Information Needs of Health Professionals
Literature Review Summary

Model Systems Knowledge Translation Center

Use of Evidence-Based Clinical Information

While much attention has been devoted to studying how health professionals locate and apply health information in clinical care; and to developing and testing new information technologies, research consistently shows that the clinical information needs of health professionals are not being adequately met, specifically regarding evidence-based information (EB) [1,2].

This report provides a brief summary of what we currently know about meeting the clinical information needs of health professionals and provides recommendations for addressing these unmet needs.

What We Know About Information Seeking

- Clinical questions pursued by health professionals are frequently not addressed adequately by current sources [1,2].

- Most research shows that health professionals rely on human sources of information (colleagues) most often [3-6], particularly for issues related to diagnosis [7].

- Health professionals rarely use electronic sources and new information technologies [8], though those with more education and who are younger may be more likely to use electronic sources [9-11].

- Evidence-based information sources such as clinical practice guidelines and Cochrane Collaboration Reviews are underutilized by health professionals [12,13].

Barriers to Meeting Information Needs

- Lack of time is the most significant barrier to meeting information needs [8,14,15], specifically time to access electronic sources [16].

- Lack of search skills is another major barrier, specifically how to ask a clinical question, where to search, appraisal skills [15,17,18]; and techniques to minimize search time [13].

- Authors develop information that does not adequately address clinical questions either because it does not anticipate common clinical questions, is not written in a step-by-step way that can be applied in practice, or does not provide sufficient information because of lack of evidence. [2] "..lack of evidence does not make the question go away" (p. 411[2])

- There is too much information and too many sources, making it inefficient to access needed information and difficult to evaluate credibility of sources [8,17,19]. Clinicians would prefer to search fewer comprehensive and authoritative resources than several different sources [13].

- More barriers may exist for providers who live in rural settings such as inadequate access/technology, lack of search skills [5,20,21].

Ways to Meet Information Needs

- Provide training to health professionals to increase effective use of EB information and other credible information sources, specifically electronic sources; and develop mechanisms to increase participation in training opportunities [2]. Basic information technology literacy, how to select appropriate sources, how to ask clinical questions, how to evaluate the validity and integrity of websites are among some of the training topics identified [13, 22].

- Train researchers to consider knowledge translation when writing articles to ensure evidence is relevant and useful to clinicians. For example, researchers can generate concise clinical summaries of research evidence provided in meta-analyses, systematic reviews, and clinical practice guidelines. Research recommends that authors learn how to anticipate questions that are most common in practice when designing clinical information [2, 23].

- Improve electronic technologies (EBM sources, health-related databases, on-line journals, open access journals, clinical software applications, PDAs) to increase effective use [17]. Specific improvements include faster connection speed, efficient navigability, and overall usability [14, 24, 25].

- Research and testing at all stages of development is needed to ensure technologies match user needs, attitudes and skills [22, 26, 27].

- Identify what types of information are most suitable for different technologies (e.g. PDAs for drug protocols, simple cases) [7, 16, 28].

- Given that colleagues are the most relied upon source for day to day clinical decision making, it is important to utilize existing human communication networks (e.g. listservs) and human intermediaries (i.e. information specialists) to facilitate information sharing between colleagues of EB practice [8, 19].

- Involve practitioners in translating research to practice by conducting cognitive interviews to ensure relevance and usability of evidence-based information.

- Summarize research to identify barriers to using reputable EB sources such as the Cochrane Library and use these findings to modify guidelines to ensure authors produce more clinically relevant information.

Methodology

This report synthesizes findings from 33 articles identified through a thorough literature review using the following sources, search term and inclusion process:

Literature review sources: PubMed, Medline, CINAHL, and PsycInfo.

Search terms: Information needs, information retrieval, information seeking/searching, information resources/sources; and health professionals, health care providers, doctors, general physicians, nurses, clinicians, rehabilitation specialists.

Inclusion process: 345 articles were identified in the initial literature search. Researchers reviewed abstracts to categorize articles by inclusion and exclusion criteria (Table 1 & 2). Based on the abstract review 83 articles were included in the review. Researchers then reviewed the full articles and 50 of the 83 were excluded, resulting in the final selection of 33 articles (Figure 1). The primary reasons for excluding articles during the full article review were a) narrow clinical care focus (e.g. emergency medicine); b) narrow topic (e.g. breast cancer information); and c) limited information types and sources (only health records, on-line journals).

Table 1: Inclusion Categories

Category	Description
1	Prospective observational study (direct observation of participant actions, gathering of search logs, recording of patient questions; e.g., we directly gathered observational data about current activities without asking anyone anything)
2	Retrospective observational study (questionnaires, surveys; e.g., we asked everyone the exact same questions about their past activities)
3	Qualitative study (uses interviews, focus groups; e.g., we asked people about their past activities in a relatively unstructured way)
4	Review of previous studies
5	Theoretical modeling of behavior/info needs (e.g., this model shows the information-seeking process)
6	Training or other intervention and evaluation (e.g., we taught doctors how to search PubMed)
7	Guidelines, best practices

Table 2. Exclusion Categories

Category	Description
A	Excluded research design: ■ System design and evaluation (e.g., we developed an evidence database) ■ Process design and evaluation (e.g., we initiated a process for information seeking during patient visits) ■ Service design and evaluation (e.g., we started using a librarian or information specialist to facilitate information seeking) ■ Editorial/opinion
B	Study did not take place in North America (exception if a systematic review)
C	A specialty other than primary care
D	The study participants are other than the following: ■ Doctors (family physicians, primary care physician) ■ Nurses ■ Health care professionals (clinicians) ■ Rehabiliation therapists
E	The focus of the study is primarily on: ■ Decision or retrieval support ■ Awareness of information sources or systems ■ Perceptions of information sources or systems ■ Information structure or other document properties ■ Search skills ■ Research methods appropriate for information seeking.
F	The type of information considered in the study is primarily: Drug information, continuing education., substance abuse treatments,

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