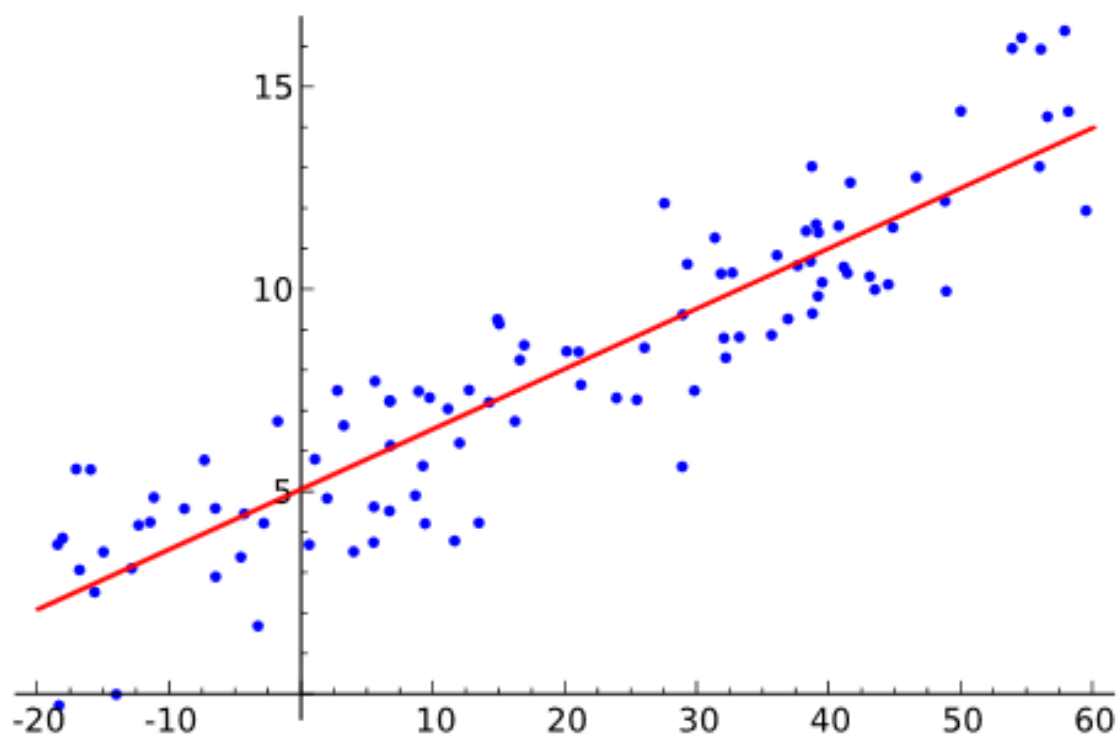


Volume 28, No 1
Fall 2016

Hypothesis

**The Journal of the Research Section
of the Medical Library Association**



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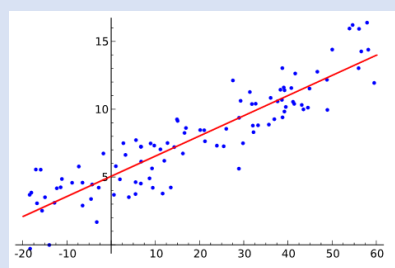
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Linear Regression

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Introducing the new *Hypothesis*

Christine Marton

It is my great pleasure to welcome you to a new issue of *Hypothesis*! As the profession of health sciences librarianship continues to undertake new roles – informationist, data librarian, research librarian – among others, it becomes more embedded in the biological and health sciences. Working alongside clinicians, health sciences librarians are increasingly becoming researchers in their own right, both within their profession and within the professions in which they are embedded in their workplaces: universities, healthcare institutions, governments, and biopharma corporations.

The new *Hypothesis* reflects this reality, both in the composition of the new editorial board and in the topics of the research articles presented in this issue. Like many of my MLA colleagues, I have a dual background in health sciences and library and information science. As an academic and a former high school science teacher, I have taught many courses over a twenty-year period. I have also been actively involved in research in several disciplines and have utilized several approaches (experimental, observational, and textual) with several types of study designs (quantitative, qualitative, and mixed-methods). The members of the editorial board share with me these characteristics – they are both teachers and researchers. Beyond the classic and still vital librarian roles of collection development and management, preparation of library guides, hiring and managing staff, and liaising with department heads, health sciences librarians act as instructors by teaching clinicians and clinical students how to effectively search the journal literature and distinguish quality information sources from less reputable publications. Health sciences librarians act as researchers by performing literature reviews and co-authoring systematic reviews of the health sciences literature required by clinicians to write grant proposals and keep track of key findings in their fields.

It is only appropriate that I take this opportunity to introduce my co-editor, [Erin D. Foster, MSLS](#). Erin Foster is the newly appointed Data Services Librarian at Indiana University School of Medicine's Ruth Lilly Medical Library. She is a former National Library of Medicine Fellow where she spent time at the National Library of Medicine, on the National Institutes of Health campus in Bethesda MD, and Oregon Health & Science University in Portland OR. Erin received her

Editorial

master's in library science at the University of North Carolina, Chapel Hill and worked as a graduate research assistant at the university's health sciences library. She received her undergraduate degree at the University of California, Santa Cruz. Her research interests include data curation and management practices within health sciences communities, the development of standards and technologies to enable public access to research, and the promotion of open science efforts. Erin Foster's academic background and work experience exemplifies the new breed of health sciences librarian. Please welcome her onboard!

The new *Hypothesis* editorial board also deserves a hearty welcome. I would like to introduce to you our hard working editorial board members, several of whom have been actively involved in reviewing the contributions to this issue. Listed in alphabetical order, they are: Abby Adamczyk, Brooke Billman, Krystal Bullers, Susan Fowler, Ayaba Logan, and Carol Perryman. Representing both the geographic range of the United States of America and the many roles undertaken by health sciences librarians and academics, they collectively offer a comprehensive knowledge base to this publication. I would also like to take the opportunity to thank the outgoing editorial board, who have contributed extensively to past issues of *Hypothesis*: Kristine Alpi, Leslie Behm, Ellen Detlefsen, and Jonathan Eldredge. As well, thanks are due to the outgoing editorial team of Brooke Billman and Emily Mazure for the 2015 issue of *Hypothesis*.

In this issue of *Hypothesis*, two original research articles are presented. Both were reviewed twice by a minimum of three reviewers with the author names and institutional affiliations removed to minimize reviewer bias. The first article is a quantitative bibliometric study of research topics in the highest ranked health sciences librarianship journal – the *Journal of the Medical Library Association*, formerly known as the *Bulletin of the Medical Library Association*. The second article is a survey study of the use of iPad mini tablets pre-loaded with apps/resources/websites/tools by clinical fellows in the Breast Imaging Service (Department of Radiology) at the Memorial Sloan Kettering Cancer Center in New York City. As well, this issue features extensive coverage of the Research Award winners at MLA'16 in Toronto and the Research Section's conference programs. I hope you find the content informative and are inspired to submit an article about your current research to *Hypothesis*. As Fall turns into Winter and the polar vortex approaches, we wish you joy and happiness for the holiday season. We look forward to your participation in making *Hypothesis* a success in 2017.

TITLE

An examination of research topics in the *Journal of the Medical Library Association* and the *Bulletin of the Medical Library Association*: quantifying the importance of research to medical librarians over time

AUTHOR

Christine Marton, PhD¹

INTRODUCTION

Historically, librarians have undertaken observational studies of their users, specifically, of their preferences for and uses of specific information source formats, online databases, and information technologies. User satisfaction studies of library collections and services have also been popular. With the advent of desktop computing, computer networks and online databases in the latter half of the twentieth century, research studies of all kinds and across all disciplines have become more numerous. In today's information society, research has grown into an integral activity no longer restricted to academics and research institutes. How has this trend affected the profession of health sciences librarianship? Has the number of research projects in this discipline increased in recent years? What study designs are being utilized?

As the foremost professional association for health sciences librarians and informationists in the United States of America, the Medical Library Association (MLA) sets priorities for its membership and more broadly, for the profession. In recent decades, MLA has begun to prioritize research. In 1995, MLA developed a research policy statement, *Using Scientific Evidence to Improve Information Practice*, which called on health sciences librarians to be proactive in creating, managing, and using scientific evidence [1]. In 2008, MLA published *The Research Imperative* [2]. Based on semi-structured interviews with key stakeholders, including editors of the *Journal of the Medical Library Association*, the research policy emphasizes evidence-based library and information practice. Six themes were identified: creation of a research culture, domains of research, research skills set, roles of stakeholders, challenges, and measurement of progress. In 2008 and 2011 the Research Agenda Committee of the Research Section of MLA identified the

fifteen most important researchable questions facing our profession. [3, 4] More recently teams have been conducting systematic reviews to determine the state of knowledge in these 15 areas. [5,6]. Clearly, there is increasing recognition within the profession of health sciences librarianship of the importance of the role of librarians as researchers and evidence based practice.

