# DEPARTMENTS / DÉPARTEMENTS

## Editor's message

Winter will be upon us when you read this issue of the *Journal of the Canadian Health Libraries Association* (JCHLA). From all reports, the Canadian Health Libraries Association / Association des bibliothèques de la santé du Canada (CHLA / ABSC) conference in Toronto on 30 May – 3 June 2005 was a huge success. This issue of JCHLA consists largely of papers that were presented at the conference in Toronto. I would like to thank all the authors who worked to meet a tight deadline to provide papers from the conference. In fact, some of the papers will appear in the next issue of JCHLA.

I am looking forward to the Fall Board Meeting of CHLA / ABSC, but I am also a little saddened because it will be my last meeting as Editor of the journal. Sandra Halliday will be "taking the reins" in the near future. The 2006 conference in Vancouver, British Columbia, which will celebrate the 30th anniversary of CHLA / ABSC, promises to be action packed, and personally, I am very much looking forward to seeing friends and colleagues at one of my favourite vacation destinations. If you can, try to make plans to see other parts of this wonderful province before or after the conference. See you in Super, Natural British Columbia!

Cheers,
**Rebecca Zakoor**

FEATURE / MANCHETTE

# Bioinformatics education in an MLIS program: the McGill experience

**Joan C. Bartlett**

**Abstract:** Program objective – The objective of this course (GLIS691 – Bioinformatics) was to provide formal bioinformatics education within a master of library and information studies (MLIS) program. As bioinformatics becomes increasingly integral to biomedical research, there is a need for librarians to expand their practice into the domain of bioinformatics, supporting the efficient and accurate use of these complex resources. We developed this course, the first such course offered in a Canadian library school, in response to the demand for librarians to be able to support bioinformatics information needs. Setting – The course was offered in the winter term of 2005 in the Graduate School of Library and Information Studies, McGill University. Participants – Course participants were MLIS students. Program – The course took a library and information science perspective to bioinformatics. The goal was to provide students with the skills and knowledge to provide information services in the domain of bioinformatics and to collaborate in the design and development of bioinformatics resources. This included understanding the field of bioinformatics and the range of resources, the needs and requirements of user groups, practical searching skills, the creation of resources, and the role of the librarian. Conclusions – This course represents one approach to providing formal bioinformatics education for librarians. Librarians who are knowledgeable and proficient in bioinformatics will be able to expand the role of the library into this domain; apply their knowledge, skills, and expertise in a complex, chaotic information environment; and develop the essential role of the librarian in the domain of bioinformatics.

## Introduction

Bioinformatics is a complex, dynamic, and emerging discipline that has a significant impact on biomedical research. It has been defined as "the computer-assisted data management discipline that helps us gather, analyze, and represent [biological] information" [1], and can be seen to have three main objectives: (1) to organize data in such a way that researchers can access information, (2) to develop tools and resources to aid and support data analysis, and (3) to apply the tools to analyzing and interpreting the data in a biologically meaningful way [2].

Bioinformatics revolves around primary, biological data, such as genetic or protein sequence information. The resources fall into two broad categories: (*i*) databases of primary biological data (e.g., GenBank) and (*ii*) software tools that manipulate and analyze the data (e.g., BLAST). Frequently, the two functions are integrated in a single resource. Bioinformatics resources generally don't take the form of text-based, bibliographic information and, as such, represent a nontraditional type of information for library and information studies (LIS).

According to the 2005 edition of the *Nucleic Acids Research* annual database issue, there were over 700 individual bioinformatics resources [3]. This only includes those that are publicly accessible; therefore, the actual number is higher. These resources tend to be complex, dynamic, and nonstandardized. For a scientist, navigating this range of resources is a challenge, particularly for laboratory scientists, for whom bioinformatics analysis is a valuable tool but who don't use bioinformatics resources on a regular basis. The challenge is not only to know how to use a resource (in an environment in which multiple resources may be needed to solve a single problem), but also to be aware of the types of resources available and the types of questions and problems they can address.

While strongly linked to biology and computer science, bioinformatics is, at its heart, an information-based discipline, involving many of the same aspects of the information life cycle that have long been the domain of library and information science. As such, librarians and information professionals have a clear role to play in the domain of bioinformatics. Areas of contribution include providing reference and information services in the same way that users of other information resources are supported, supporting and providing bioinformatics education for scientists, and bringing library and information science principles (such as the use of controlled vocabularies) to the design and development of bioinformatics resources. There is currently a demand for librarians to be able to support bioinformatics information needs. However, in Canada, the opportunities for bioinformatics education within library and information science are rather limited. Currently,

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none are offered at the master of library and information studies (MLIS) level. It is in this environment that McGill University's Graduate School of Library and Information Studies (GSLIS) launched a course in bioinformatics for MLIS students.

## Goals and objectives

The GSLIS course in bioinformatics was first offered in the winter term of 2005 as a Special Topics course. The course was envisioned to parallel existing, advanced reference courses in other disciplines and was developed with the understanding that students would apply the skills learned in the course to work in a health sciences or scientific library environment. As such, there were two main motivations. The first was to provide future librarians with the skills and knowledge to provide reference and information services in the domain of bioinformatics. The second was to complement existing advanced courses in Health Sciences Information and Science and Technology Information so that students would have an additional set of skills and knowledge at their disposal when working in either a health sciences or science and technology environment.

The course objectives were the following:

(1) To understand the basic biology and genetics that underpin bioinformatics
(2) To understand the content and use of a range of bioinformatics resources
(3) To understand the role of library and information science, and other disciplines (e.g., computer science, biology) in bioinformatics
(4) To be prepared to provide reference services and support to bioinformatics information users.

## Course content

Within the framework of these objectives, the course content covered a variety of topics. The first was Genetics 101. Given that students were neither required nor expected to have a biology or genetics background, it was essential to cover enough of the fundamental biology that underpins bioinformatics so that the remainder of the material covered in the course would make sense and fit within the appropriate scientific context. The material included was that which would be covered at either the senior secondary school or early (first or second year) undergraduate level. The material was presented from the perspective of the storage, flow, and manipulation of genetic information as it moves through the biological system.

The lecture started at the level of the cell and then worked through the genetic system discussing chromosomes, genes, DNA, RNA, and protein. It also covered the processes of transcription and translation. During an in-class exercise, the students worked with a DNA sequence and followed the genetic code to translate it to the corresponding amino acid sequence and to identify the open-reading frames.

