

In the Public Good: Medical Information and Medical Librarians in the Internet Era

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Abstract

This paper begins with the identification of three perennial core values of medical librarians: (1) providing access to health information for all who need to use it; (2) working to improve information literacy and health information literacy; (3) assuring the preservation of the literature of the health sciences. The paper then examines how these values are being reexamined as the profession of librarianship changes in the Internet era. The emphasis is upon the core value of providing health information for all who need to use it. The Internet has created enhanced opportunities for the delivery of health information, but tensions are increasing due to the commoditization of scientific and technical information. The definition of “public good” and “public goods” is the basis for the exploration of alternative models of electronic publishing and access initiatives in which librarians, scholars and governments are engaging. New forms of scholarly communication are being strongly advocated by librarians. Two reasons are advanced for these initiatives: the economic unsustainability of the dominant current model and the preservation of the core values of the medical librarian. The paper briefly examines the genesis of these new models and the Budapest Open Access Initiative.

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Libraries as a Public Good – Why?

In many parts of the world, the idea of the library occupies a privileged position in the public lexicon of values. This is not to say that the library is first to benefit from the public purse of financial support. But the idea of the library, so integrally linked with the idea of literacy and an open society, has managed quite justifiably, to secure an iconic significance in society at large. Libraries are synonymous with literacy, but, in today’s world, the concept of literacy has become far more varied. It has broadened to include a number of conceptual skills in numeracy and arithmetic. In a civil society, it has taken on

even greater meaning, as it gives power to the people. In a quite remarkable address in 1990 to the Saskatchewan Library Association that remains relevant fifteen years later, Stephen Lewis, former Ambassador of Canada to the United States and special advisor to the United Nations on Africa, has given us a powerfully comprehensive definition of contemporary literacy

The most profound, far reaching and significant impact of literacy on people's lives is its empowering potential. To be literate is to become liberated from the constraints of dependency. To be literate is to gain a voice and to participate meaningfully and assertively in the decisions that affect people's lives. To be literate is to become politically conscious, critically aware and to de-mystify social reality. Literacy enables people to read one's own word and to write history. Literacy makes people aware of their basic human rights. Literacy enables people to have a greater degree of control over their own lives. Literacy helps people to become self-reliant and to resist exploitation and repression. Literacy provides access to written knowledge and knowledge as power.¹

Today's world is concerned with the digital divide and computer literacy, yet the need of yesterday's world for simple and powerful literacy has yet to be fully satisfied. This is analogous to librarians focusing on the problem of digital preservation while the full magnitude of the problem of print preservation has yet to be addressed. Creativity and technology have given us a new world which exists contemporaneously with the legacy of the past. The library at the beginning of the twenty-first century is the theatre and the laboratory in which the reconciliation of past and future must be developed. Librarians must acquire and make available collections to support a literate public, depending on resources and the nature and mission of the library. Even in the most specialized libraries and this includes medical libraries, opportunities exist to act in the public good, and to promote a literate, knowledgeable society. A particularly strong case for acting in the public good can be argued for all libraries and institutions supported by public funds. A proactive role for the library is needed, both to promote the public good, and, to assure a strong, viable position for the library in the contemporary cultural and educational scene.

Librarians, Values and the Public Good

Modern librarianship, whether practiced in a public, university, medical or business setting, is the effort of educated librarians and information professionals who share a commitment to the values, services and techniques of the profession. The delivery of library and information services and the technical infrastructure required to support these services form the core curriculum in graduate programs of library and information studies at universities throughout the world. The teaching of the values of the library profession is less well developed. Perhaps the library curriculum in universities is already over-extended and leaves little space for the study of a topic, the mastery of which does not result in a set of skills necessary to obtain that first professional appointment. Perhaps library educators feel that values are inculcated in the practice of the profession, rather than in the classroom. Recently, however, there has been a renewal of interest in the values underlying the profession of librarianship, especially evident in the writing of Michael Gorman.² Looking at values in a time of great change in a profession is fundamental to the reshaping of that profession. If, as I believe, values are perennial, reshaping the library profession in the era of Internet librarianship will be informed by those values and the profession will survive. If training and practice for a profession is not embedded in core values, professional practice will become merely a question of mastering of procedures that will change with each new technological release.

