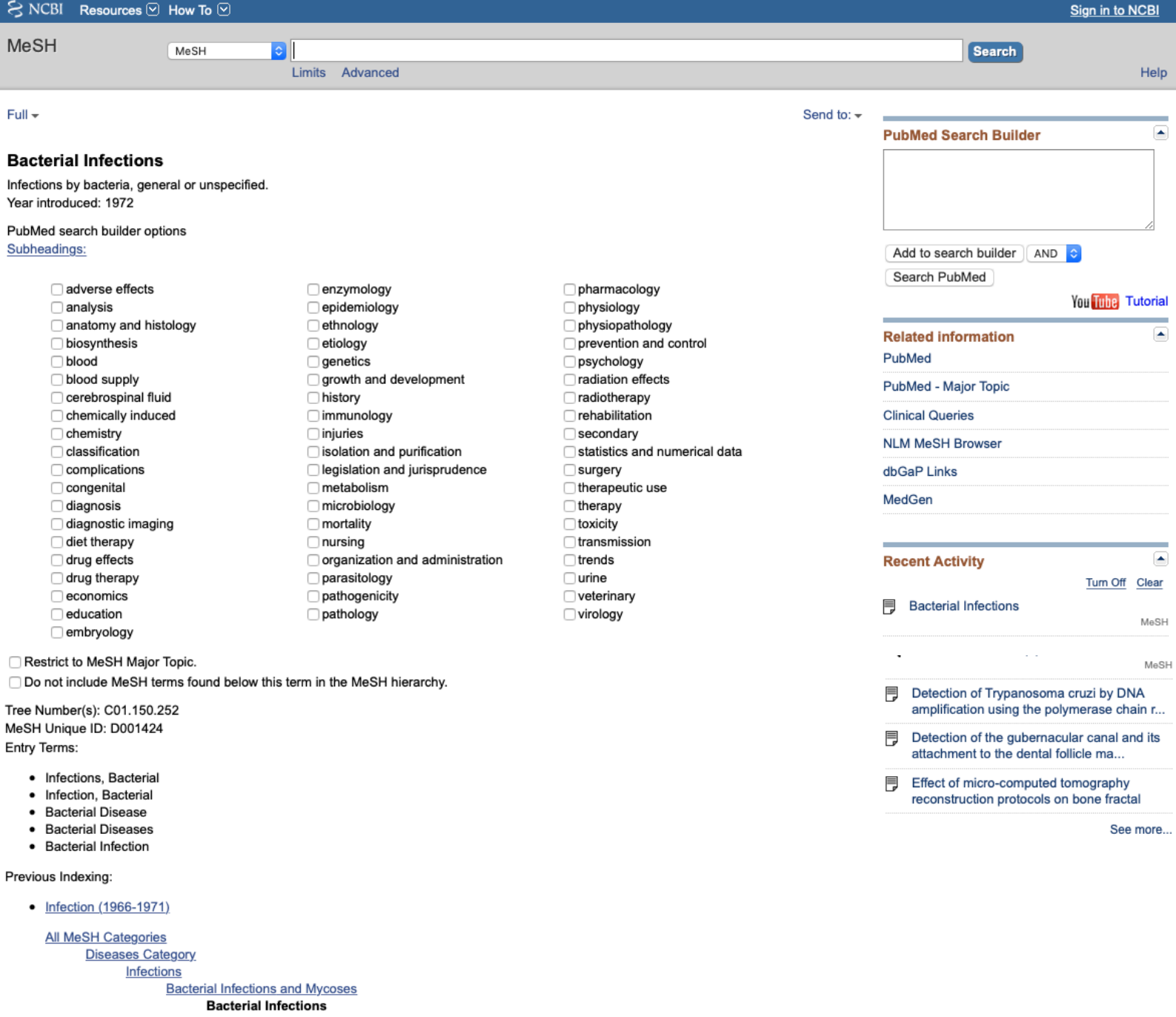


Mesh Terms

Medical Subject Headings or Mesh Terms are terminologies standardized by the scientific community to contribute to the definition of subjects and the retrieval of data on these subjects from the indexing of manuscripts in PubMed/ MEDLINE.

Mesh Terms are terms in English equivalent to the descriptors in health sciences (DECS) by the virtual health library (http://decs.bvs.br).

Searching for Mesh Terms is simple and equivalent to searching for articles, to demonstrate we will use the same example from the initial search topic and do a simple search for "bacterial infection". 1



Enter the keywords and the options with the best combinations will appear. However, if the desired Mesh Term is not returned, there are two reasons for this: the term is not a Mesh Term or the search is being done incorrectly.

To avoid disagreements, the platform will show Mesh Terms suggestions. In addition, one must be aware of the gender, number and degree of the keyword as these factors will influence the result.

NCBI Resources How To
Sign in to NCBI
MeSH
MeSH
Search
Limits Advanced
Help
Full
Send to:
Bacterial Infections
Infections by bacteria, general or unspecified.
Year introduced: 1972
PubMed search builder options
Subheadings:
adverse effects
analysis
anatomy and histology
biosynthesis
blood
blood supply
cerebrospinal fluid
chemically induced
chemistry
classification
complications
congenital
diagnosis
diagnostic imaging
diet therapy
drug effects
drug therapy
economics
education
embryology
enzyn
epider
ethnol
etiolog
geneti
growth
histor
immu
injuries
isolation and
legislation and jurisprudence
metabolism
microbiology
mortality
nursing
organization and administration
parasitology
pathogenicity
pathology
surgery
therapeutic use
therapy
toxicity
transmission
trends
urine
veterinary
virology
Restrict to MeSH Major Topic.
Do not include MeSH terms found below this term in the MeSH hierarchy.
Tree Number(s): C01.150.252
MeSH Unique ID: D001
Entry Terms:
Infections, Bacte
Infection, Bacterial
Bacterial Disease
Bacterial Diseases
Bacterial Infection
Previous Indexing:
Infection (1966-1971)
All MeSH Categories
Diseases Category
Infections
Bacterial Infections and Mycoses
Bacterial Infections
Bacteremia
Hemorrhagic Septicemia
Bacterial Zoonoses
Central Nervous System Bacterial Infections
Lyme Neuroborreliosis
Meningitis, Bacterial +
Neurosyphilis +
Tuberculosis, Central Nervous System +
Endocarditis, Bacterial
Endocarditis, Subacute Bacterial
Eye Infections, Bacterial
Conjunctivitis, Bacterial +
Hordeolum
Keratoconjunctivitis, Infectious
Tuberculosis, Ocular
Uveitis, Suppurative +
Fournier Gangrene
Gram-Negative Bacterial Infections
Aliivibrio Infections
Anaplasmataceae Infections +
Anaplasmosis
Bacteroidaceae Infections +
Bartonellaceae Infections +
Bordetella Infections +
Brucellosis +
Burkholderia Infections +
Campylobacter Infections
Chlamydiaceae Infections +
Cytophagaceae Infections
Desulfovibrionaceae Infections
Ehrlichiosis +
To optimize the time while searching using "Mesh Terms", you can add them in this search box and continue the searches, without having to return to the PubMed homepage.
PubMed Search Builder
Add to search builder
AND
Search PubMed
YouTube Tutorial
Related information
PubMed
PubMed - Major Topic
Clinical Queries
NLM MeSH Browser
dbGaP Links
MedGen
Recent Activity
Turn Off Clear
Bacterial Infections
MeSH
MeSH
Detection of Trypanosoma cruzi by DNA amplification using the polymerase chain r...
Detection of the gubernacular canal and its attachment to the dental follicle ma...
Effect of micro-computed tomography reconstruction protocols on bone fractal
See more...
Synonym suggestions for the searched Mesh Term.
Terms associated with the searched Mesh Term.

Boolean Operators

Boolean operators are words that have the objective of defining to the search database how the combination of search terms should be done.

Boolean operators are words that have the objective of defining to the search database how the combination of search terms should be done.

Boolean Operators

AND
+

The search results will contain an intersection of the selected words

Ex: bacterial infections AND immunecompetence

OR
/

The search results will contain a sum of the selected words

Ex: bacterial infections OR immunecompetence

AND NOT
-

The search results will contain an exclusion of the selected words

Ex: bacterial infections AND NOT immunecompetence

Search Modifiers

1

The search results will contain the words selected from an exact phrase

Quotation marks
“ ”

Ex: "immunecompetence in bacterial infections"

2

Results will contain all words with the selected stem and suffixes

Asterisk
*****

Ex: immunecompetence*

3

The results will contain the order of operation established in a search with different operators

Parentheses
()

Ex: (immunecompetence AND humoral response) AND NOT bacterial infections

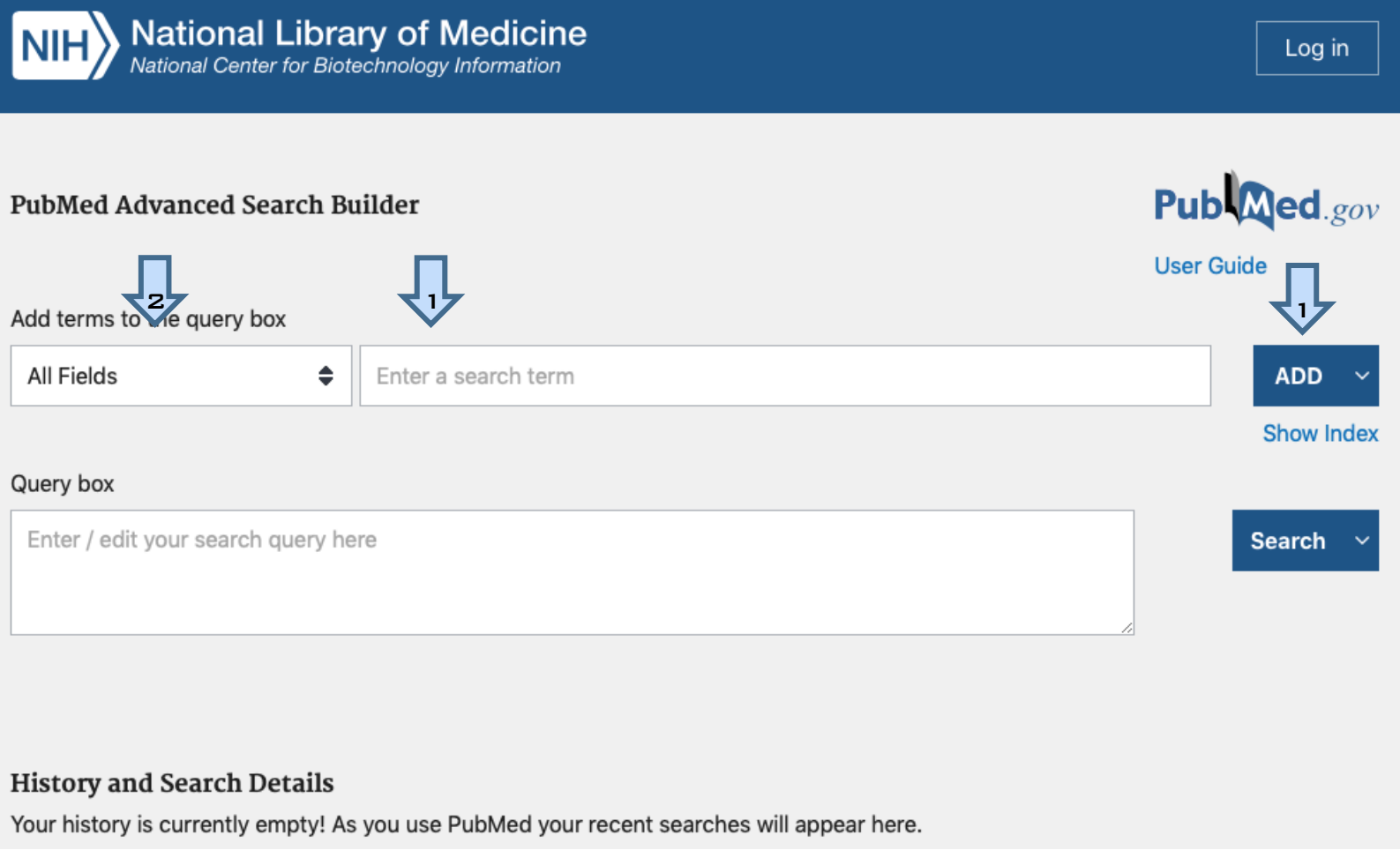
Source: shutterstock.com

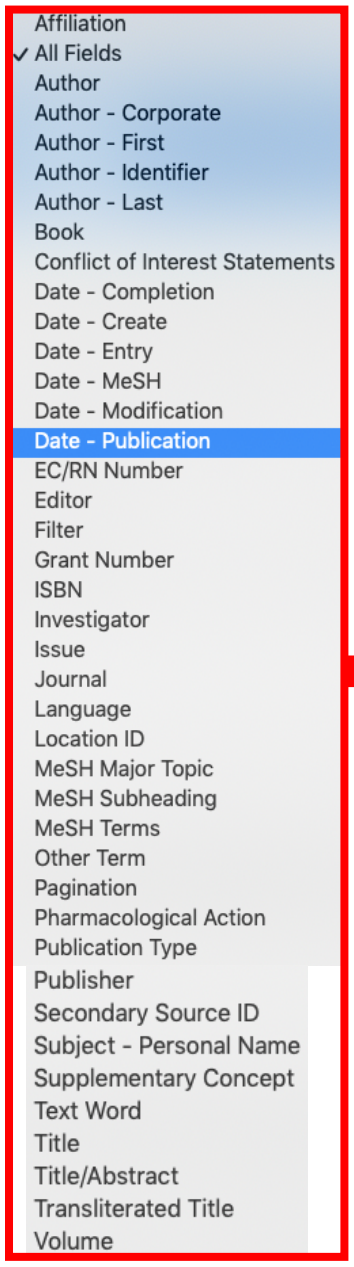
Advanced search

The advanced search option, when well built, becomes a very efficient article search and return feature. In this tutorial we will demonstrate two different advanced search techniques to improve results.