A class on the information behaviour (including information needs, information seeking, and information use) of scientists, particularly with respect to bioinformatics resources, also provided a foundation for the course. An understanding of the user group is as important as an understanding of the resources.

Discussion of a range of bioinformatics resources began with an examination of the content and structure of the data, specifically a DNA (gene) sequence record from the GenBank database and an amino acid (protein) sequence record from Swiss-Prot. This allowed the students to become familiar with the nontextual data contained in the resources and the particular issues and challenges (e.g., keeping track of different versions of gene sequence) of managing such data.

Within the confines of a 12-week course, it was clearly not possible to discuss the hundreds of bioinformatics resources currently available or to even discuss a representative sample of each type of resource. The range and diversity is too broad. Instead, the focus was on two of the major sources for bioinformatics resources that are among the most widely used by scientists. One was the National Centre for Biotechnology Information (NCBI), which is part of the US National Library of Medicine (NLM) and is often the first choice for bioinformatics information among North American scientists. The other key site discussed was the European Bioinformatics Institute (EBI), which has a similarly prominent place for European researchers. All three classes on resources took place in a computer lab, with a mixture of lecture, demonstration, and hands-on practice.

NCBI hosts a vast range of resources, including the GenBank database, one of the three major DNA sequence repositories, and BLAST, search software that finds sequences based on similarity. Through the Entrez interface, many of the different resources are linked, making it simple to navigate among related records. For instance, from a gene sequence record, one can link to the corresponding protein sequence record, the Online Mendelian Inheritance in Man (OMIM) record discussing the clinical implications of the gene, and to the PubMed records of articles discussing the gene. One lecture was spent exploring the range of resources available through NCBI and using the Entrez system to link and navigate amongst these resources.

A second class was devoted to BLAST searching. If a scientist only knows about one bioinformatics resource, it is usually BLAST. The lecture covered the various types of BLAST, how to run a BLAST search and interpret the results, and some of the caveats to consider with respect to BLAST.

A similar approach was taken to the range of resources from EBI and the related Swiss-Prot resources. The Swiss-Prot database and related protein analysis tools such as ExPASy and InterPro are considered superior to the protein resources of NCBI. Therefore, the focus was on the protein resources from EBI.

There are many ethical issues in relation to bioinformatics. Awareness and consideration of these ethical issues is important, even though they may fall outside the domain of library and information science. Therefore, one seminar-style class was devoted to a discussion of some of these issues. The implications of the information obtained through bioinformatics analysis (e.g., prenatal screening, genetic profiling) are one such issue. Another was the debate over freely shared versus private-for-profit access to genetic information.

Finally, the course considered the various disciplinary perspectives to bioinformatics. Two faculty members from the McGill Centre for Bioinformatics (one from biology, the other from computer science) discussed the field of bioinformatics from the perspective of their particular disciplines. Complementing these two guest lectures were discussions of the role of library and information science with respect to bioinformatics, examining the various roles that librarians and information professionals can and should play in this field. In one class discussion, students identified and articulated some of the unique skills and expertise that librarians and information science professionals possess and how these skills complement those of other professionals.

## Evaluation

Evaluation was based on three assignments. The first was to prepare an annotation of two bioinformatics resources, one database (e.g., GenBank) and one analytical software tool (e.g., BLAST). This provided each student with the opportunity to explore in detail resources that would not necessarily be covered in the course. The annotations not only included the scope of the resources (e.g., information provided, database content, input/output format, search features), but also addressed issues of usability and utility of each resource.

The second assignment required students to complete search tasks in three of the resources discussed in class: OMIM, various elements of NCBI Entrez, and BLAST. Grading considered not only the search outcomes, but also the students' annotations and descriptions of the search process. They needed to demonstrate that they understood their actions and the rationale behind their results.

The final assignment, a term paper and class presentation, provided students with the opportunity for an in-depth exploration of a particular aspect of bioinformatics. Through the presentations, the class could also learn about each topic. The range of topics was very diverse, including ontologies and knowledge representation, information retrieval, data visualization, clinical implications of bioinformatics, and bioinformatics education and training for both librarians and scientists.

## Students

Six students enrolled in the class. This small size was not unexpected for the first offering of a new, very specialized course. All were MLIS II (second year) students. Three of the students had a librarianship focus to their program; the other three had an information science perspective. Two of the students had previously taken the Health Sciences Information course, and no one had a biology background. The different perspectives of the students provided an interesting balance between those interested in resource creation and development and those interested in providing library and information services. Overall, the performance of the students was very good. The search assignments, in particular, were extremely well done.

## Future directions

In the spring of 2005, the GSLIS Bioinformatics course was formally approved by the McGill Senate and re-designated as GLIS673 – Bioinformatics in LIS (the course title was modified to distinguish it from an existing course in biotechnology also entitled Bioinformatics). The course is now included in the GSLIS calendar as a regular course offering and is currently scheduled for winter 2006. Future offerings of the course will be expanded in scope to include more of the information science elements (e.g., information retrieval, data visualization) identified as areas of interest by the students.

The course is also listed on the site of the McGill Centre for Bioinformatics (MCB). In the fall term of 2005, the MCB will launch its graduate option. This will provide graduate students in participating departments the opportunity to include a formal bioinformatics specialization to their program, through a series of interdisciplinary courses offered by the Centre. We are currently exploring the possibility of including GSLIS among the participating departments. This would provide masters and doctoral students with an opportunity to study both library and information science and bioinformatics. While this opportunity is likely to appeal to a small minority of LIS students, it does provide an opportunity for a multidisciplinary education that is currently not available elsewhere in Canada. Graduates would be uniquely qualified to bring LIS expertise to the field of bioinformatics.

## Conclusions

We have found that there is interest in a bioinformatics course within an MLIS program and that the absence of a strong biology background was not a barrier to student success. I believe that the presence of this specialized course has the potential to complement the program of study of MLIS students with diverse interests. In particular, given the range and diversity of issues and topics now faced by health sciences librarians, I believe that courses such as this (and other specialized courses, such as the course in Consumer Health Information offered by the University of Western Ontario) can only enhance the traditional, single course in health sciences librarianship. Having a selection of specialized, complementary courses will provide a stronger foundation in health sciences librarianship and provide new graduates with a stronger, broader, and more comprehensive set of knowledge and skills.

