The Promises and Pitfalls of Web Publishing for Health Services Research

An Expert Meeting
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Meeting Summary Report

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"The Promises and Pitfalls of Web Publishing for Health Services Research"

Meeting Summary

I. Setting the Context: Major Trends in Professional Healthcare Publishing

The transition from print-based to electronic journals, in conjunction with the long-term goals of the health services research community to more effectively and efficiently disseminate research findings, has sparked heated discussion over the future role of traditional print journals in an increasingly Web-reliant world.

Recognizing the speed at which the healthcare publishing environment is changing, the Federal Agency for Healthcare Research and Quality (AHRQ) sponsored an expert meeting, conducted by AcademyHealth, on November 22, 2004, in Washington, D.C., to engage stakeholders from the research, funding, and publishing communities in a substantive discussion about the challenges and opportunities related to Web publishing. (See Appendix A for a list of meeting participants.)

Cara Kaufman of the Kaufman–Wills Group, LLC presented an overview of the major trends in professional healthcare publishing (see Appendix B for her background paper prepared for the meeting). While a great deal of talk has centered on possible future changes in the field, **Kaufman's presentation explored the many changes in preferences and usage patterns among users that have already occurred**. For example, healthcare publishers are seeing significant declines in personal subscriptions where online institutional access is available. Forty percent of libraries planned to drop print in favor of online journals in 2004. Many publishers discount online-only subscriptions, so dropping the print version can save the library precious dollars. Also, libraries are responding to the 75 percent of faculty and graduate students who have stated that they prefer e-journals over their print counterparts. This decline in circulation of scholarly print journals is expected to continue and the rate of decline is likely to increase.

While students and faculty make up one segment of journal users, **researchers and decision makers have their own unique information needs**. Researchers need access to the broad range of works being published in their field of study. Decision makers, in contrast, are interested in the most recent thinking on a topic but have little time to read a large number of articles. This translates into simultaneous demands for detailed information as well as access to "the big picture." Participants noted that while some issues are similar, it is important to differentiate clinical science stakeholders from health services research stakeholders. Decision makers who benefit from health services research findings rarely subscribe to journals and seek the information in other ways.

Further, many information brokers who serve decision makers no longer take the time to cite sources that they can not access readily from their desktops.

These trends, coupled with the desire of journal publishers to expand their distribution and revenues, have led to **increased content licensing to databases**. Search engines such as Yahoo and Google have become important tools for delivering information to users.

Academic authors find themselves under pressure to "publish or perish" and at the same time, **decision makers expect access to new information as it becomes available**. Slow publication speed, a long-time criticism of some health services research journals, has been cited as a concern in surveys of federal and state policymakers. The problem is often heightened for medical journals, where the public is concerned that they do not have quick enough access to information on the effectiveness of medical interventions (e.g., recent high profile news about negative effects of drugs such as Selective Serotonin Reuptake Inhibitors or SSRIs). Participants had very different views about the degree to which health services research publishing takes a long time; three months is very long for decision makers' perspectives but short in an academic sense.

This notion that the public should have fewer barriers to obtaining scientific literature has led to the idea of "open access." While views on what constitutes "open access" vary, the term generally refers to putting peer-reviewed scientific and scholarly literature on the Web and making it available free of charge and free of most copyright and licensing restrictions immediately upon publication. As the movement gains momentum, many publishers have suggested alternatives with various levels of "open access."

A related trend is "ahead of print" publishing, where articles are posted on journal Web sites after the peer review process is complete and the article is accepted for publication. Several health services research journals have started doing this (e.g., *Health Services Research*); others have "Web only" publication that later ends up bundled in a print edition (e.g., *Health Affairs*). "Ahead of print" benefits readers by giving them access to research before it appears in print, up to months in advance, and benefits authors by shortening the acceptance-to-publication time and extending the time period during which an article is most often cited.

II. The Impact of Web Publishing on Stakeholders: Challenges and Opportunities

Throughout the meeting, participants discussed the trends outlined in Kaufman's presentation as well as shared the challenges and opportunities they continue to face as the result of Web publishing.

A. Journals

In 2004, subscriptions and licenses were overwhelmingly the largest revenue source for journals followed by industry support and member dues. While specific pricing models are unique for each publisher, there are general business models for providing online access to institutions. They include bundled (print and online) or unbundled subscriptions, single institutional rates, and tiered pricing based on the size and type of institution. *Health Affairs* offers bundled personal subscriptions and a 5-tiered pricing model for institutions with an "online only" option as one of the tiers; similarly, *The Milbank Quarterly* offers bundled personal subscriptions and bundled institutional subscriptions with an "online only" option.

Participants noted that Web publishing has affected the traditional notion of what constitutes "a subscription." For some journals, their subscription base is still largely personal subscriptions (80 percent in the case of *Health Affairs*), while other journals have seen a shift toward institutional subscriptions (70 percent in the case of *Health Services Research*) and, therefore, tiered pricing models. With institutions now requesting one subscription to serve their global needs, the question of how to structure and price tiered models is a key challenge for publishers. Citing the need for better methods for measuring usage and pricing institutional subscriptions accordingly, participants noted that tiered models hinge on determining "how many eyeballs are viewing articles." For some institutions, one subscription can yield as many as 1,000 downloads per month.

In contrast, the "open access" publishing model, used by publishers including BioMed Central and the Public Library of Science (PLoS), is not based on subscriptions and provides original research immediately and at no cost to users. Sources of funding vary, but include institutional membership dues, author fees for manuscript submission and publication, and grants.

The shift to Web publishing as a means of providing greater access has serious implications for the structure and financing of traditional print journals. Many journal publishers have been forced to examine the sustainability of their current publishing business models and agree that modifications to those models are necessary. Participants suggested a variety of alternatives to the traditional subscription, "user-pays" model. One alternative is to have authors "pay to play." A second would be to increase foundation or government support to journals. However, there is a fundamental difficulty in determining where the financial burden should lie when stakeholder groups often

overlap. Researchers are both authors and users of information. Foundations and government agencies are users as well as funders. Many journals have more readers than authors. And some users are rarely authors (e.g., the health care industry), so under an "author-pays" system, they would no longer bear the cost of the articles from which they benefit in a number of ways, sometimes financially in the case of private sector users.

A central theme in the discussion of changing business models was the question of **what effect these changes would have on the peer review process**. Although peer review time is donated, the "back office" process of facilitating it is costly. The Web offers new and creative ways to facilitate the process of peer review, but how to fund it under new business models remains a key concern. Participants identified several alternative funding methods including additional foundation and government support and author fees. Increased Web publishing also raised **concerns about the ability of journals to maintain the current level of selectivity of the peer review process**. The Web does not pose the space constraints of a traditional print journal. In turn, lower rejection rates based on the availability of more publishing space or as a result of incentives to publish more papers to receive more author fees could affect a process that relies on the appearance of rigorous selectivity, although maintaining a rigorous review process could mitigate against this possibility.