Advanced search link:
https://www.ncbi.nlm.nih.gov/pubmed/advanced

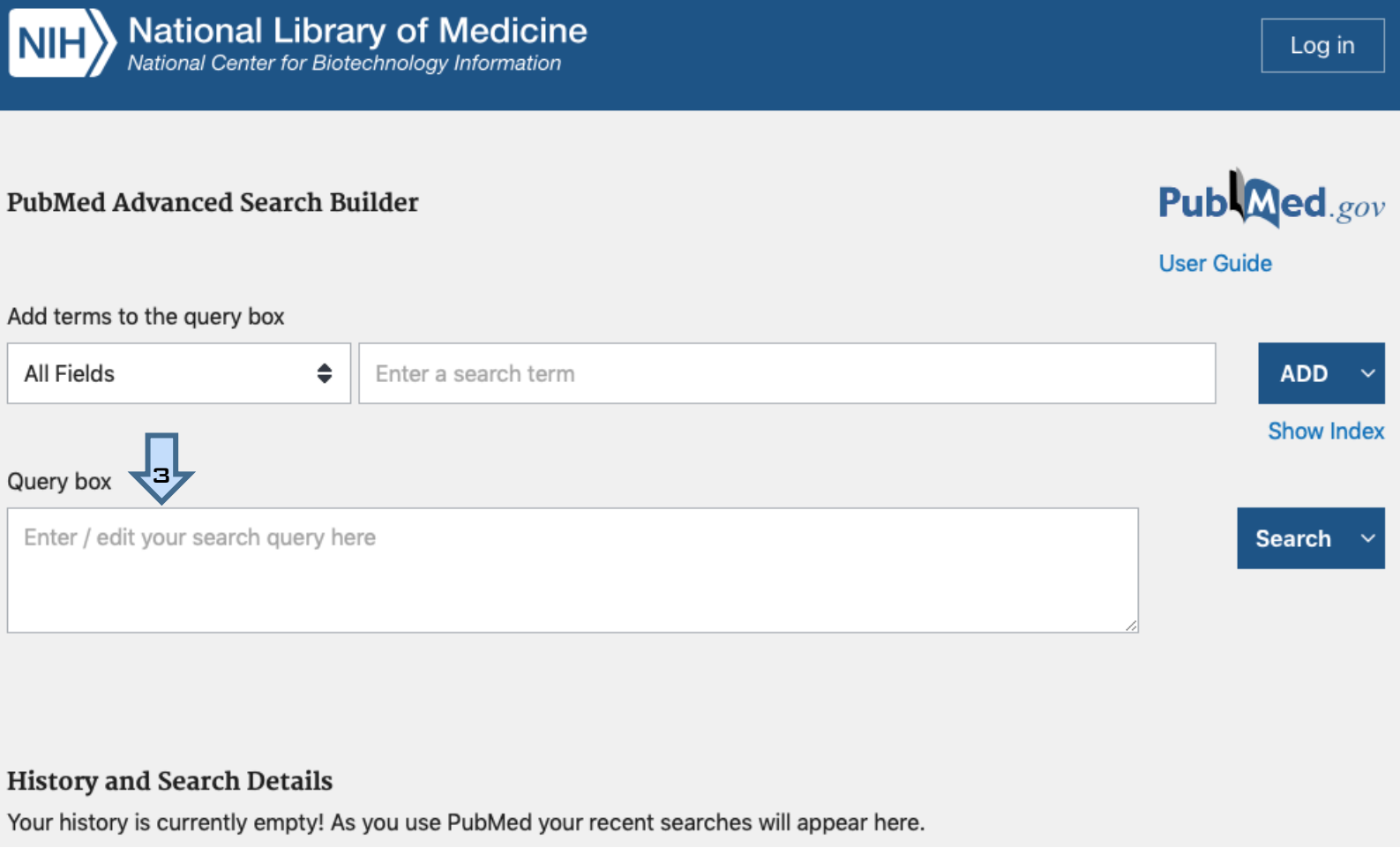
When accessing the above link, the search screen (**PubMed Advanced Search Builder**) will open and on the initial screen the user will be able to view text boxes, Boolean operators' field, **search fields**, its history and other functionalities as shown in next page.



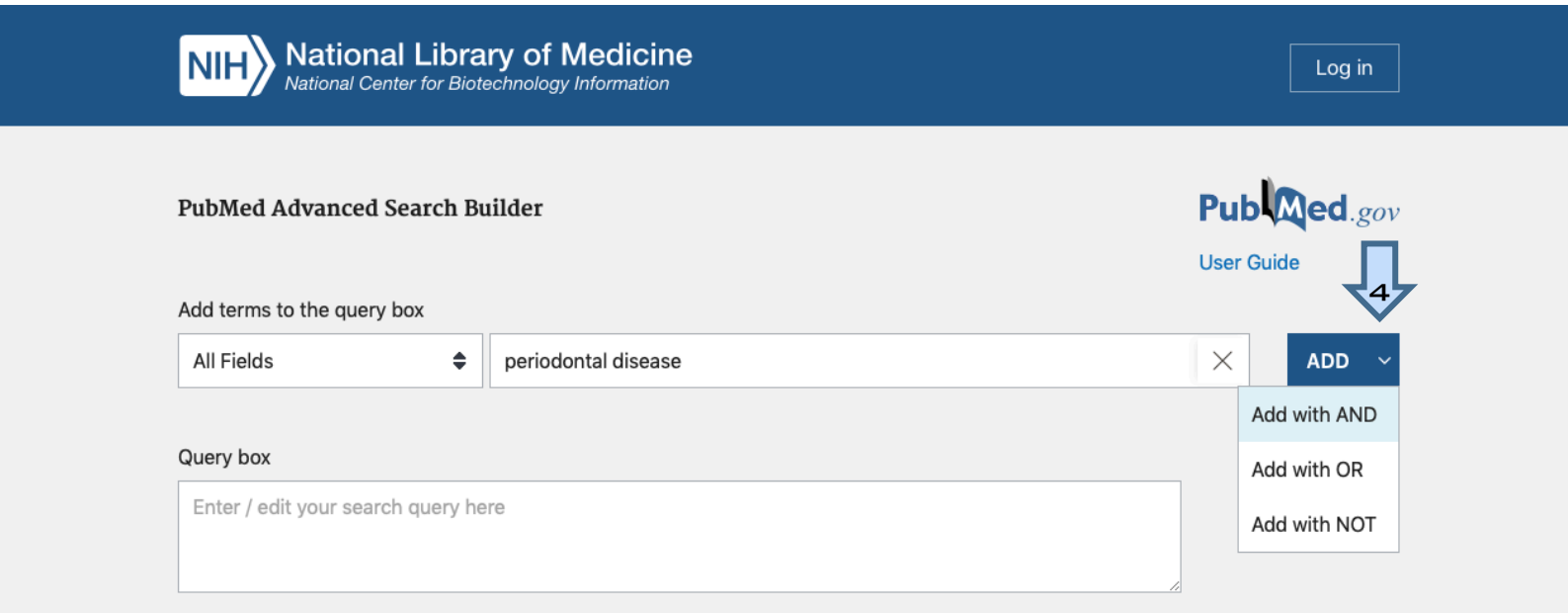


1 Text boxes can be filled with your descriptors and/or search terms and/or keywords. When finished filling, press **ENTER** on the keyboard or **ADD** on the page, as seen in the following example.

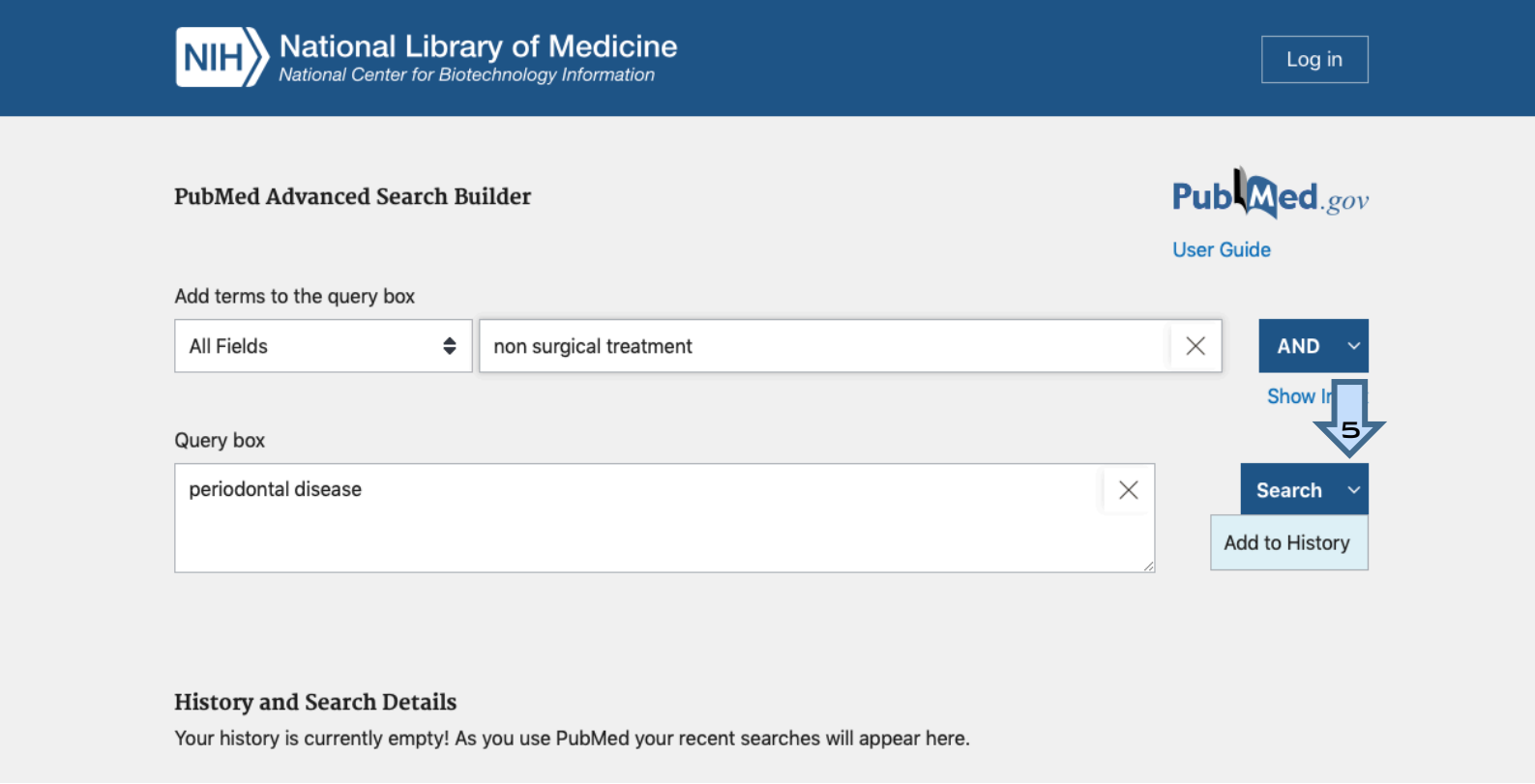
2 Search fields are autocompleting fields, which contain topics to help your search, such as: Mesh Terms; Title/Abstract and Authors. On the side we can see the various options presented by the PubMed platform.



