

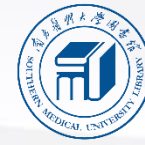


# INTRODUCTION to Medical Information Retrieval & Management

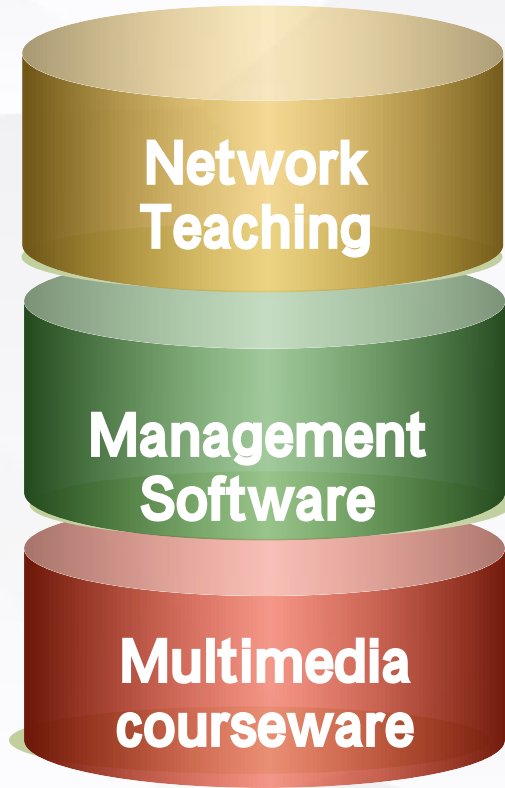
Ping Gu, Prof., PhD  
Department of Medical Information Science  
Southern Medical University  
guping@smu.edu.cn  
(020)61648055

- ❖ the product of the modern information society with the rapid development of science and technology
- ❖ a scientific method course specializing in how to obtain the required medical knowledge, which provides a means for medical students to better learn and master the knowledge of professional courses
- ❖ involving multi-disciplinary knowledge such as medicine, information science, computer and network
- ❖ aimed to cultivate and improve medical students' information literacy ability, scientific research ability and innovation ability

# Teaching Approach



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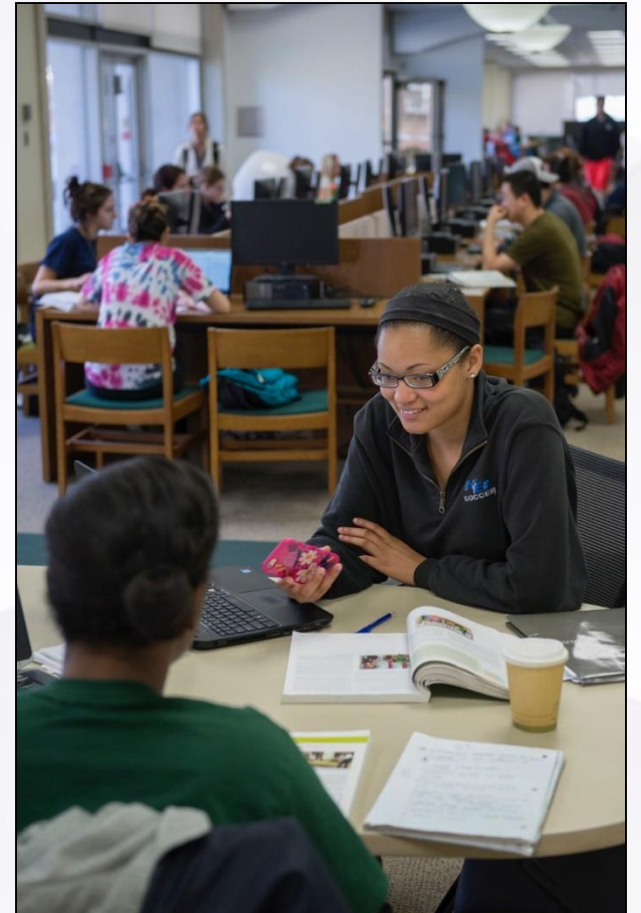
▶ a variety of resources to facilitate students' self-study, review and test

▶ intuitive demonstration is helpful for real time learning

▶ the visual image of teaching by using text, pictures and other means

# Content

- ❖ The relationship between information and knowledge, intelligence and Literature
- ❖ Information retrieval\*
- ❖ Computer retrieval\*
- ❖ Types of documents\*
- ❖ Level of literature\*
- ❖ Description format of main document types
- ❖ Types of electronic resources
- ❖ Basic steps and methods of information retrieval\*



# What is information

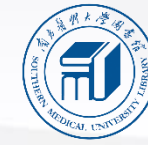


- ❖ There are many types of information: natural information, biological information, social information, etc.



- ❖ It is the general name of the content exchanged between organisms and the outside world through feeling. It is a basic attribute of matter and the external expression of the way of material existence and its movement law

# What is knowledge

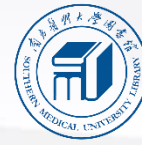


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- ❖ Our understanding and mastery of nature, human society and the law of thinking activities through information
- ❖ A collection of systematic information recombined by human brain through thinking
- ❖ Know-what      Know-why
- ❖ Know-how      Know-who



# What is intelligence

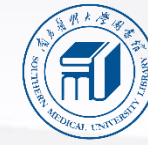


- ❖ The knowledge needed to solve a specific problem  
(knowledge, transmission and benefit)
- ❖ Intelligence (information) consciousness: that is, "the ability to realize intelligence", is people's conscious response to a large number of objective intelligence
- ❖ Intelligence consciousness also refers to people's enthusiasm and initiative to obtain information



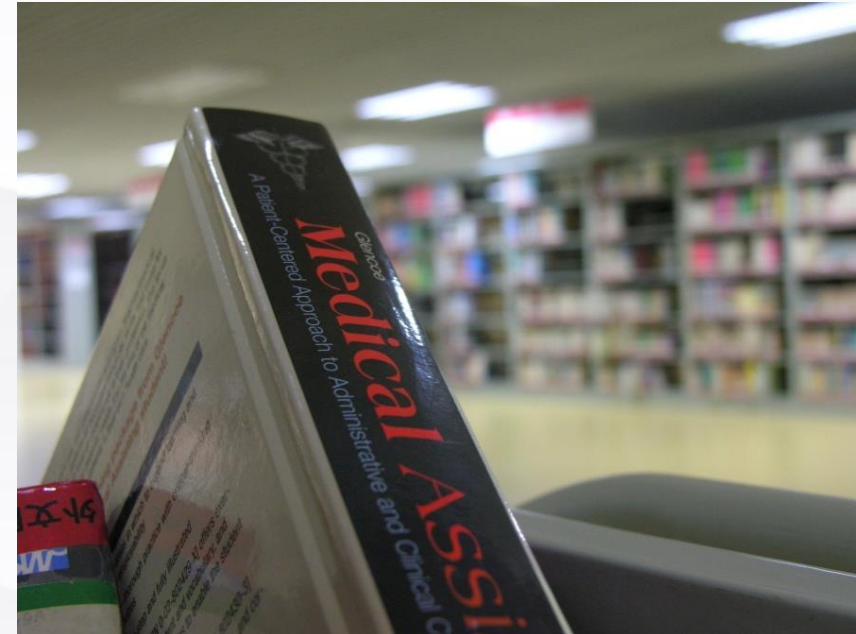
- **knowledge**: specific knowledge or information processed and needed by users
- **transitivity**: dynamic acceptance and utilization
- **utility**: enlighten thinking, enhance insight, change knowledge structure, improve cognitive ability, and give play to practical, social and economic values

