Rev Colomb Cardiol. 2014;21(6):e5–e9

Revista Colombiana de Cardiología

www.elsevier.es/revcolcar

EDITORIAL

# How to consult databases?☆

## ¿Cómo consultar bases de datos?

**Janneth Olarte**

*Biblioteca Fundación Cardioinfantil-Instituto de Cardiología, Bogotá, Colombia*

Received 24 November 2014; accepted 17 December 2014
Available online 22 January 2015

The activities inherent to the medicinal practice require additional input to the medical devices and medicines, *information*, and the major sources of access are bibliographic data bases.[1] These should be consulted as part of the process of critical evaluation of literature, because they are resources supported by academic and scientific authorities,[2] that differentiate them from the thousands of sources of information available on the Internet, App stores and the market in general.

The medical professional should consult databases when he requires bibliographic information for health care practice, teaching or research, which are the activities that generate him questions. The best route to identify and consult the relevant database is to start with the recommendations of the specialized literature,[3] the basic texts of clinical epidemiology[4] and research, manuals of elaboration of Guidelines of Clinical Practice,[5] the systematic revisions,[6] the series of publications about the use of medical literature,[7] pages, blogs, social networks and different technologies of information and communication, whose authorship be of recognized organizations.

In health the first portals or websites dedicated to the collection of access to these databases emerged.[8] One of the most comprehensive Web sites is the information system set up jointly by the National Institute of Health (NIH), the National Center for Biotechnology (NCBI) and the National Library of Medicine (NLM) in the US, including recognized resources such as *PubMed*, *Ominy Medline Plus*.

Since its inception, the Colombian Journal of Cardiology has been governed by the regulations and guidelines of authorities on topics of scientific publications in the world, allowing it to be indexed in databases such as Lilacs, Science Direct and Scopus. This editorial is part of the strategies focused on training and educating specialists who use it in their routine update on issues of cardiology and cardiovascular surgery, in identifying and using relevant bibliographic data bases for their research projects as well as in creating manuscripts and in decision making.

Today, thanks to the popularity of the Internet and to programs led by organizations such as the World Health Organization (WHO),[9] to achieve universal access to scientific knowledge produced in medicine and related sciences, with the premise that ''scientific information is a tool for improving public health'', projects of open access and many databases that do not require payment to be consulted especially in lower income countries, have been created.

The challenge now is to know how to use databases adequately.[10] Therefore, the reader will find below a series of recommendations to make the query:

**1. Know the general characteristics of the resource.** Contents, update, authors, publishers, reviewers and target audience; that information is available in sections identified by phrases or terms such as *about*, *presentation*, *introduction* (Fig. 1).

Each database has a structure for consultation and characteristic support symbols such as wildcards (characters

DOI of original article:
http://dx.doi.org/10.1016/j.rccar.2014.11.003

☆ This article is available in Spanish at www.elsevier.es/revcolcar.

*E-mail address:* biblioteca@cardioinfantil.org

http://dx.doi.org/10.1016/j.rccar.2014.12.001
0120-5633/© 2014 Sociedad Colombiana de Cardiología y Cirugía Cardiovascular. Published by Elsevier España, S.L.U. All rights reserved.

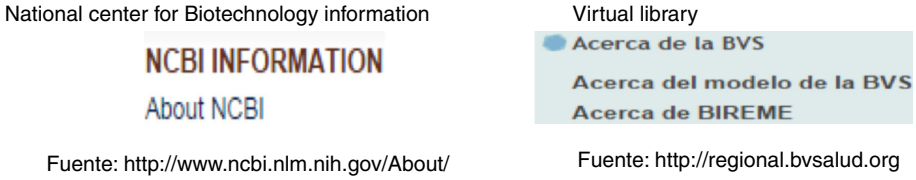



**Figure 1** Sections of the web pages of the database of NCBI (USA) and Bireme (PAHO) where their characteristics are listed.

that replace the end of a word to make the most sensitive search; some are: *, &, %. For example: Cardio * will recover pediatric cardiology, cardiac therapy, cardioplegia, cardiology) and Boolean operators (AND, Y, +). These grants are consulted in user manuals, tutorials, user guides and instructions (Fig. 2).