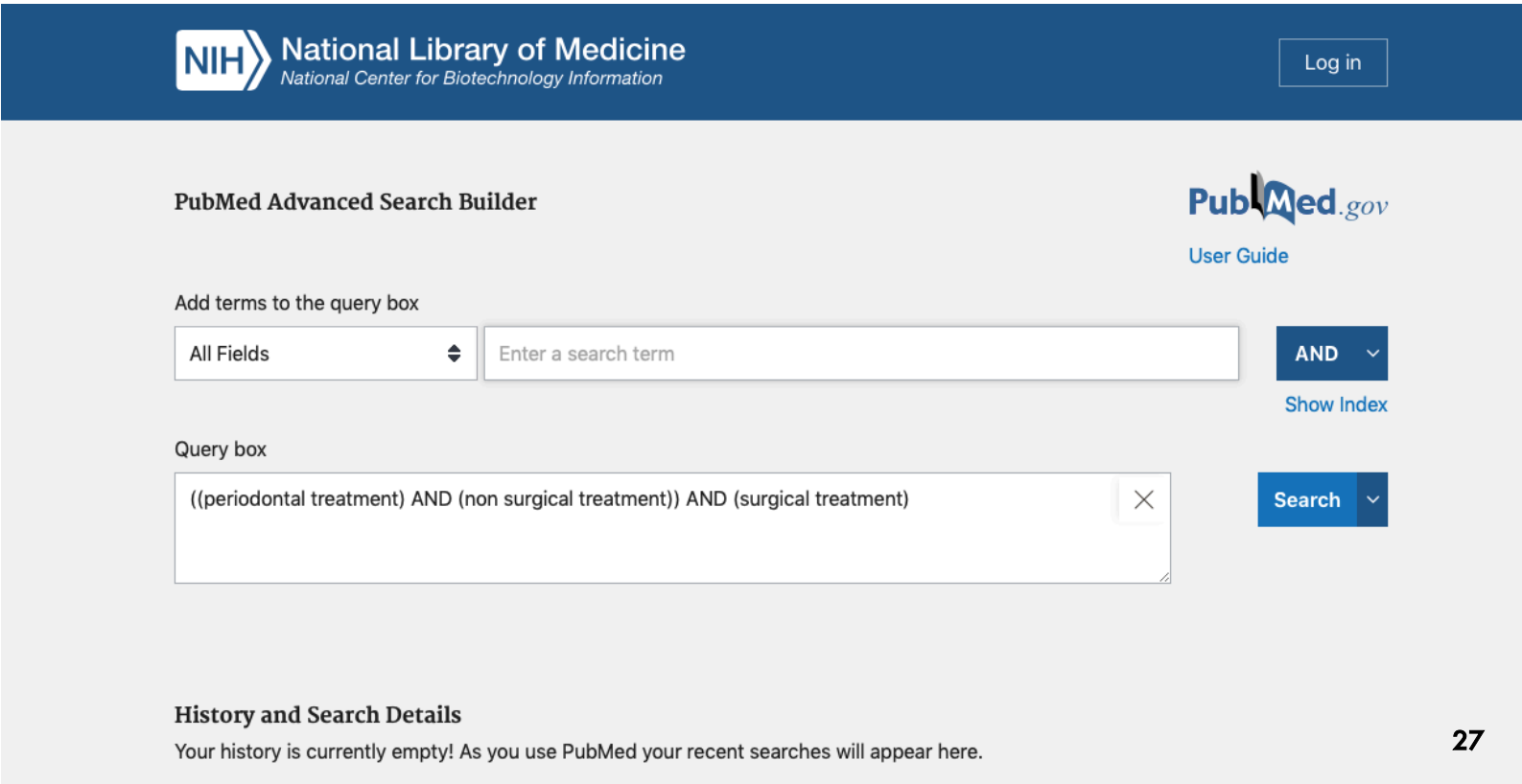
3 After pressing **ADD**, the search terms go to the **query box**, where you can check all the sets of the bibliographic research formed and change if necessary.

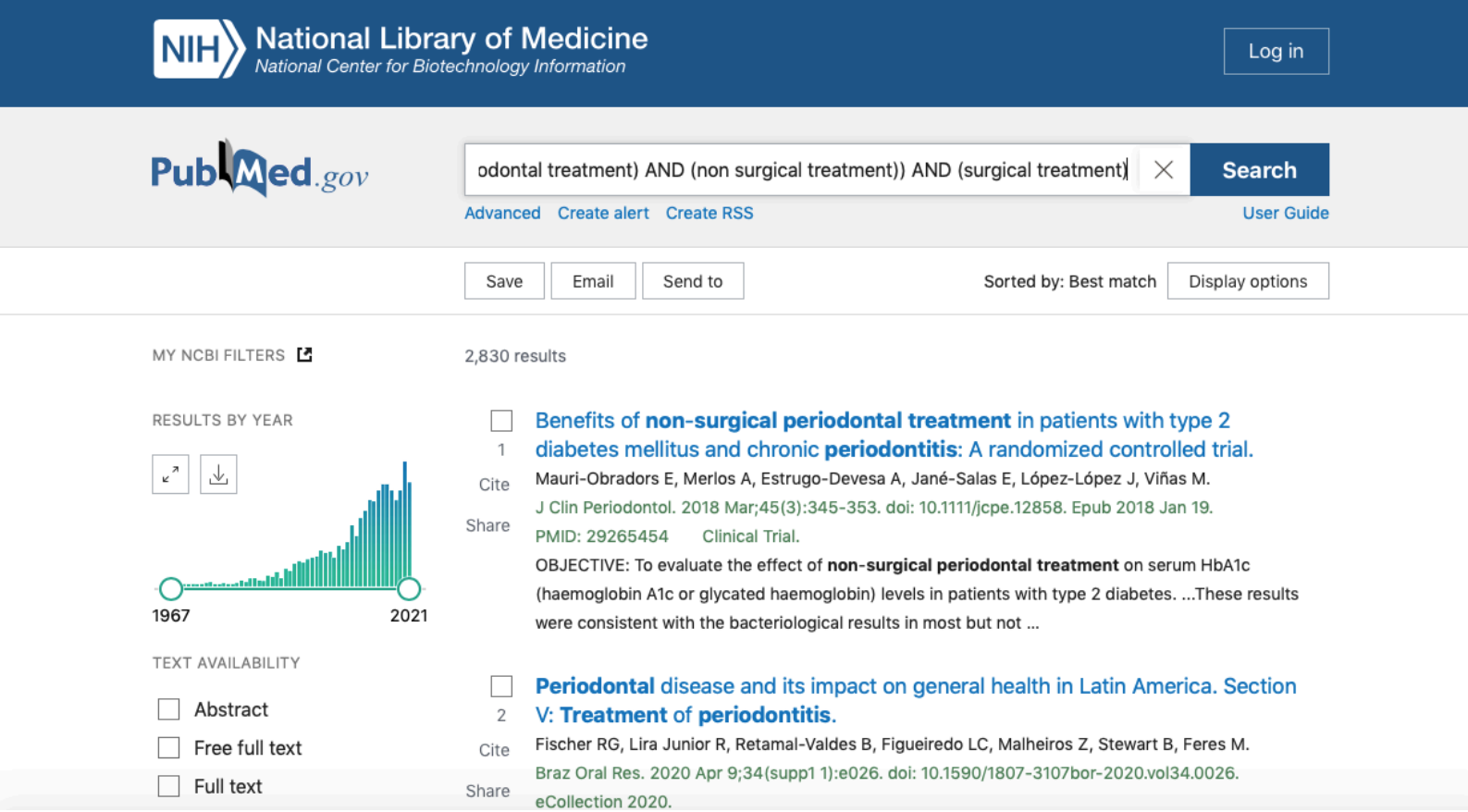


4 When filling the text box automatically the boolean operator **AND**, if you want to use another operator in the search to choose, just click on the arrow next to the **ADD** and the options will appear.



5 To begin the bibliographic search, there are two search options. You can directly press the **SEARCH** button or the **ADD TO HISTORY** button, the **ADD TO HISTORY** button allows you to add the bibliographic search to the search history in the advanced search option, in addition to the possibility of including data from previous searches in the current search. This history will be automatically saved on the platform for a specific period of time.