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FEATURE / MANCHETTE

# Informative titles described article content

**Jessie McGowan and Peter Tugwell**

**Abstract:** Objective – To describe the implementation of the new policy of the *Journal of Clinical Epidemiology* (JCE) to use informative titles for newly submitted articles. Setting – JCE provides timely, authoritative studies developed from the interplay of clinical medicine, epidemiology, and biostatistics. Articles are oriented toward epidemiological methodology, clinical research, or both. Methods – An associate editor is responsible for ensuring that article titles are informative. Authors are instructed to submit titles that are simple declarative statements summarizing the message of the article as succinctly as possible. The informative titles should include the "answer" within the title (the main message of the conclusion), be no longer than 15 words, and state verbs in the past tense for individual studies (whose results might be overruled by later studies or meta-analyses) and in the present tense for systematic reviews (whose results are unlikely to be overruled by later studies). Results – The new criteria were partially implemented in early 2003 with full implementation in 2004. Due to the editorial process, new journal issues with declarative titles started appearing in the fall of 2004. Conclusion – It is hoped that informative titles will help JCE readers to better assess the content of the information in the article.

The *Journal of Clinical Epidemiology* (JCE) is a monthly scholarly journal published by Elsevier Science. The editorial base for the journal is co-located in Ottawa, Canada, and Maastricht, The Netherlands, with two editors and four associate editors. JCE has been in press since 1955. The journal's aims are to promote the quality of clinical epidemiological research and to improve the knowledge base for the diagnosis, prognosis, prevention, and treatment of health conditions through the advancement and application of innovative methods.

JCE continually tries to improve its usefulness to its readers. An editorial decision was made in 2003 to implement the use of an "informative title" or a "declarative title" to help readers distill the content of articles more quickly (the elements of the informative title are shown in Table 1). The new criteria were partially implemented in early 2003, and authors were requested to submit articles with informative titles, as noted in the editorial of the first issue of 2004 [1]. Due to the time involved in the editorial process, new journal issues with informative titles started appearing in the fall of 2004. An associate editor, Jessie McGowan, with assistance from David Sackett, a member of the Policy Advisory Board, was responsible for reviewing the titles of accepted papers.

An informative title gives the conclusion of the article. It was felt that by using more informative titles, readers of JCE would be able to better assess the content of the information in the article. However, there is no evidence to date of the effectiveness of using informative titles. An early reference in the medical literature to the use of informative titles was in 1994, when *ACP Journal Club* decided to adopt this convention for its titles. They hypothesized that informative titles would help readers decide which abstracts to pay attention to and help busy clinical readers become even more efficient in their efforts to keep up with the literature [2]. Smith suggested using informative titles based on the success of journalists, "who know a thing or two about getting people to read what they write, and use declarative titles and active verbs" [3]. Other hypotheses from the editorial base of JCE included how the use of titles could positively affect the impact factor for JCE. For example, they asked if the use of informative titles could lead to better indexing, or would more understandable titles lead to more referencing of JCE articles by other authors? The answers to these questions are still pending.

There is some controversy about the usefulness of informative titles. Goodman points out that there may be arguments for reviews and editorials carrying informative titles, but they are too often wrong to have any place in the reporting of research [4]. Journals should ask for indicative titles or alter investigators' informative titles during subediting. At the July 2005 editorial meeting of JCE, some concerns over the use of informative titles were raised by a member of the Policy Advisory Board. A decision was made to be less stringent on the use of study architecture in titles where descriptive methods were used and to try to shorten the length of titles. However, overall, the editorial board for JCE is very pleased with the use of informative titles. Anecdotally, the impact factor for JCE increased to 2.654 in 2004 from 2.039 in 2003.

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**Table 1.** Elements of an informative title.

| |
|---|
| 1. Give the *results*<br>Should include the 'answer' (the results or main message of the conclusion) within the title |
| 2. Use the *past* tense for a *single* investigation or *present* tense for a systematic review<br>Should state verbs in the past tense for individual studies (whose results might be overruled by later studies or meta-analyses) and in the present tense for systematic reviews (whose results are unlikely to be overruled by later studies) |
| 3. Name the study *architecture*<br>Should include the design within the title, if it is a formal study |
| 4. Should be no longer than 15 words |
| 5. Should not include formal study names |

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FEATURE / MANCHETTE

# A look at Google Scholar, PubMed, and Scirus: comparisons and recommendations

**Dean Giustini and Eugene Barsky**

## Introduction

The *beta version* of Google Scholar (GS) has attracted worldwide attention from health professionals and librarians since its launch in November 2004 [1–4]. Though it purports to "locate scholarly literature across all disciplines in [many] formats" and to offer "the best scholarly search experience for users" [5], GS has generated considerable debate in library circles about its usefulness [6–8]. How do librarians educate users about Google's shortcomings when they (and their services) are becoming increasingly *google-ized*?

Some nagging questions about GS persist: what is "scholarly" in Google's view? how big is GS? how many databases, journals, dot.edu and dot.gov sites are indexed? how often is it updated or refreshed? In this article, we discuss what is known about GS and run simple tests of its coverage. Then, GS is compared to PubMed and its major strengths and weaknesses discussed. Scirus is also discussed (its pros and cons) as a free search alternative to GS. Based on the requirements for complex searches, we make a recommendation for using OVID MEDLINE for specific clinical queries.

## Background

The Internet has helped to promote end-user searching through *freely*-accessible databases at the US National Library of Medicine (NLM). But Web search engines are also a factor in forming end-user search preferences and habits [9]. According to a 2003 Canadian Medical Association survey [10], 65% of physicians use the Web for information to support clinical practice. Many of these doctors search PubMed or tools like Google to locate information. Curiously, nearly half (46%) call themselves "novice or inexperienced" when locating reliable information.

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Information retrieval is a challenge for users when search tools are too complex to navigate. "Clinicians and researchers conduct MEDLINE searches but lack skills to do this well", according to Haynes et al. [11]. Could GS be an efficient means to access information? Could GS be used by clinicians for specific types of questions? What types? Before listing the negative (and potentially lethal) implications of using GS in clinical decision making, let's examine why Google is so popular among our users.