The *Journal of the Medical Library Association (JMLA)* is an open access, peer-reviewed journal published quarterly by the Medical Library Association. Current and previous full-text issues are freely available on PubMed Central. Previously known as the *Bulletin of the Medical Library Association (BMLA)*, this journal serves as a reputable publication of research studies about health sciences librarianship. Both major citation indexes, Elsevier's SCImago and Thomson Reuters' Journal Citation Reports rank the *JMLA* higher than comparable health sciences librarian journals in their respective lists of journal impact factors for library and information sciences journals. Of the 209 journals in the Library & Information Science (LIS) subject category indexed by the Scopus database, the SCImago Journal & Country Rank ranked the *JMLA* in thirty-eighth position in 2015 with an SJR of 0.726, ahead of *Health Information and Libraries Journal* (43; 0.650); *Evidence Based Library and Information Practice* (56, 0.586); *Medical Reference Services Quarterly* (65; 0.500); and *Journal of Hospital Librarianship* (125; 0.217). [9] Of the 86 journals in the LIS subject category indexed in the Journal Citation Reports database in 2015, the *JMLA* was ranked 37 with a journal impact factor of 1.084, while *Health Information and Libraries Journal* was ranked 50, with a journal impact factor of 0.712. The other aforementioned health sciences librarianship journals are not indexed in the Journal Citation Reports database. Clearly, the *JMLA* is the foremost publication for health sciences librarianship; articles published in this journal serve as a strong representation of the published research in this discipline. [7-9]

OBJECTIVE

This quantitative study seeks to determine whether health sciences librarians have undertaken more research activities in recent years by measuring the occurrences of research-related words in all issues of the peer-reviewed journal publication of the Medical Library Association and comparing the percentage of occurrences (prevalence) between the earlier publication, *Bulletin of the Medical Library Association* and the current publication, *Journal of the Medical Library Association*.

LITERATURE REVIEW

Several studies on librarianship research have been conducted by library science academics and academic librarians. These studies generally utilize a restricted time period, such as one year or five years, and examine a small number of library and information science (LIS) journals. Content analysis and bibliometrics are popular study designs.

In their content analysis of librarianship research, Koufogiannakis, Slater and Crumley examined the LIS journal literature for a one-year period in 2001. Of the 217 LIS journals reviewed, they included 107 journals in their study, of which 91 contained relevant data. Of the 2,664 journal articles examined, they classified 807 as research articles. The top LIS journals for research in 2001 were the *Journal of the American Society of Information Science and Technology* (JASIST); *Scientometrics*; *Information Processing & Management*; *College & Research Libraries*; *Bulletin of the Medical Library Association* (tied with *Journal of Library Administration*); *Libraries and Culture*; *Journal of Documentation*; and *Journal of Information Science* (tied with *Journal of Academic Librarianship*). According to the authors' classification scheme of six subject domains, "information access and retrieval" contained the greatest number of research articles and the most frequently published type of research was descriptive research. Non-experimental research, such as surveys, was found to be much more prevalent than experimental research. [10]

Slutsky and Aytac reviewed science librarianship research from 2008–2012 in four LIS journals: *Health Information & Libraries Journal* (HILJ); *Journal of the Medical Library Association* (JMLA); *Issues in Science & Technology Librarianship* (ISTL); and *Science & Technology Libraries* (STL). They analyzed the texts of 574 articles and classified them as either research or non-research. Non-research articles were removed from the analysis. Slightly more than half of all articles were classified as research (n=311; 54.2%). Study variables included authorship, affiliation, type of research, research topic, and data collection and data analysis techniques. Bibliometric data analysis revealed that there has been *a dramatic growth in research in these LIS journals for the years 2008-2012*. The majority of research papers featured quantitative study designs; qualitative studies comprised only 10% of the research articles examined. Quantitative data analysis overwhelmingly consisted of descriptive statistics (88.7%). The most popular study designs were survey, content analysis, citation analysis, and interviews. There was a significant difference among these four different publications with respect to the location of the study, context of research, research approach, and statistical analysis. As well, overall authorship was

highly collaborative; almost three-quarters of the research articles were written by two or more authors. Of interest, the *JMLA* contained the greatest number of research articles, followed by *HILJ*, *ISTL*, and *STL*. This finding lends support to the presumption that *JMLA* is a key journal, not only for health sciences librarianship research but for LIS research more broadly. [11]

In a more recent study, Slutsky and Aytac conducted a bibliometric analysis of research articles published in the aforementioned STEM librarianship journals, *ISTL* and *STL*, over a ten-year period (2005-2014). They found a greater number of research articles in *ISTL* but higher Scopus citation metrics for *STL*. As well, the most frequent topic in *STL* was “bibliometrics and citation analysis” while in *ISTL* it was “libraries and librarianship,” with “library resources” as the foremost topic. There were more author collaborations in *ISTL* than *STL*. Of interest, *JMLA* was ranked eighth in the list of top 25 LIS journals cited in issues in *ISTL* and thirteenth in the top 25 LIS journals cited in *STL*. [11] Clearly, *JMLA* is regarded as a reputable publication by science and technology librarians. [12]

From these three bibliometric and citation analysis studies of the LIS journal literature, it is apparent that *BMLA* and its successor, *JMLA*, are well regarded research publications in the field of library and information science. Analyzing the prevalence of research studies and study designs in these two publications is a valid method for determining whether there has been an increase in research productivity in health sciences librarianship over time as well as an increase in the diversity of study designs beyond surveys and interviews.

METHOD

To draw this comparison, the frequency (counts) and prevalence (percentages) of articles including words and phrases that are commonly used to describe research studies and methodologies were obtained from all issues of the *BMLA*, which was published from 1911 to 2001 (volumes 1-89), and its successor, *JMLA*, which has been published since 2002 (volumes 90-104). All issues are available online in full text from PubMed Central (PMC). These two journals were queried using the search interface on the PMC webpage for the journals' archive (www.ncbi.nlm.nih.gov/pmc/journals/93/).

Search statements began with the first topic, which is the name of the journal: *Bulletin of the Medical Library Association* and its successor, *Journal of the Medical Library Association*. The journal name was entered as the first search term in the search box: "Bulletin of the Medical Library Association"[Journal] for one set of searches and "Journal of the Medical Library Association : JMLA"[Journal] for the other set of searches. Next, the first search term was paired with a second concept, beginning with the search term *research*, in double quotation marks, which was added to subsequent searches. For the second concept, the search term was entered in separate searches with either the field limit [All Fields] or the field limits [Title] OR [Abstract]. Thus, two searches were conducted for each second concept. The [All Fields] searches are broad: they capture the search terms as they appear in any part of the full text documents. The [Title] OR [Abstract] field limits restrict the searches to those two bibliographic fields, thereby improving the precision of the searches.

Preliminary searches were conducted in late August, 2016. The original searches and new searches with additional second concept terms were conducted in early October, 2016 and also in mid-November 2016, when the fourth and final 2016 issue of *JMLA* was added to the journal repository site on PubMed Central. Tables 1-2 in the Results section below list all of the search statements and their corresponding number (counts and percentages) of search results. The searches progressed from broad to narrow as the search terms for the second concept became more specific.

Searching all issues of both *BMLA* and *JMLA* provides quantitative measures of all research-related words. The number of search results serves as a basic measure of the pervasiveness of research in this publication, and more broadly, in the field of health sciences librarianship. Search term frequencies and percentages can be tabulated to facilitate pairwise quantitative comparisons that indicate whether there has been an increase in published research activities in health sciences librarianship over time. The use of inferential statistics, more specifically, the paired t-test, enables the calculation of the statistical significance of difference in means of search results for *JMLA* in relation to its predecessor, *BMLA*.

The search results data were first entered into two comprehensive tables in a Microsoft Word document: one table for the [All Fields] searches and a second table for the [Title] OR [Abstract] field limited searches. All table columns were copied to an Excel spreadsheet and the spreadsheet was then imported to the statistical package, SPSS (Version 11). The appropriate inferential statistic, the paired t-test, was calculated to determine the strength and significance of the difference in means for the search results on research-related terms between *BMLA* and *JMLA* for (1) [All Fields] searches and (2) [Title] OR [Abstract] searches. Percentages, instead of counts, were compared to take into account the larger number of journal issues for *BMLA* in relation to *JMLA*, which is a function of the greater timespan for the publication of *BMLA*, and concomitant greater number of articles.

Unlike prior bibliometric and content analyses studies on the pervasiveness of research in the field of librarianship, the context of these terms was not investigated. Thus, all occurrence of research-related terms in *BMLA* and *JMLA* are included irrespective of whether they were published in research articles or appear in editorials, reviews and other non-research columns of *BMLA* and *JMLA*. This is an acceptable approach because the objective is not to categorize the topics of research, nor to investigate characteristics of authorship or citation patterns, but solely to determine whether an increase in (1) research and (2) study designs has occurred in the profession of health sciences librarianship from 2002 onward, when *BMLA* was renamed *JMLA*. Restricting the searches to the [Title] OR [Abstract] fields improves, to some extent, the relevance of search results because of the greater specificity and relationship to topicality than the broad [All Fields] searches.

RESULTS

The initial search, "Bulletin of the Medical Library Association"[Journal] retrieved 7256 results while the initial search, "Journal of the Medical Library Association : JMLA"[Journal], retrieved 1498 search results. The greater publication timespan of *BMLA* is accountable for this large difference in number of search results on journal title.

