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Evidence based medicine: the role of the health information professional

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EVIDENCE BASED MEDICINE: THE ROLE OF THE HEALTH INFORMATION PROFESSIONAL

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Abstract

Introduction: Evidence Based Medicine (EBM) is "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of patients" (Sackett et al, 1996). This concept of EBM extends the health information professional beyond "identification of literature to involvement in practicing and teaching quality filtering and critical appraisal of the literature" (Scherrer, 1999:324).
This definitely challenges the traditional role of the health information professional thus advocating for the need to acquire necessary skills, so as to be in a position to support EBM.

Objectives: To outline the steps in the EBM process; to explore the role of the health information professional in the EBM process; and to explore the challenges and opportunities that health information professionals encounter.

Methodology: The survey obtained views and experiences from health information professionals through an online discussion board during an online distance education course on "Evidence Based Medicine and the Medical Librarian." A total of 20 participants from different countries participated in this course between January - March 2008. Participants responded to open ended questions and data was qualitatively analysed under the various open ended questions posed in relation to the role, challenges and opportunities of the health information professional in EBM.

Conclusion: The role of the health information professional is acknowledged as critical in supporting EBM. This paper strongly recommends the need for health information professionals to integrate EBM in their training sessions. This paper encourages and recommends the need for health information professionals to continuously acquire training in order to efficiently support EBM. This would result to the provision of better health information thus translating to better healthcare.

Introduction

Evidence Based Medicine (EBM) can be looked at as a paradigm shift caused by the change in medical practice that calls for the use of "medical literature more effectively in guiding medical practice" (Evidence-Based Medicine … 1992:2420). The foundation of the paradigm shift is generally as a result of developments in clinical research whereby clinical trials, meta analysis, randomized trials, among others have gained increased acceptance.

The former paradigm accepted use of traditional scientific authority, standard approach, personal experience, whereas the new paradigm puts much lower value on authority. The new paradigm works on the assumption that "physicians whose practice is based on an understanding of the underlying evidence will provide superior patient care" (Evidence-Based Medicine … 1992:2421). The role modeling practice of EBM includes defining a patient problem, identifying information that is required to solve that problem, conduct an efficient literature search and selecting from the studies retrieved the best relevant one.

Health professionals are increasingly being encouraged to base their decisions on evidence from the literature. The evidence from the literature should therefore be part of the decision making process. Health information professionals play a key role in advancing EBM and their participation in EBM is "vital to its successful adoption at local level" (Falzon & Booth, 2001:65). EBM requires the health information professional to go beyond the traditional librarian responsibility of identifying the literature, to selecting, evaluating and synthesizing literature. For this to be possible, health information professionals need to accept the new role and also acquire new skills. Developing and keeping their skills strong is a challenge for health information professionals as most are doing less mediated searching (Scherrer, 1999:324). A study on training needs of health library staff by Urguhart (2004) found that librarians acted more as intermediaries than mediated searchers. Health information professionals should therefore strive beyond being intermediaries i.e. acting as a link between the user and the information, but to provide assisted searching.

The information age has produced a wealth of information that can be overwhelming for the users (Chen, 1998:582). Apart from the increase of information in this information age, an additional problem is the "relative decline in relevancy or pertinence of returned documents" (Carlson, 2003). Health providers encounter difficulties such as retrieving a lot of irrelevant material (Herma, 2006:57). It is important to note the importance of selecting the most relevant articles after a literature search and studies have shown this to be a major obstacle. A study by Williamson et al (as quoted by Scherrer, 1999:324) reported 78% of practitioners having problems sorting relevant material from the irrelevant one.

Besides the overwhelming information, studies have also shown lack of time being an obstacle to health providers. Health information professionals should therefore come up with methods of easing access to the information. Searching for best evidence requires access to multiple resources and it is important for health information professionals to facilitate access to a broad range of information resources. They must also take the

responsibility for mapping information resources available online. This can be done by putting "together databases and electronic full text journals under a user friendly interface with appropriate linking tools" (Innomed report Part 1, 2006).

As information specialists and the custodians of information, health information professionals play a major role in supporting EBM. With the problem of information overload, health information professionals should be at the fore front due to their expertise in knowledge organization. The awareness and knowledge of current, accurate and credible health information has the power to drastically improve quality of life for many patients and health information professionals should play a key role in this.