Librarians in all kinds of libraries – medical, hospital, public and university working in countries throughout the globe - hold in common certain core professional values. Librarians work from a common knowledge base provided by formal education for the profession and by professional practice. Librarians at times behave in the aggregate, seeing convergence and linkages between the various professional specialties that form librarianship in its totality. On other occasions, librarians appear as disaggregators, emphasizing the special nature of a particular type of librarianship such as cataloguing or medical librarianship. Both aggregators and disaggregators are essential to the advancement of librarianship worldwide. Across the various types of librarianship and over time, there exist three common, perennial values: providing access to information, assuring the survival of the accumulated wisdom of the past, and improving the information seeking skill of library users. In medical librarianships, these core values may be interpreted as

1. providing access to medical and health information to all who require it;
2. helping to improve information literacy and health information literacy;
3. assuring the preservation of the literature of the health science.

These core values have been demonstrated by medical librarians since the founding of their profession.

This paper will focus on the first of these three core values: providing access to medical and health information to all who require it. Since the late twentieth century and the arrival of the Internet, librarians have faced challenges and new opportunities in providing access to health information. Although electronic information provided unparalleled access capability, medical and scientific information was becoming increasingly commoditized. Acting in the public good to provide access to information to all who need to use it is threatened when access is limited to those who are able to pay.

Public goods have been defined as “consumer goods that, when made available to anyone, can be made available to others at no addition cost.”³ Medical and scientific journals in electronic form clearly are a form of goods that adhere to this definition. Electronic journal articles can be made available at no additional cost to consumers. Increasingly, as we shall see, there is support for the idea that they are if the research that produced the article has been funded by the public purse, these “goods” should be freely available. If journal articles are regarded as public goods, the ability of the medical librarian to provide access to necessary information is enhanced. The past two decades have seen intense political debate over what is considered public and private. Privatization has become a dominant ideology in many developed countries, and the concepts of “public good” and “public goods” are being redefined as we speak today. The Millennium Road Map of the United Nations identifies ten global public goods, three of which have particular relevance to the role of medical librarians and the public good:

- dignity for all people, including access to basic education and health care
- global public health, particularly communicable disease control

- concerted management of knowledge, including worldwide respect for intellectual; property rights.

This United Nations definition requires that that citizens and health care professionals have access to the knowledge contained in the published medical literature.⁴ Global public health requires that citizens become knowledgeable and participate in the maintenance of their personal health. And intellectual property management requires a judicious balance by librarians in balancing the rights of consumers and of creators.

Recent Developments in the Availability of Medical Information in the Public Good

1. Governmental Initiatives in the United States

Medical libraries around the world received strong support in their efforts to provide access to medical information at the turn of the millennium, the result of initiatives at the US. National Library of Medicine. These initiatives, PubMed and PubMed Central placed powerful tools in the hands of librarians and their users. PubMed is

a database of citations and abstracts for millions of articles from thousands of journals. It includes links to full-text articles at several thousand journal web sites as well as most of the articles in PubMed Central.

PubMed Central(PMC) is an electronic archive of full-text journals offering free access to its contents. PMC contains a few hundred thousand articles, most of which have a corresponding entry in PubMed.⁵

PubMed was developed by the National Center for Biotechnology Information (NCBI) as the host of MEDLINE. It introduced a feature that promoted the tracking of related papers, including pre-MEDLINE data and links, to full text of articles appearing in peer reviewed journals. At the initiation of this program, some 700 journal publishers had agreed to participate in this access program. PubMed Central was truly access without borders at the international level. Inaugurated in February 2000 using content from the *Proceedings of the National Academy of Sciences* and *Molecular Biology of the Cell*, it demonstrated the possibility of open access to the medical literature at an early stage, well over a year before the Budapest meeting that produced the Budapest Open Access Initiative. A digital archive of peer reviewed full text research reports and electronic

