ICC COLUMN: The Voice of the Patient

Open access medical publications

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Overview

Open access journals provide unrestricted, free online access to scholarly articles (1). This new approach to medical publication is revolutionizing medical communications. The rise of open access publishing challenges the long-standing model developed in concert by commercial publishers and medical organizations, a model whose profitability depends on the ability to restrict and sell access the medical information and to use this information for political and financial purposes.

Medical research yields important and valuable information that benefits the people of the world. Communications that facilitate the widest global dissemination of such information are valuable for public health, while those communications methods that restrict the availability of such information limit this benefit. Open access is particularly valuable for developing countries where limited financial resources have historically deprived health care professionals of the latest medical information. The ability of the people of the world to prevent disease and improve their health would be benefited by improved access to reliable medical information.

Academic physicians also have an interest in open access. They are not paid to write the articles that report their research in scholarly journals. Instead, their interest lies in the intellectual impact of their work with their colleagues throughout the world; the broader the dissemination of their work, the more effective they are.

The interest of medical suppliers, which pay organizations to include their advertisements in restricted-access journals, is in getting their products licensed by governments and prescribed by health care professionals. If publication in open access journals means that information about their products is more widely circulated in a credible and effective manner, they would be less likely to provide funds for commercial publishers whose journals have restrictive distributions. Advertisements and other promotional materials will be published wherever they receive the most relevant professional attention.

The purpose of medical communication

It is difficult for commercial publishers to argue that they should have exclusive rights to publish medical research. Much of this research is funded by governments, which use their people's money, and governments exist to serve those citizens. Therefore, the purpose of the communication of medical research should be to benefit patients and not to make physicians, businesses, or governments wealthy.

U.S. medical publishing

In 1905, the American Medical Association (AMA) paved the way for the current medical publishing model in the U.S. by urging physicians not to prescribe drugs that were advertised directly to consumers by pharmaceutical companies. This forced the companies to advertise through the AMA's journals, whose circulation was limited to physicians. Revenues from AMA journal advertisements became the principal source of funds for AMA and the source of the Association's political power (2,3).

Following this model, other U.S. medical professional organizations began to publish journals covering their own specialties or partnered with large international publishers such as Elsevier and Springer Verlag to do so. These journals are available only to members of the medical organization or through expensive subscriptions. These journals provide valuable medical information only for those willing to pay for it.

Commercial publishers

Universities, their libraries, and their academic faculty members are caught in the middle as commercial publishers and medical professional organizations seek to maximize revenue by restricting the dissemination of medical information. Publishers of important medical journals often force medical libraries to pay high prices for access to the journals, and they "bundle" many different journals of much less importance with those that are in great demand, forcing libraries to buy access to many journals that are useless to them in order to get the ones they need.

Competition of commercial and open access publishers

The trend toward open access medical journals has been greeted enthusiastically by academic institutions, medical researchers, libraries, the public, and governments. Medical organizations and commercial publishers have opposed open access journals, but with the widespread and increasing acceptance of such journals, these groups are taking steps to protect their exclusive franchises. In some cases they start new open access journals and attempt to promote their paid subscription journals (4). Other commercial publishers, such as the Nature Publishing Group and John Wiley, work with small internet publishers, such as DeepDyve, and attempt to use five minute glances at digital copies of medical papers of interest to physicians to sell them a download of the papers in order to maintain their revenue (5). Major medical publishers such as the American Medical Association and the New England Journal of Medicine are urgently trying to market and rebrand their services by creating The JAMA Group and the NEJM Group, which attempt to capitalize on their names and reputations to continue to sell their products and maintain their revenue through subscriptions and membership. With many of the major new medical advances now being available through open access and not appearing exclusively in their journals, this will be a difficult challenge for the restricted access journals. Nevertheless, these commercial publishers will continue to find ways to maintain their communications, using various marketing methods.

In the enthusiasm of using new open access journals, we should not ignore the value of existing academic journals and communications that have served physicians and scientists well for many years through restricted access. Hopefully, both commercial publishers and non-profit, open access publishers can succeed in the future.