First, users like Google for its simplicity, speed, and coverage; it is used more than any other Web search engine [12]. Google is the search engine of choice for more than half of all Web queries [13–15]. Users have faith in Google branding and believe high standards are applied equally to all Google products [16].

GS does index a lot of content, linking back to regular Google (and even PubMed) for optimum cross-functionality. For users not affiliated with a major university or teaching hospital, GS is seen as a welcome, free gateway to reliable scientific information. In beta version, however, GS has some serious limitations that need to be examined.

## Coverage and currency: the pros and cons of Google Scholar

From its inception in late 2004, GS crawled most of PubMed–MEDLINE (1966 – present) and OLDMEDLINE (1949–1965). However, Vine noted that PubMed records in GS are a year out of date [17]. (Our tests repeatedly retrieve the same results on GS, suggesting the database is not regularly updated.)

GS indexes content from 29 of the top scholarly publishers and university presses (see Appendix A) [18]. Discussions are underway with other publishers [19]. Digital hosts at HighWire Press, MetaPress, and Ingenta are crawled by Google's bots, as are open-access journals at BioMedCentral, PubMedCentral, and document suppliers like Ingenta, societies, scholarly organizations, government agencies, and preprint–reprint servers.

What is not indexed is more difficult to determine, as Google has been vague at times about GS's content. Major health science publishers *not* crawled by Google's bots include Elsevier and Karger Press. Some major Canadian content is inadequately indexed or not indexed at all. Statistics at Sta-

tistics Canada (www.statcan.ca) or the Canadian Institute for Health Information (www.cihi.ca) are not indexed, though in-house papers are to be indexed. Library and Archives Canada's (http://www.collectionscanada.ca/) records have also started to appear.

Interestingly, Canadian health content from recognized Web sites, such as the Manitoba Association of Registered Nurses (www.crnm.mb.ca), are *not* crawled, while US institutions with a similar focus are, such as the New York Nurses Association (www.nysna.org). Canada's "grey literature" is *not* comprehensively indexed, fragmenting an already unwieldy bibliography. (Well-known government reports such as the *Romanow Report* and provincial documents such as the *Kirby Report* are increasingly available.) Health librarians should work to ensure our grey literature gets indexed on the Web by developing our own database or advocating for better coverage on standard Web tools [20,21].

## Google Scholar search results: publishers and PubMed

Health librarians should show users how GS *should* and *should not* be used. Using examples to illustrate why GS is useful (or dangerous) should be a part of all librarian-led search training.

Let's start with search functionality. Do a standard search for two phrases: "common cold" and "vitamin c". Illogically, articles from the 1990s are listed first, not the most current articles. Why older articles first? GS's PageRank algorithm makes a calculated guess at what it believes is scholarly and lists articles by how relevant and popular they are — *not* how current (see Fig. 1).

Ranking of older research in a scholarly database is a big problem, compounded by a lack of re-sorting options. Filtering of results by English language, abstracts, and methodology on GS is difficult if not impossible.

Does GS compare with searching directly at publisher sites? Significant differences in recall are observed. A search at Blackwell Synergy (www.blackwell-synergy.com) yielded 456 000 citations, whereas a site search for Blackwell on GS retrieved only 80 300 citations. A site search on GS for PubMed (www.ncbi.nlm.nih.gov) citations found 1.1 million records, 14 million fewer than on PubMed itself (Fig. 2).

Searching for "heart attack" at *Nature*'s publisher site found 557 citations compared to GS's 251 (Fig. 3). Similar discrepancies were found for "electroconvulsive therapy" at Wiley (202 citations) and GS (58 citations). GS doesn't come close to what is found at publisher sites. For maximum recall, we advise searching publisher sites directly. Keyword searching in GS vis-à-vis PubMed is inadvisable, also. To maximize recall, search PubMed by keyword and MeSH simultaneously from the homepage (*click* Details).

To run simple tests of coverage and recall, Peter Jascó from the University of Hawaii has recently developed some very useful "polysearch" tools (http://www2.hawaii.edu/~jacso/scholarly/side-by-side2.htm) [22]. Polysearch runs simple queries across several sites and databases. Our testing validates Jascó's findings and conclusions. GS's coverage is incomplete, retrieving fewer unique citations than either publishers' sites or PubMed.

**Fig. 1.** Standard search in GS for two phrases: "common cold" and "vitamin c".


**Fig. 2.** Search in GS for PubMed citations.

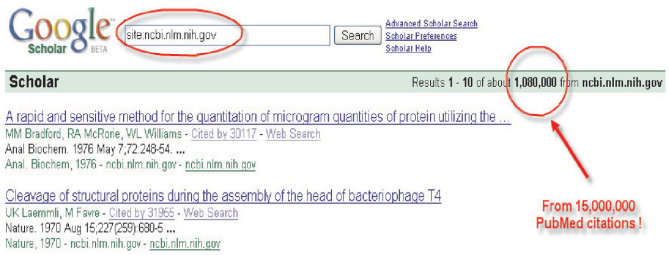
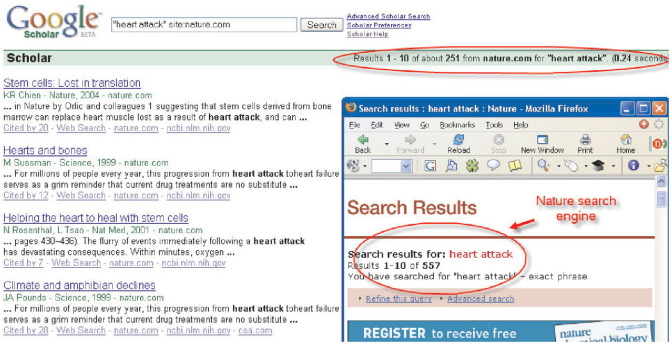



**Fig. 3.** Search in GS for the phrase "heart attack" compared with search in *Nature*'s publisher site.




## Special features and special problems

A few special features on GS are worth mentioning. First, its overall performance is robust and comparable (or better) than other specialty health search engines (*test:* www.mammahealth.com, for example). Google's bots are capable of crawling bibliographic information from references at the end of articles, extending GS's reach beyond journal articles to books and AV materials.