journal articles became available globally to anyone with an Internet connection. A PubMed Central National Advisory Committee under the chairmanship of Nobel laureate Dr. Joseph Lederberg was established and included the former head of the National Institutes of Health, Dr. Varmus, who as Director of the National Institutes of Health had initiated a program to improve access to the medical literature a few years earlier, Paul Ginsparg who had developed the Los Alamos pre-print project in high energy physics that is today housed at Cornell University, librarians, Michael Homan, then President of the Medical Library Association from the Mayo Clinic, James Neal from Johns Hopkins and now at Columbia and Jim Williams from the University of Colorado, and Dr. Donald Lindberg and other members of the National Library of Medicine. Also included were representatives from the scientific editing and publishing worlds.

It is not difficult from today's vantage point to imagine the agenda and discussions at these meetings. In fact no imagination is necessary since the full record of those meetings is freely available on the Web. The purpose of PubMed Central and its National Advisory Committee demonstrates the continuing commitment to providing information to all who need it:

Since the mission of NIH is to conduct and support medical research and to disseminate the results of that research widely to the public and the scientific community, it will make use of electronic publishing technology to fulfill this role by establishing and maintaining PubMed Central.⁶

What remains exciting still in retrospect is the fact that appropriate compromises could be reached between the various interest groups represented on the Advisory Committee to allow this enormous step forward in providing direct access to large segments of the medical and scientific literature to all who needed it. The moment was propitious; the technological capability existed to house and make available this important medical archive. The goals of the program were ambitious and far-reaching: to create a repository for the full text of the life sciences research articles that is *available to all* and to provide a robust digital archive where content not limited to the traditional journal article would be available in new ways.⁷

Understandably, the commercial publishing sector reacted sharply to these initiatives. Commercial science publishing restricts public access to the findings of medical research in two ways: (1) through the high costs of licensing scientific and medical information, and (2) through licensing agreements that require libraries to restrict access to materials provided under licensing agreements. These licensing agreements may restrict the right of the public to access information produced by research that has been funded by tax payers. In the case of clinical medical information, the argument in favor of accessibility is even stronger since these articles may help the healing process and encourage patients to take greater responsibility for their care and to participate in a more informed manner in choosing from alternative therapies. Rising pressure from the public on these issues prompted congressional action in the United States. In July, 2004, the United States House Appropriations Committee recommended that the National Institutes of Health require free online access to articles resulting from NIH funded research within six months of their publication in journals. Subsequently the language of this recommendation was diluted to one of supplication with the author merely “requested” to deposit his scholarship in PubMed Central. Finally, in December 2004, President Bush signed a bill approved by both Senate and the House of representatives whereby the National Institutes of Health would request authors to submit an electronic version of the final manuscript. Six months following the date of publication by the publisher, the article would be made publicly available through PubMed Central. A final version of this policy that came into effect in May, 2005 contained further modification with the timeline changed to twelve months after publication according to the wishes of the author of the article.⁸

These important initiatives created powerful new models for medical librarians caught in the web of site licenses and Big Deals. They suggested important directions not only for medical librarians but for all librarians. The library was not limited to acting merely as the conduit for licensed information for content on remote proprietary servers. It was promoting new forms of open access to the traditional literature but also to new kinds of information such a large data files and other research information on which published research results were founded. Sharing this information was in fact changing the nature of

scholarly communication, not merely scholarly publishing in a revolution that went far beyond the boundaries of traditional publishing.

2. The Scholarly Publishing and Academic Resources Coalition: “SPARC”

Initiatives by librarians were also advancing the agenda of public access at the same time as the government of the United States was promoting public access to federally funded research. The SPARC initiative arose in 1997 at the Annual Meeting of the Association of Research Libraries (ARL). Fatigued by the relentless increases in the cost of scientific journals and the inability to meet user needs as a result, Kenneth Frazier, Director of Libraries at the University of Wisconsin made the following grass roots proposal to the membership of the Association at a business meeting discussing recent increases in the price of scholarly journals