Evidence Based Medicine

The term EBM was coined in 1992 by a group of researchers in Canada from MacMaster University. "These researchers set out to redefine the practice of medicine so that information could be used more readily" (Hamer & Collinson, 1999:5). Their main aim was to shift medical practice from personal opinions that may lead to biasness and poor results recording, to propositions which are supported by evidence. The emphasis was on the need for medicine to be based on medical evidence rather than clinical evidence. This argument should however, not lead to the assertion that clinical experience is not important. The key point is that even with clinical experience which is crucial in medicine, there "is need to record clinical experience in an unbiased and reproducible way, to enable a body of knowledge to be acquired" (p.5). EBM requires integration of best research evidence with clinical expertise, patients' unique values and circumstances (Straus et al 2005:1).

The steps in the EBM process are:

Clinical problem arises i.e. a question arises out of a clinical problem

⇩

Construct a relevant, answerable question

⇩

Select appropriate resources and conduct a search

⇩

Evaluate evidence for validity and applicability

⇩

Apply evidence to real case i.e. patient

⇩

Evaluate your performance

(Schardt & Myatt, 2008:3)

Constructing a well built clinical question using PICO

A useful and effective way of defining a topic is to plan a search strategy using PICO assessment which stands for:

Patient or problem
Intervention (treatment)

Comparison (if any)
Outcomes of interest (if any)

This is a format which was designed for clinicians to use in the EBM process. The PICO format assists the clinicians in coming up with the key concepts when carrying out a search.

Formulating the clinical question and applying the PICO format is very useful in searching the literature. It is however important to note that PICO is best applied to questions on therapy, diagnosis, prognosis and harm/etiology.

Information and Evidence Based Medicine

Availability of 'relevant' information is critical for the success of EBM. Besides availability, the health information professional should be able to locate this information using multiple sources as well as evaluate it. Studies have found that information represent a problem for many healthcare professionals. Some of the problems associated with finding information include "rigidity and rule bound nature of information retrieval systems … struggle with catalogues, keywords and indexes" These problems result in health professionals abandoning the search and finding it easier to pick a telephone to simply consult a colleague (Hamer & Collinson, 1999:61).

The exponential rise in the scientific literature is well documented. The information overload phenomenon is a reality that health professionals need to deal with. Besides the information overload, lack of time, lack of skills, poor organization of resources and under resourced, inaccessible libraries are some of the factors that contribute to lack of access to relevant evidence based information.

Finding high quality information is considered a daunting task and these can be resolved through:

- Identifying variety of resources and their usefulness
- Understand how to search databases using a structured approach
- Comprehend methods used for storing and managing information.

Methodology

The survey was descriptive and qualitative summary of the data was provided. The data was based on the views and experiences from health information professionals on the challenges and opportunities for health information professionals in EBM. The views were obtained through an online discussion board during an online distance education course on "Evidence Based Medicine and the Medical Librarian." This was a course organized by the University of North Carolina (USA) between January – March 2008. A total of 20 health information professionals participated in the online course and consequently contributed to the discussion board. The participants were from different countries of the world to include USA, UK, Canada, Kenya, and who were working in various organizations such as hospitals, research institutes, and university libraries. The author who was a participant was able to access the discussion board content and subsequently obtained permission from the facilitators to use the data.

The online discussion board contained open ended questions whereby participants were required to give their views and experiences. The questions sought responses to the following areas: challenges and opportunities for health information professionals in EBM, advantages and disadvantages of PICO, teaching search strategies and the role of the librarian in general.

Discussions

Challenges and Opportunities

Participants were in general agreement that though it may be challenging, health information professionals should tap into the opportunities available in way of participating in Evidence Based Medicine. It was indicated that EBM in itself is an opportunity available for health information professionals to realize the following:

- Integrate librarian as an instructor within the curriculum
- To play a more effective role. Though librarians cannot provide clinical expertise they should assist in locating the evidence based information.
- Demystify literature search and make it a routine part of good patient care and not only for academic.
- Integrate EBM in the information literacy sessions.
- Provide access to numerous resources available in their respective countries. One way of doing this is by producing a handout with a description of scope and content of each resource.

Challenges

With regard to challenges, the discussion board found that one of the major challenges health information professionals encounter is to overcome the perception that information providers can only store information for retrieval and cannot critically appraise the information. Health information professionals should strive to show that they can critically appraise the information resources.