Through its partnership with OCLC, links to Worldcat in the results display allow users to identify in seconds whether a local library has the book or journal needed. To expand a search, the "regular Google" link can be used to do an on-the-fly search in regular Google. Another helpful feature is linking to PubMed records. GS compensates a bit for its lack of currency by linking to PubMed records showing the URL www.ncbi.nlm.nih.gov. Users see this message after linking to PubMed: "Note: Performing your original search [in Google Scholar], '*common cold' and 'vitamin c'*, in PubMed will retrieve *150* citations."

"Cited by" is a very welcome feature [23]. By linking users to related research, GS provides for free what ISI's Web of Science (WoS) and Elsevier's Scopus provide at considerable cost. However, keep in mind that PageRank in GS is not the same as ISI's bibliometric tools, a distinction that must be iterated to users.

The article linking products Ex Libris and SFX (based on Open URL technology) are fully compatible with GS. This software allows users to see a customized display of a local library's print and electronic journal collections within GS. For users with no article linking tool, GS offers linking options under preferences, which are easily used even behind hospital firewalls.

Searching for certain medical topics is frustrating due to the lack of controlled terms and authority control. Variant titles and author names make comprehensive retrieval impossible. Fee-based document delivery through Ingenta is a problem. Users could be misled if articles are ordered for a fee — only to learn that a local library has the items. On the other hand, options for document delivery are helpful if remote users need documents and are willing to pay. Librarians should be prepared to show how to access documents, find them locally, or order them through Ingenta.

## Scirus: an alternative to Google Scholar

GS is not the only choice for searching for scholarly, scientific content. Since 2001, many researchers have used Elsevier's Scirus, which claims to have the best science, technology, and medicine (STM) coverage on the Web, with more than 200 million science-specific pages indexed [23]. Unlike GS, Scirus clearly lists its content sources: ScienceDirect and BioMedCentral, Beilstein on ChemWeb, DSPACE repositories, and 13 million patents from Japan, Europe, and the United States. Elsevier is negotiating with other scientific publishers to make more content available [24].

Scirus provides focussed channel-searching by content provider and categories like "medicine" or "psychology". Improved customization and flexibility allow for more precise searching. A regular Search Engine Watch (www.searchenginewatch.com) award winner [25], Scirus gets high marks from librarians and is a good alternative to GS.

## For complex searches use OVID or PubMed

Most end-users use Google because their needs are often satisfied by basic search tools [26]. However, for intermediate and advanced searchers in medicine, more functionality is needed. A pharmacist's search for the use of antibiotics, for example, introduces a number of complexities. In PubMed, a class of drugs can be searched by exploding a subject heading and its narrower terms, a feature not available in Scirus or GS. To achieve high recall, every term and antibiotic drug name would need to be keyed into GS's search box. "Explode" saves valuable time and is a feature on proprietary databases like EMBASE and CINAHL, but not on search engines like Google.

GS and Scirus are *not* able to limit searches by publication type or research methodology. This is another problem when evidence-based filters are needed to refine a search. Thus, users are forced to try wildcard and keyword combinations in GS. When age and gender are important, GS or Scirus offer no means to limit by these elements unless they are searchable as keywords in title or abstract fields.

The *gold standard* for complex searches with multiple sets is the OVID interface to MEDLINE. OVID MEDLINE offers the best functionality and flexibility for building and manipulating sets developed using PICO [27]. OVID's mapping feature makes using controlled terms easier, including explode or focus. Complex searches can be done on PubMed also, but its interface is not as intuitive or user friendly. A search history is always displayed on OVID, and easy access is provided to major limits (users do get lost in PubMed). "Clinical queries" in OVID and PubMed are synonymous (also called the Haynes filters). Both OVID and PubMed permit saved searches for later retrieval, and SDIs and e-Alerts can be sent out at regular intervals.

We recommend OVID for expert searching as it sets a high standard for commercial interfaces. PubMed is recommended for its primary strengths: currency, links to the open Web, and growing *free* content. For those without OVID, PubMed can be used to do structured literature searching also, but keeping current with changes at the site might make searching difficult for many users.

## Conclusion

In summary, information professionals have no choice but to recommend Google Scholar under certain conditions and caveats. Librarians should be prepared to teach GS and PubMed side by side and answer questions about it, especially how it compares to commercial tools like OVID.

Clearly, GS provides an easy means to access the health literature. Health librarians should not dismiss it outright, especially for simple browsing, known-item searching, and linking to free materials on the open Web. Where literature reviews are required, i.e., grants, clinical trials, or systematic reviews, health librarians will continue to recommend MEDLINE, Cochrane (with Google for grey literature), and other trusted sources. Finally, clinical queries must be answered by replacing requests in context [28]. Health professionals already search Google [29] and will continue to use it (responsibly, one hopes) to satisfy their basic information needs [27].

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## Appendix A

Content is the vaguest part of Google Scholar. Unfortunately, Google does not explicitly disclose its sources. Google Scholar content is a follow-up to the CrossRef Search Pilot project (http://www.crossref.org/) not-for-profit network with a mandate to make reference linking throughout online scholarly literature efficient and reliable.

CrossRef Pilot was initially limited to the content of 44 member publishers and societies (see the complete list below), who collaborate to provide scholars with cross-publisher reference linking. Google Scholar's 29 publishers are apparently a subset of this list. We were able to verify nine of these sources (in bold).

Alphamed Press
American Institute of Physics
**American Physical Society**
American Psychiatric Publishing
American Society for Biochemistry and Molecular Biology
American Society of Civil Engineers
**Annual Reviews**
Ashley Publications
**Association for Computing Machinery**
BioMed Central
**Blackwell Publishing**
BMJ Publishing Group
Cambridge University Press
Cold Spring Harbor Laboratory Press
EDP Science
FASEB
IEEE
INFORMS
Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic
**Institute of Physics Publishing**
**International Union of Crystallography**
Investigative Ophthamology and Visual Science
Institute of Pure and Applied Physics (IPAP)
Journal of Clinical Oncology
S. Karger AG
Lawrence Erlbaum Associates
Mary Ann Liebert
Medicine Publishing Group
**Nature Publishing Group**

Oldenbourg Wissenschaftsverlag
**Oxford University Press**
Peeters Publishers
PNAS
RILEM Publications SARL
Royal College of Psychiatrists
Springer-Verlag
Taylor & Francis
Thieme Publishing Group
University of California Press
University of Chicago Press
Vathek Publishing
**John Wiley & Sons**
Wolters Kluwer International Health & Science
The World Bank

REPORT / RAPPORT

# Getting the clinical staff involved: developing infoguides as a form of outreach in the Saskatoon Health Region

## Purpose

What is an effective way to reach out to staff, promote the library, showcase our skills, and get clinical staff involved in team projects with the library?