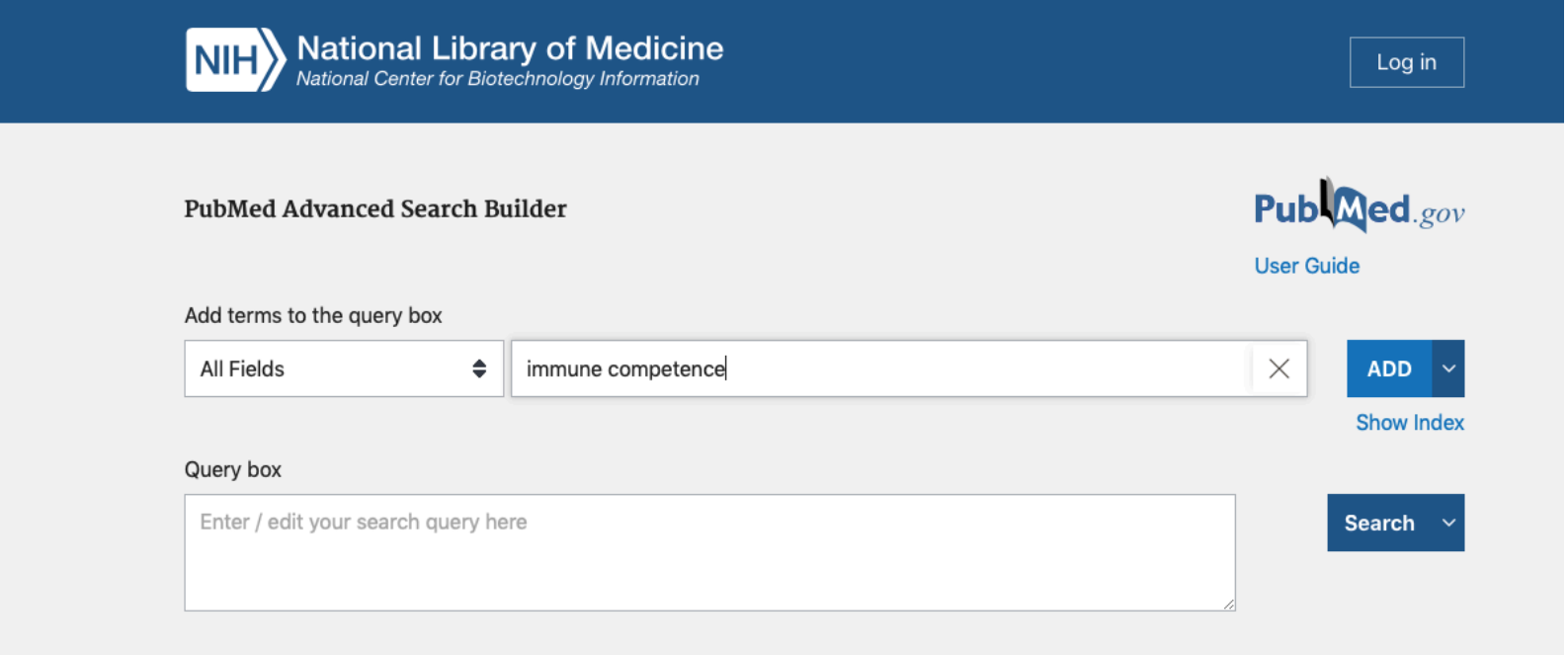


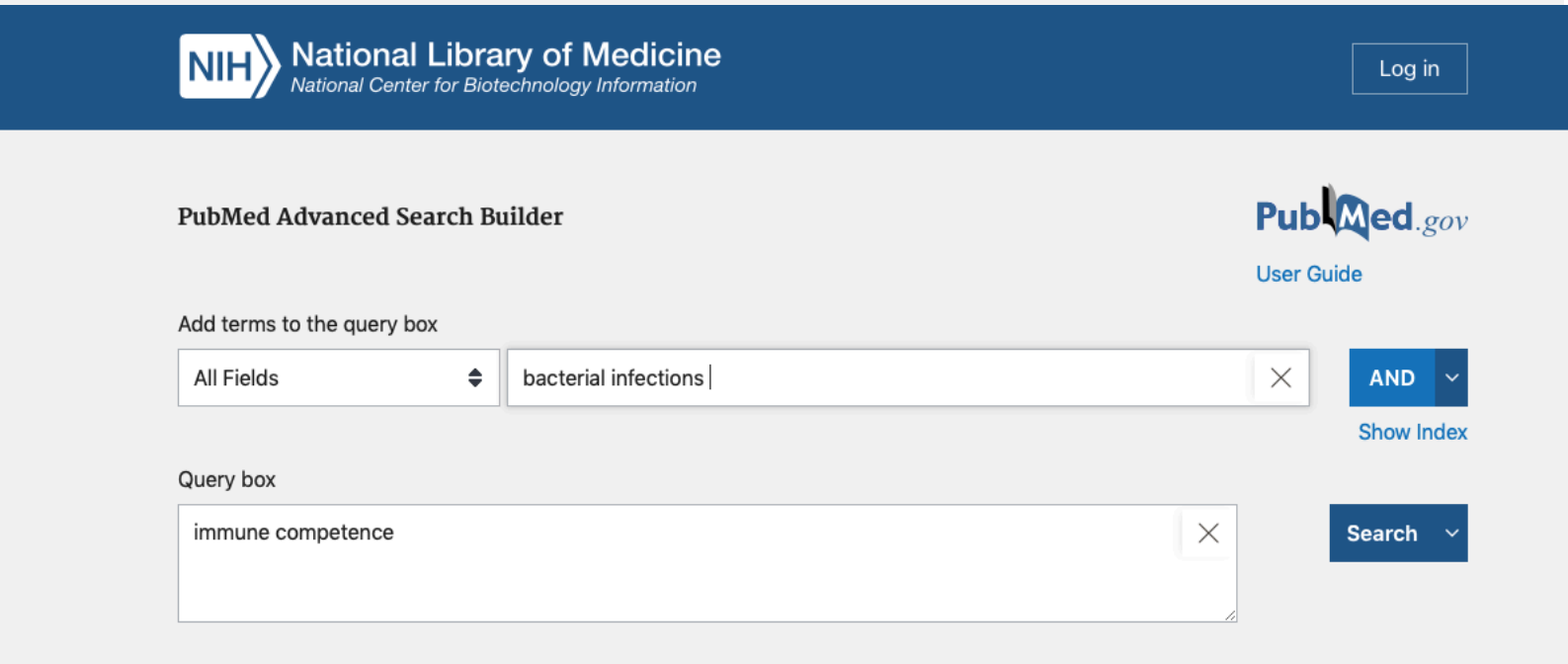
1st topic search technique

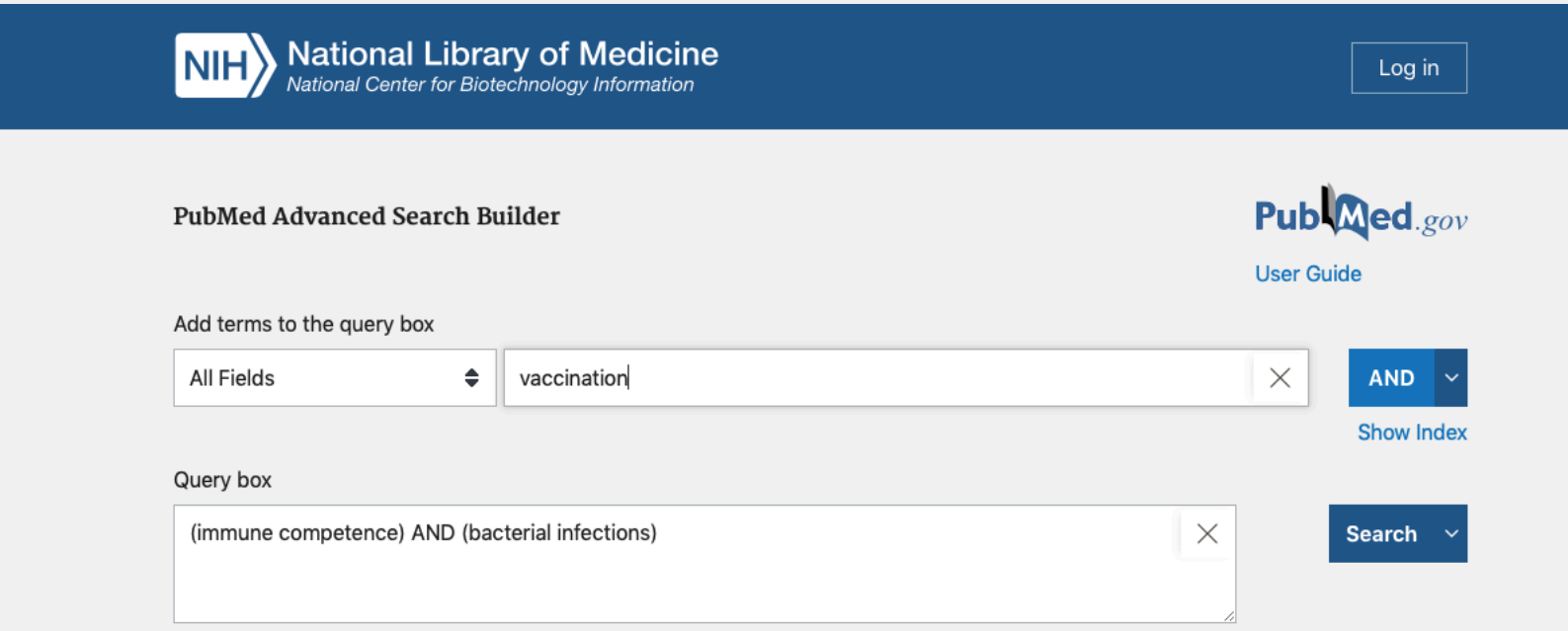
To demonstrate the search using the 1st technique, we chose to search the topic "immune competence against bacterial infections for vaccination".

1st technique is simple and just fill the text boxes with the descriptors, as shown above. In this example we use the option "all fields" in "search fields", however in your search you can choose "Text Word", "Mesh Terms" or "Title/Abstract, as well as vary your booleans to obtain the most satisfactory results possible.

It is worth remembering that expanding the search too much or restricting it too much can be harmful, so it is recommended to do several searches in the literature to exhaust the results.



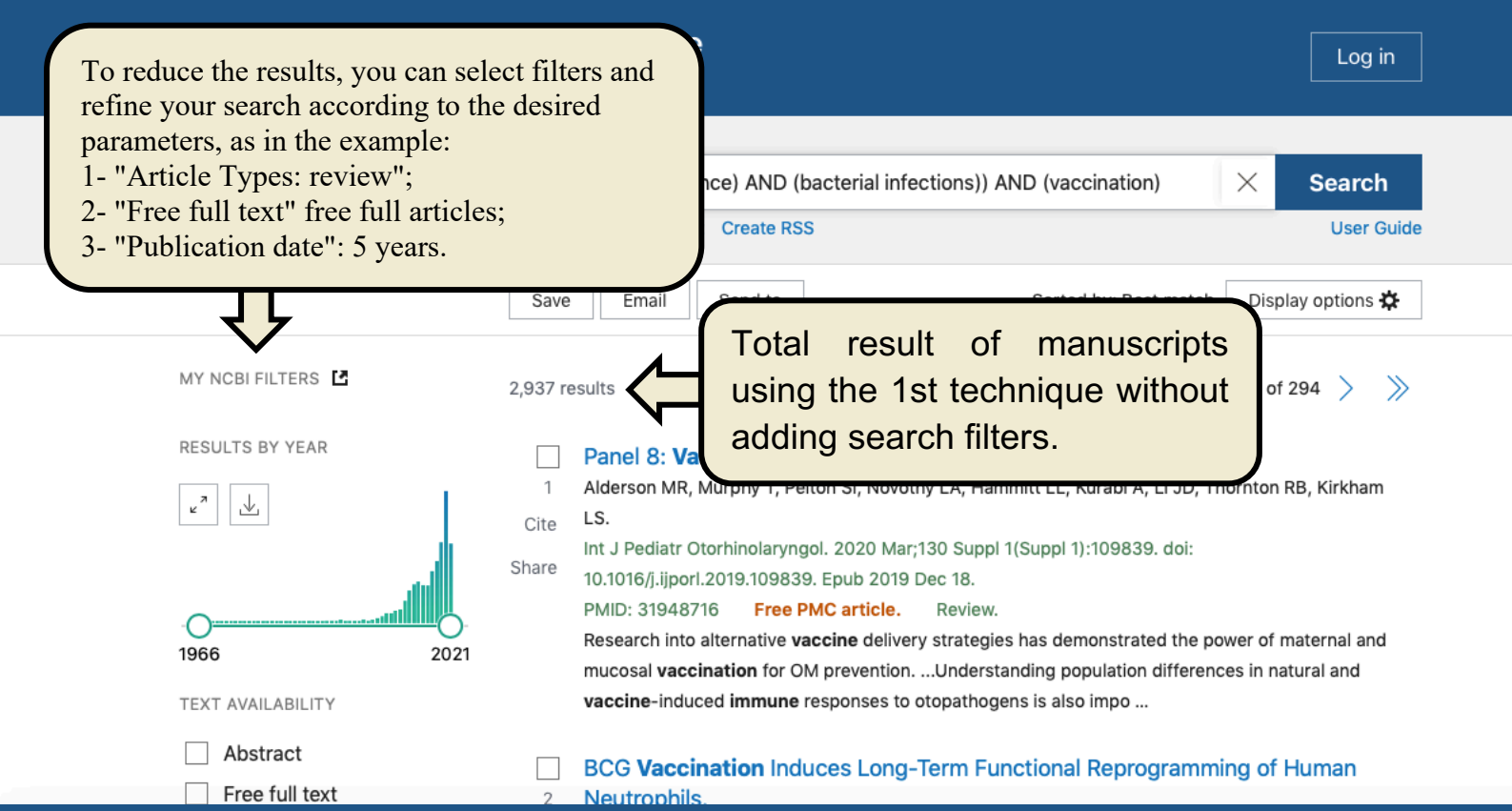


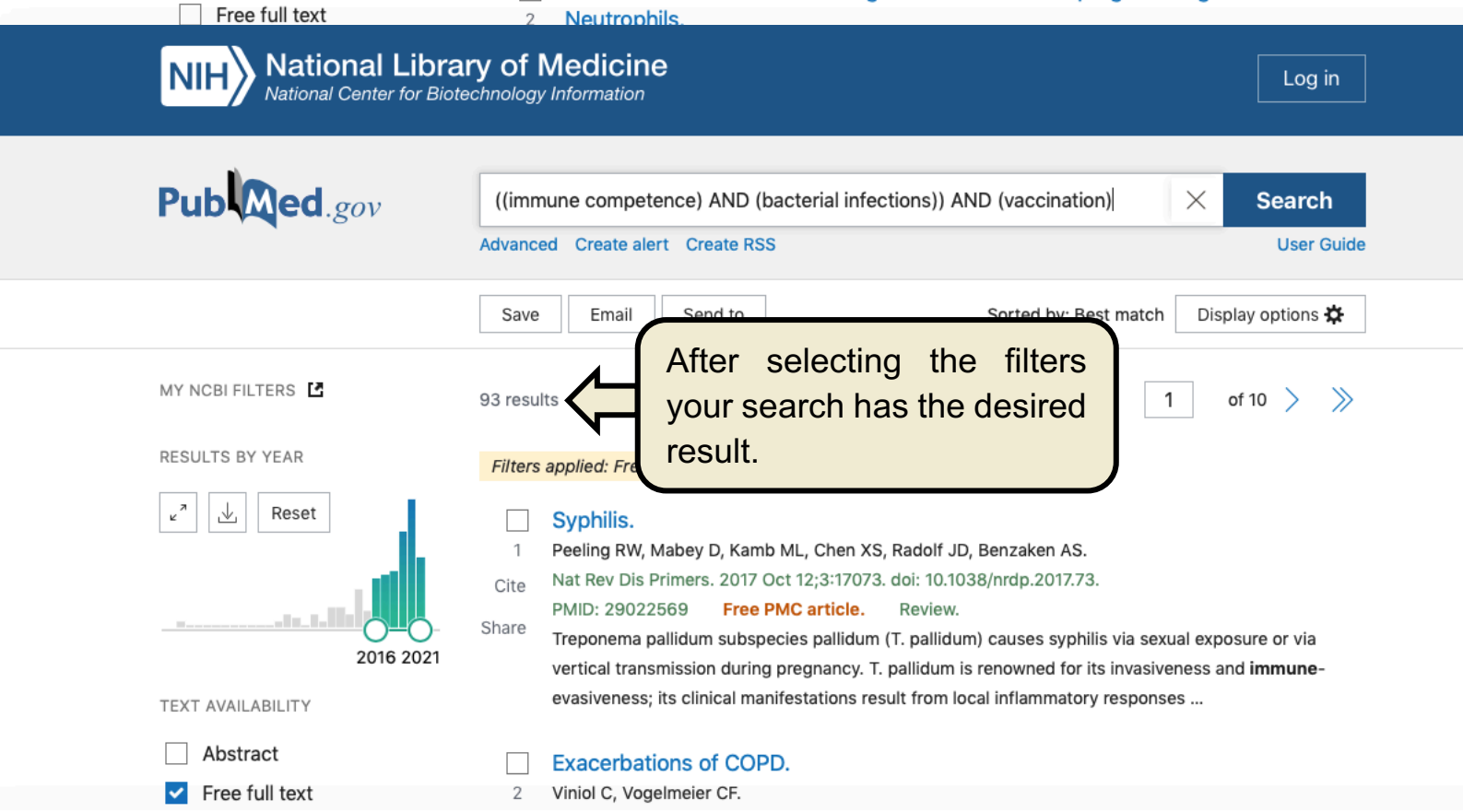


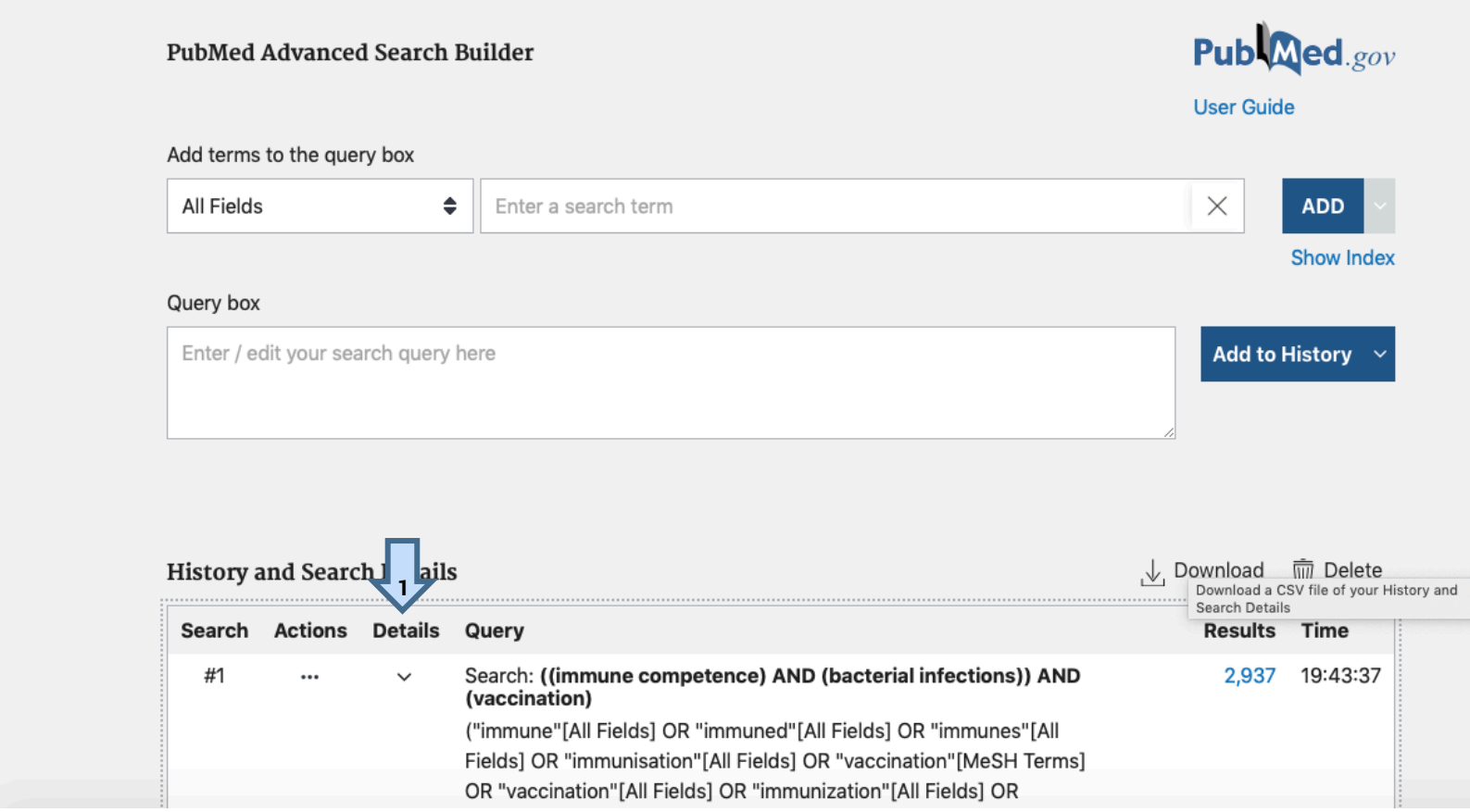
History and Search Details

Your history is currently empty! As you use PubMed your recent searches will appear here.