GENERAL RESEARCH SEARCH TERMS

SR	PMC search statement: <i>BMLA</i>	#	%	PMC search statement: <i>JMLA</i>	#	%
1	"Bulletin of the Medical Library Association"[Journal] Alternatively: "Bulletin of the Medical Library Association"[Journal] OR "Bull Med Libr Assoc"[Journal]	7256	100.0	"Journal of the Medical Library Association : JMLA"[Journal] Alternatively: "Journal of the Medical Library Association"[Journal] OR "J Med Libr Assoc"[Journal]	1498	100.0
2	"Bulletin of the Medical Library Association"[Journal] AND ("research"[All Fields])	2941	40.5	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("research"[All Fields])	1101	73.5
3	"Bulletin of the Medical Library Association"[Journal] AND ("study"[All Fields] OR "studies"[All Fields])	2945	40.6	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("study"[All Fields] OR "studies"[All Fields])	996	66.5
4	"Bulletin of the Medical Library Association"[Journal] AND ("study design"[All Fields])	32	0.4	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("study design"[All Fields])	75	5.0

Table 1a: Number of search results from PubMed Central queries of *BMLA* and *JMLA*, All Fields queries – general research search terms

In the following sub-sections of the Results section, the second concept, research-related, is operationalized as search terms for quantitative study designs (Table 2a,b); systematic review and meta-analysis (Table 3a,b); mixed-method study designs (Table 4a,b), and qualitative study designs (Table 5a,b).

An examination of research topics in *BMLA* and *JMLA* - Marton

When the search term "research" is added and the [All Fields] field limit is employed, the number of search results is somewhat more than halved to 2941 search results for the *Bulletin of the Medical Library Association* and 1101 search results for the *Journal of the Medical Library Association*. More importantly, the percentage is 40.5 for *BMLA* and research versus 73.5 for *JMLA* and research, almost a doubling of term occurrences. (Table 1a) For the comparable [Title] OR [Abstract] searches, the increase is even more dramatic: 4.6% for *BMLA* and research versus 18.8% for *JMLA* and research, a four-fold increase in term occurrence (Table 1b).

For this set of searches on general research terms, the mean number of search results for All Fields *BMLA* searches is 27.2 while the mean number of searches for All Fields *JMLA* searches is 48.3. For Title OR Abstract searches, the mean number of search results for *BMLA* searches is 3.3 while for *JMLA* searches it is 13.1. Thus, there is an increase over time for occurrence of general research terms.

SR	PMC search statement: <i>BMLA</i>	#	%	PMC search statement: <i>JMLA</i>	#	%
1	"Bulletin of the Medical Library Association"[Journal]	7256	100.0	"Journal of the Medical Library Association : JMLA"[Journal]	1498	100.0
2	"Bulletin of the Medical Library Association"[Journal] AND ((("research"[Title] OR "research"[Abstract]))	332	4.6	("Journal of the Medical Library Association : JMLA"[Journal]) AND ((("research"[Title] OR "research"[Abstract]))	281	18.8
3	"Bulletin of the Medical Library Association"[Journal] AND ((("study"[Title] OR "study"[Abstract]) OR ("studies"[Title] OR "studies"[Abstract]))	379	5.2	("Journal of the Medical Library Association : JMLA"[Journal]) AND ((("study"[Title] OR "study"[Abstract]) OR ("studies"[Title] OR "studies"[Abstract]))	301	20.1
4	"Bulletin of the Medical Library Association"[Journal] AND (("study design"[Title] OR "study design"[Abstract]) OR ("study designs"[Title] OR "study designs"[Abstract]))	2	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("study design"[Title] OR "study design"[Abstract]) OR ("study designs"[Title] OR "study designs"[Abstract]))	5	0.3

Table 1b: Number of search results from PubMed Central queries of *BMLA* and *JMLA*, Title OR Abstract queries – general research search terms

QUANTITATIVE RESEARCH SEARCH TERMS

SR	PMC search statement: BMLA	#	%	PMC search statement: JMLA	#	%
1	"Bulletin of the Medical Library Association"[Journal] AND ("quantitative"[All Fields] OR "quantify"[All Fields])	286	3.9	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("quantitative"[All Fields] OR "quantify"[All Fields])	182	12.2
2	"Bulletin of the Medical Library Association"[Journal] AND ("quantitative design"[All Fields])	0	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("quantitative design"[All Fields])	0	0
3	"Bulletin of the Medical Library Association"[Journal] AND ("survey"[All Fields] OR "surveys"[All Fields])	1615	22.3	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("survey"[All Fields] OR "surveys"[All Fields])	609	40.7
4	"Bulletin of the Medical Library Association"[Journal] AND ("questionnaire"[All Fields] OR "questionnaires"[All Fields])	655	9.0	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("questionnaire"[All Fields] OR "questionnaires"[All Fields])	215	14.4
5	"Bulletin of the Medical Library Association"[Journal] AND ("bibliometric"[All Fields])	49	0.7	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("bibliometric"[All Fields])	80	5.3
6	"Bulletin of the Medical Library Association"[Journal] AND ("citation analysis"[All Fields])	82	1.1	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("citation analysis"[All Fields])	85	5.7
7	"Bulletin of the Medical Library Association"[Journal] AND ("content analysis"[All Fields])	30	0.4	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("content analysis"[All Fields])	46	3.1

Table 2a: Number of search results from PubMed Central queries of *BMLA* and *JMLA*, All Fields queries –quantitative research search terms

The second set of research terms examined pertain to [quantitative study designs](#). The search results are presented in Table 2a and Table 2b. According to Creswell, a key characteristic of quantitative study is determinism. “Examining the relationships between and among variables is central to answering questions and hypotheses through surveys and experiments. The reduction to a parsimonious set of variables, tightly controlled through design or statistical analysis, provides measures or observations for testing a theory. Objective data results from empirical observations and measures. Validity and reliability of scores on instruments, additional standards for making knowledge claims, lead to meaningful interpretations of data.”[13]

In Tables 2a and 2b, several quantitative study designs are examined in relation to the occurrence of appropriate search terms in *BMLA* and *JMLA*. To begin, general terms, quantify and quantitative design, are utilized. Then, the searches are narrowed to specific quantitative methods, such as survey and questionnaire. Lastly, even narrower terms are employed, such as citation analysis. Although the term quantitative design is not to be found in the search results, there are many search results for surveys and questionnaires, and smaller numbers for bibliometric(s), content analysis(es) and citation analysis(es).

For each quantitative method, the percentage of search results for *JMLA* exceeds that of *BMLA*. The mean number of search results for *BMLA* All Fields searches on this set of quantitative study designs is 5.4 while the mean number of search results for *JMLA* All Fields searches is 11.6. For the Title OR Abstract searches, *BMLA* searches have a mean of 0.8 while *JMLA* searches have a mean of 2.4. These statistical findings demonstrate an increase in the number of occurrences of quantitative research-related terms over time.

An examination of research topics in *JMLA* and *BMLA* - Marton

SR	PMC search statement: BMLA	#	%	PMC search statement: JMLA	#	%
1	"Bulletin of the Medical Library Association"[Journal] AND ("quantitative"[Title] OR "quantitative"[Abstract]) OR ("quantify"[Title] OR "quantify"[Abstract]))	27	0.4	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("quantitative"[Title] OR "quantitative"[Abstract]) OR ("quantify"[Title] OR "quantify"[Abstract]))	20	1.3
2	"Bulletin of the Medical Library Association"[Journal] AND ("quantitative design"[Title] OR "quantitative design"[Abstract]) OR ("quantitative designs"[Title] OR "quantitative designs"[Abstract]))	0	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("quantitative design"[Title] OR "quantitative design"[Abstract]) OR ("quantitative designs"[Title] OR "quantitative designs"[Abstract]))	0	0
3	"Bulletin of the Medical Library Association"[Journal] AND ("survey"[Title] OR "survey"[Abstract]) OR ("surveys"[Title] OR "surveys"[Abstract]))	262	3.6	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("survey"[Title] OR "survey"[Abstract]) OR ("surveys"[Title] OR "surveys"[Abstract]))	147	9.8
4	"Bulletin of the Medical Library Association"[Journal] AND ("questionnaire"[Title] OR "questionnaire"[Abstract]) OR ("questionnaires"[Title] OR "questionnaires"[Abstract]))	86	1.2	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("questionnaire"[Title] OR "questionnaire"[Abstract]) OR ("questionnaires"[Title] OR "questionnaires"[Abstract]))	34	2.3
5	"Bulletin of the Medical Library Association"[Journal] AND ("bibliometric"[Title] OR "bibliometric"[Abstract]) OR ("bibliometrics"[Title] OR "bibliometrics"[Abstract]))	17	0.2	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("bibliometric"[Title] OR "bibliometric"[Abstract]) OR ("bibliometrics"[Title] OR "bibliometrics"[Abstract]))	20	1.3
6	"Bulletin of the Medical Library Association"[Journal] AND ("citation anaysis"[Title] OR "citation analysis"[Abstract]) OR ("citation analyses"[Title] OR "citation analyses"[Abstract]))	13	0.2	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("citation analysis"[Title] OR "citation analysis"[Abstract]) OR ("citation analyses"[Title] OR "citation analyses"[Abstract]))	28	1.7
7	"Bulletin of the Medical Library Association"[Journal] AND ("content analysis"[Title] OR "content analysis"[Abstract]) OR ("content analyses"[Title] OR "content analyses"[Abstract]))	7	0.1	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("content analysis"[Title] OR "content analysis"[Abstract]) OR ("content analyses"[Title] OR "content analyses"[Abstract]))	9	0.6

Table 2b: Number of search results from PubMed Central queries of *BMLA* and *JMLA*, Title OR Abstract queries –quantitative research search terms

SYSTEMATIC REVIEWS AND META-ANALYSES

A [systematic review](#) provides a comprehensive analysis of all existing primary studies on a very well-defined research question. It evaluates the methods employed in these studies, summarizes the results, presents important findings, identifies reasons for differences in findings across studies, and identifies the limitations of current knowledge. Combining the results mathematically through the use of statistical methods that summarize all of the findings from the primary studies is referred to as a [meta-analysis](#). [14]

SR	PMC search statement: <i>BMLA</i>	#	%	PMC search statement: <i>JMLA</i>	#	%
1	"Bulletin of the Medical Library Association"[Journal] AND ("systematic review"[All Fields] OR "systematic reviews"[All Fields])	19	0.3	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("systematic review"[All Fields] OR "systematic reviews"[All Fields])	287	19.2
2	"Bulletin of the Medical Library Association"[Journal] AND ("meta analysis"[All Fields] OR "meta analyses"[All Fields])	31	0.4	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("meta analysis"[All Fields] OR "meta analyses"[All Fields])	95	6.3

Table 3a: Number of search results from PubMed Central queries of *BMLA* and *JMLA*, All Fields queries – systematic review and meta-analysis search terms

For the All Fields searches of this set of research terms, the mean value of *BMLA* searches is 0.35 while the mean value of *JMLA* searches is 12.8. For the Title OR Abstract searches, the mean value of *BMLA* searches is 0.1 while the mean value of *JMLA* searches is 1.4. These statistical findings demonstrate an increase in the number of occurrences of these two research-related terms: systematic review(s) and meta-analysis(es) over time.