**2. Descriptive elements**. Every document (book, magazine article, trial, video, image, interview) has elements that constitute points of entry of information databases. Use this information when searching: title, author, abstract or introduction, keywords or descriptors (later, this topic will be deepened). An advantage of information in health sciences is the precision of the titles and content writing; literary figures are rarely used. When no specific search field is stablished, the machines review these elements and then the content to generate results. Search by fields will give more accurate results (Figs. 3 and 4).

In the first screen these options are not displayed, identify advanced search section or search by fields to deploy them (Figs. 5 and 6).

**3. Search by themes or descriptors**. Some sciences have created *Thesaurus or* specialized lists of words, exclusive or with a connotation to that science. These provide a brief description of the concept, the list of synonymous terms that should be replaced by the agreed term and taxonomic structure of the term (the most famous *Thesaurus* in health sciences is the MESH, translated into Spanish and Portuguese by Bireme, entity attached to the Pan American Health Organization (PAHO), as DECS). They allow more specific results and require the knowledge of these terms by those who visit. All bibliographic, academic and scientific databases offer this type of search (Fig. 7).

When you create a document, assign descriptors, which except for proper names, unreleased tracks, discoveries or inventions, are taken from Thesauri in order that they can be easily recoverable in databases.

**4. Advanced searches**. The databases let you combining several terms, themes with themes, themes with authors, with journal titles, with names of institutions, among others, by means of Boolean operators and use of parentheses. The

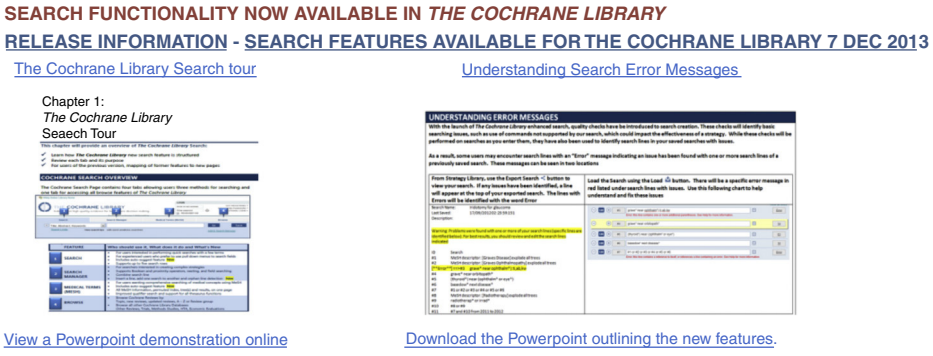


**Figure 2** Aid from Cochrane, PubMed and Epistemonikos databases.

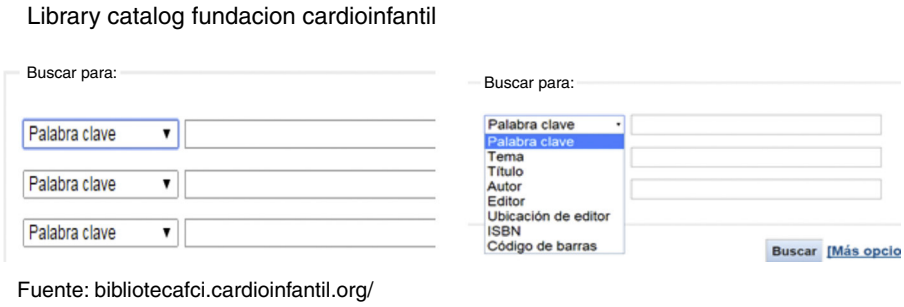



**Figure 3** Search for fields in the database library.

**Figure 4** Search for fields in PubMed.

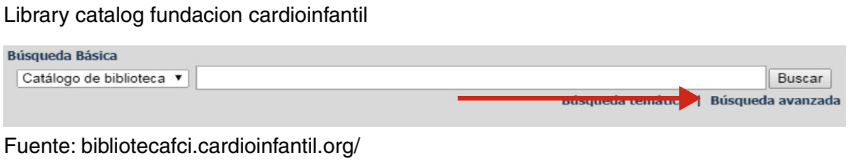



**Figure 5** Deployment option of format to search for fields in the database library.

**Figure 6** Deployment option format to search for fields in PubMed.

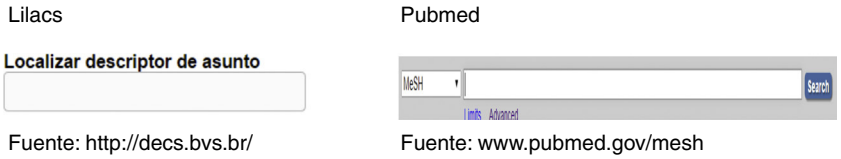



**Figure 7** Thesaurus (search by subject). DeCS databases of the Virtual Health Library BVS, of Bireme (PAHO) and Mesh of databases of PubMed portal.

