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Exploring the Real World: Medical Librarians' Involvement in Supporting Evidence-Based Medicine (EBM) Practice

Abstract: This paper reports the results of an online survey that explores medical librarians' roles and activities in supporting EBM practice. More than 500 medical librarians replied to the survey. Data analysis reveals that librarians have been taking on various EBM-related responsibilities both routine by nature and project-related.

Résumé:

1. Introduction

Evidence-based medicine (EBM) is "the integration of the best research evidence with clinical expertise and patient's unique values and circumstances," (Straus et al. 2005, 1) which involves defining an answerable question, collecting or finding evidence to answer the question, evaluating the evidence, integrating the evidence and patient factors to make and carry out clinical decisions, and evaluating the whole process (McKibbon, Eady, and Marks 1999). According to McKibbon and Bayley (2004), health sciences librarians can play a role in almost every EBM practice process except making clinical decisions. EBM has been an increasingly pervasive term in health care-related areas since the early 1990s. With the ongoing explosion of available health information, especially the online health information, access to and use of evidence-based medical research has become both a concern and expectation of clinicians (Kronenfeld et al. 2007). As a result, many health care institutions are now considering EBM as a priority for professional medical practice, which has brought both challenge and opportunity for medical librarians.

In 2007, the authors analyzed job announcements for reference librarians posted in the *Medical Library Association (MLA) News* from 2000 to 2005 to identify responsibilities and qualifications expected of reference librarians by prospective employers and to determine evolving roles of reference librarians in health sciences libraries. One of the factors examined was what EBM related duties and responsibilities were expected of medical librarians by prospective employers. The job content analysis revealed only 17% of the job descriptions asked for EBM related qualifications and duties. Along side with the job advertisement analysis, the author also looked at how medical librarians were

involved in EBM-related activities as reported in literature. The study concluded that there existed some disconnects between what were expected of medical librarians in their EBM-related responsibilities by their prospective employers as revealed in the job descriptions, their actual EBM-related activities that had been reported in literature, and the present prospering EBM practice in health care settings. Presented at the 2008 Canadian Association for Information Science (CAIS) Annual Conference and published in its conference proceedings, the results of the research led the authors to ponder, regardless of job descriptions and published literature, what exactly practicing medical librarians have been doing and what roles they have been playing related to supporting and enhancing EBM practice. This study seeks to explore whether and how practicing medical librarians in the United States are playing a role to support and enhance EBM practice. Looking into the real world may help both prospective and practicing medical librarians in health sciences libraries understand the new roles and skills they need to focus on or improve when they are called upon to provide EBM support services.

2. Literature Review

As early as 1999, Holtum argued that librarians need to be actively engaged in the development and refinement of end user information tools that incorporate the literature types most appropriate to the practicing clinician and are directly relevant and applicable to patient care (Holtum 1999). Perry and Kronenfeld (2005) reviewed EBM trends and proposed roles of health sciences librarians. They concluded that health sciences librarians, with their knowledge of health information resources and their information search and retrieval expertise, can take on the responsibilities to support and enhance EBM practice. Kronenfeld et al. (2007) discussed the implications of evidence-based practice (EBP) for librarians. They argued that medical librarians can carry out various duties in support of EBP, such as searching for and evaluating information to promote the effective integration of EBP into allied health, playing a role in continuing education activities, and educating professors, researchers, and publishers about the need for broader access to EBP resources.

It was reported in the literature that health sciences librarians have been carrying out various responsibilities and tasks that help support EBM practices. They participated in EBM initiatives to help improve patient care (e.g. Banks et al. 2007; Verhoeven and Schuling 2004). They worked with medical school faculty members to create online EBM tutorial (e.g. Mayer, Schardt, and Ladd 2001), partnered with hospital department to produce clinical guidelines (e.g. Keating et al. 2004), and utilized their evidence-based search expertise and knowledge in supporting EBM initiative (e.g. Ward, Meadows, and Nashelsky 2005). Librarians played a leading role in some EBM projects as well (e.g. Schwartz and Millam 2006; Rigby et al. 2002; Reid, Ikkos, and Hopkins 2002; Bracke, Howse, and Keim 2008). They took an active part in the curriculum integration to support EBM (e.g. Kaplan and Whelan 2002). Medical librarians participated in morning reports and discussed search strategies with residents in order to improve their information searching skills (e.g. Atlas et al. 2003) and they conducted systematic reviews of the research literature and compiled comprehensive searches (e.g. McKibbin and Bayley 2004). They also participated in graduate medical education and acted as experts in finding the best evidence and relating it to clinical problems and questions (e.g. Schwing

2005).