SR	PMC search statement: <i>BMLA</i>	#	%	PMC search statement: <i>JMLA</i>	#	%
1	"Bulletin of the Medical Library Association"[Journal] AND (("systematic review"[Title] OR "systematic review"[Abstract]) OR ("systematic reviews"[Title] OR "systematic reviews"[Abstract]))	5	0.1	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("systematic review"[Title] OR "systematic review"[Abstract]) OR ("systematic reviews"[Title] OR "systematic reviews"[Abstract]))	35	2.3
2	"Bulletin of the Medical Library Association"[Journal] AND (("meta analysis"[Title] OR "meta analysis"[Abstract]) OR ("meta analyses"[Title] OR "meta analyses"[Abstract]))	6	0.1	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("meta analysis"[Title] OR "meta analysis"[Abstract]) OR ("meta analyses"[Title] OR "meta analyses"[Abstract]))	7	0.5

Table 3b: Number of search results from PubMed Central queries of *BMLA* and *JMLA*, Title OR Abstract queries – systematic review and meta-analysis search terms

MIXED METHODS RESEARCH

Mixed methods study designs include both quantitative and qualitative methods. Either the quantitative or the qualitative component can be dominant, or they can co-exist equally. Creswell provides a useful matrix that illustrates the four decisions required to select a mixed methods approach. The use of a theoretical framework; the implementation sequence of quantitative and qualitative data collection; the priority given to quantitative and qualitative data collection and analysis, and the integration of quantitative and qualitative findings are key considerations for mixed methods designs. [15]

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SR	PMC search statement: <i>BMLA</i>	#	%	PMC search statement: <i>JMLA</i>	#	%
1	"Bulletin of the Medical Library Association"[Journal] AND ("mixed method"[All Fields] OR "mixed methods"[All Fields])	0	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("mixed method"[All Fields] OR "mixed methods"[All Fields])	21	1.4
2	"Bulletin of the Medical Library Association"[Journal] AND ("triangulation"[All Fields])	2	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("triangulation"[All Fields])	17	1.1

Table 4a: Number of search results from PubMed Central queries of *BMLA* and *JMLA*, All Fields queries – mixed methods search terms

SR	PMC search statement: <i>BMLA</i>	#	%	PMC search statement: <i>JMLA</i>	#	%
1	"Bulletin of the Medical Library Association"[Journal] AND (("mixed method"[Title] OR "mixed Method"[Abstract]) OR ("mixed methods"[Title] OR "mixed methods"[Abstract]))	0	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("mixed method"[Title] OR "mixed method"[Abstract]) OR ("mixed methods"[Title] OR "mixed methods"[Abstract]))	5	0.3
2	"Bulletin of the Medical Library Association"[Journal] AND (("triangulation"[Title] OR "triangulation"[Abstract]) OR ("triangulate"[Title] OR "triangulate"[Abstract]))	0	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("triangulation"[Title] OR "triangulation"[Abstract]) OR ("triangulate"[Title] OR "triangulate"[Abstract]))	2	0.1

Table 4b: Number of search results from PubMed Central queries of *BMLA* and *JMLA*, Title OR Abstract queries – mixed methods search terms

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QUALITATIVE RESEARCH SEARCH TERMS

Creswell characterizes [qualitative research](#) as broad, holistic, reflective and interpretative. [16] For this fifth and final set of searches on research-related terms in *BMLA* and *JMLA*, general terms for qualitative research, qualitative and qualitative design, are entered first, followed by more specific search terms for individual qualitative approaches: interview(s), focus group(s), critical incident(s), and phenomenology. For the All Fields searches, the mean value for *BMLA* searches is 2.3 while the mean value for *JMLA* searches is 8.3, an almost four-fold difference. For the Title OR Abstract searches, the mean value for *BMLA* searches is 0.1 while the mean value for *JMLA* searches is 0.85, an eight-fold difference. These statistical findings demonstrate an increase in the number of occurrences of qualitative research term over time.

SR	PMC search statement: <i>BMLA</i>	#	%	PMC search statement: <i>JMLA</i>	#	%
1	"Bulletin of the Medical Library Association"[Journal] AND ("qualitative"[All Fields] OR "descriptive"[All Fields])	518	7.1	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("qualitative"[All Fields] OR "descriptive"[All Fields])	343	22.9
2	"Bulletin of the Medical Library Association"[Journal] AND ("qualitative design"[All Fields])	0	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("qualitative design"[All Fields])	1	0.3
3	"Bulletin of the Medical Library Association"[Journal] AND ("interview"[All Fields] OR "interviews"[All Fields])	375	5.2	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("interview"[All Fields] OR "interviews"[All Fields])	261	17.4
4	"Bulletin of the Medical Library Association"[Journal] AND ("focus group"[All Fields] OR "focus groups"[All Fields])	48	0.7	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("focus group"[All Fields] OR "focus groups"[All Fields])	119	7.9
5	"Bulletin of the Medical Library Association"[Journal] AND ("critical incident"[All Fields] OR "critical incidents"[All Fields])	34	0.5	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("critical incident"[All Fields] OR "critical incidents"[All Fields])	12	0.8
6	"Bulletin of the Medical Library Association"[Journal] AND ("phenomenology"[All Fields] OR "phenomenological"[All Fields])	5	0.1	("Journal of the Medical Library Association : JMLA"[Journal]) AND ("phenomenology"[All Fields] OR "phenomenological"[All Fields])	4	0.3

Table 5a: Number of search results from PubMed Central queries of *BMLA* and *JMLA*, All Fields queries – qualitative research search terms

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SR	PMC search statement: <i>BMLA</i>	#	%	PMC search statement: <i>JMLA</i>	#	%
1	"Bulletin of the Medical Library Association"[Journal] AND (("qualitative"[Title] OR "qualitative"[Abstract]) OR ("descriptive"[Title] OR "descriptive"[Abstract]))	33	0.5	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("qualitative"[Title] OR "qualitative"[Abstract]) OR ("descriptive"[Title] OR "descriptive"[Abstract]))	50	3.3
2	"Bulletin of the Medical Library Association"[Journal] AND (("qualitative design"[Title] OR "qualitative design"[Abstract]) OR ("qualitative designs"[Title] OR "qualitative designs"[Abstract]))	0	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("qualitative design"[Title] OR "qualitative design"[Abstract]) OR ("qualitative designs"[Title] OR "qualitative designs"[Abstract]))	0	0
3	"Bulletin of the Medical Library Association"[Journal] AND (("interview"[Title] OR "interview"[Abstract]) OR ("interviews"[Title] OR "interviews"[Abstract]))	35	0.5	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("interview"[Title] OR "interview"[Abstract]) OR ("interviews"[Title] OR "interviews"[Abstract]))	52	3.5
4	"Bulletin of the Medical Library Association"[Journal] AND ("focus group"[Title] OR "focus group"[Abstract]) OR ("focus groups"[Title] OR "focus groups"[Abstract]))	4	0.1	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("focus group"[Title] OR "focus group"[Abstract]) OR ("focus groups"[Title] OR "focus groups"[Abstract]))	17	1.1
5	"Bulletin of the Medical Library Association"[Journal] AND (("critical incident"[Title] OR "critical incident"[Abstract]) OR ("critical incidents"[Title] OR "critical incidents"[Abstract]))	1	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("critical incident"[Title] OR "critical incident"[Abstract]) OR ("critical incidents"[Title] OR "critical incidents"[Abstract]))	1	0.1
6	"Bulletin of the Medical Library Association"[Journal] AND (("phenomenology"[Title] OR "phenomenology"[Abstract]) OR ("phenomenological"[Title] OR "phenomenological"[Abstract]))	0	0	("Journal of the Medical Library Association : JMLA"[Journal]) AND (("phenomenology"[Title] OR "phenomenology"[Abstract]) OR ("phenomenological"[Title] OR "phenomenological"[Abstract]))	1	0.1

Table 5b: Number of search results from PubMed Central queries of *BMLA* and *JMLA*, Title OR Abstract queries – qualitative research search terms

SUMMARY OF FINDINGS

Progressively narrowing the searches through the addition of the second concept, the research-related terms, predictively reduces the number of search results, with more specific search terms reducing the number of search results considerably. Moreover, when the second search concept is restricted to [Title] OR [Abstract], there is a five to ten-fold reduction in the number of search results in comparison to the [All Fields] searches. The higher percentage of research-related search results for *JMLA* searches relative to *BMLA* searches is found consistently for all searches, for both the [All Fields] searches and the [Title] OR [Abstract] searches.