Governments and academic groups mandate open access

US and European governments are urging their researchers to submit their articles to open access journals whenever possible. Research Councils, UK, the conduit through which the government transmits taxpayers' money to academic researchers in the UK, has mandated that articles be published in open access journals, preferably immediately but certainly within a year (6). This allows the commercial publishers to continue to profit from the materials at least for a short time. Harvard University's Faculty Advisory Council is also urging faculty to submit articles to open-access journals (7). US government physicians and scientists whose work is funded by the government do not have ownership of the materials they produce. Use of the materials is freely permitted by open access journals.

The trend toward open access journals has been even more dramatic in non-medical scientific fields, where sponsorships and advertising play a much smaller role than they do in medical communications.

The costs of medical communication

Although commercial publishers can be criticized for restricting the flow of medical information to colleagues who need it, it should be remembered that having open access on the internet in which the barriers to communication are reduced does not mean that all publishing costs disappear. All publishers have the responsibility to provide access to their publications; they have to obtain rights to the communications, edit them professionally, and provide assurance of their integrity and validity. Open access publishers who wish to develop audiences must also accept these responsibilities; however, they have a challenge to adopt a business model that generates revenue to support their efforts while providing open access.

Currently, open access publications generate necessary revenue in a variety of ways. Some receive grants from charitable foundations or governments. Others charge authors to have their work published; still others are supported by advertising, sponsorships, or the publication of promotional content from proprietary organizations.

Medical requirements for open access

The benefits of open access medical publication in fostering inquiry and the dissemination of medical knowledge are

great and the power of the internet brings this knowledge to the world, including developing countries that have been deprived of this information. However, open access publishing attempts will fail unless it successfully makes medical information valuable and continually available over time. Open access ports must archive their content so that it can be faithfully retrieved when desired; they must diligently strive to ensure their content's accuracy and relevance to physicians and health care professionals, and they must provide safeguards that prevent conflicts of interest, proprietary influence, and political dogmatism or expediency from falsifying scientific and medical facts.

Veracity of published medical articles

Open access journals have been criticized by restricted access journals for deficient peer review and less credibility. In what they term a "spoof" *Science* magazine (a restricted access journal) had bogus articles sent to 305 open access science journals and 157 of them accepted the bogus article for publication. However, it was unclear how they selected these journals from the 8,250 existing open access journals. In addition, they did not include in their "spoof" a control group of restricted access journals that received the bogus article so no inference could be made about the superiority of restricted access journals (8). It was of interest that only 3 of 57 members of the Open Access Scholarly Publishers Association accepted the bogus paper, which suggests that more scholarly peer review would have uncovered the ruse in more of the open access journals.

A much larger flaw in the believability of many published clinical trials of medications and devices that pertains to both restricted and open access medical journals is that the proprietary companies that perform these studies seldom allow access to the actual patient-level data and often select data favorable to their products for publication and falsify and conceal unfavorable data (9-12). Neither restricted nor open access journals appear to be able to prevent these bogus articles from publication. Expensive clinical trials are often not repeated and yet they form the basis for regulatory approval of licensing of products. This is likely one of the reasons that products that are released have many unexpected defects and side effects in practice.

Questions about the dissemination of medical information

As open access medical publication expands, questions about the structure and operation of these new publications need to be addressed. Who owns medical research information? How should it be communicated? What rights do government regulatory organizations have in controlling the development and dissemination of medical information? Who should have access to the primary data generated in medical research? What are the rights of the citizens of the country where the research took place as well as the rights of the people in the rest of the world to have access to medical information? What are the rights of the inventors and patent holders of new therapies and devices to the medical information concerning their inventions that is communicated? Will commercial medical companies be allowed to disseminate biased promotional materials in open access journals? How can continuity of vital information and databases be safely preserved and made available?

These are complex issues, and they should be examined and discussed in an ongoing basis, to ensure that the new open access world of medical communication preserves the value of the old communication models while improving accessibility and reliability of medical information to colleagues and patients around the world.

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