## Setting

The Saskatoon Health Region (SHR) Medical Library serves 11 000 staff, physicians, and residents. With funding from the Saskatchewan Health Information Resources Partnership (SHIRP), the SHR Medical Library launched a suite of e-resources in September 2004. Following the launch, efforts were focused on increasing the visibility of the library. The library had new services, staff, and resources to offer the health region. Three objectives the library set out to accomplish were the need to (1) distinguish ourselves from what staff can find free on the Internet, (2) help staff navigate through the diversity of e-resources that they now had at their fingertips, and (3) make connections with staff to increase our profile.

## Method

The library chose to develop infoguides as a means of accomplishing our three objectives. The intent was that these guides would be both an outreach and promotional vehicle for the library. The SHR Medical Library looked to University of British Columbia, McMaster, and Ottawa Hospital's subject guides as models. The resulting product was a series of portals that link staff to databases, e-journals, practice guidelines, statistics, government information, professional associations, and Web sites for their respective practice areas, thus offering staff a filtered blend of the best of free and fee-based resources.

## Results

Initially, the infoguides were created independent of clinical staff input. Since then, our approach has shifted to include clinical staff input in the development and editing phases. The library contacts a clinical staff member of a particular practice area to gauge their interest in the project prior to developing an infoguide. Clinical input is contributed either through a spokesperson who (*i*) gathers suggestions from co-workers and relays them to us or (*ii*) critiques the infoguide after development and sends us feedback.

We shifted our approach to include clinical staff involvement for two reasons:

(1) We saw the outreach potential of this project. As a relatively new e-library, we were keen to market our services, and the clinical staff seemed equally keen to work with us and contribute their ideas.
(2) It provided us with knowledge of how health professionals search for information. We could see firsthand which resources staff had been using prior to the introduction of the SHIRP suite of e-resources.

## Conclusion

Seventeen infoguides for practice areas and four topic-based infoguides have been developed since September 2004. These include the following: acquired brain injury, clinical nutrition, clinical practice guidelines, complementary and alternative medicine, geriatrics, health administration, occupational therapy, orthopaedics, pharmacy, physiotherapy, psychiatry, respiratory therapy, and speech language pathology.

Several connections have been created, and library awareness has increased amongst the clinical staff. This project has led to invitations such as grand rounds and nursing education days. From a statistical viewpoint, the percentage of Web page traffic hits for the infoguides rose from 9.15% in September 2004 to 17.93% by March 2005. The development of infoguides has proven to be a successful form of outreach in a health science library setting. Outreach activities have become increasingly important in the past few years as libraries strive to respond to their clients' information needs at a pace increasingly dictated by the dynamic information landscape.

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COLUMN / CHRONIQUE

# Consumer health information

**Compiled by Susan Murray**

## Canadian Health Network (CHN) update

Two new affiliates have joined CHN (www.canadian-health-network.ca):

- The National Aboriginal Health Organization (NAHO) (www.naho.ca) as the Aboriginal affiliate
- Vancouver Public Library, formerly the Western Operating Centre, took on the role of the violence prevention affiliate

Look for a totally revamped health promotion section. The health promotion affiliate is reorganizing and updating the resources in the health promotion and determinants of health sections.

A hot-off-the-press brochure for complementary and alternative health is now available! Please contact me (smurray@torontopubliclibrary.ca) if you would like copies for your organization and outreach efforts.

## Collection development

***Library Journal***

You now have to subscribe to *Library Journal* to access the contents online, except for the current issue (temporarily unavailable with the redesign of the site). However, many public libraries and library schools carry this journal.

**Collection guide**

Weaver E. A Good Night's Sleep. *Libr J*. 2005 Jan:65–7.

This article contains resources on sleep disorders and how to have restful sleep.

Bibel B. Best Consumer Health Books of 2004. *Libr J*. 2005 May 1:54–7.

Barbara Bibel, reference librarian at the Oakland Public Library, provides an annotated list of a total of 24 highly recommended books in the areas of cancer, caregiving, children's health, drugs, elder care, emergency medicine, general medicine, personal narrative, weight loss, and women's health.

## Consumer and Patient Health Information Section of the Medical Library Association (CAPHIS)

Don't forget to check *Consumer Connections*, the CAPHIS newsletter, for reviews of new resources. The April/June 2005 issue is available at http://caphis.mlanet.org/newsletter/21n2ConsConnect2005.html.

## New Web sites

**www.patientinform.org**

In spring 2005, three leading US voluntary health organizations joined a group of scholarly and medical publishers to launch patientINFORM, a site that provides patients, caregivers and the general public with free access to up-to-date, reliable research about specific diseases (initially cancer, diabetes, and heart disease). Consumers will have the ability to read the latest original research articles (free full-text) published in medical and scientific journals, find assistance in interpreting the information, and access additional materials on the Web sites of participating voluntary health organizations.

**www.HolisticHealthResearch.ca**

According to recent studies, nearly half of Canadians have used some form of "complementary and alternative health care" to supplement the conventional medical care they receive. When asked, these Canadians said they used complementary treatments like vitamin supplements, herbal remedies, and massage therapy because they believe these therapies help maintain their health and well-being, prevent future serious illness, and treat chronic diseases. However, it's difficult for consumers to find and evaluate the evidence for complementary and alternative health therapies and practices.

Launched in November 2004, the Holistic Health Research Foundation of Canada is Canada's first and only national registered charitable organization dedicated to funding research, public awareness, and professional training in complementary and alternative health care. This organization seeks to find the answers to many of the questions that are still unanswered about different complementary products and therapies being used and endevours to get that information into the hands of people and health professionals where it can potentially help improve, extend, or even save lives.

**http://chipig.ca/coll.html**

The Consumer Health Information Providers' Interest Group (CHIPIG), formerly the Consumer Health Information Interest Group, has been meeting since 1998 with representatives from consumer health information (CHI) centres in Toronto, Hamilton, and Kitchener. Members have held quarterly meetings at each others' centres and sponsored a tour of three hospital-based CHI centres and a reception at the CHLA / ABSC 2005 Conference.