Another major challenge is the marginalization of library skills by the faculty. Faculty sees one-off library session as sufficient and which is without doubt insufficient for teaching the required skills. A participant indicated that when trying to cover everything in the one-off session, the students are unable to clearly understand what they are being taught. The ideal situation would be to structure the teaching into small lessons spread over time. Health information professionals should therefore discourage the one-off sessions as a method of teaching library skills and instead work towards having better structured lessons that integrate EBM. It was noted that information professionals need to be patient especially when dealing with faculty who do not seem to appreciate the need to teach the EBM process. In view of this, one participant indicated that it had taken them 8 years to move from “one shot class” to a more integrated instruction that is threaded through the 4 years of medical school. One way of getting the faculty to appreciate health information professional role in the EBM process is by making informal contact with faculty and users as opposed to only having formal discussions with heads of departments or at committee levels. The need for health information professionals to establish better relationship with faculty and staff was highly supported.

When to teach and finding time for the exercise

When to teach or rather finding the right time was also indicated as a challenge for health information professionals. Those who had no option but to teach during a one off session usually at the beginning of the semester may be teaching students who may not know what EBM is about. Besides the timing, information providers also struggle with the choice of teaching method e.g. large groups, small groups, face to face, online etc. One participant indicated the need to evaluate the training sessions in order to know the usefulness of the timing and the method. A suggestion based on personal experience was offered by one participant who indicated that teaching students at or near the time of an assignment increases the likelihood that what is taught will stick. This is because the students are likely to apply what they have learnt. Another participant recommended that teaching should be at the end of 2nd year. This was based on a survey at their university in 2000 to assess their EBM effort. The survey found that the time to teach at the earliest should be end of 2nd year / beginning of 3rd year just before the clinical rotations. The same survey suggested that basic introduction to information resources be offered in 1st and 2nd year.

Other challenges encountered by health information professionals include:

- One participant indicated that they had encountered the challenge of teaching EBM to nurses who did not seem to be receptive to the concept like the physicians.
- Shortage of staff in the library and thus not being able to effectively and efficiently support / contribute to EBM.
- Lack of appreciation for EBM. A participant in relation to this challenge gave the following story which clearly illustrates such a scenario,

  > I remember a radio interview of the doctor who helped the buffalo bills football player walk again. He claimed that if he had to wait for evidence before committing to the procedure, the player would not be walking. I understand that it's about the science of medicine, but how much of it is in fact an art.
- Information literacy course not being part of the curriculum makes it hard to get users to attend.
- It is challenging for information providers to teach clinical concepts to trained health professionals.

Teaching Search Strategies

Teaching search strategies was also noted as a challenge. Participants were asked for their views on applying a search strategy using Pubmed clinical queries and Pubmed as a whole. Pubmed and specifically Pubmed clinical queries were the point of reference for applying a search strategy as the clinical queries were designed for evidence based medicine questions and are meant to make searching easier and straight forward. Clinical queries were appreciated by the participants as they simplify the searching process by applying the function of limiting the search. The limit function provides validated search strategies that are able to limit to the appropriate study methodology for the type of clinical question asked.

Pubmed is a very resourceful database as it indexes thousands of journals. Though a few participants expressed their dissatisfaction with Pubmed database it was noted that a lot

of health information professionals use it for illustration while teaching. Participants were asked to suggest ways Pubmed can be improved and the following was indicated:

- Improving the interface for quick and efficient searches and this can be done by moving MeSH index to a screen that opens into the main Pubmed search screen instead of navigating away from the search screen. It was indicated that integrating Pubmed with MeSH database would improve searching.
- Include an advanced search feature that is straightforward and easy to use like one that appears in Ovid.
- Making more articles available in full text.

Generally participants appreciated the usefulness of Pubmed's unique features. These unique features may however prove to be too complicated for the novice researcher. One participant elaborated on the issue of its complexity by rightfully saying, "You can get more out of Pubmed that what you put into it, but you have to know where to look for it." One participant however disagreed with the suggestion that the interface be simplified as this would lead to the misconception that a basic search will give you what you want. Health Information professionals should therefore learn these search strategies and teach the users for effective and efficient searching of evidence based information.

It was indicated that it is important for health information professionals to teach search strategies and one of the strategies to teach should be on how to select the most relevant resources. This is very important as database selection is the next step after one has formulated a good search question. In response to selection of good databases, participants suggested MDConsult, Access Medicine, Cochrane, eMedicine, Medscape, Dynamed, Infopoems, Cochrane, and Trip. A participant indicated that he would recommend Pubmed as a last resort for rare or obscure questions, or when the others are not helpful such as Infopoem, Trip. However, users need to know the advantages and disadvantages of the databases and search filters so as to apply the right search strategy to the database concerned.