way you write operators may vary in terms of sentences, syllables or signs; for example, the intersection is represented by: Y, AND, +, so you should check the tutorials, manuals and user guides before using database. The following are the most used.

**AND or Y** (intersection), all combined terms will be mandatory in results; only documents where appear simultaneously all terms, phrases, names, formulas and acronyms related by the operator will be recovered. The results will be very specific (Fig. 8).

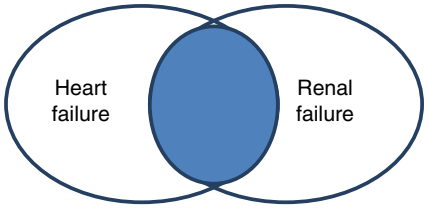



**Figure 8** Search results of two subjects using the AND/Y/+ operator.

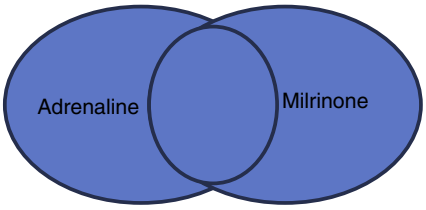



**Figure 9** Search results of two subjects using the OR/O operator.

Example: To find all the items about heart failure in patients with renal failure

Heart failure **AND** renal failure

Heart failure **Y** renal failure

**OR or O** (union): any of the terms combined with that operator will be recovered independently, whether they are or not simultaneously in the document. The results will be very broad; it is a highly sensitive connector. Is used to connect synonyms, equivalents or variables that have the same validity or importance (Fig. 9).

Example: to retrieve articles that speak of either of these two drugs

Adrenaline **OR** milrinone

Adrenaline **O** milrinone

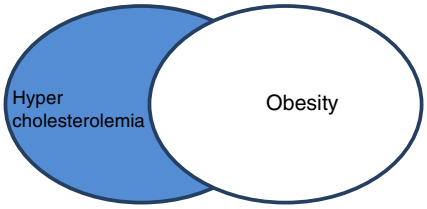



**Figure 10** Search results of two subjects using the NOT/NOT operator.

**NOT or NO** (difference): the subject not wanted to appear in the results is located after the operator. It is the last to be included when a complex query is designed, i.e. with several operators at the same time (Fig. 10).

Example: you want to do a literature search about hypercholesterolemia in non-obese patients

Hypercholesterolemia **NOT** obesity

Hypercholesterolemia **NO** obesity

**5. Complex searches.** These are achieved using multiple Boolean operators and parentheses.

Example: hypercholesterolemia unrelated to obesity in patients with heart and renal failure who take milrinone or dopamine

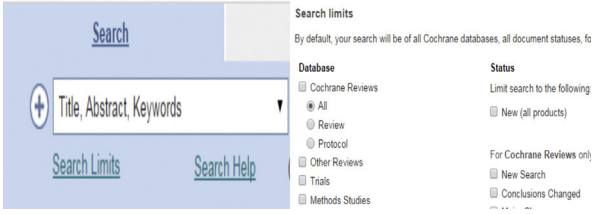
Pubmed (visible)

Publication dates
5 years
10 years
Custom range...