# What is Literature (Document)



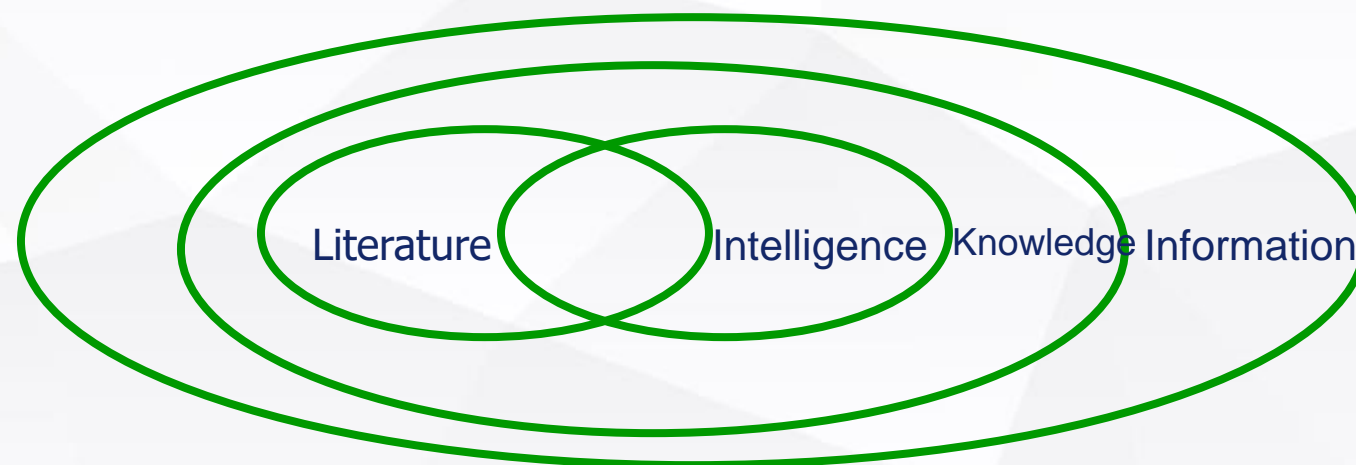
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- ❖ The knowledge recorded on a certain carrier (paper, disk and optical disc) in a certain way (text, image and sound) is called literature
- ❖ The **external manifestation of knowledge**





Information  $\longleftrightarrow$  Knowledge  $\rightarrow$  Intelligence



**Generalized concept**——referring to the process of organizing and storing information in a certain way and finding out relevant information according to the needs of users, thus, full-name:

## Information Storage and Retrieval



- **search tool**: a tool for reporting, storing and searching information, book or card type, manual retrieval
- **retrieval system**: It is composed of retrieval equipment and documents or databases processed and stored on corresponding carriers



**Retrieval tool**



**Retrieval system**

**Narrow concept**——only referring to the second half of the above process, that is, the process of finding the required information from the information set, which is equivalent to what people usually call information search



According to the retrieval method, it can be divided into:

- ❖ direct retrieval——obtaining information directly from information set and document carriers
- ❖ indirect retrieval——obtaining the required information through the retrieval tool or retrieval system





By search object:

❖ Literature retrieval

- The main form of information retrieval, is to find out the required primary or tertiary literature through secondary literature, including manual retrieval tools and computer retrieval system

❖ Data retrieval

- Data retrieval, such as finding mathematical formulas, data charts, components and properties of a material, is a deterministic retrieval

❖ Fact retrieval

- Taking specific facts as the retrieval object, and the fact content includes a large number of scientific events and social events

## Divided by retrieval depth

### ❖ Full text retrieval

- The retrieval system stores the whole article or the whole book; another meaning refers to a search from the full text of the literature

### ❖ Image retrieval

- Information retrieval based on graphics, images or graphic information

### ❖ Multimedia retrieval

- Information retrieval based on multimedia information such as text, image and sound, etc



- ❖ **Make full use of information resources and avoid repeated work:** in the research work, every step of any project, from topic selection, experimental research or design to achievement appraisal, is inseparable from information. Only by fully mastering the relevant information can we avoid repetition, ensure that the research work starts at the highest possible level and shorten the research cycle
- ❖ **Update their own knowledge accumulation to meet the needs of social development:** mastering the methods and skills of information retrieval is an important means to form reasonable knowledge and update knowledge



# Computer Retrieval



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❖ Referring to information retrieval by means of computer technology through modern retrieval methods such as CD-ROM, online and network



❖ **Field:** the most basic unit of a document database, the data items that make up a record



2

A Comparison of Triamcinolone Acetonide Econazole Cream and Nystatin Suspension in Treatment of Otomycosis.

Cite      Chen Q, Chu H, Tao Y, Peng L, Zhou L, Liu L, Wu X.

Laryngoscope. 2021 May;131(5):E1640-E1646. doi: 10.1002/lary.29190. Epub 2020 Nov 3.

Share      PMID: 33141477      Clinical Trial.



- ❖ **Record**: each record describes the external and content characteristics of the original information
- ❖ **File**: an ordered collection of literature records of a discipline or topic in the database. Tens of thousands of records in a database are usually divided into several files. Each document in the file is a record, the external and internal features such as title, author, abstract and subject words are fields.
- ❖ **Database**: referring to the collection of computer-readable and organized relevant literature information. It usually consists of several files, each file consists of several records, and each record contains several fields.

# Computer retrieval



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- ❖ Retrieval technology and its implementation
- ❖ Including basic Boolean operators, word truncation, word position restriction, field restriction, etc.
- ❖ **Boolean operators:** “(and,\*)”、“(or,+)”、“(not,-)”
- ❖ **Operator precedence:** OR < AND < NOT < ()
- ❖ **eg. viral pneumonia AND X-ray**  
(novel coronavirus pneumonia OR COVID-19) AND CT  
**pneumonia NOT viral pneumonia**

# KEYWORDS

- ❖ Keywords are words or concepts extracted from your topic (subject of research)
- ❖ They are unique and related to the field being investigated.
- ❖ Do not forget that you are dealing with a computer, not a human being! Do not write a full sentence, just words (including synonyms) unique to your topic.

# BOOLEAN SEARCH

- ❖ A Boolean Search is a computerized search using “operators”
- ❖ They are words by which search terms (keywords) are combined
- ❖ The operators may be used to expand or narrow a search

# BOOLEAN OPERATORS

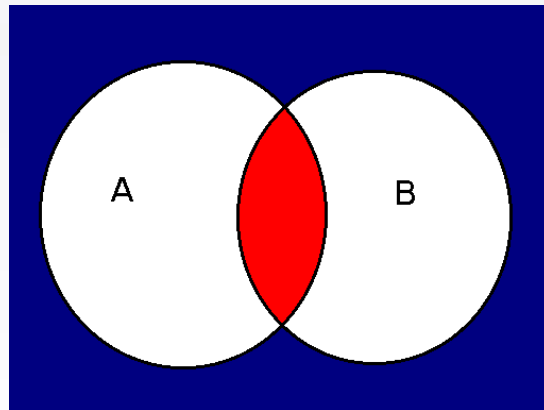
- ❖ Simple commands that tell search engines which terms you want your search results to include or exclude
- ❖ Most widely used are
  - AND
  - OR
  - NOT
- ❖ By convention, Boolean terms are usually typed in all caps

# Boolean operator



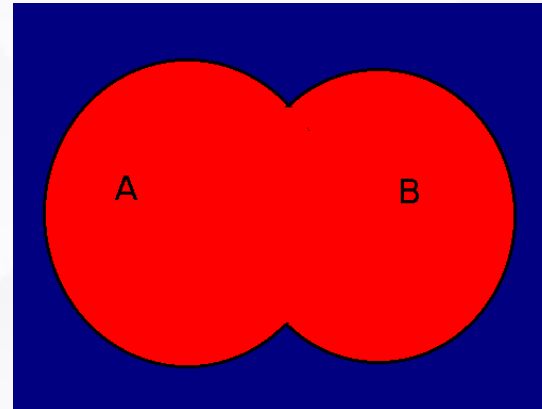
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**AND**