To reduce the results, you can select filters and refine your search according to the desired parameters, as in the example:
1- "Article Types: review";
2- "Free full text" free full articles;
3- "Publication date": 5 years.

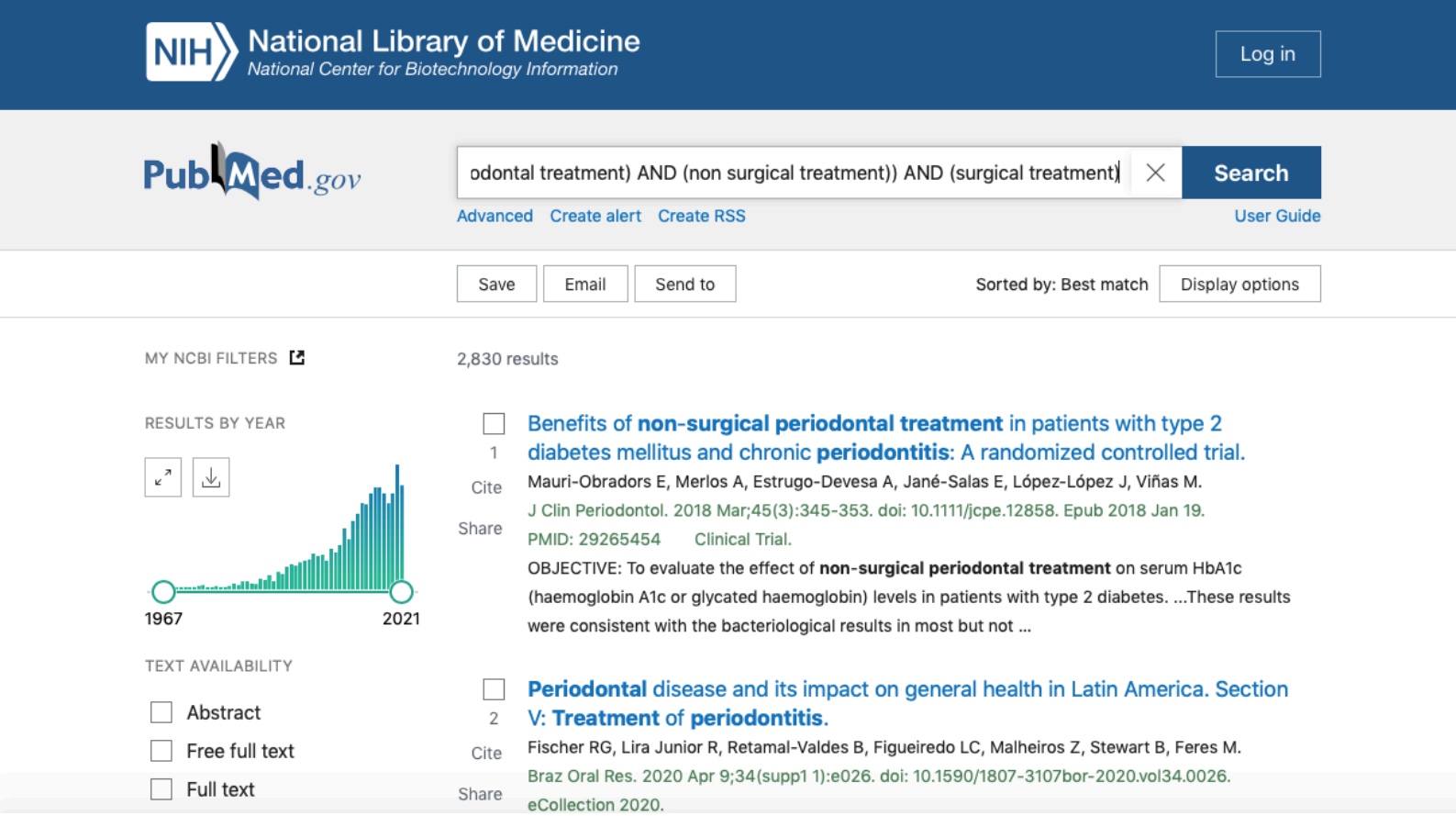






1 When we select the advanced search option, we verify the addition of the “Details” option, which when we click on the arrow, the search blocks with the search terms will appear.

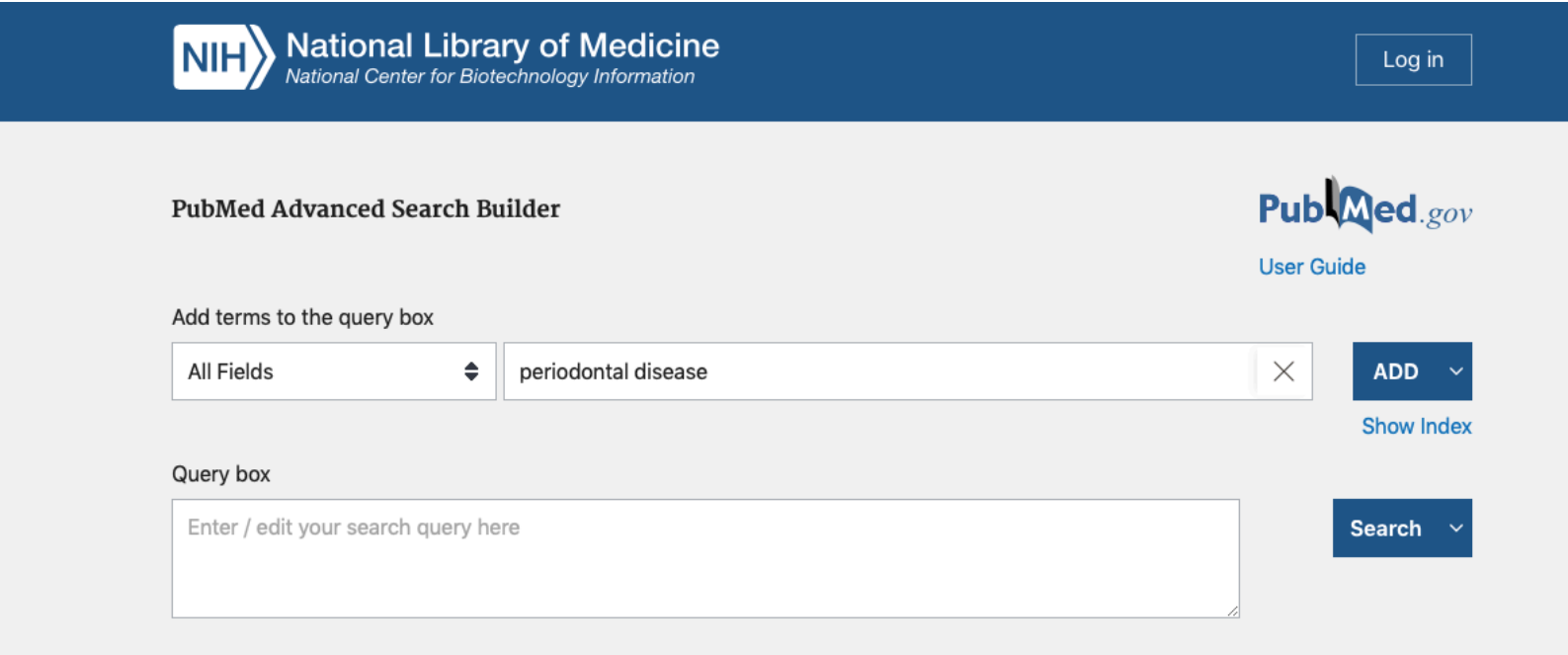
In these blocks the terms will be combined between Boolean operators, search modifiers, keywords, "Mesh Terms" and "All fields terms" automatically by the platform and the user can choose to copy and paste the search blocks and organize their advanced search in a more practice.



2nd topic search technique

The 2nd technique consists of filling the text boxes of the advanced search with several options of keywords and/or descriptors previously chosen, selecting in the "search fields" the option "Mesh Terms" and to form the most specific search block, if you select the Boolean term “OR” among the synonyms of a descriptor and between different descriptors, choose the Boolean terms “AND” to associate the search terms and “AND NOT” to exclude any term.