What has been reported in literature regarding medical librarians' involvement in EBM related activities is mostly project related. Are there any other EBM related activities medical librarians had done and yet did not get reported in the literature? Whether what has been reported in the literature represents the complete picture of EBM related services in medical librarianship or only a partial reflection is a question left unanswered. No studies have been done so far to investigate what medical librarians across the nation have actually been doing in support of EBM practice.

3. Methodology

The data collection technique for this research is an online survey created with Survey Monkey. The survey questionnaire (Appendix 1) consists of 14 questions, gathering data on:

- Number of years that respondents have been in the profession
- Job title
- Work setting (academic library, hospital library, special library)
- EBM related responsibilities (expertise with EBM resources, EBM research, EBM initiatives, EBM teaching, attending morning reports/medical rounds/journal clubs)
- Nature of EBM related responsibilities (routine, occasional and project-related, both routine and project-related)
- Nature of teaching EBM (curriculum integration, project-related, routine, based on request)
- Participants' comments related to providing EBM related services

Of the total 14 questions, there are 11 multiple-choice questions asking about medical librarians' responsibilities and duties related to supporting EBM practice and 3 open-ended questions for their job titles and comments on their roles in support of EBM practice. The survey questions, developed by the authors, were reviewed and tested by several medical librarians from hospital and academic libraries prior to distribution. The survey population includes medical librarians working in academic libraries, hospital libraries, and special libraries in the United States. The questionnaire was distributed to MEDLIB-L, the MLA discussion list, several listservs from MLA Chapters and MLA Sections, and some blogs hosted by medical librarians.

The data collected through Survey Monkey was exported to Microsoft Excel and the United States respondents were filtered by IP address. Excel's PivotTable was used for preliminary data analysis, with the focus on the participants' answers to the 11 multiple-choice questions. Cross tabs were created to find out the differences in medical librarians' specific EBM related responsibilities and the nature of their EBM responsibilities by library type and by their work experience.

4. Results

4.1 Demographics of the Respondents

A total number of 598 medical librarians responded to the survey and 596 actually completed it, among whom 532 respondents came from the United States and 64 from other countries. Data analysis for this paper focuses on US participants' responses to the multiple-choice questions only. Of the total 532 US participants, over half of them (n=401, 75%) have worked as medical librarians for over 5 years, 80 (15%) for less than 2 years, and 51 (10%) between 3 to 5 years. As to participants' work settings, 268 (51%) came from hospital libraries, 223 (42%) from academic libraries, and 38 (7%) from special libraries.

4.2 General EBM Responsibilities/Roles

Data analysis revealed that of the 532 US participants, 483 (91%) indicated their job responsibilities required expertise with EBM resources; 475 (89%) reported that they provided EBM research to users and among them 338 (70%) indicated that this responsibility was "both routine and occasional and project-related" or "routine". 316 (59%) participants confirmed they played a role in contributing to EBM initiatives in their institutions. When asked about the nature of their contribution to EBM initiatives, 174 (55%) indicated this responsibility was "both routine and occasional and project-related" or "routine". 324 (61%) participants reported their involvement in teaching EBM and their specific roles include "curriculum integration", "project-related", "routine", or "based on request". Of all the EBM related responsibilities, medical librarians didn't seem to be involved much in attending morning reports (56, 11%), medical rounds (49, 9%), or journal clubs (67, 13%).

4.3 EBM Responsibilities/Roles by Work Setting and Work Experience

Data analysis showed that more librarians in hospital libraries need to provide EBM research (256, 96%) and have responsibilities that require expertise with EBM resources (252, 94%). Contributing to EBM initiatives are equally frequent in both academic (135, 61%) and hospital libraries (163, 61%). Librarians in academic libraries seemed to be much more involved in teaching EBM than those in hospital or special libraries. Attending morning reports, medical rounds, or journal clubs is not popular among medical librarians in general. (See Table 1)

EBM Responsibility	Academic Library	Hospital Library	Special Library
Expertise with EBM resources	197 (88%)	252 (94%)	33 (89%)
Providing EBM research	189 (85%)	256 (96%)	28 (74%)
Contributing to EBM initiatives	135 (61%)	163 (61%)	17 (45%)
Attending morning report	28 (13%)	27 (11%)	1 (3%)
Attending medical round	23 (11%)	25 (10%)	1 (3%)
Attending journal club	30 (14%)	34 (13%)	3 (8%)
Teaching EBM	179 (80%)	132 (50%)	13 (34%)

Table 1: EBM Responsibility by Library Type

Table 2 shows medical librarians' EBM related responsibilities by work experience. Librarians with over 5-year work experience have the most responsibilities that require expertise with EBM resources and be expected to provide EBM research. Librarians with 3-5 years of work experience are involved the most in contributing to EBM initiatives, teaching EBM, and attending medical rounds and journal clubs. Interestingly, the survey results show new librarians having less than 2-year work experience are the group that attend morning reports the most.

