



Evidence Summary

Varied Search Protocols Lead to Clinically Relevant Results

A review of:

Patel, Manesh R., Connie M. Schardt, Linda L. Sanders, and Sheri A. Keitz. "Randomized Trial for Answers to Clinical Questions: Evaluating a Pre-Appraised Versus a MEDLINE Search Protocol." Journal of the Medical Library Association 94.4 (2006): 382-6.

Reviewed by:

Marcy L. Brown
Principal Consultant, Envision Research
Delmont, Pennsylvania, United States of America
E-mail: marcy@envisionresearch.info

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Abstract

Objective – To determine the success rate of electronic resources for answering clinical questions by comparing speed, validity, and applicability of two different protocols for searching the medical literature.

Design – Randomized trial with results judged by blinded panel.

Setting – Duke University Medical Center in Durham, North Carolina, United States of America.

Subjects – Thirty-two 2nd and 3rd year internal medicine residents on an eight-

week general medicine rotation at the Duke University Medical Center.

Methods – Two search protocols were developed:

Protocol A: Participants searched MEDLINE first, and then searched pre-appraised resources if needed.

Protocol B: Participants searched pre-appraised resources first, which included UpToDate, ACP Journal Club, Cochrane Database of Systematic Reviews, and DARE. The residents then searched MEDLINE if an answer could not be found in the

initial group of pre-appraised resources.

Residents were randomised by computer-assisted block order into four blocks of eight residents each. Two blocks were assigned to Protocol A, and two to Protocol B. Each day, residents developed at least one clinical question related to caring for patients. The questions were transcribed onto pocket-sized cards, with the answer sought later using the assigned protocol. If answers weren't found using either protocol, searches were permitted in other available resources.

When an article that answered a question was found, the resident recorded basic information about the question and the answer as well as the time required to find the answer (less than five minutes; between five and ten minutes; or more than ten minutes). Residents were to select answers that were "methodologically sound and clinically important" (384). Ten faculty members formally trained in evidence-based medicine (EBM) reviewed a subset of therapy-related questions and answers. The reviewers, who were blinded to the search protocols, judged the applicability and internal validity of the answers.

Results – In total, 120 questions were searched using protocol A and 133 using protocol B; 104 answers were found by the protocol A group and 117 by the protocol B group. In protocol A, 97 answers were found in *MEDLINE* (80.8%) and six answers were found in pre-appraised resources (5.0%). In protocol B, 85 answers were found in pre-appraised resources (64.6%) and 31 were found in *MEDLINE* (23.3%). *UpToDate* was the major resource for answers in protocol B.

A statistically greater number of answers were found in less than five minutes in protocol B ($p < 0.00004$). However, a greater

number of questions went unanswered in protocol B (23%).

The faculty reviewers determined that 75.8% of the answers in protocol A were applicable; 71.7% were judged applicable in protocol B. Eighty percent in protocol A were internally valid, while 81.8% were valid in protocol B.

Conclusion – The study demonstrates that to find answers to as many clinical questions as possible, "residents and clinicians need access to *both* pre-appraised resources and *MEDLINE*" (385). Pre-appraised resources were faster to search, but their coverage was not as comprehensive. *MEDLINE* is comprehensive, but takes more time to search effectively and requires that the clinician or student have some knowledge of critical appraisal in order to judge relevance and applicability of found articles. Protocol B may be difficult to implement in many institutions because of the high cost of pre-appraised resources.

Commentary

This paper adds to a small body of literature looking at the use of either pre-appraised resources or primary literature databases to answer clinical questions. A 2004 study at Vanderbilt found that synthesized resources either completely or partially answered only 60% of complex clinical questions and 68% of general practice questions (Koonce, Giuse, and Todd 409). This current research at Duke is a welcome addition to the literature on clinical information seeking because it directly compares synthesized resources to *MEDLINE*.

The study's chief finding reinforces what many medical librarians already know: that a variety of resources is necessary to answer the largest possible number of clinical questions. It also reinforces the suspicion that most busy clinicians will only search

synthesized resources because they are faster and will answer almost as many clinical questions as *MEDLINE*.

Clinicians appear to prefer synthesized, pre-appraised resources. In 2005, Brian Alper, David White, and Bin Ge investigated clinical results when *DynaMed*, a pre-appraised resource, was added to the sources usually searched by physicians. Among those who added *DynaMed* to their search arsenals, "significantly more participants found answers that changed clinical decision making" (510). The study did not attempt to rate the quality or relevance of answers found, nor did it find that using *DynaMed* shortened a clinician's total search time. Yet it did indicate that the simple addition of an EBM resource led to greater clinical reflection and subsequent change in practice.

One minor problem with the current study is that the authors reported their findings inconsistently in Table 2 and in the text describing Table 2. In the table, the p-value is noted as $p=0.0004$; in the text, the p-value is written as $p<0.00004$. Without recalculating this value it is impossible to judge which is correct, but the significance is likely not affected either way.

The researchers at Duke had the foresight to use an independent and blinded panel of EBM teachers and practitioners to judge the search results. The findings are encouraging, particularly in light of the questions unanswered by the 2005 research. Both current search protocols generated a high percentage of applicable and internally valid clinical answers. Admittedly, the small size of the sample and the target population (residents) make it difficult to generalize the results to all clinician searchers. Clearly, some searchers *can* achieve good results when they rely primarily on synthesized EBM resources. Larger and broader studies are now needed to increase our comfort

level with these EBM resources, and to ensure that they remain comprehensive, reliable, and usable.

Works Cited

Alper, Brian S., David S. White, and Bin Ge. "Physicians Answer More Clinical Questions and Change Clinical Decisions More Often with Synthesized Evidence: A Randomized Trial in Primary Care." Annals of Family Medicine 3.6 (2005): 507-13.

Koonce, Taneya Y., Nunzia Bettinsoli Giuse, and Pauline Todd. "Evidence-Based Databases Versus Primary Medical Literature: An In-House Investigation on Their Optimal Use." Journal of the Medical Library Association 92.4 (2004): 407-11.