Participants also discussed the need for a new set of standards for assessing the quality of policy-oriented work. Peer review could be a part of such standards, but as one participant noted, transparency of the publication selection process might be even more important.

Web publishing could also affect traditional methods for measuring a journal's importance and effectiveness. Currently, a journal's "impact factor" is measured and ranked based on the number of citations it received in the previous year. While the impact factor is recognized as an imperfect measure, it has strong implications for a journal's reputation and, in turn, carries weight in the promotion and tenure process for academics. Web publishing could "impact the impact factor" by providing alternative tools (e.g., WebTrends and COUNTER – Counting Online Usage of Networked Electronic Resources) for measuring usage and effectiveness, although these Web counters measure the usage across the entire public and not just academic usage. Search engines devoted to peer-reviewed literature, such as Google Scholar (currently in the "Beta" development phase) that search for a broad range of scholarly materials including peer-reviewed papers, theses, books, preprints, abstracts and technical reports, could provide statistical measures and data on search queries. But participants stressed the importance of taking care with any impact factor definition as not to confuse publication for the sake of knowledge (or promotion and tenure decisions) with publication for the purpose of affecting policy.

B. Researchers/Academics

Participants from the research community also expressed concerns related to evolving publishing business models. A "pay to play" model would have significant implications

for producers of "unfunded" research (i.e., research not supported by external grant, contract or other funding) or research products that were not anticipated at the time of grant submission. In addition, small institutions and junior researchers might have difficultly identifying additional funds to support these fees. The magnitude of unfunded research is not inconsequential—one participant noted that about 80 percent of the research published in the *British Medical Journal* (BMJ) is unfunded.

Scholarly publishing and the reputation of the journals in which academics publish affect the university promotion and tenure process. Increased Web publishing is forcing academics to make new types of strategic decisions about where to publish. Participants' views varied on whether there is, in fact, a difference in impact between publishing in print or on the Web, but agreed that it varies among universities and disciplines. In addition, there is and likely will be variation among journals, depending on the rigor of their peer-review process and the extent to which Web versions of publications are reviewed as "second best." Some participants believed that even if papers are disseminated initially on the Web, a formal published version is desirable in the current climate while others stated that print versions are not necessary as long as a pdf version is available that can be easily and widely disseminated. Some also suggested that it will be important to test beyond anecdotes what the actual implications for promotion are of Web publishing rigorously peer reviewed articles. Others suggested holding investigators more accountable for getting their research into policy and practice.

With their teaching hats on, professors face a unique set of challenges resulting from increased use of the Web. The current generation of students relies on search engines to access online information and views nearly all information as equal. With access to so much information from so many sources, professors must help students to understand the difference between articles of high, unbiased quality and works published by advocacy groups and associations.

C. Funders

Foundation representatives commented that they are pressed by their boards to show the effectiveness of the health services research that they fund. This often results in the use of "push technology" to transfer information to users, and in some cases, the development of Web sites and self publication of grantee reports that could be viewed as in competition with the health policy journals. However, the fine line between competition and collaboration was noted, and clearly, collaboration among foundations and journals is likely to continue. Participants from the foundation community expressed frustration with having to pay first to support research, pay a second time to post it on their Web site (through supporting special issues), and potentially a third time to support author fees to have the article published in a peer-reviewed journal.

Public funders face issues similar to those mentioned by their private counterparts. If subscriptions no longer cover the cost of peer review, editing, dissemination, and promotion of articles, one alternative would be to build the cost of the process directly into the grants awarded. Funders would then have to change definitions of what costs

would be allowable under various grants and contracts; items such as licensing fees or manuscript subscription fees would have to be explicitly permitted.

In 2004, the National Institutes of Health (NIH) released a draft policy on public access to NIH-funded research, which was revised subsequent to our meeting.[1] With the goal of establishing a permanent, accessible archive, the initial draft requested "that NIH-funded investigators submit electronically to the NIH the final, peer-reviewed author's copy of their manuscript." The manuscript would then be embargoed from release for six months after which it would be available in the National Library of Medicine's (NLM) PubMed Central. In the final version, the mandatory six month embargo was revised to allow authors flexibility to specify when their accepted manuscript would be posted on PubMed Central, but it must be within 12 months of the publisher's official date of publication.

The NIH maintains that it is unlikely that the proposed policy will cause a reduction in journal subscriptions because NIH-funded research accounts for only a fraction of the content in the 5,000 journals indexed by PubMed Central and has provided data to back up that assertion. For the subset of journals more focused on health services research, the assertion appears true for many but for others, such as *Health Services Research,* the impact could be significant (see Appendix C for a table of data related to citations that reference NIH and Public Health Service (PHS) funding in specific health services research journals). This policy, which has raised concerns among many journal publishers, is prompting other public funders to evaluate the current policies governing the dissemination of their research. One participant expressed the need for publishers to be protected against the erosion of income by public access requirements in order to preserve outlets for the work of researchers.

D. Decision Makers

Participants agreed that unique dissemination methods are required to transfer health services research to the policy world. The Web presents an opportunity to undermine the notion that health services research publishing is too slow to affect policy decisions. Some noted that this notion is misplaced; for example, *Health Affairs* maintains lists of articles that within 24 hours of publication were cited by Members of Congress to introduce new policies or to buttress their positions on current policy decisions and has other examples of articles cited that were published six months to a year earlier. Others noted that the issue is less one of speed than the general lack of commissioning relevant research for policy decisions or using old data. Nevertheless, some participants suggested that with time being a central concern for decision makers, earlier posting of health services research results, even prior to completing the review process, could serve as a vehicle to advance policy discussions. One participant suggested testing a model where early data could be put on a Web site and in a closed, "safe" environment, commentary could be invited which could both advance the science of the findings (resulting in a better product) and advance policy and practice at the same time.

[1]The final NIH public access policy went into effect May 2, 2005.

In addition, participants agreed that the Web can be used to increase the policy relevance of health services research by getting the research to the end users easily at the time when they are working on a specific issue and need the information. Search engines can help, but so can other communications vehicles. One participant noted that a press mention in the *New York Times* can go a long way to increase the impact of research.

E. Libraries

Librarians face the challenge of meeting the needs of their users in an environment plagued by budget constraints. Although many libraries have recently dropped print in favor of the cost-savings associated with online journals, institutional costs will likely go up as technology for counting IP (network) addresses improves. This improved technology will enable publishers to track usage and charge institutions based on the number of individual computers or workstations accessing their Web sites. Tight budgets will force funding changes within institutions. If the business model changes, librarians are skeptical that money saved from reduced cost Web access will be used by universities to pay publishing fees on behalf of authors.