CHIPIG has a listserv that you can subscribe to (see link on homepage) and recently launched a Web site that cur-

rently includes basic information about the goals and mandate of CHIPIG, as well as links to the member organizations. CHIPIG would like to broaden its membership and welcomes new members. Please contact Susan Himel (shimel@thc.on.ca) if you are interested in joining CHIPIG.

## Medical librarian blog

Denise Koufogiannakis, John W. Scott Health Sciences Library in Edmonton, has created a blog called Librarians' Rx (http://www.library.ualberta.ca/mt/blog/librariansrx/). It contains postings on a wide variety of topics of interest to Canadian health sciences librarians. Currently, the topics include the following: collections issues; conferences copyright; evidence-based librarianship (EBL); evidence-based medicine (EBM); events and announcements; heroes; in the news; information needs; professional reading; resources; searching; teaching and learning; and technology. It is updated regularly and has a searchable archive dating back to February 2005.

## CHI readings

Scott GW, Scott HM, Auld TS. Consumer access to health information on the internet: health policy implications. *Aust New Zealand Health Policy.* 2005;2:13.

Little is known about who accesses health-related information on the Internet and how it is used in New Zealand. The aims of this research are to determine the nature of the health information sought, how respondents use the information, how helpful they perceive the information to be, and the self-assessed value of such information.

The results of this research could assist providers of health information via the Internet to tailor their Web sites to better suit users' needs. A valuable public health policy initiative would be to provide an improved New Zealand health information Web site containing information on how to evaluate data sourced from the World Wide Web and links to a range of useful and trustworthy health information sites.

There are a number of interesting articles in recent issues of the *Journal of Consumer Health on the Internet* (9/3 and 9/4 are prepublication):

- P.O.W.E.R. surfers: bridging the digital divide to quality consumer health information. Toni E. Janik and Joann L. Chateau. 2005;9/4:1–10.
- Health and medical information on and off the Internet: what part can and do public libraries play? Peter V. Picerno. 2005;9/4:11–25.
- Collaborating with patient care units to provide consumer health information. Carol Galganski, Ann Phillips, and Christine Ross 2005;9/3:25–35.
- Consumer health informatics research: implications for consumers, health information professionals, and researchers. Gerald (Jerry) Perry and Stephanie Weldon. 2005;9/2:1–10.
- Natural medicines comprehensive database. 2005;9/2:77–85. Various articles on these pages provide well-documented, up-to-date information regarding the use of herbal medicines.

COLUMN / CHRONIQUE

# Current research

**Compiled by Sandra Halliday**

Rockliff S, Peterson M, Martin K, Curtis D. Chasing the sun: a virtual reference service between SAHSLC (SA) and SWICE (UK). *Health Info Libr J.* 2005 Jun;22(2):117–23.

**Aim:** In 2002, a discussion in the United Kingdom (UK) between South-west Information for Clinical Effectiveness (SWICE) librarians and a member of the South Australian Department of Human Services Libraries' Consortium (SAHSLC) raised the possibility of developing an after-hours virtual reference service between the two consortium groups. The aim of the service is to put medical practitioners in contact with a librarian when urgent help is required in finding clinical medical information after hours. **Methods:** A trial project has begun and has been given the name "Chasing the Sun". The service will make use of time-zone differences between the UK and Australia so that librarians at work in another country will be able to answer urgent patient-related queries that cannot wait until normal office hours. **Results:** This paper looks at the development of "Chasing the Sun", from initial concept, funding proposal, and trial project stage to implementation. It includes details of the groundwork, software evaluation, trials, outcomes, costs and benefits, future directions, and potential problems yet to be experienced or overcome. **Conclusion:** This service is the first of its kind between health libraries in the world and offers potential for future worldwide expansion.

Dee CR, Newhouse JD. Digital chat reference in health science libraries: challenges in initiating a new service. *Med Ref Serv Q*. 2005 Fall;24(3):17–27.

Digital reference service adds a valuable new dimension to health science reference services, but the road to implementation can present questions that require carefully considered decisions. This article incorporates suggestions from the published literature, provides tips from interviews with practicing academic health science librarians, and reports on data from students' exploration of academic health science library Web sites' digital reference services. The goals of this study are to provide guidelines to plan new services, assess user needs, and select software, and to showcase potential benefits of collaboration and proactive and user-friendly marketing. In addition, tips for successful operation and evaluation of services are discussed.

De Groote SL. Questions asked at the virtual and physical health sciences reference desk: how do they compare and what do they tell us? *Med Ref Serv Q*. 2005 Summer; 24(2):11–23.

The questions asked at the traditional reference desk are decreasing while questions asked at the virtual reference desk are on the rise. Over a 1-month period, the types of reference questions asked at an academic health sciences library were coded. This paper examines and compares the types of questions asked at the current day reference desk versus the virtual reference desk. This paper also reviews past literature examining the types of questions asked via virtual reference and the traditional reference.

Bridges J. Marketing the hospital library. *Med Ref Serv Q*. 2005 Fall;24(3):81–92.

Many librarians do not see themselves as marketers, but marketing is an essential role for hospital librarians. Library work involves education, and there are parallels between marketing and education, as described in this article. It is incumbent upon hospital librarians to actively pursue ways of reminding their customers about library services. This article reinforces the idea that marketing is an element in many of the things that librarians already do and includes a list of suggested marketing strategies intended to remind administrators, physicians, and other customers that they have libraries in their organizations.

Notess GR. Scholarly Web searching: Google Scholar and Scirus. *ONLINE*. 2005 Jul/Aug; 29(4): 39–41.

Google introduced a brand-new concept with Google Scholar (http://scholar.google.com) — specialized search aimed at finding scholarly information on the Web. Time will tell whether it becomes a major access tool and replaces some of the traditional indexing and abstracting services or it ends up as yet another orphaned initiative. Elsevier's Scirus, which has similar coverage to Google Scholar and has been around longer, is a less well known scientific search engine covering journal articles and Web sites. Each search tool covers different sources and presents different problems, such as freshness of the material and problems with search results. Despite all the limitations and problems, both offer some unique reasons to use them beyond just watching their future development. Both Scholar and Scirus have potential for information professionals and end users. At this point, each covers a certain segment of scholarly material, but plenty of problems remain. Other search tools continue to serve the scholarly community better.

