

Sophisticated Literature Search Strategies Using PubMed: Feedback from a Recent Perspectives Article

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September 2011

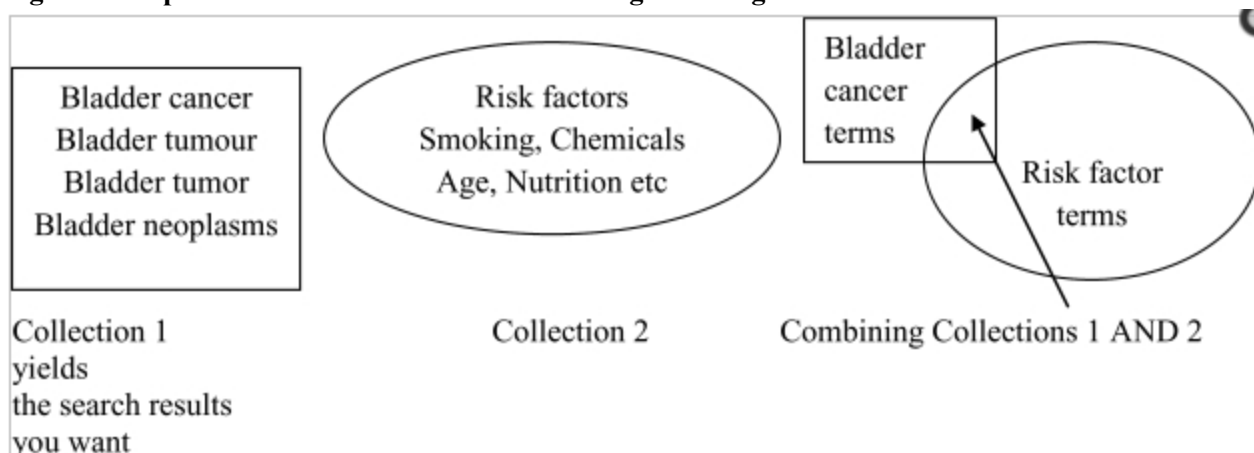
Dear Editor,

The article, “Risk Factors for Bladder Cancer: Challenges of Conducting a Literature Search using PubMed” published in the Spring 2011 issue of *Perspectives in Health Information Management* presents an intriguing case study in literature searching using PubMed. Searching PubMed and other databases ourselves daily, we would like to comment on some statements from the article.

In this study, much effort is made to find the best combination of terms for what we call “Googling PubMed.” Terms are combined without the use of Boolean operators. More than one thousand combinations are tested and, not surprisingly, the outcome is that no single combination of terms retrieves proper results. We do not agree with the authors that sophisticated search strategies should not be necessary. On the contrary; this outcome indicates that for professional, scholarly searching a different approach is required.

In our university medical center, information specialists collect various terms for one aspect first (for instance “bladder cancer.”) This collection contains systematic subject headings (MeSH terms in PubMed) and free text terms (single, plural, verb). To find free text terms, the entry terms of PubMed can be useful. However, sometimes the entry-terms contain word variations which are seldom used, and do not yield extra references. For a critically appraised topic (CAT) or a clinical question, only some of the most common terms are included as free text. For a systematic review, the collection of free text terms should be as complete as possible. For instance, future brand names of drugs or old, obsolete terms can be necessary. The terms covering the same aspect are connected with the Boolean operator OR. Then, the same is done for another aspect, for instance “risk factors.” Those two collections are combined with “AND.” In this way, the strengths of MeSH terms (mainly automatically including synonyms and underlying MeSH terms) and free text terms (mainly finding the most recent references and the ones with illogical or even erroneous MeSH terms) are combined in one search. To enhance specificity, MeSH terms can be changed into Major MeSH terms and instead of searching free text in all fields, free text can also be limited to title and abstract. Especially for clinical questions and CATs, this is a sound way of limiting the numbers retrieved. The limits used in this study, will exclude possibly relevant and recent references. (See [Figure 1](#))

Figure 1: Sophisticated Literature Search Strategies Using PubMed



By trying different combinations of terms, most likely a large part of the references is found more than one time. Constructing the search as described, will take a bit more time. As all references have to be checked for relevancy only once, in the next phase much time will be saved. In the author's example, for instance, references describing more than one risk factor will be found for each of them separately and with our method, you only find these once.

Every student, scientist, and medical doctor should have a basic understanding of how PubMed and other bibliographic databases work. We teach this method of searching to all our students, ranging from biomedical students to nurses, from medical specialists to PhD students. Once they understand the advantages of searching this way, they easily adopt this method. So, for simple questions they can find their own way in PubMed. And for more complicated searches, e.g., for constructing meta-analyses or systematic reviews, they can work together efficiently with an information specialist to construct a search strategy which balances precision and recall optimally.

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Article citation:

Langenhoff, J M; Schoones, J W. "Sophisticated Literature Search Strategies Using PubMed: Feedback from a Recent Perspectives Article" *Perspectives in Health Information Management* (Fall, October 2011).

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