III. "The Trains have Left the Station"

One meeting participant described Web publishing as "evolutionary, not revolutionary." While the shift to Web publishing can be characterized in many ways, it is clear that the shift or "evolution" is accelerating. As it becomes necessary to modify traditional publishing models to survive in the new electronic environment, one solution will not fit all journals. Participants stressed that with few new journals emerging in the past five years, publishers need to ask themselves what the model would look like if health services research had to start from scratch in a world with universal Web access and users who expect instant access to information. Yet because they are not starting from scratch, they and the funders of research will need to assess how best to make a transition to a Web publishing world in a way that best serves the needs of all the participants and in a way that is economically viable. New open access models need careful watching to understand better their viability and impact on key stakeholders over the long term.

Although it was recognized that the journal business model shifts are of great concern to publishers, meeting participants advised not spending too much time collectively on the unique and varied models, which will evolve. Rather, because the Web provides opportunities for creativity and wider dissemination, funders and others should focus on how best to use it to demonstrate the value of health services research. The use of the Web to re-package information and utilize creative multi-media strategies could demonstrate the value of health services research. Synthesizing information provides an opportunity to improve knowledge transfer to specific, targeted groups of decision makers such as hospital administrators and legislators. While the Web provides an opportunity to speed publication, editors and their readers need to examine whether the most valuable information is being published and reaching its target audiences in forms they can use.

IV. Next Steps for Health Services Research Publishing

In May, AcademyHealth held a follow-up conference call with meeting participants and senior AHRQ staff to discuss possible next-steps in addressing issues related to publishing health services and policy research. The 90-minute discussion addressed the roles and responsibilities of journals, funders, and AcademyHealth, and opportunities for further collaboration as the shift to Web publishing accelerates.

Three possible follow-up activities were identified and presented to participants for discussion. The first suggestion was to create new standards for accessing the quality of policy-oriented work (e.g., quality of data, research methods). Several participants responded that they are involved in similar activities for clinical research and developing new standards for health services research would be an important step for the field.

The second proposed activity would involve reviewing how the field measures impact. With the Web providing new tools for measuring usage, it is important to determine whether there are better measures than the "impact factor" for accessing a journal's importance and effectiveness. One participant noted that the health services and policy research fields might consider informally participating in the Congress on Peer Review and Biomedical Publishing held by the clinical research community every four years. The next conference, to be held this September, could present an opportunity to bring stakeholders together to discuss the idea further and map out an agenda for moving forward.[2]

A third follow-up activity would be to develop a mechanism for placing early versions of research reports, or data being used for a particular study on secure Web sites, even prior to completing the peer-review process. This could provide opportunities for commentary aimed at improving products and advancing policy discussions.

With participants in general agreement that Web publishing is here to stay, representatives from the major funders for this field reiterated their commitment to assuring that this field has adequate avenues for dissemination. They also noted that these proposed follow-up activities would be important for advancing the field of health services research. Future discussions will be required to ensure that creative use of the Web to disseminate information to broader audiences continues while ensuring the financial viability of journals. AHRQ and AcademyHealth are committed to continue following publishing trends in order to further identify and promote opportunities for collaboration among stakeholders.

[2] Following the conference call, Bill Silberg from The Commonwealth Fund contacted a colleague at *JAMA* about the possibility of representatives from the health services research field participating in the Congress. Although the Congress does not allow official side meetings, posting a notice on the Congress's message board or otherwise informally convening interested parties would be permitted.

Appendix A:

Promises and Pitfalls of Web Publishing for Health Services Research

An Expert Meeting

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Appendix B:

Major Trends in Professional Healthcare Publishing: A Background Paper

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Commissioned by
AcademyHealth
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This background paper was prepared for an expert meeting titled, "Promises and Pitfalls of Web Publishing for Health Services Research," conducted by AcademyHealth and Sponsored by the Agency for Healthcare Research and Quality (AHRQ), Office of Communications and Knowledge Transfer. The meeting will be held on November 22, 2004 at the Wyndham City Center Hotel in Washington, DC.

Major trends in professional healthcare publishing

Prepared by Kaufman-Wills Group, LLC, 13 November 2004

Introduction

In this report, we describe what we see as the major trends impacting professional healthcare publishing today. We have categorized the trends under five main headings:

1. Growing preference for online access to information
2. Changing online usage patterns
3. Expanding role of content databases
4. Convergence of publication speed and cost containment
5. Emergence of Open Access

Growing preference for online access

Today, research for writing a paper, searching for an answer to a professional question, or learning about what is happening in other research centers often begins on the Web. Many individuals are no longer using paper journals for these common situations. On the other hand, the value of some print journals seems sustainable. Readers of *Science,* for instance, report that they continue to rely on their paper copies for easy access to the journal's news and short features. Individuals also rely on print issues for portability when they travel. In some less research-intensive professions, our research shows that substantial numbers of readers never access their journals online.

Among institutions, however, the situation is more straightforward. Evidence points to a significant, escalating trend among libraries to drop print journals in favor of their electronic counterparts. To reach this conclusion, Kaufman-Wills spoke with librarians in the US and abroad, reviewed studies published by the Association of Learned Professional Scholarly Publishers, the American Library Association Web site and list servs, *Scholarly Communications Report*, and other online and print sources for trends data; and we drew from our professional experience. Following is a summary of our findings:

Libraries and declining print

- A research study of 400 academic research libraries across the globe, conducted by Elsevier, the largest scholarly publisher, disclosed that 40% of libraries were planning to drop print in favor of online access in 2004.
- Larger research libraries have made the step from print to electronic in 2004, have initiated the move for 2005, or are contemplating it for 2006 and beyond.
- Smaller libraries are following the lead of larger libraries and already are relying more heavily on inter-library loan.
- Many hospital libraries are closing now that the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) no longer requires them to retain medical libraries, as long as they have comparable materials online.
- Harrassowitz, a major international subscription agent, told Kaufman-Wills that they expect to lose at least a third of their STM print journal business by the end of 2004.

- Small and medium journals will lose more market share as the larger publishers negotiate directly with libraries and libraries find it worthwhile negotiating directly with larger volume publishers.
- While library budgets are basically static, e-collections and e-budgets are increasing, the funds coming from other (print) materials.
- Among nonmember individuals, the trend toward dropping personal subscriptions in favor of institutional access, online-only access, or no access at all is continuing at 5% to 8% per year unabated.
- Several studies—the *New England Journal of Medicine*'s 1998 study foremost among them—have shown a significant decline in personal subscriptions in areas where online institutional access is provided.
- Focus groups of librarians conducted by Kaufman-Wills disclose that librarians are increasingly willing to drop journals they view as expensive in absolute dollar terms, especially if topic substitutes can be found.
- As progress is made toward institutional and/or national archives, libraries will be even more likely to drop print to save shelf space and reduce costs while continuing to provide desktop access to their patrons.
- No generalized trend toward online-only subscriptions has been identified among society members, but some research-intensive societies have seen a large uptake in online-only subscriptions if offered, especially by their foreign members.
- A particular society journal's policy toward bundling print and online, along with how strong are the "golden handcuffs" of membership determine the number of individuals who replace their personal print subscription in favor of institutional access.
- The trend toward online only is most accelerated in science and less so in clinical medicine, and even less so in the humanities.
- Three-quarters of faculty and graduate students prefer e-journals over print; 85% prefer desktop versus library e-journal access; and 30% of students never access print in the library.
- Paper has more allure in the arts and humanities. As yet, texts not as readily available as in the sciences. While 75% of students access e-journals across subject areas, the percentage drops to 68% of students in the arts and humanities.
- PDF use is significant in most fields, as many individuals still print out articles to read them. But some research-intensive fields see low use of PDFs (less than a 1/3 of articles downloaded) and have begun to contemplate doing away with them to save costs.