Next, as an example, we will use the search block “periodontal diseases” OR “chronic periodontitis” AND “surgical treatment” AND “non-surgical treatment” OR “root scaling and planning” with review articles and applying the search filters in this second search. by theme.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PubMed Advanced Search Builder
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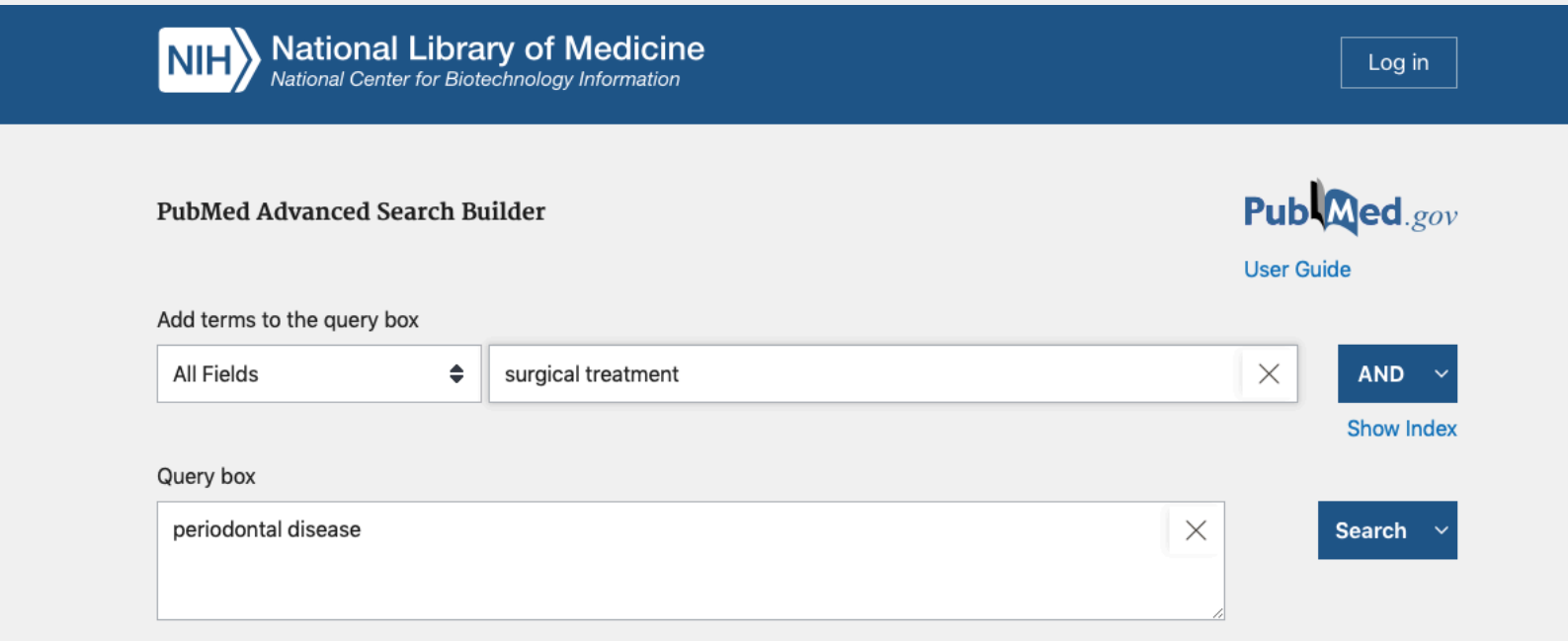
User Guide
Add terms to the query box
All Fields
periodontal disease
ADD
Show Index
Query box
Enter / edit your search query here
Search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PubMed Advanced Search Builder
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User Guide
Add terms to the query box
All Fields
surgical treatment
AND
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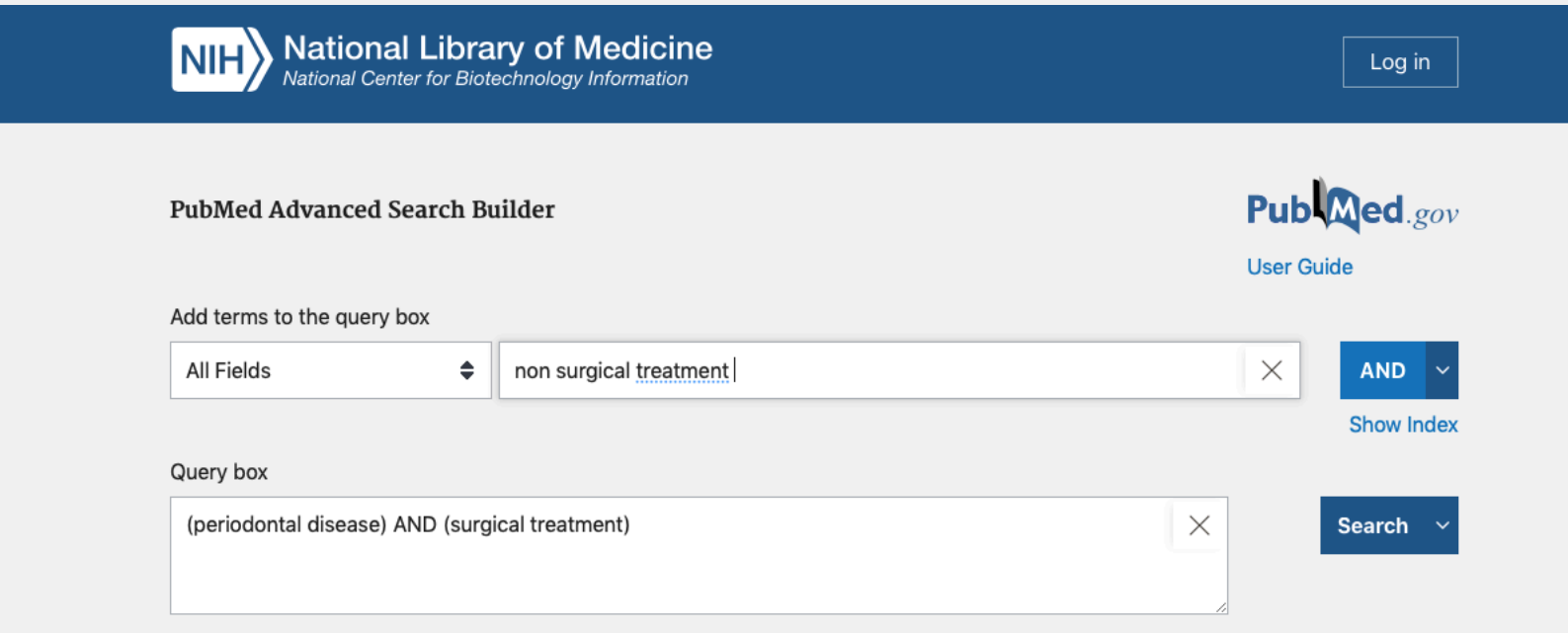
Search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PubMed.gov
User Guide
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non surgical treatment
AND
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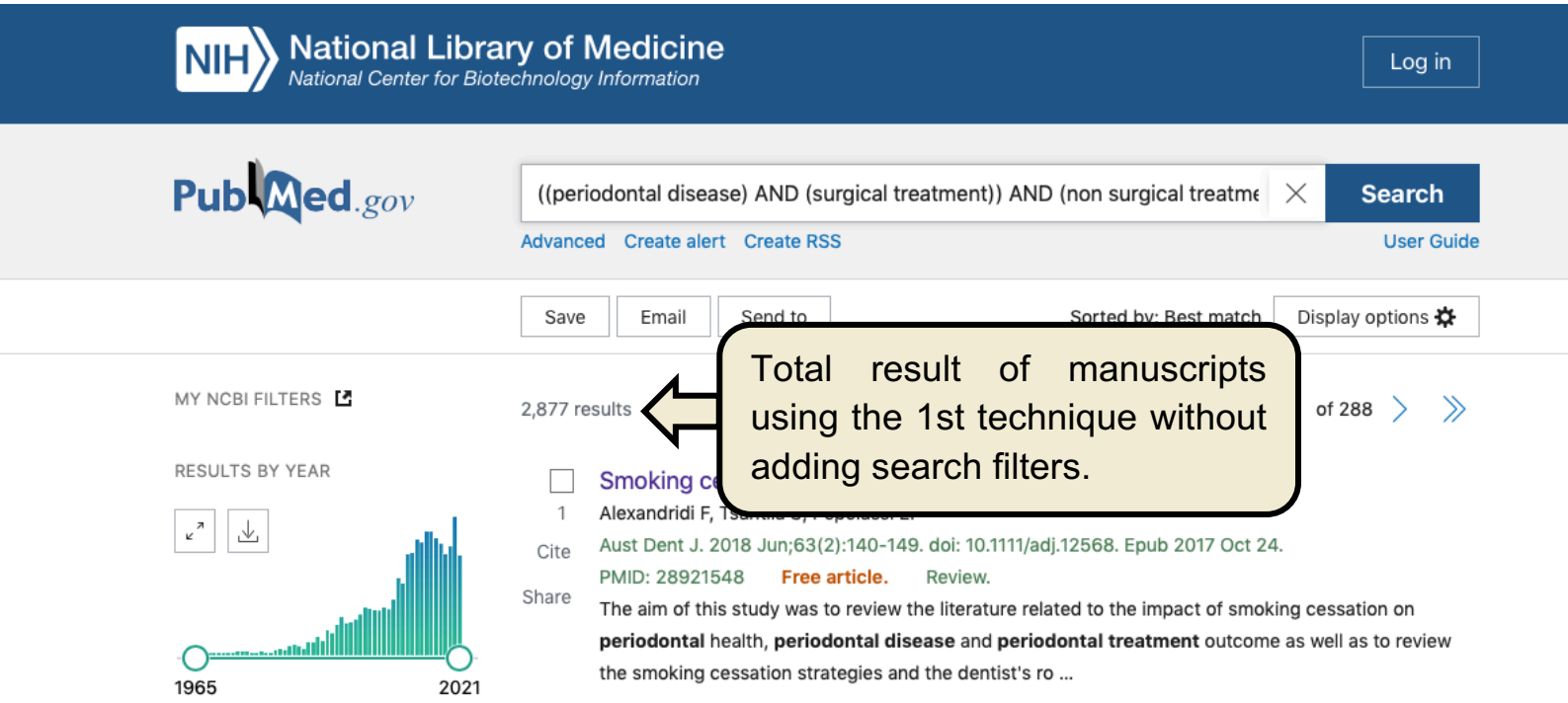
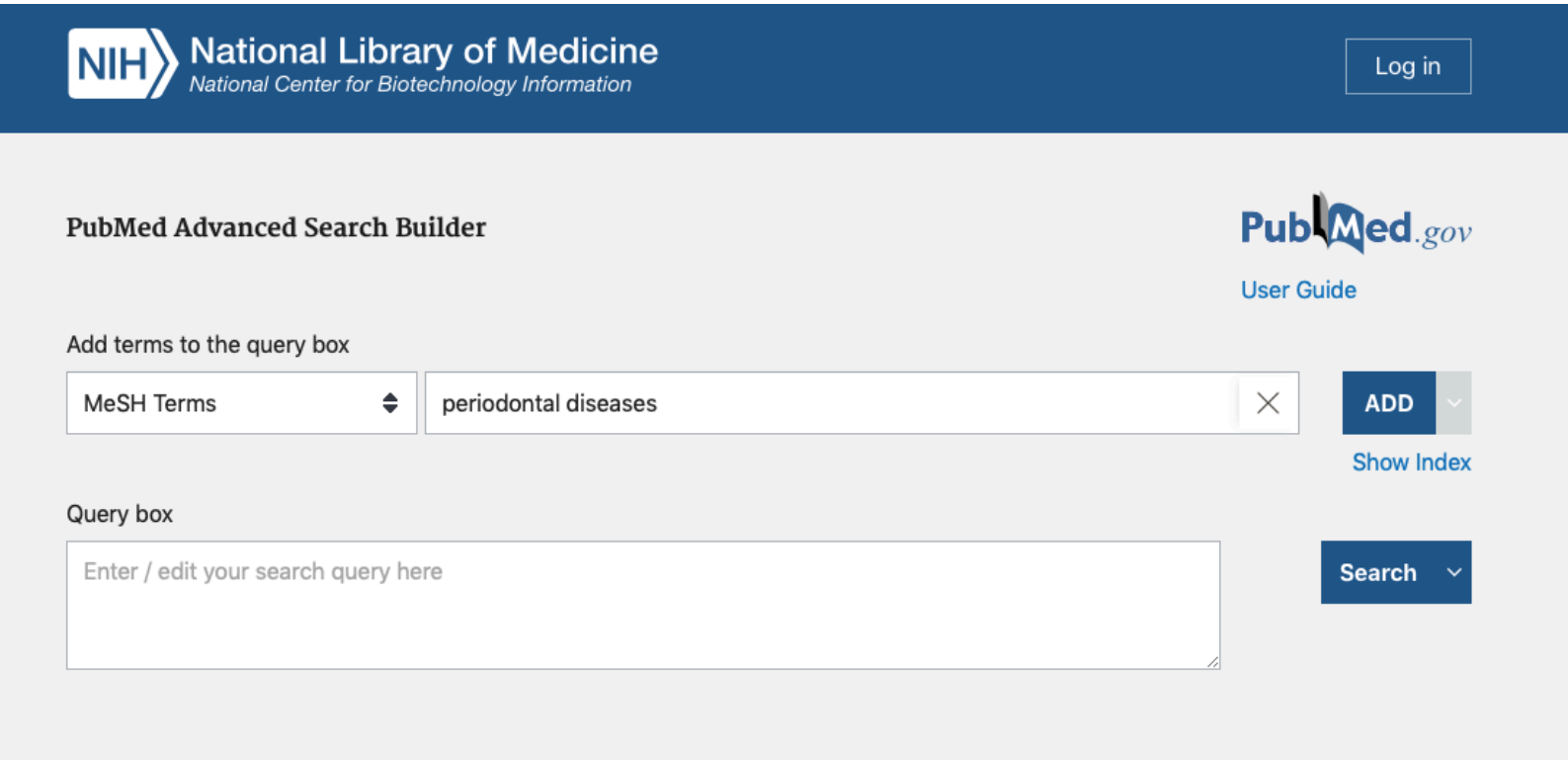
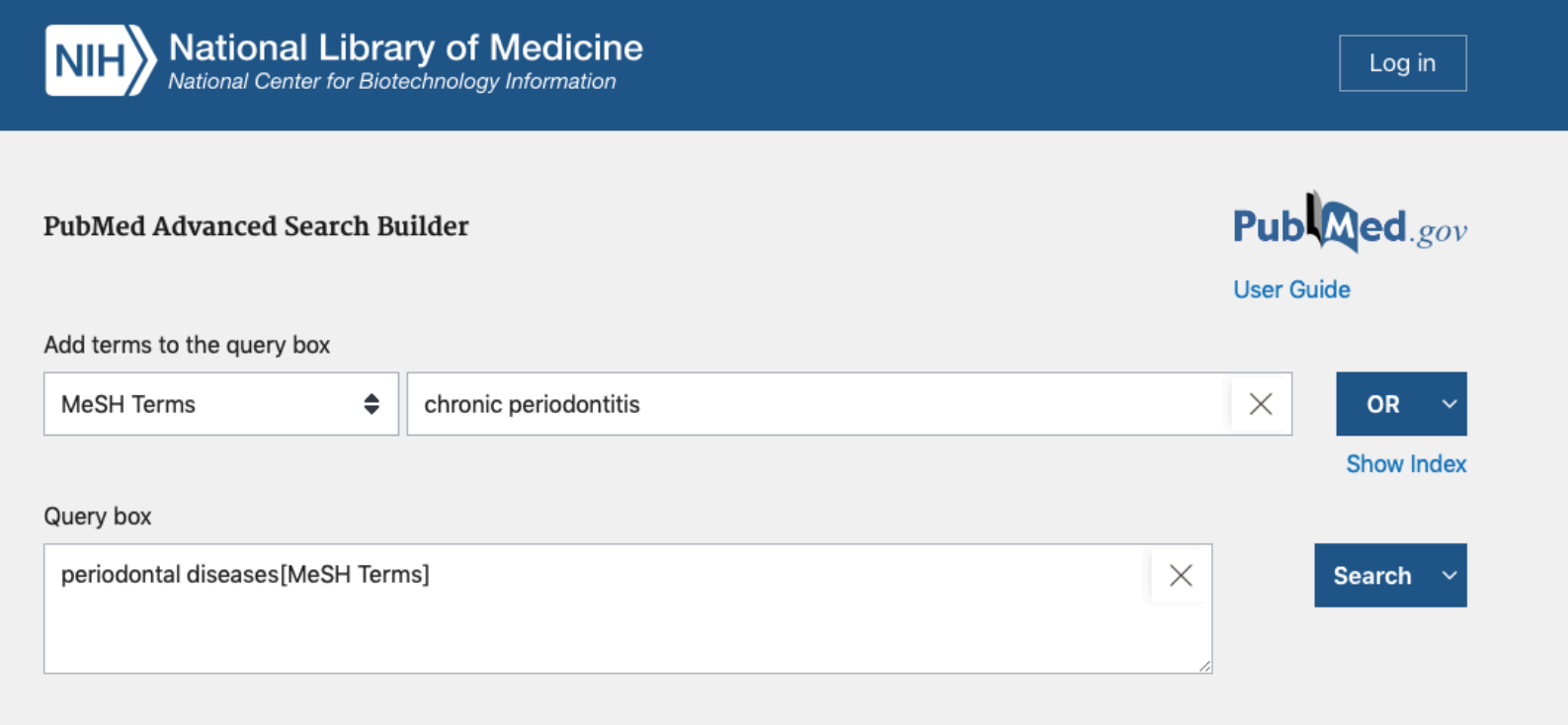
Query box
(periodontal disease) AND (surgical treatment)
Search



It is observed that the results without filters and with the initial search technique are 2,877 articles for reading. Then we will use the second search technique with the following filters: 5 years for publication date; review articles; full text available free of charge and in English, which resulted in a reduction to 8 articles available.