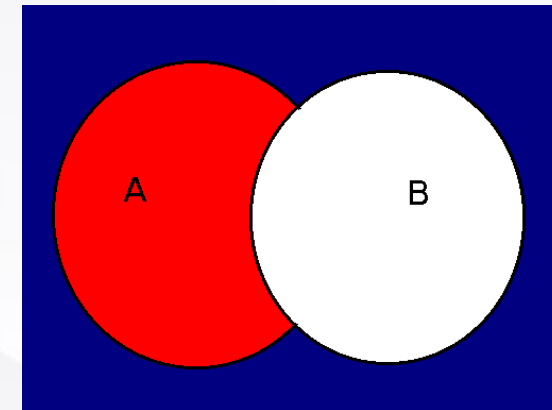
influenza AND vaccination

**OR**



vaccination OR vaccine

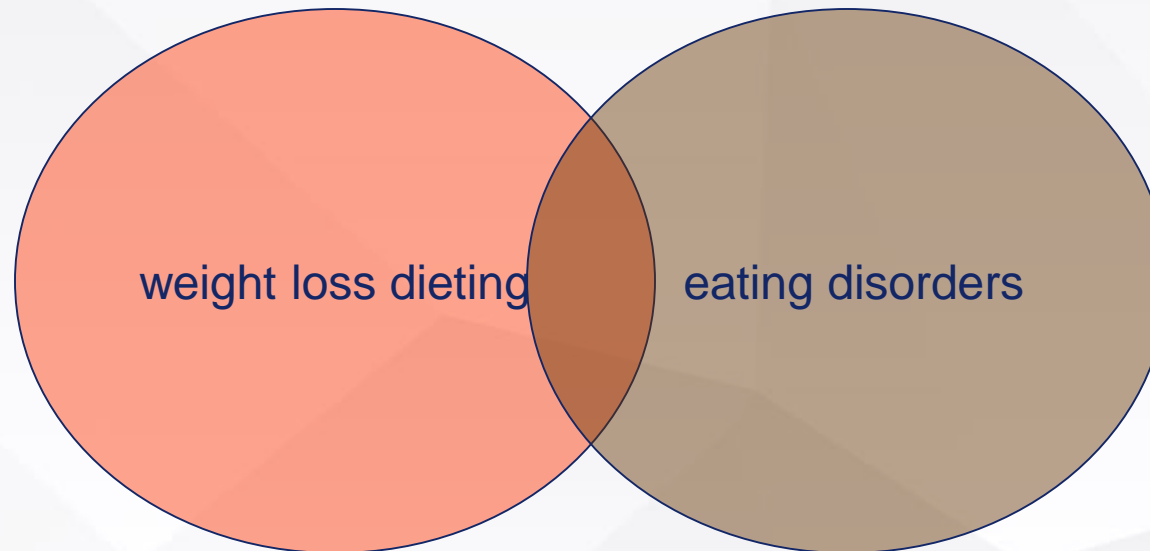
**NOT**



influenza NOT vaccination

# AND

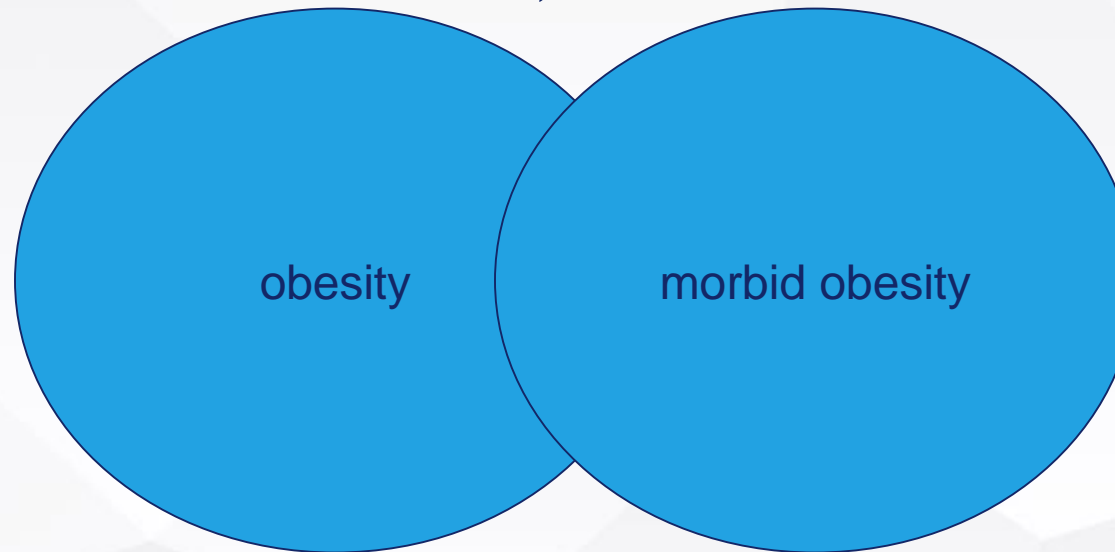
- ❖ All terms must be present in each record retrieved (overlapping area indicates terms retrieved)



- ❖ Use to combine different concepts

# OR

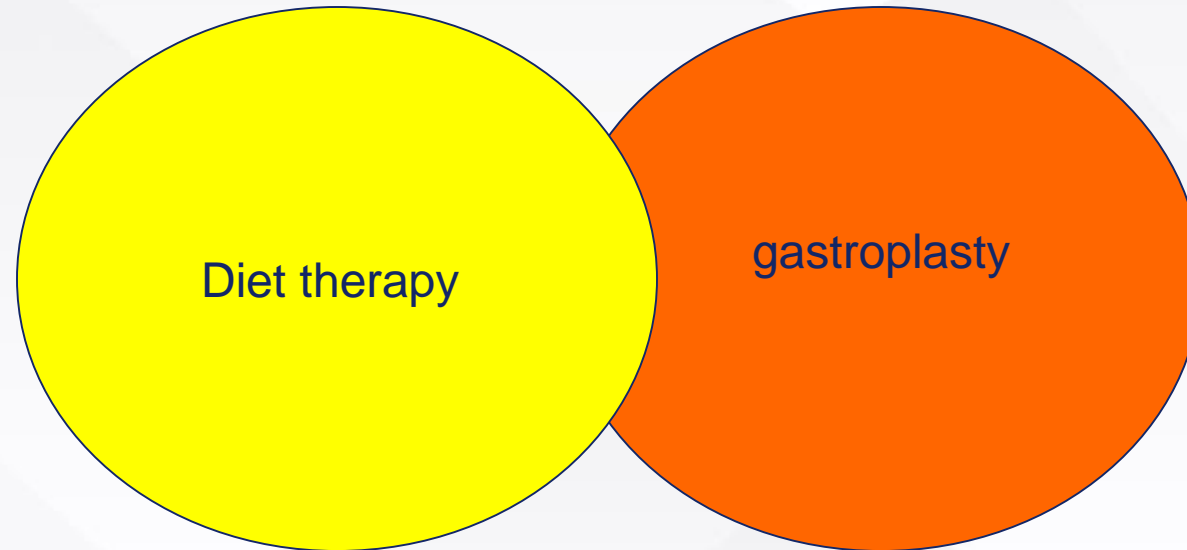
- ❖ At least one of the terms must be present in each record retrieved (blue area indicates terms retrieved)



- ❖ Use to combine synonyms or similar terms

# NOT

- ❖ The designated term must **NOT** be in any records retrieved (orange area indicates records that will be excluded)



- ❖ Use to exclude all records containing a term
- ❖ **BUT** may eliminate relevant records as well, so use only after consulting a librarian

- ❖ different retrieval systems have their own regulations on word truncation characters
- ❖ It tells the software that you wish to obtain ALL possible terminations
- ❖ commonly used: ?、\*、!、\$
  - \*——**unlimited truncation**, used to replace 0-n letters at the end of the word
  - vaccin\*, used to find out all the literature containing the root of vaccine, eg. vaccina; vaccine; vaccines; vaccination; vaccinium; vaccinated; post-vaccinal; post-vaccination; vaccine-naïve

# ABSTRACT

- ❖ A summary of the article (anything from 10 to 200 words).
- ❖ Helps you assess if the article is relevant to your search/topic.
- ❖ Tells you more about an article than just reading the title.