Given the foregoing findings, the print circulation of scholarly journals will continue to decline, at a rate likely to accelerate over the next few years due especially to libraries dropping print.

Effect of declining print

How much journals are impacted by declining print depends on many factors, including:

Journal size. Small and medium journals are likely to feel the market squeeze as bigger journals and bigger publishers grab market share with title aggregation, volume discounts, and negotiated consortia sales.

Percentage member v institution sales. Journals with relatively high member circulation should see fewer print cancellations than journals with a higher proportion of institutional subscribers.

Strength of society's "golden handcuffs." Those journals tied to membership should see less of an impact on print circulation, as members renew and receive the print journal.

Specialty areas covered. Science journals are likely to see a more immediate reduction in print subscriptions than humanities journals.

Extent to which publishers embrace the trend. Continuing to bundle print and online, adding "magazine-like" features which support readability, and offsetting declines with new product development are ways to help stem the decline of print.

Following are at-a-glance lists of the forces identified as pushing the scholarly publishing market away from print, and those helping to hold the line:

Force pushing away from print	Forces holding the line with print
Capital budget constraints at universities	Inertia, reading habits associated with print
Reducing storage costs by reducing shelf space	Strong identification with print product
Shrinking public-state library budgets	Readability, higher quality illustrations in print
Above inflation subscription rate hikes	Portability of print (plane, office, home)
Closing hospital libraries	Authors preference for print publishing for CVs
Increasing user comfort with online resources	Continued easy access--bundled subscriptions
Researcher-friendly e-features, functionality	Serendipity, browse-ability associated with print
Supplemental content available only online	Relatively low online use among certain groups
Demand for aggregated e-content ("one-stop shop")	Publishers reliant on print advertising
Institutional site licenses	Less expensive print only access (v site license)
Greater availability of unbundled subscriptions	Most costs still incurred with print or online
Buying power of consortia	
Selling power of big deal, volume discounts	
No international airmail or air freight charges	
Incremental savings to publishers without print	
Rapid publication, instant delivery	

Changing online usage patterns

Is the way readers value and use journals different today than what it was a decade ago? More than ever, individuals are evaluating publications by deciding whether or not they have value in terms of the direct cost and the time it takes to read and learn the

information presented. Less often are individuals content to buy a publication just to "have it on their shelves." Healthcare professionals are exhibiting a growing interest and acceptance of evidence-based content. The critical role that time management and evidence-based content play in the lives of today's health care professionals is important to remember in the development of new products and services. Simply put, individuals want results-based information that is well supported by the literature and is presented in an easy-to-digest format.

Reader needs

We have known for a long time that different segments of readers have different information needs. With the Internet, that difference has become even more obvious. The following statements are generalizations but are heard repeatedly in conversations, reader surveys, and focus groups with healthcare professionals.

Researchers tend to want to know about everything being published in their field of study. They scan many journals to find articles of interest. They use news and review journals to keep abreast of major scientific breakthroughs outside their field. Researchers want information as early as possible, to know what other researchers are doing. They incorporate the latest findings in their work. Reading and reporting research is a significant part of their professional lives.

Researchers want seamless search and retrieval of the world's literature

Other types of readers, let's call them decision-makers, usually have less time to read. They are interested in the latest discoveries but care much more about what the discoveries tell them about doing their jobs. Review articles are popular among this group as they encapsulate the most recent thinking on a subject. Lectures, editorials, and other forms of expert commentary also are popular because of the critical perspective they provide.

If we think of each original research article in a journal as a piece of a puzzle, then we can say that researchers learn by putting together the puzzle themselves while other readers prefer to learn by studying the completed picture the puzzle creates. The difference between the information needs of researchers and those of other readers was evident in the paper era, but the divide has become even more apparent in the electronic era. Why?

Early on, it was clear to researchers that the Internet could be used to retrieve the information they needed more easily than ever. Bolstered by sophisticated search engines and extensive linking efforts, the Internet had the potential to bring massive amounts of data to the desktop of every researcher. All along, researchers wanted seamless searching and retrieval of the world's literature. This is what they had been trying to do manually with paper and, later, with more rudimentary electronic formats like online dial-up services and CD's.

Thus, in the Internet era, researchers are asking for greater and greater amounts of data to be made available to them. They want information from journals, books, and databases made accessible through a single gateway. They want to review data from multiple publishers—as the data are what's key. Researchers want the source to be reliable but do not want have to visit several sites to find what they are looking for. They understand that the technology can give them what they want, and they are frustrated by having to deal with multiple searches, log-ins, and fees to get what they want.

All the while, the power of the Internet has mostly eluded decision-makers. Personal subscriptions to the major journals often are bundled with print, and so actual demand for online journal content is muddied. Editors frequently hear requests from readers for more review articles and other more practical content but often cannot meet the demand due to page limitations or a disinclination to change the journal's editorial balance. Building immediately applicable content online has proved more difficult and challenging than first understood.

In a study that we conducted in 2004 on behalf of a professional society, we found that while 70% of the authors (primarily researchers) used the online version of the journal, more than 70% of the readers overall never accessed the journal online! These same readers ranked the quality and usability of the journal as extremely high. Clearly, among some groups of individuals, the dual formats of print and online are here to stay for some time to come.

Customization

The Internet has made the idea of mass customization a reality

With as many as 20,000 scholarly journals in existence today and the number of research articles published in those journals rising each year, information overload is a common refrain among readers. To better manage the information available, many readers have begun demanding that content be customized to meet their particular information needs.

Pre-Internet, given tenacity and resources, individuals usually could find the information they sought. Librarians helped them with searches. Colleagues shared information with one another. Individuals clipped articles and created their own personal libraries. As Web search technology and expertise evolved, individuals were able to hone in on the exact information they needed more than ever.

Individuals have not set that they want customized information to the exclusion of seeing the whole picture; but they do tell us that they value receiving customized information in addition to having access to all the information everyone else has. The Internet and related technologies make possible the idea of mass customization. The idea of mass customization is that an individual can define their information needs once or whenever their need for information changes and information can be delivered to them at that point or whenever new information is made available.