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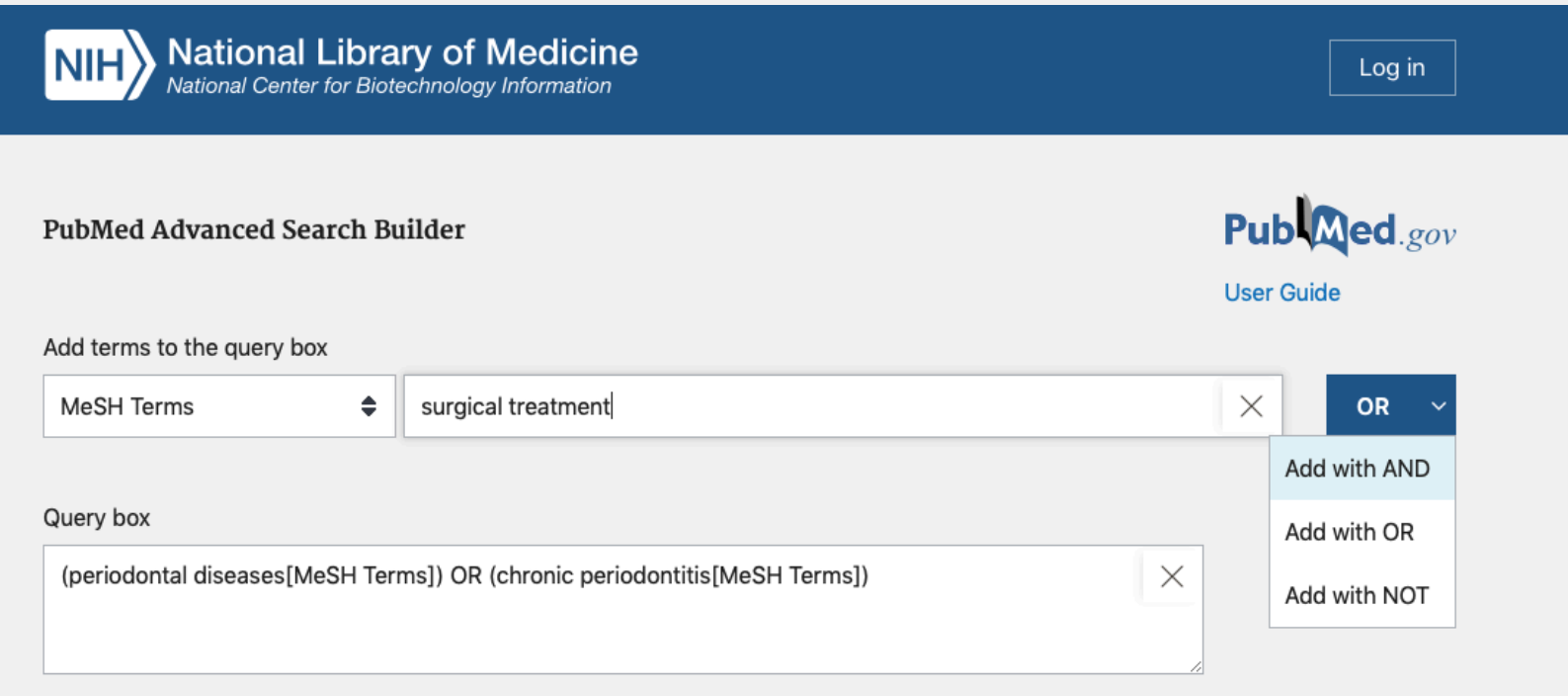
User Guide
Add terms to the query box
MeSH Terms
chronic periodontitis
OR
Show Index
Query box
periodontal diseases[MeSH Terms]
Search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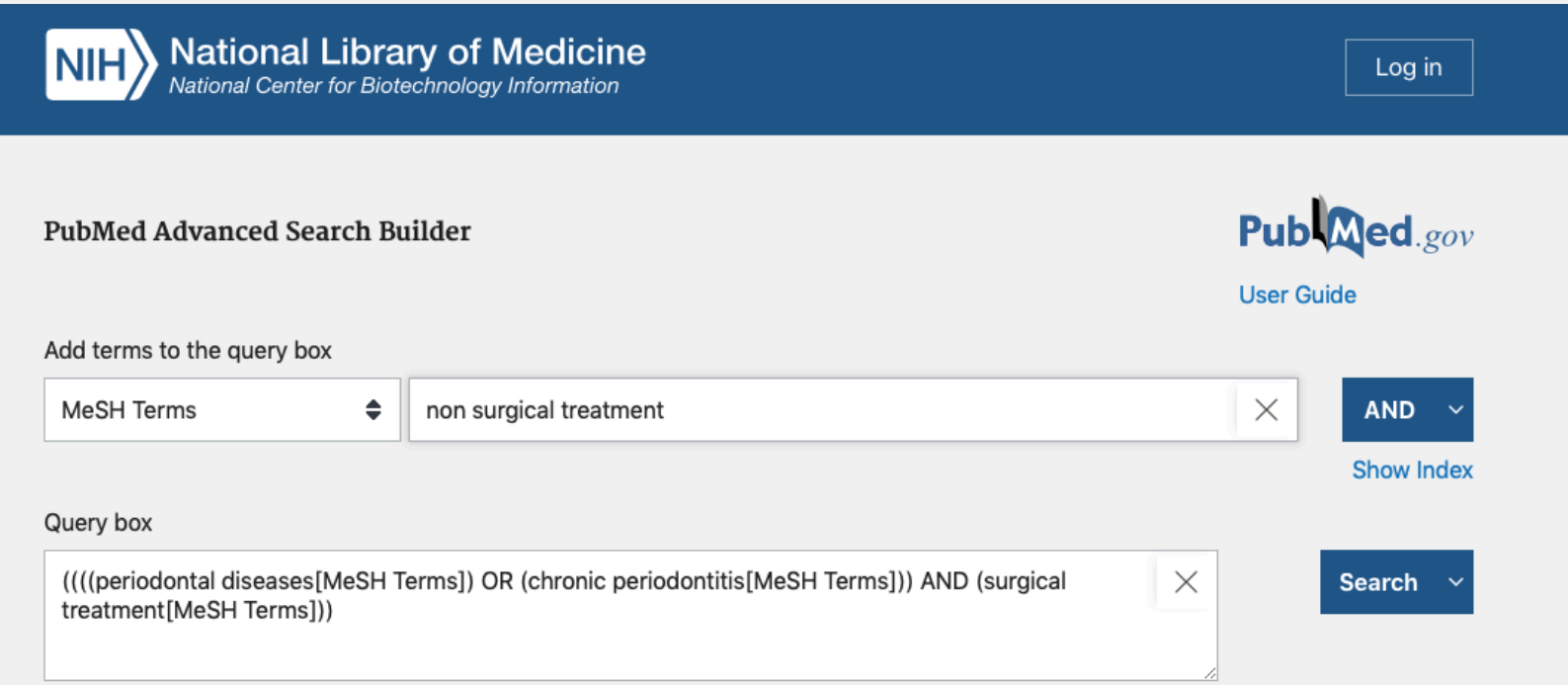
User Guide
Add terms to the query box
MeSH Terms
surgical treatment
OR
Add with AND
Add with OR
Add with NOT
Query box
(periodontal diseases[MeSH Terms]) OR (chronic periodontitis[MeSH Terms])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PubMed Advanced Search Builder
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User Guide
Add terms to the query box
MeSH Terms
non surgical treatment
AND
Show Index
Query box
((((periodontal diseases[MeSH Terms]) OR (chronic periodontitis[MeSH Terms])) AND (surgical treatment[MeSH Terms]))
Search

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User Guide

Add terms to the query box

MeSH Terms | root scaling and planing | AND

Add with AND
Add with OR
Add with NOT

Query box

(((((periodontal diseases[MeSH Terms]) OR (chronic periodontitis[MeSH Terms])) AND (surgical treatment[MeSH Terms]))) AND (non surgical treatment[MeSH Terms])

Enter / edit your search query here

Add to History

The following term was ignored: (

The following term was not found in PubMed: planing

History and Search Details

Download Delete

Search	Actions	Details	Query	Results	Time
#1	...	! >	Search: **((((((periodontal diseases[MeSH Terms]) OR (chronic periodontitis[MeSH Terms])) AND (surgical treatment[MeSH Terms]))) AND (non surgical treatment[MeSH Terms])) OR (root scaling and planing[MeSH Terms])**	1,418	21:05:15

Showing 1 to 1 of 1 entries

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National Center for Biotechnology Information

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gical treatment[MeSH Terms])) OR (root scaling and planing[MeSH Terms]) | Search

Advanced Create alert Create RSS User Guide

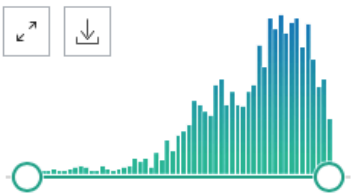
Save Email Send to Sorted by: Best match Display options

MY NCBI FILTERS

1,418 results

Page 1 of 142

RESULTS BY YEAR



TEXT AVAILABILITY

The following term was ignored: (

The following term was not found in PubMed: planing

1 Cite Share

Laser therapy for treatment of peri-implant mucositis and peri-implantitis: An American Academy of Periodontology best evidence review.

Lin GH, Suárez López Del Amo F, Wang HL.

J Periodontol. 2018 Jul;89(7):766-782. doi: 10.1902/jop.2017.160483.

PMID: 30133748 Free article.

PubMed.gov

gical treatment[MeSH Terms])) OR (root scaling and planing[MeSH Terms]) Search

Advanced Create alert Create RSS User Guide

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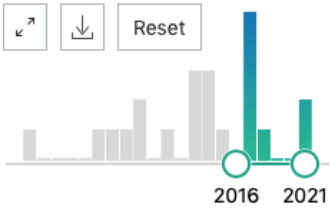
MY NCBI FILTERS

8 results Page 1 of 1

RESULTS BY YEAR

Reset



TEXT AVAILABILITY

- [ ] Abstract
- [x] Free full text
- [ ] Full text

Filters applied: Free full text, Review. Clear all

The following term was ignored: (

The following term was not found in PubMed: planing

1 Cite Share

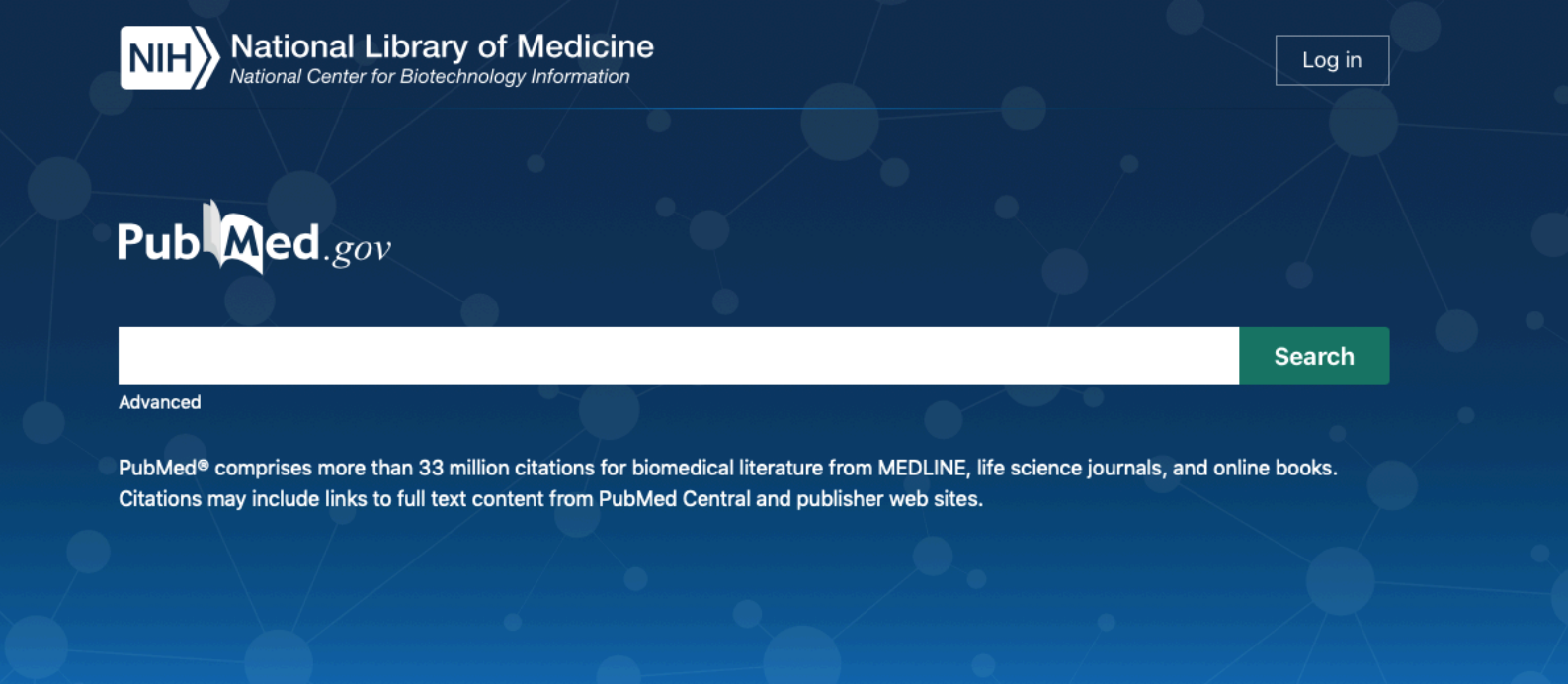
Soft tissue substitutes in **non**-root coverage procedures: a systematic review and meta-analysis.