The question I keep finding myself returning to is, What are we really going to do to address the issue? I would like to suggest that we need to develop a fund in order to create new publication models. There is no way around it. If 100 institutions would put up \$10,000 each to fund 10 start-up journals that would compete back to back with the most expensive scientific and technical journals to which we currently subscribe, we would have \$100,000 a year available for each of those 10 start up titles. . This amount of money, by the way, is smaller than the annual increase that we are now experiencing for the most expensive journal list to which we subscribe. Such an endeavor would cost us less than the price of these subscriptions per year.⁹

Each institutional member of the Association was asked to provide an initial financial contribution as seed money for the development of an alternative model: “grass” and “seed” are appropriate metaphors since the proposal was the initiative of Kenneth Frazier of the University of Wisconsin whose creative challenge to the membership was rooted in strong principles of providing access to information to all who need to use it. From its inception, SPARC was designed to create new models and to advocate for change in scholarly publishing. Although its genesis was deeply rooted in the frustration that accumulated in the library community over the costs of medical and scientific journals, SPARC was neither reactive nor negative. Founding members saw SPARC as a means to exploit fully the revolutionary potential of the digital age. SPARC’s purpose was the

development of alternative methods of scholarly communication and a dedication to changing the old system of scholarly communication that had become focused on high profit margins.

But SPARC and the librarians who support it could not control the continuing high costs of acquiring commercially published information. During the period 1986-2001, members of the Association of Research Libraries spent three times more and received five percent fewer journal titles. Journal prices were especially high in medicine and science, with medical journal increases of 43% between 1998 and 2002. Such pricing information is a vital element in the provision of scientific information; it is by no means new information to librarians who have been stalwart throughout periods of inflated price increases in providing current published medical information to health professionals and consumers of health care. And now they had powerful allies in their quest to provide medical information to who needed it.

Today SPARC is “an international alliance of libraries igniting change in scholarly communication...SPARC pursues its objectives via a two pronged strategy: public advocacy of fundamental changes in the system and the culture of scholarly communication [and] incubation of alternative channels of scholarly communication.” Almost ten years after the proposal from Frazier at the ARL meeting, SPARC is flourishing, sustained by annual membership dues and the commitment of members to purchase scientific publishing initiatives funded by the SPARC initiative. Since, in effect, this means that the participating library is purchasing more journals, this has given rise to some criticism by librarians in that they were purchasing titles in a similar field. Librarians have historically opposed the proliferation of new journal publishing, seeing it as creating further inroads on their beleaguered budgets and providing ever increasing revenues to publishers. Although superficially correct, this criticism fails to recognize the extraordinary achievement of SPARC in fostering alternative forms of publishing to encourage competition with existing costly resources. It has introduced true competition and proposed alternative solutions to the high priced commercial model and in doing so has helped to rein in the costs of existing titles, through providing some competition.

Some of the innovations created by SPARC initiatives have focused on medical information and scholarly communication. BioOne,¹⁰ launched in 2001 is a collaborative electronic publishing program of biological societies and libraries, including the American Institute of Biological Sciences, SPARC, a consortium of large university libraries and Allen Press. This outstanding initiative is revising our understanding of science publishing, testing a new business model that controls costs. BioOne journals subscribed to collectively and accessed through the BioOne portal are not open access journals, but they demonstrate that the costs can be controlled and scientific information made available at less than commercial publishing costs. International Initiatives:

The Budapest Open Access Initiative

It is not possible to discuss new forms of scholarly communication without reference to the Budapest Open Access Initiative (BOAI) In December 2001 a group of international scholars, innovative publishers and librarians from Britain, Canada, the United States and Europe were invited to a meeting that has been described as “small but lively,” with a purpose of advancing efforts to make research articles in all disciplines freely available over the Internet.¹¹ Participants at this seminal meeting thought strategically about how the numerous ventures to encourage alternative publishing could work together to promote open access. Since the meeting was funded by a private foundation, the Open Society Institute, the topic of how foundations could advance open access was also on the agenda. Of course, the most significant and best known result of the meeting was the declaration known as the Budapest Open Access Initiative.¹²

The Declaration held an ultimate goal of open access to peer-reviewed literature and identified two strategies for the promotion of this global goal:

- (1) Self-archiving: Scholars would take responsibility for placing their referred articles on the Internet, using standards developed by the Open Archives Initiative. Using search engines and other tools, readers could search across separate archives to find articles
- (2) Open access journals: New journals would be launched that were committed to publish in open access and other journals might transition to open access. Authors would retain their copyright, and journal publishers would know longer charge.