Clearly, there is a marked increase in general and specific research-related terms in *JMLA* relative to its predecessor, *BMLA*. Paired t-tests conducted in the statistical package, SPSS (version 11) demonstrate that these differences are statistically significant for both the All Fields searches ($t=4.092$, $df=19$, $p=.001$) and the Title OR Abstract searches ($t=2.615$, $df=19$, $p=.017$). Overall, the quantitative data analysis of occurrences of research-related terms indicates that there is an increase in published research activity in the health sciences librarianship profession over time, with the largest noticeable increase for systematic reviews.

DISCUSSION

Conducting searches within issues of the *Bulletin of the Medical Library Association* and the *Journal of the Medical Library Association* reveal several interesting findings concerning the prominence of research in this leading health sciences librarianship journal over time, as measured by percentage of search terms. First, the word research appears in abundance in both *BMLA* and *JMLA*. The word study and its plural, studies, is also frequently found in *BMLA* and *JMLA*. The large number of search results suggests a prominent role for research in health sciences librarianship. Paired t-tests comparing *BMLA* searches to *JMLA* searches demonstrate statistically significant increases in occurrences of research-related terms over time for general research terms, quantitative research terms, qualitative research terms, and mixed-methods research terms. All research-related search terms are mentioned more frequently in *JMLA* than *BMLA* suggesting that health sciences librarianship research has increased since 2002, which supports a finding by Slutsky and Aytac concerning the increase in research in librarianship. As well, a greater diversity of study designs are being utilized.

Surveys are popular. Surveys are commonly questionnaires. However, they can also take the form of interviews that utilize a pre-determined set of questions and list of responses. Well-known qualitative methods, such as open-ended interviews and focus groups are also popular. The predominance of quantitative, non-experimental designs, confirms findings from earlier research on LIS journals conducted by Koufogiannakis, Slater, and Crumley and by Slutsky and Aytac. Less well known qualitative study designs, such as the critical incident technique and phenomenological approaches, are infrequently found in both *BMLA* and *JMLA*.

Systematic reviews, a form of secondary research, has gained considerably in visibility. The significant increase in mention of systematic reviews is an interesting trend that is reflective of the current interest in evidence-based medicine (EBM) and evidence-based practice (EBP).

LIMITATIONS

There are several limitations associated with this type of study. First, number of search results is a very basic quantitative measure that is largely devoid of context. This method can be refined by searching each individual issue of *BMLA* and *JMLA* and counting the number of search results per search term. As well, the occurrence of each search term in individual articles would represent a further refinement of this measure and determine to some extent the context in which these research-related terms are utilized. Second, health sciences librarians have other publication options, such as *Health Information and Libraries Journal*, *Medical Reference Services Quarterly* and *Journal of Hospital Librarianship*, to name but a few journal titles in this discipline. As well, they can publish their research in health sciences journals or information science journals. Thus, a quantitative study that focuses solely on counting the number of search results for research-related terms in one journal, albeit a prominent journal in its field, will only capture a fraction of the research studies published in the journal literature by health sciences librarians.

FUTURE DIRECTIONS

Future studies to investigate this research topic further include replication studies utilizing the research method employed in this study for investigation in other health sciences librarianship journals to determine if the same trends are present. As well, this research method could be utilized in future studies but with a more fine-grained approach to searching for research-related

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terms in specific issues of *BMLA* and *JMLA*. Additional research-related search terms could be considered for inclusion, such as thematic analysis, inductive analysis, theoretical framework, and inferential statistics, among others. Another avenue to explore is authorship metrics in relation to study design. For example, Wheeler, Yaniv and Fenske determined the most influential authors who are members of the MLA Research Section, according to number of citations in the Web of Science Citation Report. Carol Lefebvre's articles on systematic reviews were in the top ten papers in the LIS discipline, suggesting a relationship between citation count and study design. [17] Author affiliation is also of interest. For example, Hardin and Stankus reported the institutional affiliations of the published academic science, engineering, agricultural, and medical librarians over a ten-year period (2000-2010). The LIS journals examined were *Science & Technology Libraries*; *Issues in Science and Technology Librarianship*; *Journal of Agricultural and Food Information*; *Journal of the Medical Library Association*; and *Medical Reference Services Quarterly*. The top US affiliations in this set of LIS journals were: Illinois, Purdue, Texas, Penn State and Cornell. [18] Exploring relationships between author h-index, author affiliation, article citation count, journal ranking, and study design may yield interesting findings.

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TITLE

Customizing the iPad to Support a Clinical Fellowship in Radiology: a Qualitative Study

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OBJECTIVE

To determine the value of providing Fellows in the Breast Imaging Service (Department of Radiology) with iPad mini tablets pre-loaded with apps/resources/websites/tools, to test whether a tablet is a viable delivery platform for supporting the research needs of Fellows.

LITERATURE REVIEW

There is little evidence in the published literature describing use of a tablet to support the general needs of a clinical group in the hospital setting. Clinical information needs can range from bibliographic management support, research methods, literature searching, keeping current with research in the field, and workflow and knowledge organization support, to name a few. Most of the literature consists of using tablets/iPads for educational purposes in various settings, both clinical and educational [1-5] The most closely related research found to the content of this study was the Sharpe et al. study from 2013, which focuses on delivering a “Radiology Resident iPad Toolbox” to the residents at the University of Colorado [6] The approach taken in the Sharpe study is similar to our study in that the investigators come up with a collection of resources to support the needs of the Residents. The major difference is that the Sharpe study investigators anonymously surveyed the Residents three months after program implementation. Our plan includes surveying the Fellows pre- and post-clinical rotation.

RESEARCH QUESTIONS

What is the value of supplying Fellows with iPad mini tablets pre-loaded with productivity apps, pertinent e-books, diagnostic tools, health information resource pathways, and current awareness resources? Does a tablet with selected resources enhance the Fellows experience during a one-year clinical rotation in a Radiology service?

METHODS

The approach to gathering data to answer these questions consisted of pre- and post-clinical rotation survey questionnaires, administered via SurveyMonkey online. During the annual Fellows orientation, the Research Informationist introduced the iPad and provided an overview of the various clinical, productivity, and research tools available—at which time the first questionnaire was administered to garner initial impressions on the iPad and its resources. The post-survey was administered during the exit interview after the Fellows' rotation was complete. All Fellows (n=6) completed the pre- and post-questionnaire as a mandatory component of their fellowship. All Fellows agreed to participate in this IRB-waived study. Survey results were analyzed using qualitative techniques by both the Research Informationist and the Attending Radiologist who oversees the education program for rotating Fellows and Residents. A qualitative analysis approach and survey design was decided upon as the most appropriate method for garnering anecdotal feedback from Fellows and creating a narrative of survey results. See Pre-Fellowship Survey for questions asked (Post-Fellowship Survey grammar was adjusted to reflect the past tense, but all questions remained the same).

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Pre-Fellowship Survey:

1. At first glance, the resources provided on the iPad (apps, websites, tools, journals, etc.) seem to meet my productivity and workflow needs.
 - Strongly agree
 - Agree
 - Undecided
 - Disagree
 - Strongly disagree
2. Based on personal importance and what you think will be the top items you will use each day, please rank the following resources on the iPad (1=most important, 7=least important).
 - eBooks
 - eJournals
 - Databases
 - Productivity Tools (includes email, PDF annotation app, and Microsoft Office apps)
 - Web browser
 - Internal MSK webpages
 - Clinical Medical Librarian (your information specialist contact)
3. Generally, how often do you think you will use the iPad and its resources?
 - Once a day
 - More than once a day
 - Once a week
 - More than once a week
 - Monthly
4. How do you think you will most use the iPad in general or the resources available? Please select all that apply.
 - I will not use the iPad or its resources
 - Change approach to a particular patient and/or future patient(s)
 - Facilitate sharing/discussing information with colleagues
 - Presenting
 - Research or publish
 - Apply for grant funding
 - Revision of clinical pathways, practice guidelines, policies or procedures

RESULTS

Comparing the pre- and post-rotation survey results determined future perspectives on continuing an iPad program under the responsibility of the Research Informationist and assisted in prioritizing the selected resources and identifying future training opportunities. As the survey results suggested, 100% (n=6) of the respondents either agreed or strongly agreed that the resources/apps provided on the iPad met their productivity or workflow needs during their rotation. This was a change from the responses pre-rotation where 83% of Fellows agreed/strongly agreed and 16% were undecided at the time. Most free-text comments to this question consisted of the usefulness of the iPad for referencing the American College of Radiology's BI-RADS clinical e-book which provides standardized breast imaging findings terminology, report organization, assessment structure and a classification system for mammography, ultrasound and MRI of the breast [7].

When asked about why type of resources were most important for their clinical/research needs on the iPad, e-books and productivity tools (including MS Office and PDF annotation app) received the most votes with 83%. The top resources reported during the pre-rotation survey for this question included productivity tools, web browsing, and internal web pages, all at 83%.