EBM Responsibility	0-2 Years	3-5 Years	More than 5 Years
Expertise with EBM resources	69 (87%)	46 (90%)	368 (92%)
Providing EBM research	69 (87%)	44 (86%)	362 (91%)
Contributing to EBM initiatives	33 (42%)	35 (70%)	248 (62%)
Attending morning report	11 (15%)	6 (12%)	39 (10%)
Attending medical round	6 (8%)	10 (20%)	33 (9%)
Attending journal club	10 (14%)	8 (16%)	49 (13%)
Teaching EBM	45 (57%)	33 (67%)	246 (62%)

Table 2: EBM Responsibility by Work Experience

The respondents were asked to identify the nature of their EBM related responsibilities, which was categorized as "routine", "occasional and project-related", or "both routine and

occasional and project-related." As demonstrated by data analysis, the nature of providing EBM services varies by library type. Regarding the provision of EBM research to users, more than 45% of librarians from hospital, academic, and special library settings seem to agree that their involvement is mostly "both routine and occasional and project-related." However, hospital librarians (62%) seem to be the most active in this role while librarians in academic libraries and special libraries have equal involvement.

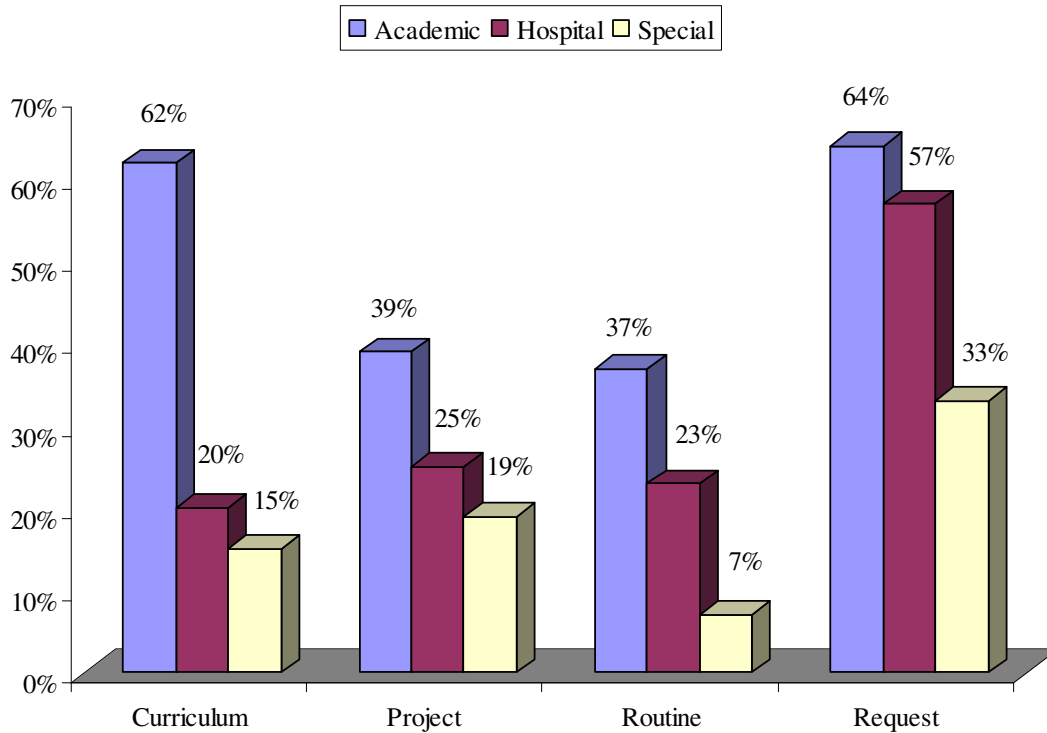
Hospital librarians are also more active than other librarians in contributing to EBM initiatives in their institutions and the nature of their involvement is mainly "occasional and project-related" and "both routine and occasional and project-related." Academic librarians' involvement in this service tends to be mostly "occasional and project-related," which is similar to that of special librarians. Attending morning reports, medical rounds, or journal clubs is not seen frequently in all library settings. (See Table 3)