# CITATION

- ❖ A “citation” is the way you tell your readers that certain material in your work came from another source.
- ❖ It also gives your readers the information necessary to find that source again, including:

# CITATION

- ❖ the title of the work
- ❖ information about the author
- ❖ the name and location of the company that published your copy of the source
- ❖ the date your copy was published
- ❖ the page numbers of the material you are borrowing

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☐ [Gradenigo's syndrome--surgical management in a child.](#)

1. Humayun HN, Akhtar S, Ahmed S.  
J Pak Med Assoc. 2011 Apr;61(4):393-4.  
PMID: 21465982 [PubMed - indexed for MEDLINE]  
[Related citations](#)

☐ [Use of medical resources and indirect costs of otitis media in Sweden.](#)

2. Speets AM, Wolleswinkel JH, Forsgren A, Sobocki PA.  
Scand J Public Health. 2011 Mar;39(2):137-46. Epub 2011 Jan 21.  
PMID: 21257647 [PubMed - in process]  
[Related citations](#)

☐ [Acute otitis media: From diagnosis to prevention. Summary of the Italian guideline.](#)

3. Marchisio P, Bellussi L, Di Mauro G, Doria M, Felisati G, Longhi R, Novelli A, Speciale A, Mansi N, Principi N.  
Int J Pediatr Otorhinolaryngol. 2010 Nov;74(11):1209-16. Epub 2010 Sep 16. Review.  
PMID: 20843561 [PubMed - indexed for MEDLINE]  
[Related citations](#)

☐ [Glycerol lidocaine eardrops for the treatment of acute abacterial otitis externa.](#)

4. Mösges R, Kaatz V, Schmalz P, Meiser P, Eschmann K.  
Arzneimittelforschung. 2010;60(7):427-31.  
PMID: 20712132 [PubMed - indexed for MEDLINE]  
[Related citations](#)

☐ [Luc's abscess: the return of an old fellow.](#)

5. Weiss I, Marom T, Goldfarb A, Roth Y.  
Otol Neurotol. 2010 Jul;31(5):776-9.  
PMID: 20502372 [PubMed - indexed for MEDLINE]  
[Related citations](#)

☐ [Diagnostic challenges in tuberculous otitis media.](#)

6. Tang IP, Prepageran N, Ong CA, Puraviappan P.  
J Laryngol Otol. 2010 Aug;124(8):913-5. Epub 2010 Apr 29.  
PMID: 20426886 [PubMed - indexed for MEDLINE]  
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**Titles with your search terms**

A child with earache. Are antibiotics the best treatment? [Aust Fam Physician. 2002]

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Illness behaviour and antibiotic prescription in patients with respiratory tr [Br J Gen Pract. 2007]

Homeopathic and conventional treatment for acute resp [BMC Complement Altern Med. 2007]

Longer term outcomes from a randomised trial of prescribing strategies ii [Br J Gen Pract. 2006]

[See all \(10\)...](#)

**Find related data**

Database:

[Find items](#)

**Search details**

("earache"[MeSH Terms]  
OR "earache"[All Fields]) AND  
("anti-bacterial agents"[MeSH

- Boolean search model:
  - Mostly is used for searching in databases where subject is described with few key-words or key-phrases (e.g. bibliographic databases).
  - 
  - Divides database in two simple sets: relevant documents (hits) and non-relevant documents. Relevancy is a binary property.

Boolean operators **AND, OR and NOT**:

- Query **diabetes AND insulin**  
finds documents that contain both descriptors.
- Query **diabetes OR insulin**  
finds documents that contain at least one of the descriptors.
- Query **diabetes NOT insulin**  
finds documents that contain first descriptor, but not the second one.

## Critique of the Boolean model:

- With the query **d1 AND d2 AND d3 AND d4**  
only the document that contain all four descriptors will be found.
- Probably the document with three or even two of the descriptors could be useful but it will never be among hits.
- With the query **d1 OR d2 OR d3 OR d4**  
all documents that contain at least one of the descriptors will be found.

# Evaluation of retrieval

- ❖ Precision rate: relevant literature detected /total number of documents detected
- ❖ Recall rate: relevant literature detected /total amount of relevant literature

# Field qualified retrieval

- ❖ Reduce the number of hit documents and improve the accuracy
- ❖ Precise retrieval
  - AU= limited to specific authors
  - JN= limited to specific titles
  - LA= limited to specific languages
  - PY= limited to specific years
- ❖ **Literature correlation:** Title > Keyword > MeSH > Abstract > Full-text

❖ Is the content of the subject represented by the following two retrieval formulas consistent?

- bronchiolitis obliterans AND X-ray
- (bronchiolitis NOT bronchiolitis obliterans)  
AND X-ray



No

# Types of documents

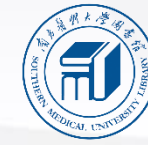


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- ❖ Divided by carrier
- ❖ Divided by publication



# Divided by carrier

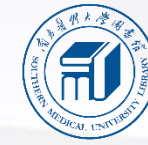


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- Printed literature
- Photosensitive literature
- Machine readable literature



# Printed literature



- Carrier: paper
- Examples: books, magazines, newspapers
- Recording means: printing and copying
- Features: direct reading, easy to use; it is not conducive to retrieval and preservation; large space for collecting documents



# Photosensitive literature



- Carrier: photosensitive material
- Examples: microfilm, film, slide
- Recording means: micro technology, photography technology
- Features: small volume; can't read directly



# Audio visual Preservation Center of the Packard campus of the Library of Congress



# Machine readable literature



- Carrier: magnetic material, optical disc
- Examples: disk, optical disc, tape
- Recording means: magnetic recording and coding technology
- Features: high storage density and fast speed; facilitate long-distance transmission; easy to copy, high cost, can not be read directly





# Divided by publication

- **Books:** a kind of information source that systematically discusses or summarizes a certain specialized knowledge or a certain discipline. Legally published books have copyright pages.
  - **Main features: the content is relatively mature, but relatively old.**
- **Periodical:** also known as serial publications, a document carrier published regularly or irregularly. Generally, it has the same name, and the volume number is compiled according to a certain time. Normally each volume is divided into several issues.



# Divided by publication

- ❖ **Periodical:** the most important source for people to obtain information. About 70% of all scientific and technological information used by scientists and experts is provided by periodicals.
  - **Electronic Journal:** rising in the current network era, and there are many forms, including the digitization of printed journals, the online version of printed journals, and online journals (Open Access Journals).



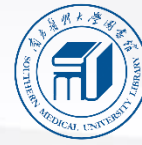
# Divided by publication

- ❖ **Conference Literature:** referring to academic conference literature, which often reflects the development trend of science and technology. It is characterized by a short interval with the latest achievements, but its content may not be mature compared with journals.



# Divided by publication

❖ **Patent:** in countries with a patent system, any domestic or foreign individual or enterprise who has created an invention may, in accordance with the provisions of the patent law, apply to the domestic or foreign patent office. After passing the examination, it is approved to grant the right to enjoy the results of invention within a certain period of time and be protected in law. Such a technology proprietary right protected by law is called a patent.



# Divided by publication

❖ **Dissertation**: it is an academic paper written by university graduate students and graduates for scientific research to obtain a degree. According to different degrees, it can be divided into bachelor's thesis, master's thesis and doctoral thesis.



# Description format of main document types



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## ❖ Book

Borko H, Bernier C L. Indexing concepts and methods. New York: Academic Press, 1978

## ❖ Periodical

Porter MF, Zhang J. An algorithm for suffix stripping. Program, 1980, 14(3):130~137

## ❖ Dissertation

❖ Cairns R B. Infrared spectroscopic studies on solid oxygen [dissertation]. Berkeley: Univ. of California, 1986

## ❖ Patent

❖ Dougherty R C. Chemical and biological agent resistant hose for gas transmission and personnel protection. USA. US6,029,712(Cl. 138-141; F16L9/14), 29 Feb 2000.