When questioned about prospective usage of the iPad versus actual usage of the device, the responses varied from pre- to post-rotation. Before beginning their fellowship, 67% of respondents thought that they would use the iPad more than once a day. Upon completion of their fellowship, only 16% reported using the iPad and its resources more than once a day.

The final question to the survey consisted of how Fellows thought they would most use the resources or the iPad, generally. Pre-rotation survey responses indicated that 83% would use the iPad and its resources for sharing/discussion with colleagues, as well as, for general research or publishing. Post-rotation answers showed that the iPad was most used for presenting and/or general research/publishing (50%), as well as, revision of clinical pathways (50%).

DISCUSSION

Although the survey results indicated that the iPads were used less frequently than originally anticipated by the Fellows, the weighted importance of the resources provided and the impact of using the iPad throughout their fellowship was positive and well-received overall. Noteworthy findings include the shift in initial thoughts on reasons for iPad use versus how the iPads were actually used during the fellowship. Specifically, the shift from a more general-purpose research focus to a more clinical focus in terms of usage shows an opportunity for supporting more clinical research needs of the Fellows. This could include assistance with gathering the highest level evidence for difficult/interesting patient cases, and/or providing guidance in organizing clinical data for analysis and interpretation.

By examining the survey responses, changes or enhancements can be made to the resources/apps offered on the iPad for future fellowship cohorts. For instance, key eBooks can be made more prominent on the device as this type of resource ended up being used frequently (and voted highly important) by the Fellows. Outlook on the use of the liaison Research Informationist services (literature search, project guidance, bibliographic management tool support, general training/consult, etc.) remained the same both pre- and post-rotation. The services provided by the Research Informationist can be adapted to be more relevant and supportive of the actual research and clinical endeavors undertaken by the Fellows. This can take the form of training on targeted resources (such as the ACR BI-RADS) and key research services offered by the Library (such as scholarly communication and getting published). Enhancing the Informationist/Library component of the Fellows' research support services by way of the iPad, could have a positive impact on the Fellows' experience with the mobile device.

LIMITATIONS

The customization of the iPad was well received among Fellows in this pilot study but had certain limitations. Where it fell short was its inability to handle file transfer/storage of documents. Fellows reported consistently reverting back to using more traditional technology like a laptop or desktop computer to store and access large files. This is an inherent limitation of the iPad.

CONCLUSIONS

This survey study has revealed a positive impact, value, and experience on having a customized iPad during a clinical fellowship. Data gathered suggest that the iPad was a time-saver and provided in-context and in-the-moment resources. A noticeable upswing in research consultation and informal training requests were observed, although adapting to the changing needs of the Fellows to offer more targeted training would be beneficial. Including more clinical research-focused resources/apps to the iPad would help to bring more value to the iPad program as Fellows reported using the iPad to revise clinical pathways and support their clinical work.

FUTURE DIRECTIONS

More research in the area of providing technology solutions to clinical focus areas is needed to determine the lasting impact and value of this type of service. The pilot iPad program described in this study can be expanded to other clinical groups at other institutions. Librarians and Informationists are in a unique position to facilitate and disseminate knowledge in a variety of mediums and formats. Using the collective skills of the information and knowledge management profession could lead to added benefits of offering technology solutions to support the research and patient care needs of targeted clinical groups.

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Editorial Board 2016 profile: Ayaba Logan, MLIS, MPH

Ayaba Logan earned her Bachelor of Art in Sociology and Public Health from Spelman College. She went on to pursue a Master of Public Health from the University of Michigan, and a Master of Library and Information Studies from The University of Alabama. Mrs. Logan is interested in Qualitative Research, Systematic Reviews, Citation analysis, Assessment and Evaluation, Data Visualization, and Instruction. Currently, Ayaba is a Research and Education Informationist at the Medical University of South Carolina under the leadership of Shannon Jones, MEd, MIS, MLS. Ayaba has joint appointments with the Department of Public Health Sciences (College of Medicine) and College of Nursing. As an Informationist/Librarian, Ayaba is heavily involved with conducting systematic and other reviews and library instruction evaluation/assessment. Lastly, Ayaba enjoys time with her hubby, their daughters, and traveling abroad.

Research Section Awards - De Groote, Lyon, Henner, and Kim Powell

TITLE

MLA 2016 Annual Meeting Research Award Winners

AUTHORS

Sandra De Groote, Jennifer Lyon, Terry Henner, & Kim Powell

Co-Chairs, Awards Committee, Research Section, Medical Library Association

INTRODUCTION

Congratulations to the 2016 MLA/MOSAIC Annual Meeting Research Award winners selected by the Research Section Awards Committee and Judges! Thanks to the 44 preconference and onsite judges for their excellent efforts to identify these wonderful papers and posters using the evaluation criteria on the Research Section website. The Research Section presented a \$100 cash award for 1st Place for both papers and posters, and also for the best paper/ poster that included a hospital librarian as an author. A \$50 cash award is presented for 2nd Place for both paper and poster, and a \$25 cash award is presented for each Honorable Mention paper and poster. Enjoy the abstracts of the winning papers and posters. We hope that you are inspired to submit your research for future annual meetings.

We would also like to recognize the awardee of the Best JMLA Research Paper for 2014-2015. The Research Section presented a \$100 cash award to the recipient who kindly donated it to FirstBook (<http://www.firstbook.org>), a charity focused on providing books and reading material to children in need.

CONTRIBUTED PAPERS

FIRST PLACE

Authors: Julie M. Glanville, Associate Director, York Health Economics Consortium Ltd, York, United Kingdom; Gordon Dooley, Director, Metaxis Ltd, Curbridge, United Kingdom; Anna Noel-Storr, Trials Search Coordinator, Cochrane Dementia and Cognitive Improvement Group, Oxford, United Kingdom; Ruth Foxlee, Information Specialist, Cochrane Editorial Unit, London, United Kingdom

Title: Improving Access to Reports of Randomized Controlled Trials in Embase: Innovative Methods Enhance the Cochrane Central Register of Controlled Trials (CENTRAL)

Section Program: Expert Searching

Abstract:

Objectives: Systematic reviews rely on the efficient identification of research evidence, specifically from randomised controlled trials (RCTs). The largest single source of reports of RCTs is the Cochrane Central Register of Controlled Trials (CENTRAL) in The Cochrane Library. Our objective was to develop a search filter to identify reports of RCTs from Embase, for inclusion in CENTRAL.

Methods: We developed, validated and refined a sensitive search filter to identify reports of RCTs in Embase for inclusion in CENTRAL. The filter was developed using textual analysis of ten randomly selected gold standard sets of RCT records from Embase (totaling 10,000 records published over ten years). The filter performance was tested on a second set of randomly selected 10,000 RCT reports. Following revisions to the filter, it was then validated on a third set of randomly selected 10,000 RCT reports. The performance of the filter was also tested against the previous Cochrane Embase RCT filter. The search filter was then used for one year to identify candidate RCT records from Embase. After one year the filter was refined based on an analysis of the records rejected over the previous year.

Research Section Awards - De Groote, Lyon, Henner, and Kim Powell

Results: The development of the search filter and the analysis of output from Embase has resulted in a tiered assessment process, where the most obvious RCT reports are fast-tracked for publication in CENTRAL, leaving more capacity to assess the relevance of less obvious candidate records. Over twelve months of operating the new filter 146879 records have been processed by the crowd and 60814 reports of RCTs identified. The revised filter was implemented in early 2015 and the results using the revised filter will be presented after February 1 2016.

Conclusions: The records identified by the filter and processed by Cochrane Collaboration volunteers has made many thousands of reports of RCTs unique to Embase, available in CENTRAL. These RCTs might be otherwise inaccessible to researchers conducting systematic reviews since many reviewers may not have access to Embase.

SECOND PLACE

Authors: Julia M. Esparza, AHIP, Head, User Education and Outreach Services/Associate Professor, Health Sciences Library, Shreveport, Louisiana; David C. Duggar, AHIP, Head, Library Liaison Program, LSU Health Shreveport, Health Sciences Library, Shreveport, Louisiana; Taylor Gatson, Research Apprentice, Department of Internal Medicine, Shreveport, Louisiana; Deepthi Gangireddy, House Officer Program Year 3, Department of Internal Medicine, Shreveport, Louisiana; Megan Hughes, House Officer Program Year 2, Department of Internal Medicine, Shreveport, Louisiana; Gunjan Kahlon, Chief, Internal Medicine Section, Department of Internal Medicine, Shreveport, Louisiana

Title: Morning Report Mosaic: Information Resources Used to Answer Clinical Questions from Morning Report

Section Program: Clinical Decision Making

Abstract:

Objectives: Klein-Fedyshin et al., from the University of Pittsburgh Health Sciences Library System (UPHSLS), recently published their research, “Evaluating the MEDLINE Core Clinical Journals (CCJ) Filter.” This article prompted the following research questions: Do the information resources used by library faculty at LSU Health Shreveport (LSUHS) for Internal Medicine Morning Report Follow-up differ from those used by UPHSLS to answer their Morning Report questions? If there are differences, what are they?

Methods: Morning Report topics and the resources (textbooks, web documents, journals, etc.) used to answer related questions from October 2013 to June 2015 were analyzed. Journal sub-analysis was completed by: a) Bradford’s law of scattering, b) Institute for Scientific Information Impact Factor, c) National Library of Medicine Medline CCJ list, d) citations per journal title, and e) date distribution of journal citations. In addition, two residents reviewed the Morning Report topics and placed them into broad Medical Subject Heading categories. If there was a conflict, a senior clinical faculty member made the final decision on subject assignment after consulting with the residents. Textbooks were ranked by usage to determine the most prevalent titles for answering Internal Medicine clinical information needs.