There are several examples of customization that can be found today in publishing. Some are makeshift versions of mass customization but others are real attempts. One of the first examples of mass customization to come on the scene was Ovid Technologies' saved searches. Individuals accessing journals or databases hosted by Ovid can conduct a search and save their search parameters for future use.

With today's technology, it is possible to let customers create their own customized products via the Web. The kind of "do-it-yourself" customization that we are talking about revolves around allowing customers to personalize the product received electronically by selecting the sections and topics that most interest them. By asking customers about the topics that they want to follow, their favorite sections, etc., the *Wall Street Journal Interactive Edition* has succeeded in creating customer loyalty. More than 85% of its online subscribers renewed after the launch of the Interactive Edition, a renewal percentage even higher than the renewal rates for paper.

Another way of getting to content of interest is the idea of online collections of content or customized journals—called virtual journals. In November 2000, the American Heart Association launched *CV Surgery Online* (http://www.ahajournals.org). *CV Surgery Online* is as the title suggests an online-only journal, which is a rolling compilation of cardiovascular surgery articles from the family of five AHA journals. Like most print journals, this online journal charges an annual subscription fee.

E-alerts are also an example of customization. Visitors to the *British Medical Journal*'s site (http://bmj.bmjjournals.com), for instance, can sign up for various e-mail alerts, one of which allows visitors to have article citations with links to the full text sent to them via email on any of several subjects that they choose. Another related feature is forwarding linking, where you can sign up to receive an e-mail alert when a future article is published on a similar subject to the one that you are reading.

Measuring usage

As Web tools improve, use of online information resources is growing rapidly. Both producers and purchasers of information believe that the use of these resources should be measured in a way that is useful. Librarians want to understand better how the information they buy from a variety of sources is being used. Publishers want to know how the information products they disseminate are being accessed. Editors want to know which articles are being downloaded. Marketers want to promote the most popular Web features.

More than ever, business managers are required to run their online business like their offline business—by the numbers. WebTrends is one tool to which many businesses turn in order to measure these key performance indicators:

- Analyze visitor traffic patterns. These usage data can be used to improve how well the site leads visitors to the desired location by identifying which paths they follow and whether the route is helping to meet the journal's goals.

- Measure content effectiveness. This helps identify which content, pages, and sections of the site are most interesting and engaging.

Launched in March 2002, COUNTER (**C**ounting **O**nline **U**sage of **N**etworked **E**lectronic **R**esources) is an international Code of Practice governing the recording and exchange of online usage data. COUNTER is supported by librarians and publishers around the globe, as well as their professional organizations. COUNTER promises to bring these benefits to librarians, publishers, and intermediaries (as paraphrased from www.counter.org):

- Librarians will be able to compare usage statistics from different publishers and online service providers, make better-informed purchasing decisions, and plan infrastructure more effectively.
- Publishers and intermediaries will be able to provide data to customers in a format they expect and desire; compare the relative usage of different delivery channels; and aggregate data for a customer that is using multiple delivery channels to learn more about genuine usage patterns.

All major scholarly publishers and online service providers have agreed to make their full text Web sites COUNTER-compliant by 2005. Once the COUNTER reports become prevalent. Many publishing "futurists" believe that usage data may usurp the traditional journal circulation report and change the notion of a subscription from that of a volume to an article-by-article proposition.

As it becomes more possible to determine how individuals are using their journals online, journals are re-evaluating their Web site's information architecture to see whether their site can be rebuilt to better meet user needs. In the coming months and years, we believe that an increasing number of journal Web sites will be re-engineered to drive more traffic to the site and improve the user satisfaction of site visitors.

Growing role of content databases

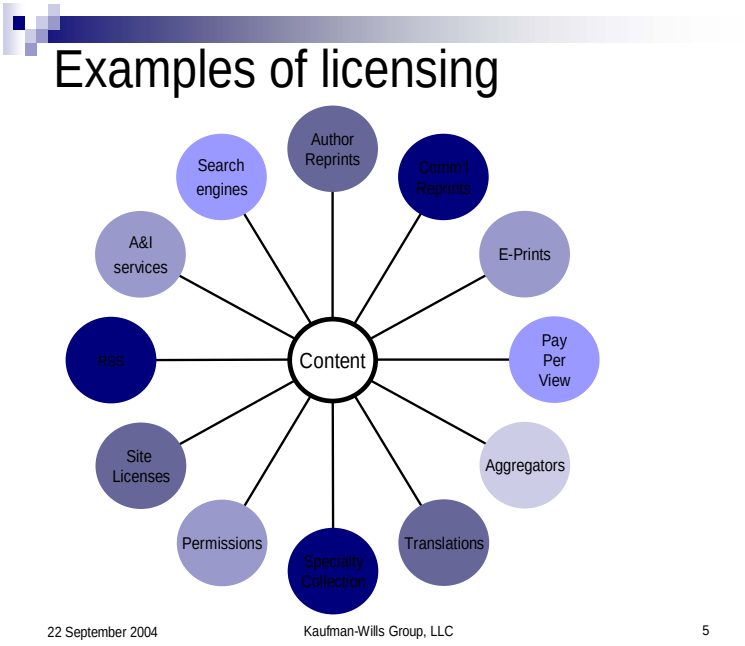
Repeatedly, we hear that readers want "one-stop shopping." Online collections of journals and other materials in content databases allow users the broad cross-journal searching and linking they desire. As the electronic publishing process evolves, it has become easier to host a variety of content on a variety of databases…ones created by a single journal publisher and those aggregating the content of multiple publishers. Some publishers are large enough to produce and populate their own databases; other publishers license their content to content databases created by different organizations.

What is content licensing? *A publication or part of a publication for which the copyright owner contracts with another organization to distribute to a target or ancillary audience for the purposes of expanding distribution, either on an exclusive or non-exclusive basis, usually in exchange for a royalty on sales.*

Licensing content to databases often is the most cost-effective way to expand a journal's distribution. Licensing used to represent a small revenue stream. Microfiche, microfilm, limited translations into Spanish and French, and commercial reprints were the likely sources of licensing revenue. Now, licensing has been expanded to include:

- Content aggregation (eg, Ovid, ProQuest, Project MUSE)
- Institutional site licenses
- Pay-per-view (article licensing)

Examples of licensing are illustrated in the diagram below. For many scholarly journals today, content licensing revenue is their only growing revenue stream, as journal subscriptions continue to decline year-on-year.



Marketing gateways

There also are several licensing products available on the market today that do not directly generate revenues for the licensor but can help build awareness and site traffic.

The first one we will mention is a service of PubMed, called Link Out. Link Out provides links to content hosted by Ingenta, HighWire Press, or any other participating online vendor such as Ovid or Science Direct.

With Link Out, citations with an asterisk indicate that the content provider requires a subscription, membership, or fee for access. As many researchers still begin their literature searches with PubMed, Link Out can be a very useful service to help drive traffic to a journal Web site and increase journal usage, article impact, pay-per-view, and perhaps even subscriptions.