## ❖ Citation Information

Title/Author(Affiliation)//Periodical. Year,  
Volume(Issue).–Page number

Source information

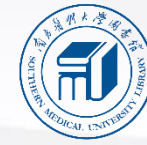


## Level of literature



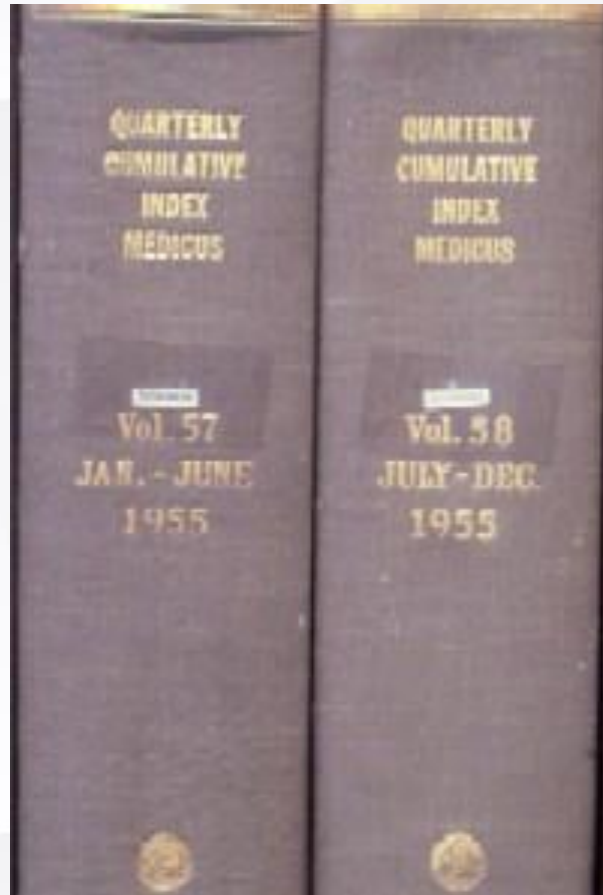
- ❖ **Grey Literature:** referring to the original documents without any processing, such as experimental records, manuscripts, original audio recordings, original video recordings, conversation records, etc. Its characteristic is that the information source is direct and true, and the content is novel.
- ❖ **Primary literature:** referring to the literature created or written by the author based on his own research results, such as books, journal papers, scientific and technological reports, patent documents, conference documents, dissertations, technical archives, etc.

## Level of literature



❖ **Secondary literature:** referring to the literature workers collect, refine, concentrate, process and sort out the scattered unorganized primary literature, and organize, edit and publish the literature according to certain scientific methods. It is an instrumental literature edited for more effective management and utilization of primary literature

# Level of literature



Secondary literature



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## Level of literature



- ❖ **Tertiary literature:** referring to the literature written through extensive and in-depth analysis, research, comparison, synthesis, review and generalization of relevant primary and secondary literature, such as review, annual progress report, encyclopedia, manual, Yearbook, dictionary, etc. It is characterized by text refinement, which is systematic, comprehensive, knowledgeable and instrumental.

## ❖ Which level of literature the ScienceDirect belongs to?



Secondary Literature



# Types of electronic resources



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## ❖ By discipline type

- Comprehensive or professional resources

## ❖ By language type

- Chinese resources, multilingual resources

## ❖ By the amount of information provided

- Abstract , full-text or fact data type



# Types of electronic resources

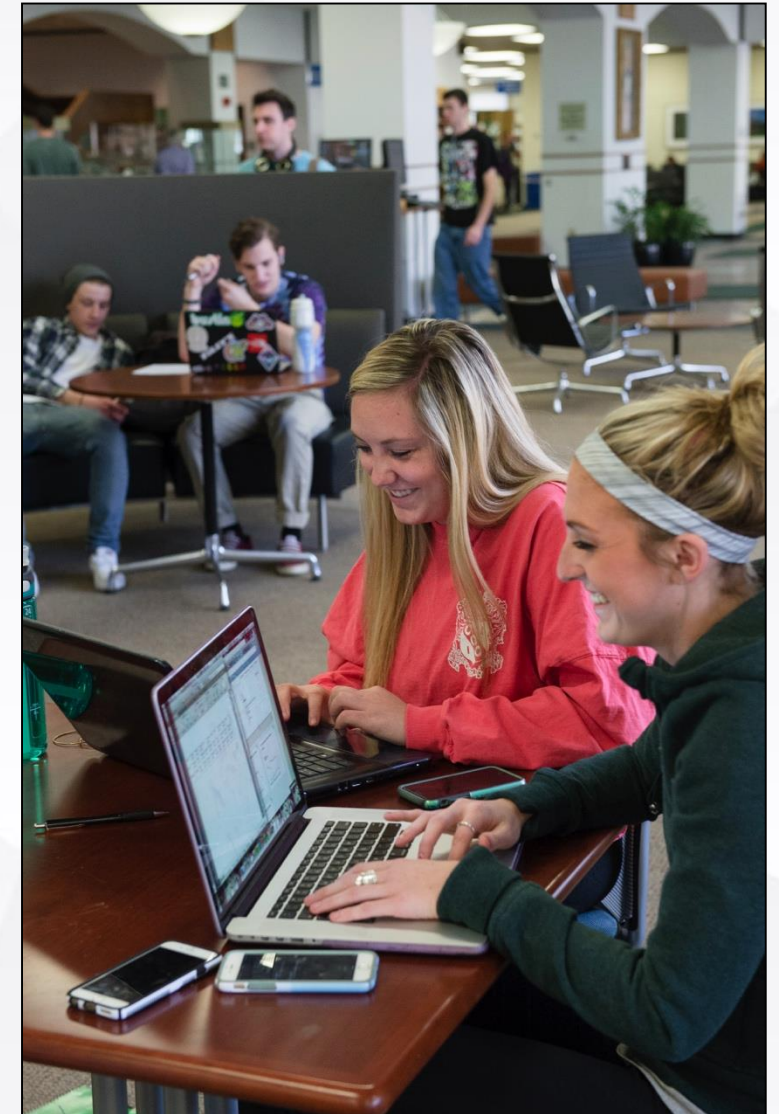


## ❖ According to the use license or production purpose

- commercial database
- free database

## ❖ According to type of literature

- e-journal
- e-book
- dissertation database
- patent database



# Free resources

- ❖ NSTL

<https://www.nstl.gov.cn/>

- ❖ BioMed Central

<https://www.biomedcentral.com/>

- ❖ Open Access Library      <http://www.oalib.com/>

- ❖ For more

Library homepage-E-resource-free resource



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• FreeBooks4Doctors

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• 中国专利信息中心专利检索系统

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## 一、专利数据库

### 1. Patviewer专利检索平台

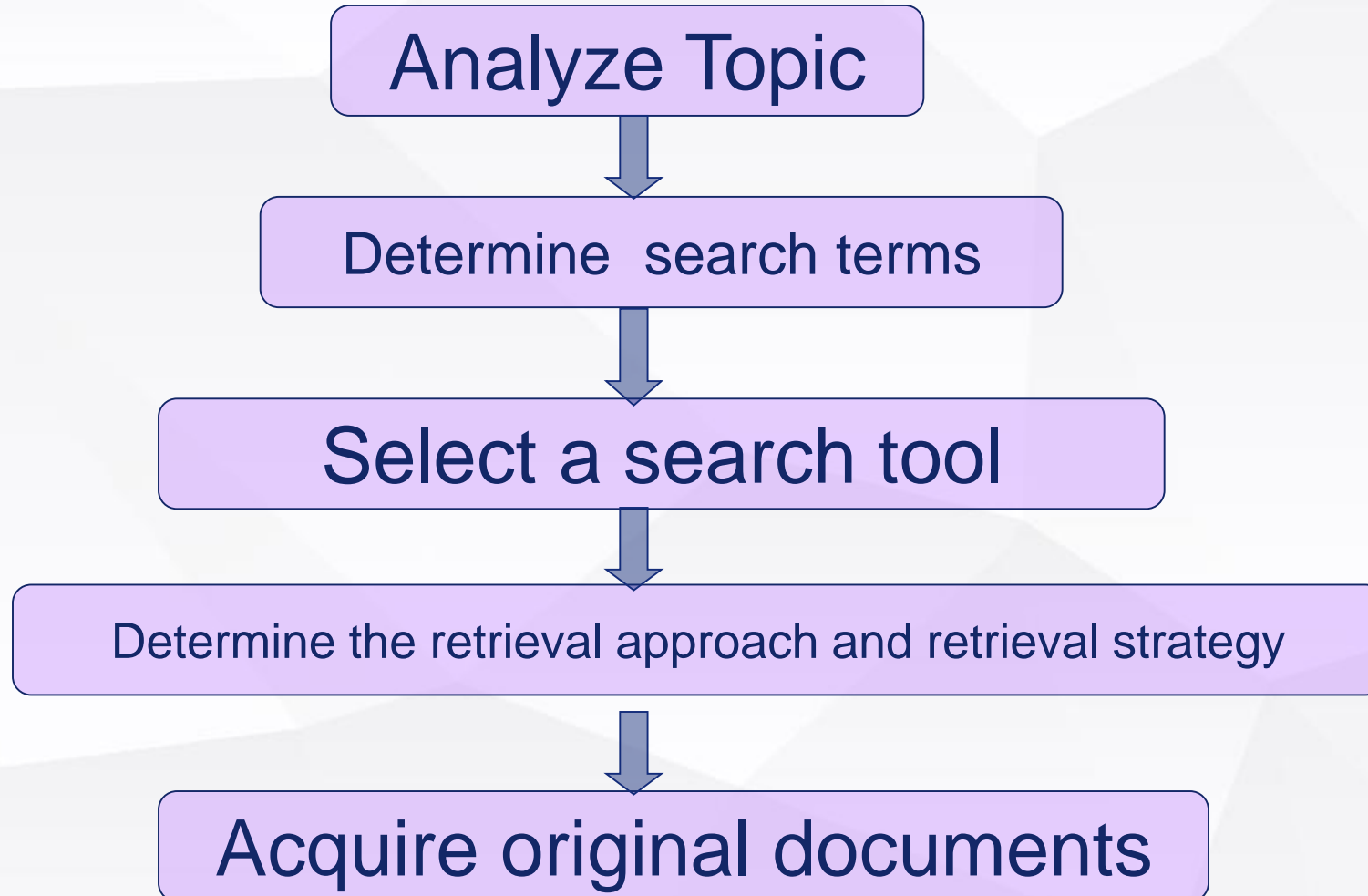
资源简介: 专利文献数据全面: 专利数据包含105国家或地区、超过1亿+专利文献, 全面覆盖。为企业、高校、科研单位、个人等使用者提供全面的技术情报和研发决策支持, 做到专利查询检索全面、简单、易用。