Results: Communicable disease, gastroenterology, cardiology, hematology, and nephrology were the top five subjects out of the 900 topics. Twenty textbooks were used to answer 76% of the clinical questions. Similarities between UPHSLS and LSUHS included: 55% of the top 20-22 journals used were on the CCJ list, 8% of the journals also appeared in the top Bradford tier, and 85% of the articles used were from the most recent ten years. A difference was that 60% of the Bradford titles were on the CCJ list at LSUHS, while 55% were at UPHSLS. The institutions had a 35% overlap of titles. When evaluating the impact factor of the journals, the top 20 journals in the Journal Citation Reports General, Internal Medicine list had an overlap of 65%.

Conclusions: By replicating the UPHSLS study, five points stand out. The percentage of resources used from the CCJ is comparable. Individual title use differed which should be considered when evaluating a journal collection against collection development lists. It takes many journals in comparison to textbooks to answer clinical questions. Journal articles within the last ten years will answer a majority of clinical questions. Key clinical information may be missed when using the CCJ filter in PubMed.

HONORABLE MENTION

Authors: Robin M. N Parker, Evidence Synthesis and Information Services Librarian, WK Kellogg Health Sciences Library, Halifax, Nova Scotia, Canada; Sarah M. Visintini, Evidence Synthesis Coordinator, Maritimes SPOR Support Unit and Nova Scotia Site of Cochrane Canada, Halifax, Nova Scotia, Canada; Leah M. N Boulos, MLIS Candidate and Student Intern, WK Kellogg Health Sciences Library, Halifax, Nova Scotia, Canada; Krista Ritchie, Assistant Professor, Educational Psychology, Faculty of Education, Halifax, Nova Scotia, Canada; Jill A. Hayden, Associate Professor, Dept. of Community Health & Epidemiology, Dalhousie University, Halifax, Nova Scotia, Canada

Title: Supporting Knowledge Synthesis Methods Training: Review of the Evidence for Online Systematic Review Instruction

Section Program: Lightning Talks #1

Abstract:

Objectives: Health librarians' support for systematic reviews includes directing reviewers to high-quality educational resources. Extensive research into online learning exists, but is it used to guide online delivery of systematic review training? In order to recommend high-quality training this project addresses the question: Are online approaches for teaching systematic review methodology based on best practices for online instruction?

Methods: We conducted a comprehensive review of published educational and biomedical literature to identify reports of online instruction in systematic review methods. The paucity of academic literature precipitated an environmental scan to inventory existing web-based approaches. Online training resources were located using strategic web searches. We included instructional material for which we could access the course content freely online or by contacting the creators. After screening to ensure relevance to systematic review methods we extracted data on course characteristics. Using a detailed evaluation rubric developed by Foster et al. (2014) for online evidence-based practice instruction, two reviewers assessed the included courses and tools using the following criteria: 1) design; 2) format; 3) content; 4) degree and type of interactivity; 5) general usability. This evaluation revealed the extent to which the training resources followed accepted best practices in online instruction.

Results: We present the results of our evaluation of online courses, modules, and videos that provide instruction on some or all of the steps of conducting systematic reviews. Resources assessed varied in means of delivery, type of access (free or for-fee), and intended audience. The content was similarly diverse, with some courses or series of modules covering all steps of the systematic review process, while others, particularly video tutorials, frequently addressing only a portion of the stages of conducting a review and having minimal interactivity.

Conclusions: There is a range of resources available those learning how to conduct systematic reviews or other knowledge synthesis projects. The most appropriate training will depend on the needs and resources of the individual researcher: freely available videos and training modules may give a helpful overview of the process or a reminder of common challenges while online systematic review courses offered by research or academic institutions provide more in-depth and interactive coverage of each step and will help reviewers complete a systematic review in real-time, however they are frequently costly or require a more significant commitment of time.

Editorial Board 2016 profile: Krystal Bullars, MLIS, AHIP

Krystal Bullars is the Shimberg Health Science Library's liaison librarian to the College of Pharmacy and emerging technologies librarian for USF Health. She has participated in three systematic reviews to date, co-authored five posters, and serves as advisor to pharmacy doctoral candidates performing systematic reviews. Her research interests include the librarian's role in systematic reviews and effective transmission of drug information search and literature evaluation skills.

CONTRIBUTED POSTERS

FIRST PLACE

Authors: Kelly Farrah, AHIP – Research Information Specialist, CADTH; Monika Mierzwinski-Urban – Information Specialist, Information Services

Title: How Is Gray Literature Used in Horizon Scanning Reports on Medical Devices?

Abstract:

Objectives: Horizon scanning is a process used to identify and monitor new and emerging health technologies. Often, scant literature on these cutting-edge technologies exists in bibliographic databases. This project investigated the use of grey literature in horizon scanning reports on non-drug medical technologies, including: how often it is cited and which sources are most frequently cited.

Methods: A retrospective review of horizon scanning reports on non-drug medical technologies, including medical devices, laboratory tests, and procedures was conducted. A random sample of 22 reports was selected from a compilation of 130 reports published in 2014 by major international horizon scanning services and health organizations. For all reports, the percentage of grey literature references cited compared to bibliographic references was calculated. For each grey literature reference cited, the source of the reference was recorded. Additionally, each grey literature reference was classified by type using pre-determined categories. The total number of times a source was cited in the bibliographies of all the reports was computed. The most frequently cited sources in each category type will be used to recommend key websites for grey literature searching on new and emerging non-drug medical technologies.

Results: On average, 48% (299/617) of the references listed in the bibliographies of the horizon scanning reports reviewed were grey literature. The three most frequently cited types of grey literature were information from manufacturers (29% of all grey literature references, including manufacturers' press releases), regulatory agencies (9%), and clinical trial registries (9%). The U.S. Food and Drug Administration (FDA) and Clinicaltrials.gov were the most frequently cited specific sources, comprising 7% and 9% of grey literature references respectively. There was great diversity amongst all other sources cited in the horizon scanning reports, with each appearing with a frequency of 2% or less in the bibliographies of all reports.

Conclusions: Grey literature represents a large proportion of references cited in horizon scanning reports on non-drug medical technologies. Approximately a third of grey literature references originated from the manufacturers of these technologies. Almost half of the grey literature cited came from three sources: the manufacturers, Clinicaltrials.gov, and the FDA. Due to heterogeneity in the other grey literature sources cited, it would be difficult to create one standard checklist of key websites for identifying grey literature across all types of non-drug technologies. Further research is needed to examine the context in which grey literature is used within horizon scanning reports.

SECOND PLACE

Authors: Patricia F. Anderson – Emerging Technologies Informationist, Taubman Library, University of Michigan; Matthew S. Katz – Doctor, Lowell General Hospital

Title: Engaging Diverse Communities in Cancer Conversations Through Creation of Structure and Metadata within Twitter

Abstract:

Objectives: Intending to develop an online space engaging to both clinicians and patients, we created a cancer tag ontology for Twitter. The goal was to foster boundary-spanning between diverse communities through partnership, to build off the successes and best practices of existing Twitter cancer hashtag communities, and to encourage self-managed communities for information quality, in the context of appropriate metadata practices.

Methods: Based upon two de novo hashtags, #bcm and #btm, an organized system of hashtags, the cancer tag ontology (CTO) was designed in July 2013 for online use. Metadata criteria applied included factors such as length, standard formatting, adherence to alphabetical sorting for related subtopics, and similar principles. All tweets were archived in the Symplur Healthcare Hashtag Project for later analysis. We conducted a retrospective study of 25 hashtags used on Twitter April 2011 – September 2014 using data from Symplur, LLC. We classified up to 100 most active users of each hashtag as follows: patient; doctor; non-doctor health care professional (HCP); individual NOS (I); healthcare organization (HCO), other organization (OO); or spam. Tweet activity was analyzed quarterly for all tags.

Results: The study included 531,765 tweets from 77,454 users. The original hashtags (#bcs, #bts) had the most use with 249,312 and 110,465 tweets. Other tags began use in Q3 2013, with the most active new tags being those with Twitter chats: #ayacsm; #gynacsm; #lscsm; #mmsm; #pancsm. These accounted for 93% of measured Twitter activity. User participation breakdown showed 11% patients, 20% doctors, 3% HCP, 32% I, 30% HCO, 1% OO, and 3% spam, with patients most active with ~46 tweets each. All NIH Comprehensive Cancer Centers use the tag ontology. Wide adoption has spawned three new tag ontologies: oncology, radiology, urology.

Conclusions: Typical hashtag adoption patterns have shown a reluctance to adopt prescribed hashtags outside of formal events. The success of the tag ontology shows the desire for engagement and partnership among the target communities. We have demonstrated the feasibility and growth of organized, cancer-specific hashtags on Twitter used by a variety of stakeholders in cancer care. Use of the CTO indicates potential value of online interaction. Further study is needed to determine whether the CTO has any impact on access, outcomes, information quality, as a model for other areas of medicine, or as a resource for future research.

Editorial Board 2016 profile: Abby L. Adamczyk, MLIS, AHIP

Abby L. Adamczyk is the Liaison Librarian for Life Sciences at Drexel University, working with students and faculty in biology, chemistry, and the biomedical sciences. Previously, she held the position of Research Librarian at the University of Utah Spencer S. Eccles Health Sciences Library, supporting health sciences researchers in both the clinical and biomedical sciences. Prior to her career as a librarian, Abby worked at Johns Hopkins University as a research technologist in the field of human genetics. She holds a bachelor's degree in Biochemistry from Indiana University of Pennsylvania, and an MLIS from the University of Pittsburgh. Abby's current research interests include the data management practices of researchers and their attitudes and behaviors related to funder data management requirements.