Both objectives were ambitious and creative. Both had been tested by participants present at this Budapest meeting and were conceptually valid. However, the challenges to the existing system of scholarly publishing and communications system were enormous. An established system of publishing that went back more some 350 years was being called into question and found wanting. Further, this well founded system included many prizes and recognitions to encourage its sustainability in a free market. Yet there is much at stake here, and many reasons that the thousands of individuals and organizations that signed the Budapest Declaration continue to believe and work for its success. The sheer plurality of effort and the interlocking collaborative structure of the agencies that support open access is itself responsible for the emergence of many individual successes that advance the open access agenda. The Open Society Institute has supported the SPARC initiative to encourage alternative publishing. The Institute has also supported the Directory of Open Access Journals published at Lund University. *Public Library of Science – Biology* and *Public Library of Science – Medicine* journals of high quality published in open access, have claimed a place in the hierarchy of highly cited journals.¹³ In less that two years, PLOS – biology became one of the most highly cited journals in the life sciences according to the evaluation performed by Thomson ISI.¹⁴

Conclusion

The initiatives described in this short paper present less than a complete description of the numerous activities that are taking place worldwide in an effort to free the literature of medicine and science in the interest of the public good. These new initiatives create powerful new models of scientific communication on the Internet. They encourage medical librarians, caught in the web of site licenses and Big Deals, to think of new and more cost effective ways of delivering access to information while, at the same time, offering new roles for the librarian in the new world. These roles move beyond acting as a conduit for licensed information on remote proprietary servers. Librarians are promoting new forms of access to the literature. Sharing information in new ways can

can change the nature of scholarly communication, not merely scholarly publishing, in a revolution that went far beyond the boundaries of traditional publishing.

¹ Quoted by Stephen Lewis, "The struggle for literacy abroad and at home" from *The International Task Force on Literacy Newsletter*, 1990 in *Survival of the Imagination: The Mary Donaldson Memorial Lectures*. (Edited by Brett Baker and Peter Risch. Regina: Coteau Books, 1993), 283.

² See especially Gorman, Michael. "Our Enduring Values: Librarianship in the 21st Century." (Chicago, American Library Association, 2000.).

³ Black, Steve. "Scholarly Journals Should Be treated as a Public Good." *Serials Librarian*, 2003, 44:1/2, 54.

⁴ Kaul, Inge, ed. *Providing Global Public Goods: Managing Globalization*. Published for the United Nations Development Programme. New York, Oxford University Press, 2003. p44.

⁵ <http://www.pubmedcentral.nih.gov/about/faq.html> Accessed 7/24/2005. This site prides a wealth of current information on developments of these services.

⁶ U.S. Department of Health and Human Services. National Institutes of Health. National Library of Medicine. National Center for Biotechnology Information. Summary Minutes of the Meeting of April 28, 2005 1. Accessed July 25, 2005

⁷ A description of the beginnings of this work is contained in the President Michael Homan's address to the Medical Library Association. See *Bulletin of the Medical Library Association*, v.89 no1 (January 2001) 120.

⁸ <http://www.earlham.edu/~peters/fos/nihfaq.htm>. Accessed July 31, 2005. An excellent chronology of these and other developments in the Open Access movement may be found on the Web site created by Peter Suber, Open Access Project Director, Public Knowledge.

⁹ <http://www.arl.org/arl/proceedings/130/bus.mtg.html>.

¹⁰ <http://www.bioone.org> accessed August 1, 2005

¹¹ <http://www.soros.org/openaccess/index.shtml> accessed July 31, 2005.

¹² <http://www.soros.org/openaccess/read.shtml> accessed July 26 2005.

¹³ www.plosbiology.org.

¹⁴ mailing to liblicense-1@lists.yale.edu June 23, 2005.