专利语义深度钻取: 基于大数据智能算法, 平台自动钻取最相似的专利文献, 降低使用难度。PatViewer根据专利数据特有特征进行抽取, 再利用大数据、深度学习等技术用于日常专利查询中。

多维度自动分析: 专利查询分析多维度, 轻松获取专利大数据背后的价值, 可实现折线图、柱状图、条形图、中国地图、世界地图、国内省市地图、气泡图、玫瑰图、词云图等专利可视化形式。



# Basic steps and methods of information retrieval



- ❖ Find out the main contents and related contents involved in the subject, and form the words for retrieval
- ❖ Clarify the type of literature required by the subject
- ❖ Determine the time range for retrieval
- ❖ Determine the language required for retrieval

- Systematically master the knowledge of a subject--**Book**
- Finish report, academic research——**Research reports, scientific papers, dissertations, conference documents, etc.**
- Invention and creation, process reform, new product design, introduction of equipment and signing of contracts——**patent document, etc.**

## Analyzing the search topics

- The discipline and subject area of the topics
- The contents and its characters of the required information concerning about the topics
- The type of the required information containing the literature type, publication types, etc.
- The index requirements for new search, precision ratio and recall ratio

## Determine the search terms

- Search terms:
  - basic elements to express literature information requirements, as well as the basic units for matching in the retrieval system
  - directly affects the search results whether the search terms are properly selected or not

## Determine the search terms

- Select subject headings first.
- Select the commonly used jargon.
- Determine synonyms and related words.
- Select the codes regulated by the database. A variety of codes are used to represent various topic areas in the profiles in many databases, achieving high matching.

- ❖ The proper selection of retrieval tools or retrieval systems will directly affect the efficiency and quality of retrieval.
- ❖ Consider the coverage, document type, discipline scope, document quality and retrieval function of the collected documents.

- ❖ Professional database is the first choice of scientific and technological literature research
  - It is rigorous, normative and continuous, and has high academic value
  - The database retrieval function is powerful, and the retrieval results are accurate and reliable
- ❖ **Database selection order:** Periodical literature before conference and report; First use the abstract database, and then the full-text database

## Select retrieval approaches

- Depends on the two conditions:
  - One is the known conditions and retrieval requirements of the topics to be retrieved;
  - The other is the retrieval approaches provided by the scheduled search tools.



- Retrieval approach is the starting point and the route of the information retrieval
- Provided by different search tools are not identical.
- The common retrieval approaches are as follows:

- ❖ **Classification approach:** determine classification category and classification number
- ❖ **Subject approach:** identify subject words and keywords
- ❖ **Author approach:** pay attention to the author name spelling rules
- ❖ **Serial number approach:** use the codes provided by the retrieval system, such as patent number, standard number, chemical molecular formula index and CAS registration number

- [illegible]



## Subject Approach

- The way, with subject concepts regarding the literature as the search portal, is employed to retrieval literature by subject index.
- PubMed's MeSH Database



# Thesaurus

- ❖ Descriptors form artificial language, which is used for indexing and searching:
  - for each object or conception only one descriptor exists (control of synonyms), and
  - each descriptor describes only one object or conception (control of homonyms)

# Subject Heading Search

- ❖ SH is the “official” term for a concept—picked by *indexers* from a pre-set list
- ❖ The same SH is assigned to all articles addressing a concept, even if the article’s authors use other terms to describe that concept

EX: All of these articles have the SH “**breast neoplasms**”:

- ***Secretory carcinoma of the breast.** A case report and literature review*
- *Multiple cutaneous acral metastases in a woman with **breast adenocarcinoma** ...*
- *The experience of making treatment decisions for women with early stage breast cancer: a diagrammatic representation*

# Subject Heading Search

- ❖ You must identify SH that reflect your topic of interest
- ❖ Search engine searches only within SH field, and retrieves only records with chosen SH
- ❖ Since only the contents of the SH field are searched, you are likely to cut down on the number of irrelevant citations retrieved.

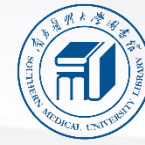
## Keyword Search

- The way to retrieve literature with the keywords of the literature as search portal.
- The usage of synonyms should be paid more attention when searching literatures by keywords so as to avoid the missed retrieval of the literature.

# Keyword Search

- ❖ “Natural language”: you use ANY terms as search terms
- ❖ Search engine looks for your terms in all parts of the record
- ❖ If your chosen terms fail to match terms in a record, you will not retrieve that record (even if it’s relevant)
- ❖ **EX: if you use “breast cancer” in a key word search, you will not retrieve records that contain only other terms for this concept**
  - *Secretory carcinoma of the breast*
  - *breast adenocarcinoma*