Bertl K, Melchard M, Pandis N, Müller-Kern M, Stavropoulos A.

Clin Oral Investig. 2017 Mar;21(2):505-518. doi: 10.1007/s00784-016-2044-4. Epub 2017 Jan 20.

PMID: 28108833 Free PMC article. Review.

OBJECTIVES: The present systematic review compared the effectiveness of soft tissue substitutes (STSs) and autogenous free gingival grafts (FGGs) in **non**-root-coverage procedures to increase keratinized tissue (KT) width around teeth. MATERIALS AND METHODS: Included studies ...



Search by authors

Another method of searching for articles is through the use of authors and/or date of publication. This feature can be used in scenarios such as lectures, where there is an explanation of articles and, often, the reader has access only to the author and the year of publication. In this chapter, we'll show you how to search, find, and download any article using this method.

In these cases, we recommend adapting advanced search techniques by topic for greater effectiveness in the results obtained. For example, in the case of the author/research date, “Fonseca et al. 2018” just fill in the text boxes as shown below.

You can use the topic addressed by the teacher or speaker, such as cytomegalovirus (cytomegalovirus) and periodontitis (periodontitis) to improve the chances of results.

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Add terms to the query box

Author | Fonseca | ADD

Show Index

Query box

Enter / edit your search query here

Search

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National Center for Biotechnology Information

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PubMed Advanced Search Builder

PubMed.gov

User Guide

Add terms to the query box

Date - Publication | 2018 | to | 2018 | AND

Query box

Fonseca[Author]

Search

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User Guide

Add terms to the query box

MeSH Terms | cytomegalovirus | AND

Show Index

Query box

((Fonseca[Author]) AND (("2018"[Date - Publication] : "2018"[Date - Publication])))

Search

PubMed Advanced Search Builder

PubMed.gov

User Guide

Add terms to the query box

MeSH Terms | Enter a search term | ADD

Show Index

Query box

Enter / edit your search query here

Add to History

History and Search Details

Download Delete

Search	Actions	Details	Query	Results	Time
#1	•••	›	Search: **(((Fonseca[Author]) AND (("2018"[Date - Publication] : "2018"[Date - Publication]))))) AND (cytomegalovirus[MeSH Terms])**	4	22:57:27

TEXT AVAILABILITY

- Abstract
- Free full text
- Full text

ARTICLE ATTRIBUTE

- Associated data

ARTICLE TYPE

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

PUBLICATION DATE

- 1 year
- 5 years

1 Cite Share

Congenital Cytomegalovirus and HIV Perinatal Transmission.

Adachi K, Xu J, Ank B, Watts DH, Camarca M, Mofenson LM, Pilotto JH, Joao E, Gray G, Theron G, Santos B, **Fonseca R**, Kreitchmann R, Pinto J, Mussi-Pinhata MM, Machado DM, Ceriotto M, Morgado MG, Bryson YJ, Veloso VG, Grinsztejn B, Mirochnick M, Moye J, Nielsen-Saines K; MPH for the NICHD HPTN 040 Study Team.

Pediatr Infect Dis J. 2018 Oct;37(10):1016-1021. doi: 10.1097/INF.0000000000001975.

PMID: 30216294 **Free PMC article.** Clinical Trial.

2 Cite Share

Human Herpesvirus 8 in Perinatally HIV-infected Children with Interstitial Lung Disease.

Scotta MC, Fabro AT, Machado PRL, Ramos SG, Cervi MC, **da Fonseca BAL**, Motta F, Negrini BVM.

J Trop Pediatr. 2018 Oct 1;64(5):382-388. doi: 10.1093/tropej/fmx080.

PMID: 29165615

3 Cite Share

Absence of cytomegalovirus in gingivitis and chronic periodontitis in HIV-1 patients in Northern Brazil.

Fonseca RRS, Alves ACBA, Amanajás TA, Nogueira BML, Menezes TOA, Siravenha LQ, Pereira DLA, Machado LFA, Gilet LCDS, Menezes SAF.

Rev Soc Bras Med Trop. 2018 Nov-Dec;51(6):809-812. doi: 10.1590/0037-8682-0080-2018.

PMID: 30517535 **Free article.**

4 Cite

Multimodal Imaging of Cytomegalovirus-associated Frosted Branch Angiitis.

Rodrigues TM, Marques JP, **Fonseca C.**

Ophthalmol Retina. 2018 Jan;2(1):37. doi: 10.1016/j.oret.2017.09.009. Epub 2018 Jan 3.

PMID: 31047299 No abstract available.

Rev Soc Bras Med Trop 51(6):809-812, Nov-Dec, 2018
doi: 10.1590/0037-8682-0080-2018

Short Communication

Absence of cytomegalovirus in gingivitis and chronic periodontitis in HIV-1 patients in Northern Brazil

Ricardo Roberto de Souza Fonseca[1], *Ana Cláudia Braga Amoras Alves*[2], *Thalita de Almeida Amanajás*[2], *Brenna Magdalena Lima Nogueira*[3], *Tatiany Oliveira de Alencar Menezes*[4], *Leonardo Quintão Siravenha*[5], *Danilo Leôncio Aguiar Pereira*[5], *Luiz Fernando Almeida Machado*[5], *Luciana Campêlo da Silva Gilet*[6] *and Silvio Augusto Fernandes de Menezes*[1]

[1]. Departamento de Periodontologia, Centro Universitário do Estado do Pará, Belém, PA, Brasil.
[2]. Departamento de Periodontologia, Universidade Federal do Pará, Belém, Pará, Brasil.
[3]. Departamento de Pacientes com Necessidades Especiais, Universidade Federal do Pará, Belém, PA, Brasil.
[4]. Departamento de Endodontia, Universidade Federal do Pará, Belém, PA, Brasil.
[5]. Departamento Ciências Biológicas, Laboratório de Virologia, Universidade Federal do Pará, Belém, PA, Brasil.
[6]. Departamento de Odontologia, Centro Especializado de Referência de Doenças Infecciosas e Parasitárias, Universidade Federal do Pará, Belém, PA, Brasil.

Abstract

Introduction: The influence of cytomegalovirus (CMV) on the progression of chronic periodontitis in HIV patients is poorly investigated. **Methods**: ELISA was used for anti-CMV antibody IgG titer measurements and real-time polymerase chain reaction for qualitative and quantitative CMV detection. Data on the CD_4^+ T lymphocyte count and plasma HIV viral load were obtained from patient records. **Results**: CMV DNA was detected in samples of subgingival biofilm in only three individuals, two of them with chronic periodontitis (4%) and one with gingivitis (3.3%). **Conclusions**: The prevalence of CMV is very low both in HIV-1 patients with gingivitis and chronic periodontitis.

Keywords: HIV. Cytomegalovirus. Periodontal disease.

Human immunodeficiency virus (HIV) infection is characterized by an advanced state of immunosuppression. HIV infects TCD_4^+ lymphocytes ($LTCD_4^+$), also known as T helper lymphocytes (LTh) and the decrease in the number of these cells may contribute to the occurrence of several opportunistic infections and several pathologies. Periodontitis is recognized as an important condition and may be associated with the immunodeficiency caused by HIV. It can also be considered one of the first clinical signs of HIV infection, which can be mitigated by the use of antiretroviral therapy (ART)[1-3].

When chronic periodontitis (CP) occurs in HIV negative patients, the periodontal connective tissue demonstrates a dense inflammatory infiltrate of mononuclear cells, lymphocytes, and macrophages. In addition to the pro-inflammatory and osteoclast cells, recent studies have evidenced an interaction between periodontopathogenic bacteria and CMV, this interaction contributes to severe bone destruction and it is a direct result of the processes of herpesvirus activity and latency[4-6].

In HIV positive patients, herpesvirus reactivation and viral activity frequently occur due to the immunosuppression of antiviral immune cells such as natural killer cells, lymphocytes, macrophages, and interferons caused by HIV-1. Thus, HIV positive patients with active herpesvirus infection present periodontal disease with greater probing depth, spontaneous bleeding and severe loss of the clinical attachment level (CAL)[6-8]. Due to the deficient immune system and secondary infection with herpesvirus, these patients present a more aggressive periodontal disease being recurrent advanced stages of the disease such as necrotizing ulcerative periodontitis or gingivitis[8].

In the Amazon region, CMV is one of the most prevalent herpesviruses in the HIV positive population due to the environmental and socioeconomic conditions of the northern Brazilian region[9]. It is known that CMV activity in the periodontal pocket leads to a more rapid progression of CP. In addition, studies indicate that CMV is the most prevalent herpesvirus in the gingival tissue in HIV-positive patients. With the advent of ART therapy, seropositive patients achieve a reduction in HIV viral load and elevated lymphocyte levels,

Corresponding author: Silvio Augusto Fernandes de Menezes.
e-mail: menezesperio@gmail.com
Received 28 February 2018
Accepted 15 May 2018

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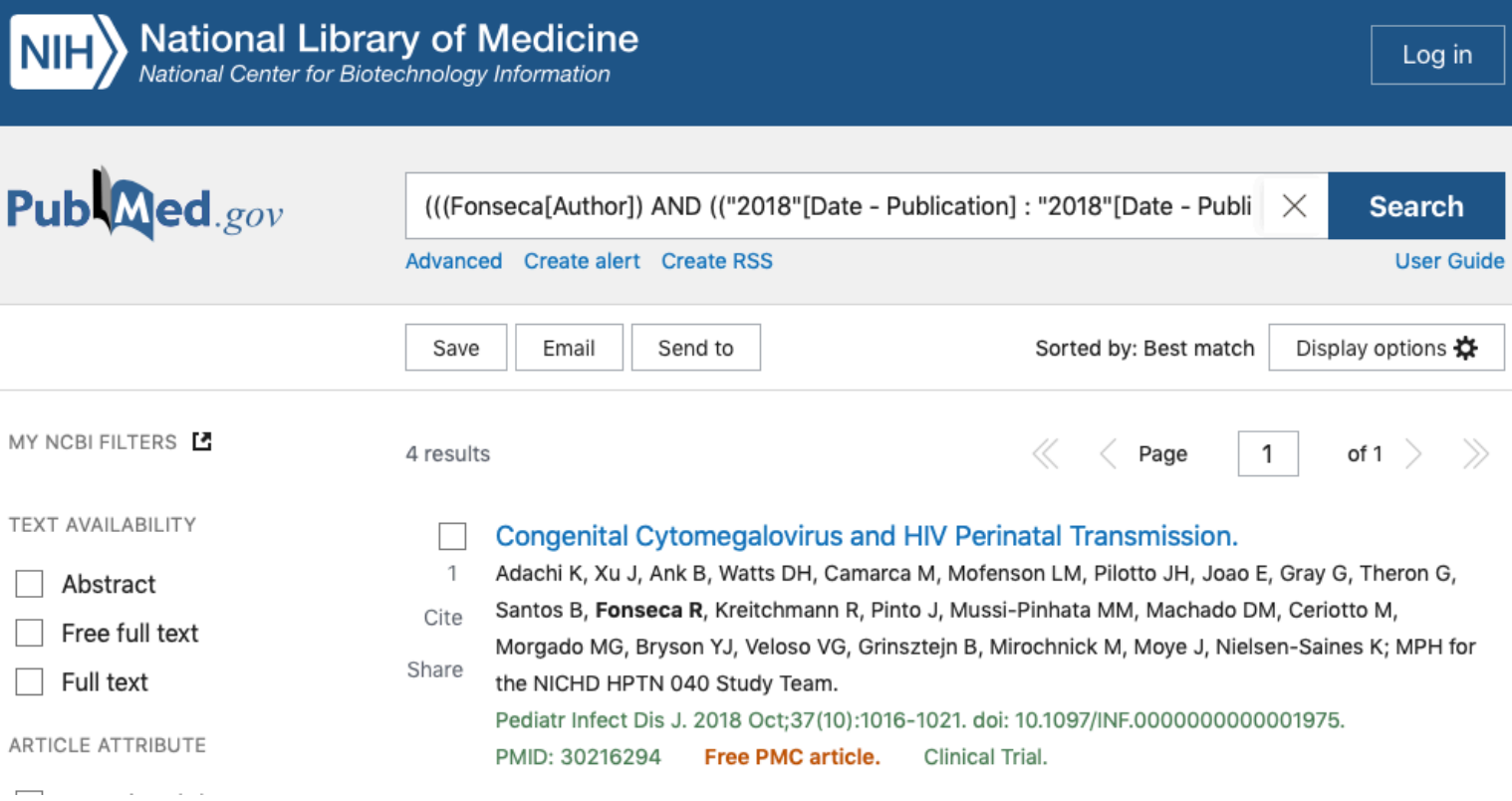

Storage

In order not to lose the bibliographic research data, the researcher can choose to send his research to any email in different file formats through the "Email" or "Send to" option, which is arranged just below the search block. In this tool provided by the platform, the researcher has access to some services for sending and storing their search, as seen below.

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(((Fonseca[Author]) AND (("2018"[Date - Publication] : "2018"[Date - Publi

Search

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Save Email Send to Sorted by: Best match Display options

Email citations

Subject: (((Fonseca[Author]) AND (("2018"[Date - Publicati - PubMed

* To: email@example.com

Selection: All results on this page

Format: Summary

Send email Cancel

PubMed.gov

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Search

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Save Email Send to Sorted by: Best match Display options

Save citations to file

Selection: All results on this page

Format:

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- PMID
- Abstract (text)
- CSV