Other online abstracting and indexing (A&I) services also have emerged as a resource discovery tool. On completion of a literature search from within an A&I service, users can access content by clicking on links to the full text from the abstract or title of interest.

Several of the subscription agents have products which link through to the full text of publishers' articles hosted on whatever service the publisher uses for hosting, as the table below indicates.

Agent	Gateway
EBSCO	EBSCO EJS (international)
Kinokuniya	K-Port (Japan)
Informatics	J-Gate (India)
Swets Blackwell	SwetsWise Online Content (international)

The most popular of these is from EBSCO. Thousands of academic institutions, corporations, and public libraries use EBSCO EJS (Electronic Journal Service) as their gateway to more than 6,900 e-journals.

Electronic gateways provide a single point of access for subscribers to use all their e-journal resources and for non-subscribers to learn about new information resources. The agent gateways are an additional point of entry to a publisher's own online site, not a replacement. Journals continue to control price and user authentication methods, so full text content is available only to authorized subscribers or pay-per-view users.

In addition to marketing gateways, linking (creating hyperlinks from one Web site to another or one part of a Web site to another part) is another way that journal content is accessed. One of the most popular forms of linking is reciprocal reference linking. CrossRef (http://www.crossref.com) is a multi-publisher effort that has devised a standard to link the world's literature from a reference citation to the article.

Search engines

The newest and hottest topic in licensing today is likely the role that search engines are increasingly playing in delivering scholarly journal content to an expanding circle of users. Google, methodically and aggressively, and Yahoo, to a lesser degree, have been seeking permission from publishers to crawl the full text Web sites of high-impact journals. This means that users looking for topics covered by indexed journals are able to find that information via Google. Google will search the full text, return relevant results, and link the user to the access page for that content.

Many journals already have agreed to have their sites crawled. Some of the earliest entrants were the scholarly journals *New England Journal of Medicine* and *Journal of Biological Chemistry*. At the spring 2003 HighWire Press Publishers meeting, *New England Journal of Medicine* reported a marked, sustained increased in their site use after signing on with Google.

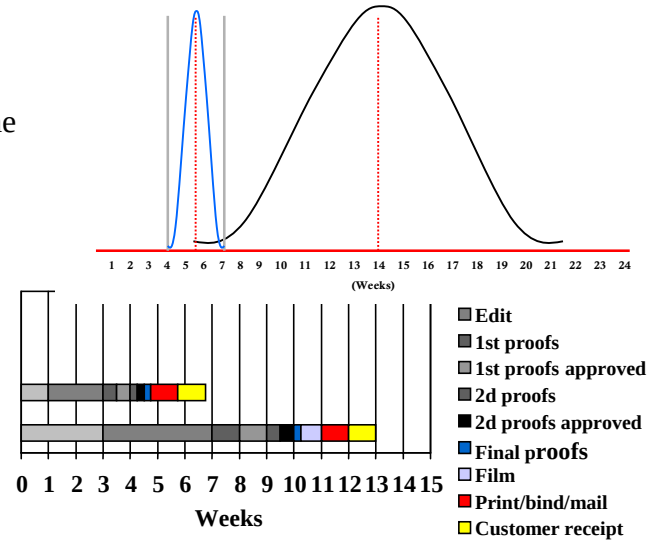
Journal of Biological Chemistry reported, at this summer's e-Journal Summit sponsored by the National Academy of Sciences, that 5 times more site visitors start their search with Google than with PubMed!

Convergence of speed and cost

Information delivery is increasingly time sensitive. Many journals are trying to reduce the time from manuscript submission to publication. Authors, under ever-increasing pressure to "publish or perish," demand it. Competitors use rapid publication to recruit high-impact papers. Readers expect to see new information as soon as it is available. At the same time, most editorial offices are experiencing substantial increases in the numbers of manuscripts submitted each year. Editors have more demands on their time from other professional activities. Reviewers' time is stretched across multiple publications.

Reducing time to publication

Reducing time to publication is possible. No single technique works alone, but employing a variety of techniques can significantly reduce a journal's time to publication. Following are some approaches taken by journals to shorten their publishing cycles:



- **Revised expectations and follow up**—such as with authors and reviewers, how page budgets and acceptance rates are set, and strict adherence to schedule
- **Employed technology tools**—such as Web-based manuscript submission and peer-review systems, email communication, and electronic transmission of proofs
- **Increased resources**—attending to speed such as by negotiating additional attention from staff at vendors and hiring forward-thinking editors and editorial staff
- **Omitted steps**—such as the second proofs stage and, more radically, copyediting
- **Moved steps up in process**—such as requiring authors to submit digital art, XML tagging at the time of copyediting, online ahead of print

Pictured above is a two-part graphic that can be used to illustrate a publisher's goal to dramatically cut their time to publication. The first graphic illustrates the goal by comparing the average number of weeks a manuscript takes to move from submission to publication with the optimal number of weeks. The second graphic illustrates what might be done to accomplish the goal; that is, how much time needs to be cut out of each stage of production.

Converging with the trend to speed up the publication process is continuing pressure to cut costs. There are many reasons that cutting costs has become so significant. Declining circulation, increased costs of maintaining print while developing an online service, and

budget constraints all are contributing factors. The need to provide content that can be archived and repurposed for print, online, and other formats also is driving changes in editorial systems that are both complex and expensive to manage in-house. Typically, journals have outsourced just a few key functions, such as composition and printing; now, however, journals are increasingly looking to delegate numerous additional aspects of their production processes to outside firms.

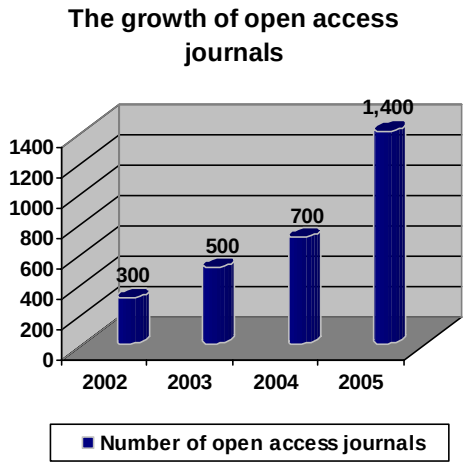
Some journals are exploring and choosing to outsource functions to companies with offices outside the country with lower labor costs—called "offshoring"—to reduce expenditures and improve efficiency in their production systems. Today almost any kind of work that is done on a computer, has definable rules, and is fairly repetitive in nature can be offshored. This category includes many aspects of editorial work that have previously been managed internally, from copyediting and proofing, to content production (e.g. SGML/XML structuring; composition and graphics, etc.), to development (e.g. layout templates, DTDs, applications). Offshoring can leverage the growing availability of high-speed data connections, inexpensive computer technology, and the talents of a global labor pool to provide cost-effective services in areas that previously were handled internally or by domestic partners.