# Search terms



南方医科大学图书馆  
SOUTHERN MEDICAL UNIVERSITY LIBRARY

## ❖ keywords:

- Liver cancer , liver tumor, liver carcinoma

## ❖ MeSH

- liver cancer see liver neoplasms

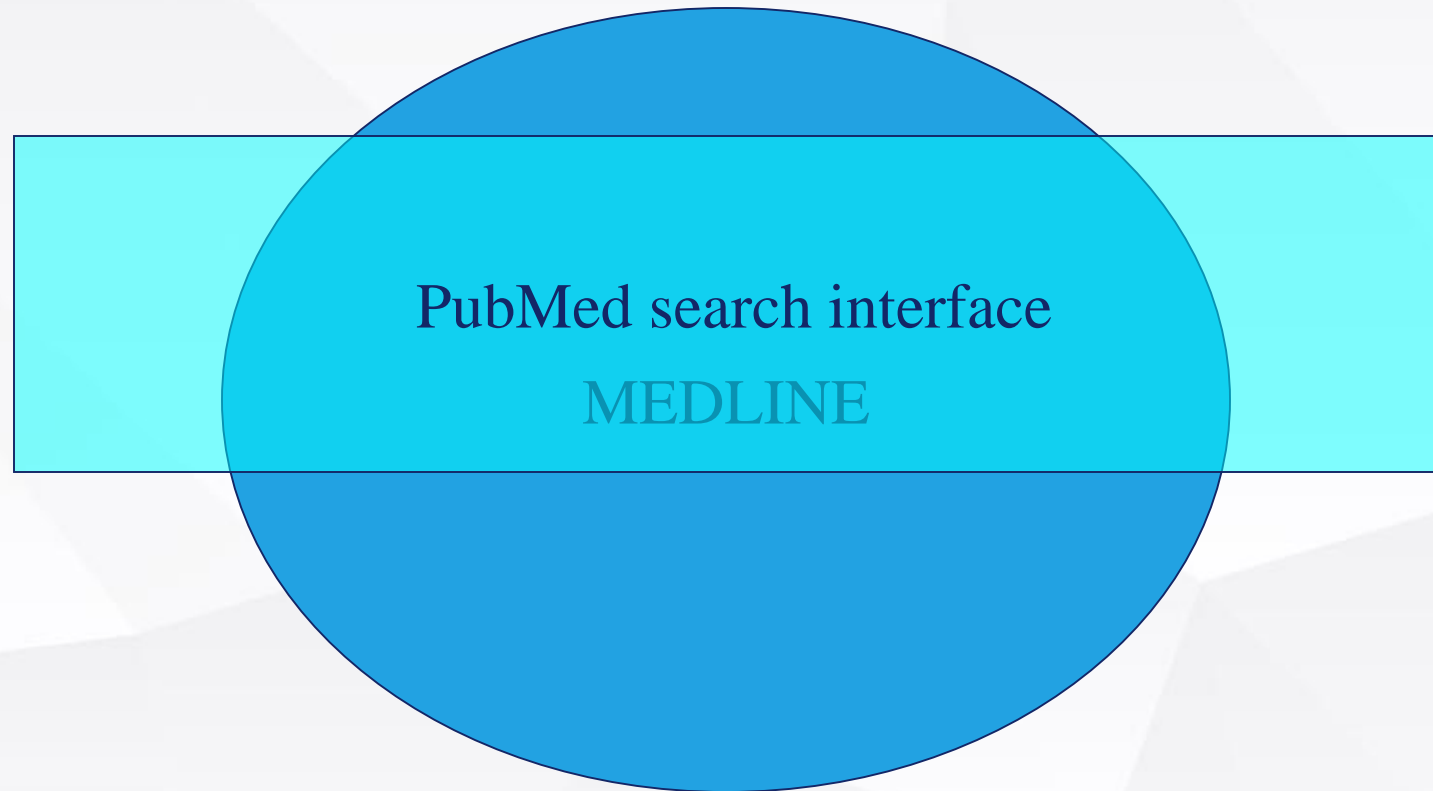
**There's the database...**



MEDLINE

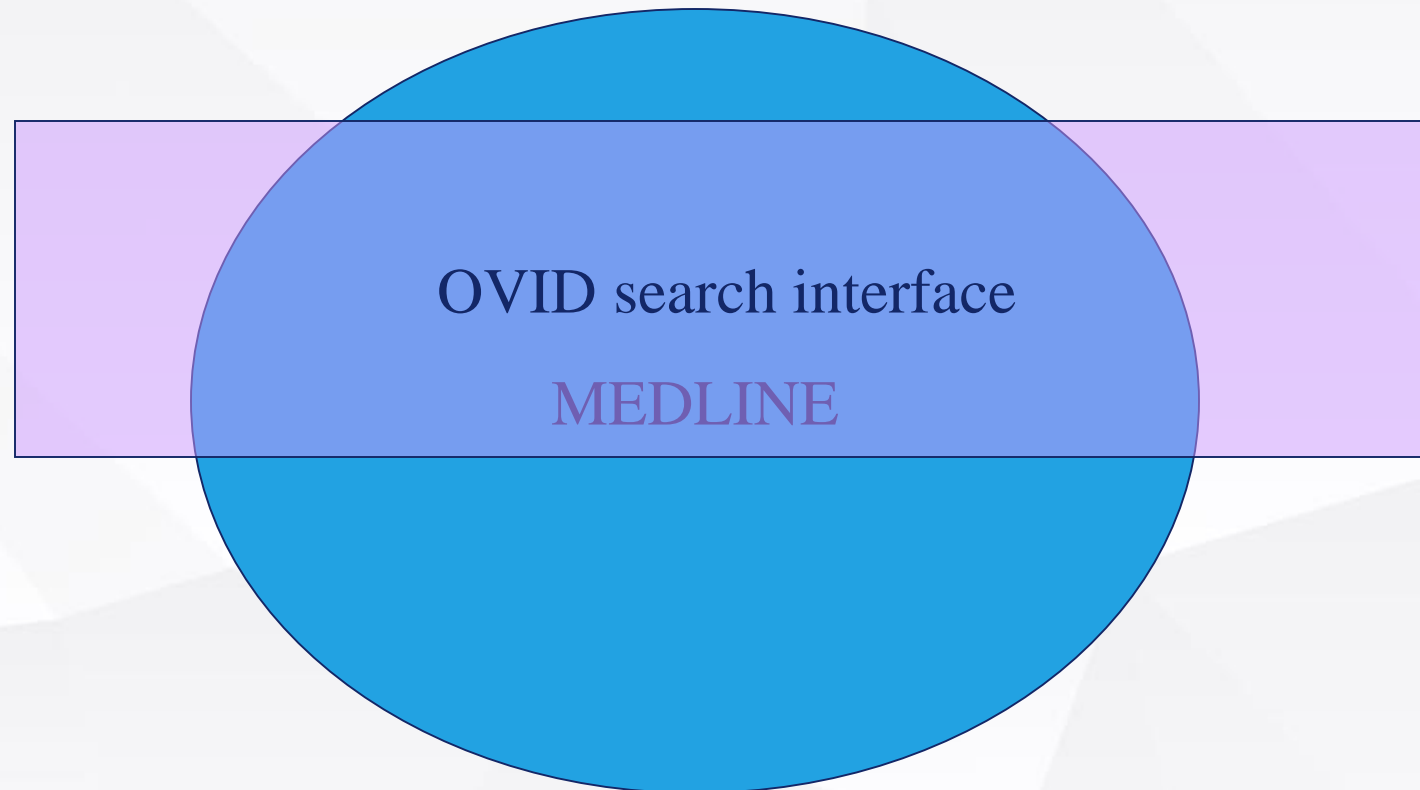


**In PubMed, a search on “obesity” retrieves 413,368 citations\***





**In Ovid MEDLINE, a search on “obesity” retrieves 239,392 citations.**



# Why the different search results?

- ❖ PubMed: obesity as MeSH. OR obesity as keyword
- ❖ Ovid Medline: obesity as MeSH only



## Title Approach

- The way to retrieve literatures by the title catalog (index) of the books, journals and documents based on the search portal of the title.  
e.g. vitamin c[ti] AND common cold[ti]

Save

Email

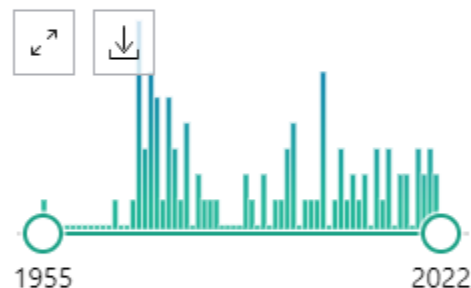
Send to

Sorted by: Best match

Display options ⚙

MY NCBI FILTERS

RESULTS BY YEAR



TEXT AVAILABILITY

- ☐ Abstract
- ☐ Free full text
- ☐ Full text

ARTICLE ATTRIBUTE

98 results

« < Page 1 of 10 > »



### Vitamin C for preventing and treating the common cold.

1

Hemilä H, Chalker E.

Cite

Cochrane Database Syst Rev. 2013 Jan 31;2013(1):CD000980. doi: 10.1002/14651858.CD000980.pub4.

PMID: 23440782

[Free PMC article.](#)

[Review.](#)

Share



### The Long History of Vitamin C: From Prevention of the Common Cold to Potential Aid in the Treatment of COVID-19.

2

Cerullo G, Negro M, Parimbelli M, Pecoraro M, Perna S, Liguori G, Rondanelli M, Cena H, D'Antona G.

Front Immunol. 2020 Oct 28;11:574029. doi: 10.3389/fimmu.2020.574029. eCollection 2020.