EBM Responsibility	Academic Library			Hospital Library			Special Library		
	Routine	Occasional & Project-related	Both Routine & Occasional & Project-related	Routine	Occasional & Project-related	Both Routine & Occasional & Project-related	Routine	Occasional & Project-related	Both Routine & Occasional & Project-related
Providing EBM research	20 (10%)	74 (35%)	94 (45%)	41 (16%)	54 (21%)	161 (62%)	6 (18%)	8 (24%)	15 (45%)
Contributing to EBM initiatives	24 (13%)	59 (33%)	52 (29%)	12 (6%)	76 (37%)	77 (37%)	1 (4%)	9 (32%)	7 (25%)
Attending morning report, medical round, journal club	24 (12%)	15 (7%)	17 (8%)	31 (13%)	20 (9%)	19 (8%)	2 (7%)	3 (10%)	1 (3%)

Table 3: Nature of EBM Responsibility by Library Type

When looking at library settings versus librarians' roles in teaching EBM, academic libraries tend to have teaching EBM integrated into curriculum (62%) and provide the service upon request (64%) more often than the other types of libraries (See Graph 1). Hospital librarians' role in teaching EBM is mostly based on request from the users

(57%).



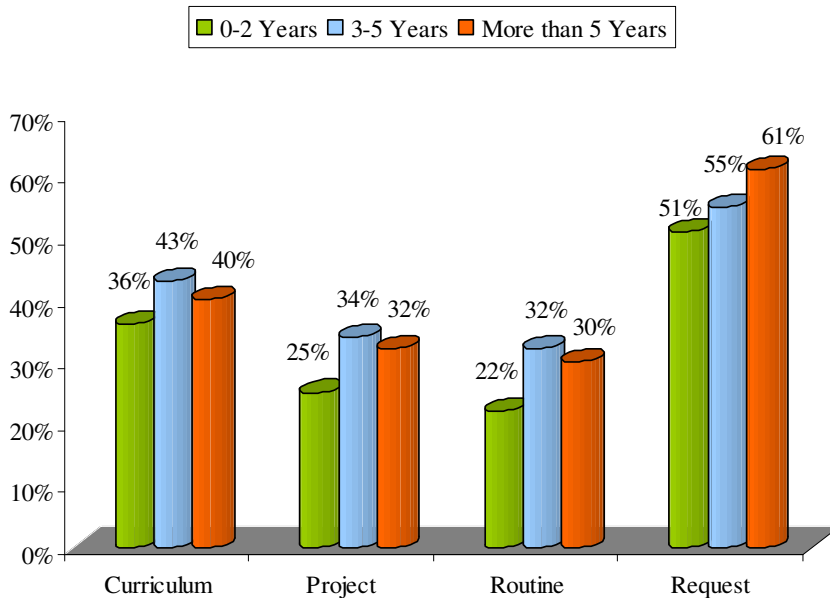
Graph 1 Work Setting vs. EBM Teaching Role

Librarians with over 5-year work experience provide EBM research mostly as "both routine and occasional and project-related". Contributing to EBM initiatives is often offered as "occasional and project-related" by librarians with 3 to 5 years' work experience (46%) while 36% of librarians with more than 5-year work experience report it to be "both routine and occasional and project-related." Though not often required of medical librarians in general, their attendance in morning reports, medical rounds, or journal clubs was reported to be a "routine" responsibility with a comparatively higher percentage (17%) by librarians with 0 to 2 years' experience. (See Table 4)

EBM Responsibility	0-2 Years			3-5 Years			More than 5 Years		
	Routine	Occasional & Project-related	Both Routine & Occasional & Project-related	Routine	Occasional & Project-related	Both Routine & Occasional & Project-related	Routine	Occasional & Project-related	Both Routine & Occasional & Project-related
Providing EBM research	10 (13%)	24 (32%)	35 (46%)	7 (15%)	16 (35%)	21 (46%)	51 (13%)	97 (25%)	214 (56%)
Contributing to EBM initiatives	6 (11%)	15 (26%)	12 (21%)	5 (11%)	20 (46%)	11 (25%)	27 (9%)	110 (35%)	113 (36%)
Attending morning report, medical round, journal club	12 (17%)	2 (3%)	5 (7%)	4 (9%)	5 (11%)	4 (9%)	41 (12%)	32 (9%)	28 (8%)