Emergence of Open Access

Open Access is…

- Putting peer-reviewed scientific and scholarly literature on the internet.
- Making it available free of charge and free of most copyright and licensing restrictions.
- Removing the barriers to serious research.
  (*Open Access News* http://www.earlham.edu/~peters/fos/fosblog.html)

Along with SARS and Obesity, Open Access was ranked in the top ten on the *Wall Street Journal*'s "10 Most Important Health Stories of 2003" (WSJ Online, updated December 22, 2003). In a short explanation of the importance of Open Access, the *Wall Street Journal* wrote: "Why should Americans pay to see the results of research underwritten by their tax dollars, open-access proponents argue? Their aim instead is to make that information available free to everyone on the Internet. And in doing so, they threaten established journal publishers."



Lund University Libraries in Sweden publishes the *Directory of Open Access Journals* (www.doaj.org) and EBSCO's A-to-Z service offers access to hundreds of free online journals, such as those found in PubMed Central, SciELO and other portals (www.ebsco.com/atoz). HighWire Press boasts that it hosts "the largest archive of

free full-text science on earth!" (http://highwire.stanford.edu/lists/freeart.dtl). As of March 13, 2004, HighWire was home to 697,278 free full text articles for 22 publications offering Open Access and 175 publications offering free access to at least some portion of their archives. (Dryburgh, Alastair, Open Access—time to stop preaching to the converted?, *Learned Publishing*, January 2004: 69-70.)

Threat or opportunity

Many feel that Open Access is one of the marvels of the World Wide Web: vast collections of high-quality information available for everybody to use without payment. What are the incentives that lead people to provide Open Access to high-quality information? Is this situation stable for the long-term or is it a temporary phenomenon while the Web matures?

An article published earlier this year in *Learned Publishing* foretells of challenging times for smaller and society journals given a combination of factors such as income reduction resulting from the failure of RoweCom, library budget constraints and rollbacks internationally, and the competitive advantage of title collections from larger journals and larger publishers. This article makes the argument that scholarly publishing is "going to become increasingly hostile for these publishers and that their best chance of survival may be to adapt to new business models, in particular Open Access." (Prosser, David C., Between a rock and a hard place: the big squeeze for small publishers, *Learned Publishing*, January 2004: 17-22)

High-quality information is expensive to create and to manage. There is a fallacy put forward by some academic authors that online information costs little to create and disseminate. Digital technology saves some of the production costs, but creating and managing information remain labor-intensive. Good Web sites have good design, well-edited text, and navigational aids. They are mounted on fast computers with good network connections. They are continually migrated to new technology and do not disappear overnight. These require money and expertise. Marginal costs of distribution, however, are small. Once an article is published, the costs are essentially the same however many times the article is read. The marginal cost of Open Access is not zero—very large Web sites are major computer operations with attendant staff costs—but marginal costs remain low.

Open Access to healthcare information runs anathema to the current prevalent business model, which is based on primarily on subscriptions. Open access is viewed as a threat by many journals. Large commercial companies whose first loyalty is to their shareholders and their profits feel threatened. Societies that rely on surpluses from journal publication have voiced concern. Many journals have prospered by selling subscriptions of journals to libraries and see no way to achieve comparable revenues unless they continue charge for access. Some believe that high-impact journals especially have powerful weapons in resisting Open Access: enormous economic power and control of the most prestigious publications—where researcher's reputations have been made. But are these short-term advantages? Are publishers at cross-purposes with authors and funders?

Despite the dissidence, many traditional journals have supported Open Access in some way, usually by making more content free to end users either on publication or after a set period. Other publishers have acquiesced by permitting researchers to mount their own papers on private Web sites, for all to read. Others use national archives such as the Los Alamos physics collections and PubMed Central from the National Institutes of Health. Institutional repositories are cropping up at major university centers, like MIT and Stanford.

Many believe that sooner or later original research will be made freely available upon publication: the drivers are so strong. What then will be the prevalent business model? What will be the role of publishers?

Some like the former Editor of NEJM, Dr. Jerome Kassirer, "believe that journals whose main contribution is peer review and distribution of research may not exist in the future. The peer-review will be done, as now, by academics, the distribution by PubMed Central or its descendants. The remaining 15% of biomedical journals the can survive if they do something valuable—something, by the iron laws of economics, that people will pay them more to do than it costs the journals to do."

Paraphrasing BMJ's Editor, Tony Delamothe:

> …[journal] value will be around selecting research that is important to their audiences and presenting it in as exciting and as relevant a way as possible; digesting and synthesizing research, beginning to turn it from information to knowledge; educating readers, particularly on subjects that are new to them but which will change their lives; setting the agenda and encouraging debate within the community; prompting unfamiliar but deep thoughts; and –like Hollywood films, good novels, or soccer—entertaining the customer. If journals cannot ad value then they will die, which is right and proper. But if reading them can be a pleasure not a chore then they can survive.

Open Access is a complex subject and uncertainties abound. Yet, most people tracking scholarly publishing seem to believe that Open Access is likely here to stay, at least in some form.

The Appendix to this report includes a timeline of key events of the Open Access movement, including a discussion of the NIH proposal and the recent response from the UK government to calls for Open Access:

Appendix

Open Access timeline

1999

The Open Access movement was launched in 1999 when Dr. Harold Varmus, then-director of the National Institutes of Health, proposed that NIH develop and operate an electronic publishing site that would provide barrier-free access to the peer-reviewed and pre- peer-reviewed life sciences literature.

2000

In 2000, Patrick Brown of the Department of Biochemistry at Stanford University School of Medicine, published an open letter calling for "the establishment of an online public library" and announced that that those signing the letter would "publish in, edit or review for, and personally subscribe to, only those scholarly and scientific journals that have agreed to grant unrestricted free distribution rights to any and all original research reports that they have published, through PubMed Central and similar public resources, within 6 months of their initial publication date."

2001

The non-profit group to which Brown and the signatories belonged became known as the Public Library of Science (PLoS). In mid-2001, dissatisfied with the response from the publishing community, PLoS announced plans to launch its own journals: one in general science and one in general medicine.

2002

In December 2002, PLoS announced it had received a $9 million grant from the Gordon and Betty Moore Foundation to launch their nonprofit scientific publishing venture.

2003

Then, in June 2003, the Sabo bill, titled the Public Access to Science Act, was introduced in Congress. The proposed legislation would prohibit copyright protection for any works stemming from research that was substantially federally funded.

That fall, in October 2003, the first issue of *PLoS Biology* was published online and in print format.

2004

In July of this year, the House of Commons Select Committee on Science and Technology published a report on the status and future of scientific publishing in the United Kingdom. Its deliberations drew in part on an ongoing debate over "open access"

to research, whose advocates say that the output from scientific endeavor should be freely available.