PMID: 33193359

[Free PMC article.](#)

[Review.](#)

Share



### Vitamin C in the Prevention and Treatment of the Common Cold.

3

Bucher A, White N.

Cite

Am J Lifestyle Med. 2016 Feb 9;10(3):181-183. doi: 10.1177/1559827616629092. eCollection 2016 May-

limit search in the title field



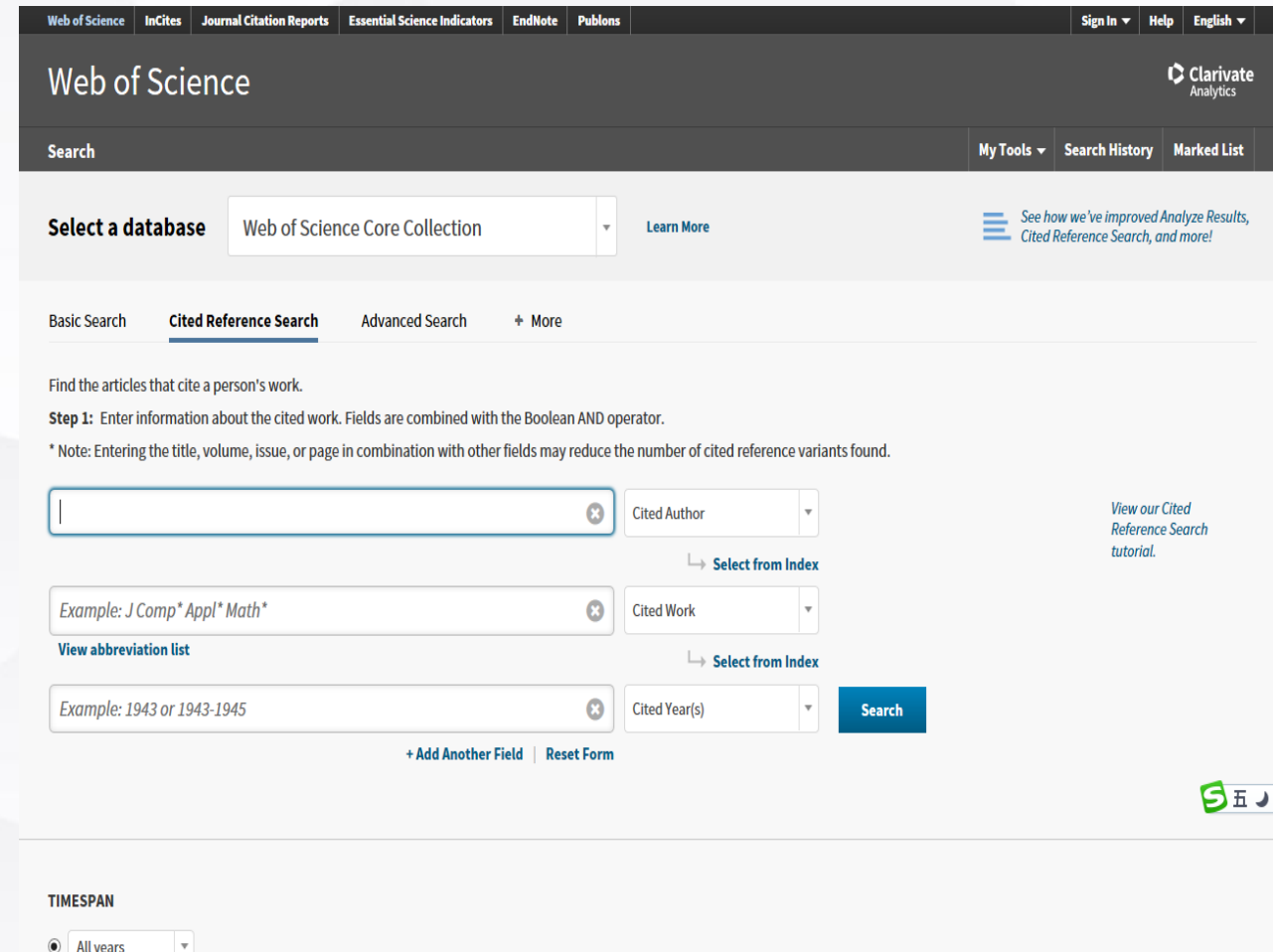
## Author Search

- The way to retrieve literatures by author or organization index, with the author, translator and editor signed on the literature or community name as the search portal.

e.g. Zhong SZ; Smith BJ

## Citation Approach

- Applied to retrieve citing literatures by adopting cited literatures (references at the end of the article) as the search portal.



The screenshot displays the Web of Science interface for a Cited Reference Search. The top navigation bar includes links to Web of Science, InCites, Journal Citation Reports, Essential Science Indicators, EndNote, and Publons, along with Sign In, Help, and English options. The main header shows 'Web of Science' and 'Clarivate Analytics'. Below this, a search bar is present with a 'Search' button and links to 'My Tools', 'Search History', and 'Marked List'. The 'Select a database' dropdown is set to 'Web of Science Core Collection', with a 'Learn More' link. The 'Cited Reference Search' tab is selected, showing instructions to find articles citing a person's work. It includes a 'Step 1' instruction to enter information about the cited work, combined with the Boolean AND operator. A note states that entering the title, volume, issue, or page in combination with other fields may reduce the number of cited reference variants found. The search form consists of three input fields: 'Cited Author' (with a 'Select from Index' link), 'Cited Work' (with a 'Select from Index' link), and 'Cited Year(s)'. Examples are provided for each field: 'Example: J Comp\* Appl\* Math\*' for Cited Work and 'Example: 1943 or 1943-1945' for Cited Year(s). A 'View abbreviation list' link is also present. The 'Search' button is located at the bottom right of the form. At the bottom of the page, there is a 'TIMESPAN' section with a radio button for 'All years' and a dropdown menu.

Web of Science | InCites | Journal Citation Reports | Essential Science Indicators | EndNote | Publons | Sign In | Help | English

Web of Science | Clarivate Analytics

Search | My Tools | Search History | Marked List

Select a database | Web of Science Core Collection | Learn More

Basic Search | **Cited Reference Search** | Advanced Search | + More

Find the articles that cite a person's work.

**Step 1:** Enter information about the cited work. Fields are combined with the Boolean AND operator.

\* Note: Entering the title, volume, issue, or page in combination with other fields may reduce the number of cited reference variants found.

| Cited Author | Select from Index

| Cited Work | Select from Index

| Cited Year(s) | Search

+ Add Another Field | Reset Form

View our Cited Reference Search tutorial.

TIMESPAN

☒ All years

## Agency Approach

- Used to retrieve literatures issued by the scholars with the name of the institution (work unit) as subject terms.

USPTO PATENT FULL-TEXT AND IMAGE DATABASE

[Home](#) [Quick](#) [Advanced](#) [Pat Num](#) [Help](#)  
[View Cart](#)

Data current through May 1, 2018..

Query [\[Help\]](#)

Term 1:  in Field 1:

Term 2:  in Field 2:

Select years [\[Help\]](#)

Patents from 1790 through 1975 are searchable only by Issue Date, Patent Number, and Current US Classification.  
When searching for specific numbers in the Patent Number field, utility patent numbers are entered as one to eight numbers in length, excluding commas (which are optional, as are leading zeroes).

## Create the search strategy expressions

- Based on the correct analysis of retrieval requirements, the appropriate search strategy expressions complying with the requirements of subject retrieval should be worked out, by properly adopting basic retrieval strategies, selecting search terms and employing relevant search techniques.

## Pre-search

- The determined search strategy expressions are applied to re-search, through which the search results are likely to be too many, too few or zero result.
- Thus, search strategies should be modified, even reformulated and search scope should be narrowed or expanded.



## Search for literature clues

- Using an accurate search expression, bibliographies or abstracts are searched and then they are selected one by one to find out the pertinent literature clues.

## Acquire the copy of original full text

- Search the paper and electronic resources in the local library;
- Search the free full-text electronic journal website;
- Search relevant union catalog for interlibrary loan;
- Transfer full-text through institutions sharing the national medical literature resources;
- Directly request the author and seek help by network forums and so on.



# 谢谢!



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