Species
Humans
Other Animals

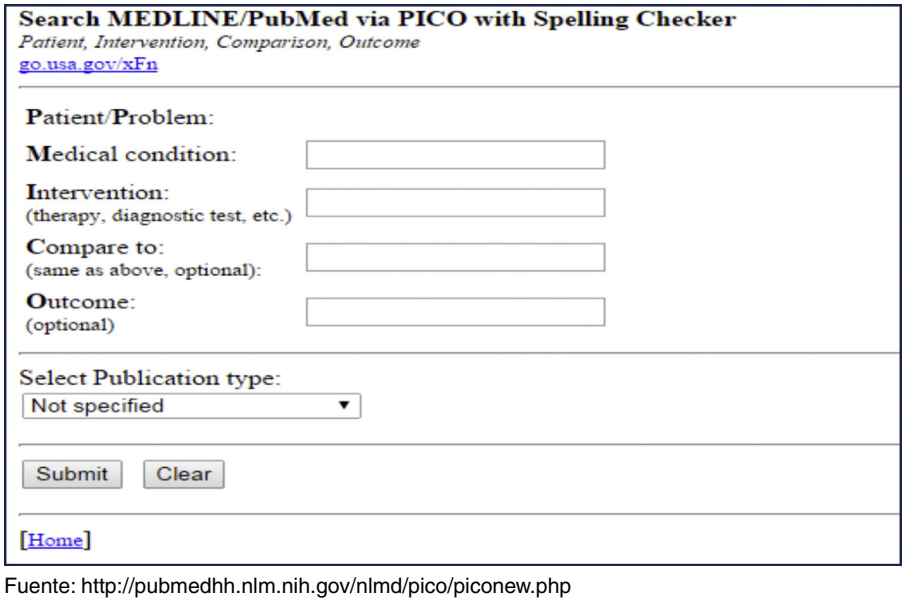
Fuente: www.pubmed.gov

Cochrane (desplegable)




Fuente: www.thecochranelibrary.com

**Figure 11** Filters or delimiters of PubMed and Cochrane.




Fuente: http://pubmedhh.nlm.nih.gov/nlmd/pico/piconew.php

**Figure 12** PubMed form for entering a search with the PICO model in Medline.

(Heart failure **AND** renal failure) **AND** (milrinone **OR** dopamine) **AND** (hypercholesterolemia **NOT** obesity)

In some databases the boxes to write each term are predetermined whereby is necessary to run multiple searches, one per operator, and then combine the results.

**6. Use of delimiters, filters or boundaries**. These are aspects that allow to select characteristics of the results that reduce their number; they make them more specific. There are language delimiters, age of patients, type of document, type of studies, publication date, document formatting, among others. They are usually in a visible alternative menu; on other occasions they must be deployed (Fig. 11).

**7. Use of forms**. There are resources that have predesigned forms to enter the query. Learn to use them through the tutorials which will help you to save time and get more accurate results to meet your information needs (Fig. 12).

## Conflict of interest

The author declares no conflict of interest.

## References


1. Covell DG, Uman GC, Manning PR. Information needs in office practice: are they being met? Ann Intern Med. 1985;103(4):596–9.
2. Cómo encontrar la mejor evidencia actual y hacer que la mejor evidencia nos, encuentre.Straus S, et al., editors. Medicina basada en la evidencia: Como practicar y enseñar la MBE. 3rd ed. Madrid: Elsevier; 2006. p. 31–65.
3. Berwanger O, Avezum A, Guimarães HP. Evidence-based cardiology: where to find evidence. Arq Bras Cardiol. 2006;86(1):56–60. Available from: http://www.scielo.br/pdf/abc/v86n1/en_a09v86n1.pdf [accessed September 2014].
4. Fletcher RH. Epidemiología clínica: aspectos fundamentales. 2nd ed. Barcelona: Doyma; 2007.
5. NICE. The guidelines manual. London: NICE; 2012. Available from: http://www.nice.org.uk/article/PMG6 [Accessed October 2014].
6. Higgins JPT, Green S, editors. Cochrane handbook for systematic reviews of interventions. Version 5.1.0 [updated March 2011]. The Cochrane Collaboration; 2011. Available from: www.cochrane-handbook.org [Accessed September 2014].
7. Guyatt G, Rennie D, Meade M, Cook D, editors. Users' guides to the medical literature: a manual for evidence-based clinical practice. 2nd ed. New York: McGraw Hill; 2008.
8. Alfonso F, Ambrosio G, Ector H, Gonçalves L, Pinto F, Timmis A, Vardas P, Editors' Network European Society of Cardiology Task Force, National Society. Cardiovascular Journals and the New European Society of Cardiology search engine. Eur Heart J. 2013;34(41):3161–3.
9. Katikireddi SV. HINARI: bridging the global information divide. BMJ. 2004;328(7449):1190–3.
10. Brettle A. Information skills training: a systematic review of the literature. Health Info Libr J. 2003;20 Suppl. 1:3–9.