Fichter D. The many forms of e-collaboration: blogs, wikis, portals, groupware, discussion boards, and instant messaging. *ONLINE*. 2005 Jul/Aug;29(4):48–50.

Spend time at any intranet or knowledge management conference and you'll collect dozens of horror stories about failed online communities. You'll also hear about successful initiatives and thriving communities. Each story has a nugget of truth about what works or what doesn't. Failures usually result from unusable software with overly complex routines, organizational readiness, governance, and communicating value to the individuals. Thinking about online collaboration requires thinking beyond just one application to a suite of tools and solutions. The good news is that some low-cost, easy-to-install tools have been gaining traction with enterprises such as wikis, blogs, and instant messaging. When choosing a collaboration tool, you need to know your workplace culture and environment. Consider your current IT infrastructure, resources, the needs and usage habits of your organization's users, the level of control and standardization management, and the size of the group involved.

Simpson SN, Coghill JG, Greenstein PC. The electronic resources librarian in the health sciences library: an emerging role. *J Electronic Resour Med Libr.* 2005;2(1):27–39.

This article will address the evolution of collection development in the age of e-resources. According to results from a survey conducted by the authors, there are some emerging "best practices" for librarians responsible for e-resources in academic health sciences libraries. This paper will present a model for managing e-resources using East Carolina University Laupus Library's Collection Development/Electronic Resources Librarian position. A brief online survey was sent to library directors via the Association of Academic Health Sciences Libraries (AAHSL) discussion list. It was designed to gather information concerning e-resources librarians and how e-resources are handled in this group of libraries. The article will present what has worked for Laupus Library in relation to the responses from the AAHSL survey. The e-resources librarian is still closely tied to the technical services functions within the library. However, there are a number of attributes of the e-resources librarian position that are similar to information service (reference) and public service librarians. It has also been found that the e-resources librarian must work closely with the library's systems department as well as the information services (IS) department while keeping close ties with technical services.

Lovett DG. PDAs @ the library. PDA security: a conundrum for health care institutions. *J Electronic Resour Med Libr.* 2005;2(1):73–9.

PDAs are attractive devices for health care providers because they offer easy access to reference resources. They also may be used to store protected health information (PHI), confidential business information, and confidential personal information. PDA users need to be aware of their obligation to protect this information, particularly in light of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) regulations. Suggestions for ways to secure data stored on PDAs include protecting the PDA from loss and theft, protecting the PDA with a password, disabling infrared ports, encrypting data, restricting the PDA to either professional or personal use, following hospital policies and procedures for PDA use, backing up information, sanitizing the PDA when it is replaced, purchasing antiviral software, and purchasing a PDA with built-in security functions. Several security software options are also presented.

Wilczynski NL, Morgan D, Haynes RB, Hedges Team. An overview of the design and methods for retrieving high-quality studies for clinical care. *BMC Med Inform Decis Mak*. 2005 Jun 21;5(1):20 [e-pub ahead of print] [full free text on BioMed Central].

**Background:** With the information explosion, the retrieval of the best clinical evidence from large, general purpose, bibliographic databases such as MEDLINE can be difficult. Both researchers conducting systematic reviews and clinicians faced with a patient care question are confronted with the daunting task of searching for the best medical literature in electronic databases. Many have advocated the use of search filters or "hedges" to assist with the searching process. **Objective:** To describe the design and methods of a study that set out to develop optimal search strategies for retrieving sound clinical studies of health disorders in large electronic databases. **Design:** An analytic survey comparing hand searches of 170 journals in the year 2000 with retrievals from MEDLINE, EMBASE, CINAHL, and PsycINFO for candidate search terms and combinations. The sensitivity, specificity, precision, and accuracy of unique search terms and combinations of search terms were calculated. **Conclusion:** A study design modeled after a diagnostic testing procedure with a gold standard (the hand search of the literature) and a test (the search terms) is an effective way of developing, testing, and validating search strategies for use in large electronic databases.

NEWS AND NOTES / NOUVELLES ET NOTES

Compiled by Sandra Halliday

# NEWS AND NOTES / NOUVELLES ET NOTES

## *Grey Literature Report*

**http://www.nyam.org/library/greycolldev.shtml**

In 1999, The New York Academy of Medicine began collecting grey literature in an effort to better meet the needs of internal research staff. This project developed into the *Grey Literature Report*, an online report published quarterly by The New York Academy of Medicine Library, which now serves a community of more than 400 subscribers.

The Report is intended primarily for researchers, practitioners, students, and the lay public who are interested in public health, health and science policy, health of minorities and special populations (children, women, uninsured, elderly), and related disciplines. To view the latest issue, check out the following Web site: http://www.nyam.org/library/glrv7n2.shtml (accessed on 17 July 2005).

## Literature searches: look before you leap

The above heading is the title of an article written by W. Summerskill for *The Lancet*. It contains some general comments and observations about the role of librarians as part of an interdisciplinary team in evidence-based practice. The following is the complete reference:

Summerskill W. Literature searches: look before you leap. *Lancet*. 2005 Jul 2;366(9479):13–14.

## Upstate New York and Ontario Chapter (UNYOC) of the Medical Library Association Annual Conference

**http://www.unyoc.org/conference/index.shtml**

The theme for the Joint Annual UNYOC Conference is "Going for the Gold: Librarians as Information Champions". The conference will take place from 28 to 30 September 2005 at the Hilton Lake Placid Resort. For more details, check out the conference Web site.

## 7th Annual Virtual Reference Desk (VRD) Conference 2005

**http://www.vrd.org/conferences/VRD2005/**

The 7th Annual Virtual Reference Desk Conference will take place on 14–15 November 2005 in Burlingame, California, near San Francisco. For additional information about VRD and the conference, check out their Web site.

## Canadian Health Libraries Association / Association des bibliothèques de la santé du Canada (CHLA / ABSC) Annual Conference 2006 – "Pearls of Wisdom"

For librarians who like to make conference plans in advance, the CHLA / ABSC Annual Conference in 2006 will take place in Vancouver, British Columbia, 12–16 May.

## Medical Library Association (MLA) Annual Conference 2006 – "Transformations A–Z"

For librarians interested in the annual MLA conference, in 2006 it will be held in Phoenix, Arizona, 19–24 May.