Two months later, on September 3, 2004, a proposal was posted in the Federal Register (Volume 69, Number 180, page 56074) for "Enhanced Public Access to NIH Research Information." (http://grants1.nih.gov/grants/guide/notice-files/NOT-OD-04-064.html). The proposal reads as follows:

The National Institutes of Health (NIH) is dedicated to improving the health of Americans by conducting and funding biomedical research that will help prevent, detect, treat and reduce the burdens of disease and disability. In order to achieve these goals, it is essential to ensure that scientific information arising from NIH-funded research is available in a timely fashion to other scientists, health care providers, students, teachers, and the many millions of Americans searching the web to obtain credible health-related information. NIH's mission includes a long-standing commitment to share and support public access to the results and accomplishments of the activities that it funds.

Establishing a comprehensive, searchable electronic resource of NIH- funded research results and providing free access to all, is perhaps the most fundamental way to collect and disseminate this information. The NIH must balance this need with the ability of journals and publishers to preserve their critical role in the peer review, editing and scientific quality control process. The economic and business implications of any changes to the current paradigm must be considered as the NIH weighs options to ensure public access to the results of studies funded with public support without compromising the quality of the information being provided. The NIH has established and intends to maintain a dialogue with publishers, investigators, and representatives from scientific associations and the public to ensure the success of this initiative.

This notice is to announce and to seek public comments regarding NIH's plans to facilitate enhanced public access to NIH health related research information. NIH intends to request that its grantees and supported Principal Investigators provide the NIH with electronic copies of all final version manuscripts upon acceptance for publication if the research was supported in whole or in part by NIH funding. This would include all research grants, cooperative agreements, contracts, as well as National Research Service Award (NRSA) fellowships. We define final manuscript as the author's version resulting after all modifications due to the peer review process. Submission of the final manuscript will provide NIH supported investigators with an alternate means by which they will meet and fulfill the requirement of the provision of one copy of each publication in the annual or final progress reports. Submission of the electronic versions of final manuscripts will be monitored as part of the annual grant progress review and close-out process.

NIH considers final manuscripts to be an important record of the research funded by the government and will archive these manuscripts and any appropriate supplementary information in PubMed Central (PMC), NIH's digital repository for biomedical research. Six months after an NIH supported research study's publication—or sooner if the publisher agrees—the manuscript will be made available freely to the public through PMC. If the publisher requests, the author's final version of the publication will be replaced in the PMC archive by the final publisher's copy with an appropriate link to the publisher's electronic database.

As with NIH's DNA sequence and genetics databases, this digital archive in PMC is expected to be fully searchable to enhance retrieval and can be shared with other international digital repositories to maximize archiving and to provide widespread access to this information. It is anticipated that investigators applying for new and competing renewal support from the NIH will utilize this resource by providing links in their applications to their PubMed archived information. This practice will increase the efficiency of the application and review process.

NIH trusts that the up to six month delay to public archiving in PMC recommended by the policy will not result in unreasonable or disproportionate charges to grantees. As with all other costs, NIH expects its

grantees to be careful stewards of Federal funds and to carefully manage these resources. We will carefully monitor requested budgets and other costing information and would consider options to ensure that grantees' budgets are not unduly affected by this policy.

Comments

The NIH encourages comments concerning its intentions to enhance public access to NIH-funded health related research information as outlined in this notice. Comments on short term impacts and suggestions for mitigating these are especially welcome. We encourage that all comments be directed to the following NIH website: http://grants.nih.gov/grants/guide/public_access/add.htm. As an alternative, comments may be submitted by email to the following address: PublicAccess@nih.gov. Comments must be received within 60 days of publication of this notice. NIH intends to publish an identical notice in the Federal Register. (Note added 9/24/2004: Comment period extended to November 16, 2004 per NOT-OD-04-070.)

Last month, October 2004, the first issue of *PLoS Medicine* was published and included an editorial which called for the abolishment of the traditional way of funding medical journals through subscription fees, funding from industry, and restricting access to subscribers (http://www.plosmedicine.org). This editorial has caused a flurry of discussion (and anger) on library and publishing discussion groups including many not-for-profit association publishers.

As of November 2004, 186 of the 728 HighWire hosted journals offer some portion of their archive open access. For most, this is after 12 months; 24 after 6 months. There are also 1,345 journals listed in the *Directory of Open Access Journals* (http://www.doaj.org). Many of these are small efforts published by an academic department; however, there is also significant representation of larger publishing efforts, most notably from PLoS, BioMedCentral (http://www.biomedcentral.com) and the Scientific World (http://thescientificworld.com).

Earlier this month, on November 8, 2004, the British government largely rejected the advice of the parliamentary committee that had urged it to support more open access to scientific research, saying that it has no plans to require researchers to deposit copies of their publications in free-access repositories. (www.biomedcentral.com/news/20041109/02/)

Appendix C:

The NIH supplemented a "Policy Forum" on their public access draft policy, published in the December 10, 2004, issue of *Science*, with a listing of 4,800 journals detailing the percentage of journal citations that reference NIH and PHS as sponsors. The journals included below are a sampling of that list and are either provided as a member benefit of or have coupon status with AcademyHealth.

Journal Title Abbreviation	# of Journal Citations that Reference an NIH Grant Number	# of Journal Citations that Reference PHS as the Sponsor of the Research	Total PubMed Journal Citations with 2003 Publication Dates	% of Journal Citations that Reference NIH Grant Numbers	% of Journal Citations that Reference PHS as the Sponsor of the Research
Acad Emerg Med	11	26	222	5%	12%
Am J Manag Care	6	15	95	6%	16%
Biol Res Nurs	8	9	31	26%	29%
Camb Q Healthc Ethics	0	0	55	0%	0%
Can J Nurs Leadersh	0	0	56	0%	0%
Clin Nurs Res	5	5	23	22%	22%
Eval Health Prof	5	6	24	21%	25%
Health Aff (Millwood)	11	20	264	4%	8%
Health Educ Behav	12	22	36	33%	61%
Health Policy	1	1	104	1%	1%
Health Promot Pract	4	8	55	7%	15%
Health Serv Res	22	40	101	22%	40%
Healthc Pap	0	0	37	0%	0%
Hosp Q	0	0	45	0%	0%
Inquiry	0	3	31	0%	10%
J Behav Health Serv Res	16	23	35	46%	66%
J Health Polit Policy Law	0	3	36	0%	8%
J Health Serv Res Policy	0	0	65	0%	0%
J Med Pract Manage	0	2	64	0%	3%
Med Care	24	47	176	14%	27%
Med Care Res Rev	4	6	37	11%	16%
Med Health	0	0	47	0%	0%
Milbank Q	2	4	24	8%	17%
Nurs Sci Q	2	2	57	4%	4%
Qual Health Res	14	16	98	14%	16%
Womens Health Issues	6	10	31	19%	32%