Getting the most out of online literature searches—tips for advanced searches

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Thorough and efficient literature searches are important to authors and practicing physicians alike, and modern search engines have many tools to expedite the process. In databases such as PubMed, new logic, or natural language, is set up to answer questions by simply typing them in.

Example: what treatments are effective for cold urticaria but not ordinary urticaria?

You can simply type in your question, but to complete the search, the system translates the question to search terms and categories, and slightly different phrasing can produce very different results. A search using Boolean logic can yield more predictable results. This letter and a future letter will focus on tips for online literature searches that take a little time to learn initially but can save countless hours when trying to find treatment options for a difficult patient. They may seem a bit daunting at first but are actually quite easy to apply and can make you a hero to a patient in need of more effective treatment.

Boolean logic uses 3 operators:

- OR expands your search by looking for any of the terms—they do not have to appear together in the same citation.
- AND narrows your search but places no condition on where the terms are found in relation to one another; the terms simply have to appear anywhere in the citation.
- NOT excludes terms to eliminate unwanted references, but may also eliminate relevant articles and should be used carefully.

The words AND, OR, and NOT should be entered in UPPERCASE, although in my experience "and" in lower cases or terms simply strung together often produces similar results. The search is processed from left to right unless parentheses are used, in which case it starts with the innermost set of parentheses.

PubMed maps terms to the MeSH Translation Table of key words first. If it does not find a match, it moves on to the *Journals* Translation Table and then the *Author* Index. The best format for author searching is last name plus initials. You may need to indicate what category to search and can simplify your typing by using abbreviations. In Pubmed, you can type [jn] after your entry instead of [journal]. Text words can be searched using [tw], author using [au], title using [ti], or other term using [ot]. Ovid uses .jn and .au instead of [jn] and [au].

Truncation is used to search all terms that begin with a common stem. For example, lichen* retrieves lichen, lichenoid, etc. The details button can be used to see how PubMed performed your search. If you are having trouble finding an author, turn off automatic truncation of the author's name by surrounding the name with double quotes followed by the [au] tag.

Limits allow you to search specific fields. Examples include All Fields, Text Word, Abstracts, and Publication Types. You can also search by language, age, gender, and human versus animal studies. Clinical Queries can be filtered for therapy, diagnosis, etiology, or prognosis.

It takes a little practice, but the investment is well worth it. Whether you are an author or a clinician trying to answer a clinical question, a working knowledge of online searches will make your life easier and produce more meaningful results.

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