Research Section Awards - De Groote, Lyon, Henner, and Kim Powell

HONORABLE MENTION

Authors: Rick Wallace, AHIP – Assistant Director, Quillen College of Medicine Library; Nakia Woodward – Sr. Clinical Librarian, Quillen College of Medicine Library

Title: Piecing Together the Mosaic of Rural Clinician Information Practices over a Twenty Year Period

Abstract:

Objectives: The purpose of this study is to determine how the information practices of rural clinicians in fifteen counties have changed over the last twenty years. This data is needed to design programs to meet the information needs of the population.

Methods: This study is a longitudinal cross-sectional study. A validated survey methodology was used to gather data at a specific point in time. Physicians' names were gathered from the state licensing verification database and librarians' personal knowledge. Advanced practice and registered nurses were identified from a list from the state center for nursing. The questionnaires were sent by mail with a self-addressed stamped return envelope with a cover letter explaining the purpose of the survey. Returned surveys were accepted for a 6 week period. The physicians surveyed were the complete population of a fifteen county area and nurse/nurse practitioners were a random sample of the population. Previous iterations were done in 1998 and 2009.

Results: In 1997, names of physicians and nurses in 17 rural Tennessee counties were obtained. A random sample ($p=.05$) was surveyed for a total of 707-(357 RNs and 350 MDs). In 2009, this exact procedure was replicated with slight adjustments to the survey instrument (477 RNs and 312 MDs=789). Eighteen percent (125) of the information questionnaires were returned in 1997. In 2009, sixteen percent (124) of usable surveys were returned. In 2015, one hundred thirty useful surveys were collected. Clinicians were measured as to information barriers, resources, access points, smartphone use, and practice demographics.

Conclusions: We need to be out in the community improving access to health information. A longitudinal, cross-sectional study is a good methodology to map progress and trends. Making changes in the community is hard. Hospital purchases by large corporations affect outreach opportunities.

BEST HOSPITAL PAPER/POSTER

Authors: Sarah Sutton – Clinical Librarian, University Hospitals of Leicester

Title: Has the Distribution and Role of Clinical Librarians in the United Kingdom Changed in the Last Ten Years?

Abstract:

Objectives: To establish if the number of Clinical Librarians (CLs) has changed over the eleven years since the first Clinical Librarian survey was conducted in 2004. To investigate whether newer roles such as Embedded Librarians or Informationists have been established. To see if there is geographical variation in such roles and to gain data to enable further networking of these post holders.

Methods: A questionnaire was sent to the UK email discussion lists, also blogged and tweeted. The questionnaire was matched to the one used in 2004, so that trends could be identified.

Results: The results of the questionnaire were analysed. In 2004 26 librarians responded to the original survey and identified themselves as working as CLs (although the actual job title may have been different) in 2015 47 respondents identified as CLs, with an additional 32 identifying as Outreach Librarians, 9 as Embedded Librarians and 2 as Informationists. The 2004 CLs were largely full time, with 92% in this category, in 2015 the split was 58% full time and 42% part time.

Conclusions: Clinical Librarians have increased in numbers in the last ten years but so have other roles that mimic or build on the Clinical Librarian role. In 2004 Clinical Librarians were largely full time, in 2015 the part time roles have increased dramatically. A map will be included in the actual poster showing geographical distribution of the different roles.

BEST JMLA RESEARCH PAPER (2014-2015)

Authors: Julie M. Glanville, MSc, Associate Director; Steven Duffy, PgDip, Senior Information Consultant; Rachael McCool, BSc, Research Consultant; Danielle Varley, MSc, Research Assistant; York Health Economics Consortium, University of York,, United Kingdom

Title: Searching ClinicalTrials.gov and the International Clinical Trials Registry Platform to inform systematic reviews: what are the optimal search approaches?

Citation: J Med Libr Assoc. 2014 Jul;102(3):177-83. doi: 10.3163/1536-5050.102.3.007.

Abstract:

Background: Since 2005, International Committee of Medical Journal Editors (ICMJE) member journals have required that clinical trials be registered in publicly available trials registers before they are considered for publication.

Objectives: The research explores whether it is adequate, when searching to inform systematic reviews, to search for relevant clinical trials using only public trials registers and to identify the optimal search approaches in trials registers.

Methods: A search was conducted in ClinicalTrials.gov and the International Clinical Trials Registry Platform (ICTRP) for research studies that had been included in eight systematic reviews. Four search approaches (highly sensitive, sensitive, precise, and highly precise) were performed using the basic and advanced interfaces in both resources.

Results: On average, 84% of studies were not listed in either resource. The largest number of included studies was retrieved in ClinicalTrials.gov and ICTRP when a sensitive search approach was used in the basic interface. The use of the advanced interface maintained or improved sensitivity in 16 of 19 strategies for Clinicaltrials.gov and 8 of 18 for ICTRP. No single search approach was sensitive enough to identify all studies included in the 6 reviews.

Conclusions: Trials registers cannot yet be relied upon as the sole means to locate trials for systematic reviews. Trials registers lag behind the major bibliographic databases in terms of their search interfaces.

Implications: For systematic reviews, trials registers and major bibliographic databases should be searched. Trials registers should be searched using sensitive approaches, and both the registers consulted in this study should be searched.

TITLE

Research Section Programs at MLA'16

AUTHORS

Christine Marton

Marie Ascher

INTRODUCTION

This year's annual conference was co-organized by the Medical Library Association and the Canadian Health Libraries Association/ Association des bibliothèques de la santé du Canada. MOSAIC'16 was held in Toronto, Ontario at the Metro Toronto Convention Centre. Although the weather was unseasonably cold, attendees enjoyed a wide range of programming and entertaining social events in downtown Toronto, Canada's largest city and financial capital.

The Research Section offered two section programs. The first program focused on systematic reviews and the role of the librarian while the second program focused on professional communication skills for presenting and publishing research. *Beyond the Search* was identified as one of the highest ranked conference programs in the July 7, 2016 issue of MLA-FOCUS.

Beyond the Search: Expanding the Role of the Librarian in the Systematic Review Process

Session Program 3

Monday, May 16, 2016

1:00 p.m.–2:25 p.m.

Room 104C

Moderator: Marie T. Ascher, Lillian Hetrick Huber Endowed Director, Health Sciences Library, New York Medical College–Valhalla

Speakers: Marie T. Ascher, Margaret J. Foster, AHIP, Mark MacEachern, and Whitney A. Townsend

Direct Link: <http://eventscribe.com/2016/MLA/TwitterPres.asp?Pres=135613>

Research Section Programs MLA16 - Marton and Ascher

Librarians are increasingly involved with systematic reviews, most frequently as creators of the exhaustive search strategy as recommended by the Institute of Medicine guidelines, and also as organizers, archivers, and writers of the search method component. In this session a distinguished panel of systematic review experts will present strategies and tools for expanding the role of the librarian "beyond the search," to the project and data management aspects of the next steps during systematic review process- selection, appraisal, and data extraction. This session will dispel the notion that librarians are only suited for the search component of the systematic review process by describing some of the methods to select and assess studies, extract data, and present results.. Topics that will be covered include:

- * Overall systematic review process
- * Quality assurance through project management principles
- * Screening and selection of studies, including how to calculate inter-rater agreement
- * Risk of bias assessment tools, focusing on validated tools
- * Data extraction tools and techniques
- * Presentation of results and archiving data

The goal of this session is to provide participants with an increased understanding of these components to move forward to expanding their roles in the overall systematic review process.

Professional Communication Skills: Publishing and Presenting Your Research

Tuesday, May 17

3:00 p.m. - 4:25 p.m.

Room 203D

Moderator: Patrick McLaughlin

Technical Information Specialist, MEDLARS MANAGEMENT SECTION, National Library of Medicine, Bethesda, Maryland

Moderator: Ariel Deardorff

Assessment and Data Management Librarian, NLM Associate Fellow, University of California, San Francisco, UCSF Library, San Francisco, California

Research Section Programs MLA16 - Marton and Ascher

Speakers: Jacqueline Wirz, Natalie Clairoux, Joey Nicholson, Carole M. Gilbert, AHIP, FMLA, Cari Markley, and I. Diane Cooper, AHIP

This program brings together leaders from the profession to share professional communication strategies. The session is divided into two communication areas: presentations and publishing. The presentation component focuses on how librarians can improve their presentation and public speaking skills. The publishing component focuses on how to write for publication, identify publication venues, and successfully navigate the publication process. The emphasis of this panel discussion is effective communication strategies for sharing information. Panelists include Jackie Wirz (Research Data Specialist, Oregon Health and Sciences University), Natalie Clairoux (Biomedical Librarian, University of Montreal / Université de Montréal), Joey Nicholson (Education and Curriculum Librarian, New York University Health Sciences Library), Diane Cooper (editor, *Journal of the Medical Library Association*), Carole Gilbert (editor, *Journal of Hospital Librarianship*), and Cari Merkley (co-editor, *Journal of the Canadian Health Libraries Association / Journal de l'Association des bibliothèques de la santé du Canada*).



Metro Toronto Convention Centre, South Entrance, downtown Toronto