The use of multiple databases for searching was recommended by many participants for reasons such as:

- BMJ clinical evidence which is a very useful resource is not indexed in Medline but is searchable in Google
- At times one is unable to retrieve Cochrane reviews via Medline
- Some resources are freely available while others require subscription and may not be available to the user.

Participants recommended searching using search engines that can retrieve EBM resources. TRIP is one search engine that includes resources that are considered evidence based and the results of each search are presented in categories such as systematic reviews, evidence based synopses, clinical questions, Medline clinical queries.

Advantages and disadvantages of PICO

PICO being a format used in the EBM process, the question on advantages and disadvantages of PICO sought the opinions of health information professionals on this format and more so their experiences in developing clinical questions.

The participants were generally in agreement that PICO is limiting as it is more common for therapy questions and does not seem to work with other types of questions. This not withstanding, participants indicated that it can be used to guide a reference interview as the identification of key concepts should work for all questions. Applying the PICO format in a reference interview can guide one to think about a question critically so as to extract the key concepts. PICO creates a focused question making it manageable for a search scenario. A participant explained this in a most interesting way by stating that PICO "trims the fat". Since PICO seems to only cater for therapy questions it is suggested that a separate model for other type of questions needs to be developed. It is important to note that this may be the case because in EBM therapy is the most common type of question.

Participants acknowledged the challenge to teach EBM with the stimulus of real clinical scenarios. Formulating the question for the real clinical scenario may pose a challenge for the information provider. In regards to the challenge of understanding the 'medical jargon', one participant gave her experience,

> Students have to hand in an EBM library assignment which involves forming a focused clinical question, showing us the strategy they used and choosing one article which they think answered their question. Sometimes the article they choose is too complicated and full of medical jargon for me to decide whether that article did answer their question.

Participants also felt that PICO may be a bit difficult to apply as many questions sent may not fit into PICO format. Besides being difficult participants acknowledged the importance of PICO.

It is interesting to note that few participants contributed to discussion on the advantages and disadvantages of PICO and this may indicate that health information professionals were not fully conversant with the PICO format and perhaps some were introduced to the format for the first time during the course.

Conclusion and Recommendations

Health information professionals should play a critical role in the EBM process especially when it comes to identifying resources that are evidence-based. Health information professionals need to position themselves strategically so that health professionals / clinicians are aware "that they have an incredible resource at their fingertips in their local librarians" (Koestner, 2008). The onus is on health information professionals to show the value of EBM.

Since many health information professionals are not specially trained in medical librarianship the EBM process becomes very challenging. Health information professionals should therefore strive to learn the necessary skills especially in searching for EBM. This is essential as there are so many variables for searching and the health

information professionals should be aware of these and also be able to teach the same to the users. It is critical for the information providers to have more contemporary training offered to them in terms of searching electronic resources, critical evaluation of resources, resource selection, database development and designing user friendly interfaces. The EBM course organized by the University of Carolina is one good example of search training and local institutions and associations should introduce this type of training sessions.

There is an urgent need for information providers to move away from the traditional role librarians have played over the years. Health information providers need to be more proactive than ever before and come up with ways of bringing information resources to those who need them. Fulfilling users' needs is critical and health information providers need to be at the forefront.

This paper sought to find out the role of health information professionals in the EBM process and more so the challenges and opportunities. The discussion on challenges and opportunities found that there was more prominence on the challenges than opportunities. This not withstanding, it was noted that health information professionals should tap into the available opportunities.

Many participants indicated that the discussion board was an eye opener as various health information professionals from various parts of the world shared their experiences. It is commendable to note that most health information providers are putting effort in teaching users on how to search for information. More effort should however be placed to integrate the EBM process.

The discussion board suggested several ways that health information professionals can support EBM:

- Provide easy access to resources
- Train health professionals on how to search effectively
- Information literacy course should be an examinable module in a curriculum so that it can be taken more seriously by the health professionals.
- Incorporate "question building skills' in the information literacy classes
- Incorporate components of the well built clinical question into the search request form
- Develop materials .e.g. user guides that support EBM
- Partner with faculty in teaching EBM
- Restructure service such as inter library loan (ILL), document delivery, electronic full text in an effort to improve retrieval time. (Schardt and Myatt, 2008)

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