Table 4: Nature of EBM Responsibility by Work Experience

Data analysis on librarians' role in teaching EBM versus their work experience shows that the most common practice in teaching EBM among all groups of medical librarians is to provide the service based on request. Librarians who have worked more than 5 years in the profession have the highest percentage (61%) in providing this service based on request. Other than teaching EBM based on request, librarians who have worked for 3-5 years play the most active role in providing the service no matter it is curriculum integration (43%), or project-related (34%), or routine responsibility (32%). (See Graph 2)



Work Experience vs. EBM Teaching Role

5. Discussion

The preliminary data analysis results show that US medical librarians have been taking on various EBM-related responsibilities in supporting and enhancing EBM practice. Most medical librarians reported the need to have expertise with EBM resources in their work. The most commonly reported role of medical librarians in support of EBM practice is to provide EBM research to users, followed by teaching EBM, and contributing to EBM initiatives in their institutions. Attending journal clubs, morning reports, and medical rounds is not a popular responsibility among medical librarians. For many US medical librarians, EBM-related activities and components have already been integrated into their primary responsibilities as the EBM-related responsibilities have become their work routine.

Hospital librarians seem to be the most active in providing EBM related services probably because they have more direct contact with health care professionals and within the hospital setting providing EBM patient care is more demanding. Academic librarians are also active in playing a role in support of EBM practice, especially with the responsibility of teaching EBM. Special librarians, though not as active as hospital and academic librarians, are also taking a role in supporting and enhancing EBM practice.

The authors thought that medical librarians with more work experience in the profession should be more involved in providing EBM related services and having more EBM responsibilities. However, the survey results show that this is not always the case. Junior medical librarians in practice for 3 to 5 years actually are the most active in contributing to EBM initiatives in their institutions. They are also the most active group in teaching

EBM when the role is curriculum integration, project-related, and routine. New medical librarians in practice for less than 2 years are the most actively involved in attending morning reports.

6. Conclusion

US medical librarians are taking the EBM challenge and have been playing an active role in supporting and enhancing EBM practice. Supporting EBM practice requires not only knowledge of EBM resources and skills in information searching and retrieving, but also a understanding of what health care professionals need in practicing EBM. Medical librarians, especially those who provide services directly to health care professionals, are in need of training to acquire and update their EBM related skills. The research findings should be significant in providing guidance for both practicing medical librarians and those seeking employment in medical libraries. It should also be significant in bringing insight into the development of library schools' curricula to prepare future medical librarians to meet the needs of today's EBM practice environment.

The data analysis for the current paper is preliminary. Content analysis is planned for respondents' answers to the open-ended questions to see practicing medical librarians' perspectives on providing EBM-related services. Hopefully, a more complete and clear picture will be obtained of medical librarians' roles in support of EBM practice.

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Appendix 1 Survey Questionnaire

Health Sciences Librarians' Roles in Evidence-Based Medicine Practice

1. How long have you been a health sciences librarian?
 - a. 0-2 years
 - b. 3-5 years
 - c. More than 5 years

2. What is your job title? (Please specify)

3. How would you describe your current setting? Choose the best match.
 - a. Academic library
 - b. Hospital library

c. Special Library

4. Does your job responsibility require expertise with EBM resources (e.g., MEDLINE, EBM Reviews, or the Cochrane collection)?

- a. Yes
- b. No
- c. Not applicable

5. Do you provide evidence-based medical research to users?

- a. Yes
- b. No
- c. Not applicable

6. If "yes" to question 5, what is the nature of this responsibility (provision of evidence-based medical research)?

- a. Routine
- b. Occasional and project-related
- c. Both a and b
- d. Not applicable

7. Do you have a role in contributing to EBM initiatives in your institution?

- a. Yes
- b. No
- c. Not applicable

8. If "yes" to question 7, what is the nature of the role in contributing to EBM initiatives?

- a. Routine
- b. Occasional and project-related
- c. Both a and b
- d. Not applicable

9. Does your position responsibility include the following activities? Please choose all that apply.

- a. Attending morning reports
- b. Attending medical rounds
- c. Attending journal club
- d. Not applicable

10. What is the nature of your participation in the activities mentioned in question 9?

- a. Routine
- b. Occasional and project-related
- c. Both a and b
- d. Not applicable

11. Are you involved in teaching EBM?

- a. Yes
- b. No

c. Not applicable

12. If "yes" to question 11, what is your role in teaching EBM? Please choose all that apply.

- a. Curriculum integration
- b. Project-related responsibility
- c. Routine responsibility
- d. Based on request
- e. Not applicable

13. Please list your other EBM-related responsibilities not covered by the above questions.

14. Other comments on librarians' roles related to supporting EBM.