

Free article for sale: \$11 000 — What is free public access worth?

Kidney International (2006) **70**, 1193–1195. doi:10.1038/sj.ki.5001855

Few would have predicted three or four years ago that by now some 2000 open access (OA) journals would launch, or re-launch from existing journals. Pitched as a new semi-altruistic publishing model, they promise free public access to scientific research at affordable cost — semi-altruistic because journals still have to benefit and someone still has to pay. For the model to work, authors and their institutions must be able to afford the publication fees from which journals recover income in lieu of missing subscription income; and, last but not least, for the cost–benefit to make sense, the public for whom this is intended should be able to make use of the science available. The financial model calls for moving library funding to authors, and because costs remain more or less the same regardless of the source of income, journals should not suffer, or such is the basic vision. It is a brave and refreshing vision in many ways, pushing for a true knowledge-based society, a renaissance of science, democracy, social liberalism, and publishing all in one model. Yet, as Picasso pointed out, “every positive value has its price in negative terms,” and so, cost–benefit issues have existed since day one. Are authors aware of the unsubsidized costs associated with publishing in high-end journals, and does the public understand the content? For now, ‘maybe some’ is a vague and short answer, regarding a model being pitched as universally applicable.

In reality, the sustainability of the business model even under some high-profile OA publishers still relies on philanthropic subsidies; there is an absence of statistics detailing public versus professional usage, and one would assume that those today who find it difficult to afford subscription will find it similarly difficult to afford publication. If there is not enough money in the world to pay subscription charges today, the OA model will do little to produce more money for author-charged models. In addition, it seems a rhetorical irony that if laypeople understood the science published in the average peer-reviewed medical journal, then the level of science published would be questionable. As an illustration, PubMed Central (PMC), which hosts free con-

tent rather than linking to it, attracted 6.5 million unique visitors who read 32 million articles in 2005.¹ This may seem like a lot, but an estimated 500 000 unique visitors alone are expected to read 1.1 million *Kidney International* (KI) articles in 2006. This simplified comparison questions how much the public currently reads or understands available OA content. OA proponents are right when they say that it is still early days, but we may be advised to revise the per capita number of physicians and researchers the day when laypeople understand this specialized content. Despite the many OA journals, libraries have not significantly started to transfer their funding to authors, and thus even high-end medical OA publications are still substantially subsidized by philanthropic donations that keep their publication fees artificially low. The low cost looks good in public but is not a mirror of the future. What seems given for now is that access to science would be free in an OA world; that those with Internet access could access research whether or not they understand it; that productive authors and institutions would pay the price; and that those who could not afford publication fees would find their choice of dissemination limited. Low-research-output organizations with healthy library budgets would have money in excess.

Among researchers themselves, public access to their articles seems to be of little interest. A January 2006 report on the United States National Institutes of Health (NIH) Public Access Policy made clear that it was not lack of awareness that resulted in a mere 3.8% of articles being deposited in PMC, from a pool of 43 000.¹ Simply, authors were lethargic in depositing articles, and, one must assume, somewhat uninterested in the scope of the access policy. In response, the board of regents of the United States National Library of Medicine recommended a tightening of the policies to compel the interest of the community: making participation mandatory for NIH-sponsored researchers; requiring finally edited and published papers, rather than manuscripts, to be deposited 6 months after publication; and, preferably, requiring publishers to deposit articles into PMC on behalf of authors. The embargo time that allows journals to

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sell their subscriptions is thus decreasing, and one could anticipate further tightening of the policy in the near future if reality once again does not meet policy objectives. In addition, PMC paradoxically seems headed toward becoming a government-sponsored online quasi-publisher at a time when business models of journals increasingly rely on online traffic.

A recent news article in *Nature* detailed that the author fee of US\$1500 for publishing in Public Library of Science (PLOS) journals has increased to \$2000–\$2500 as donations from philanthropic organizations have decreased and as the number of articles published has increased.² Despite years of contrary claims by the OA movement, PLOS annual accounts from GuideStar (www.guidestar.org) confirm that it is expensive to publish scientific journals. While PLOS journals published approximately 1102 articles during 2003–2005, the total expense of PLOS from October 2002 to October 2005 amounted to \$10.7 million. It is misleading to divide the total expenses by the 1102 articles published in 2003–2005, because the expenses incurred in 2005 led to the launch of additional journals in 2006 and thus included future investments. In addition, the total expenses included launch investments of the entire company in 2002. Nevertheless, if one does entertain the disingenuous calculation under these precautions and propose that such investments are regular occurrences for any development-oriented publisher, then the \$9710 operating cost per published PLOS article illustrates in a simple fashion the costs associated with journal publishing. Maybe the nonprofit cost of \$3000–\$5000 per published article stated by various publishers since the inception of the OA movement is not hot air — in fact it appears to be on the low side. To illustrate further, of the \$14.1 million PLOS revenue reported during the same period, \$12.4 million came from public support. The next crude calculation could be to explore the price per article without public funding. If PLOS were to sustain its balance, the 1102 articles would have had to bring in an additional \$12.4 million, or just about \$11 000 per article. This is not a cost critique of PLOS, as it merely faces the financial difficulties of launching new journals successfully, but in the process of doing so it is evident that OA journals are not necessarily cheaper than subscription-based journals — that for authors and institutions to pay the unsubsidized publication costs the realistic price tag has to go higher. Despite donation, not even the most recent PLOS publication fee gives a realistic picture of what it actually costs to publish articles; rather, the

operating expenses and the donations do. The utopian answer to concerns about the universal application of the OA model is a prophetic belief that the journal market will adjust, that income streams will change as needed. The dystopian answer is that large numbers of journals will go into red numbers and close before the transition is ever accomplished. The challenge of finding the real answer — which probably lies somewhere in between these polarizations — is made more difficult by the publicity these extremes provide to their supporters.

Today, the charge for publishing an article in KI is \$70 per typeset page in addition to color charges. The average article published in KI is six pages (\$420) and has one color figure, which costs \$750, with an increased ratio of two figures in the average basic-science article for the price of \$1000 for figures. Hence the average author charge for publishing in KI is \$1170–\$1420. This is not a small amount, but it is necessary to keep the subscription cost of the journal down. Paper needs to be purchased, servers run, postage paid, promotions done, and salaries paid to people across a continuum of services: copyediting, production, typesetting, accounting, printing, warehousing, web services, editorial, sales, customer services, marketing. After this, a return of profit is a basic premise for continued development of a journal. Were KI to publish open access in 2006 and give free access to its readers, authors could face charges of approximately \$8000 per published original article in lieu of subscription income. Any takers? This simplified scenario could, however, be subsidized, not by philanthropic donations, but by an extra charge for print subscription for those who would still like to purchase a print subscription when the online version is free. This split model is offered by many OA publishers, but such print income is questionable, as it is trending downward in the long term.

The numbers speak for themselves. In contrast to what many may believe, OA is not about making publication cheaper, even though subsidies may have made it appear cheaper. Rather, OA is about shifting money around. OA proponents are pushing publishers and journals alike to change their subscription models with aggressive archiving policies in Europe and North America but appear restrained when it comes to changing funding streams and ensuring that authors get money from library budgets. Let us leave the simplified humdrum impasse of for or against open access to absolutist hard-liners but instead discuss real usage and financial planning. What is the international plan that ensures that authors

can afford unsubsidized publication costs? Let us return again and again to the trite question of what value the public can dig out of this specialized body of literature, and allow needs to determine policies to a greater extent. It may be too much to wish for a discussion of OA that is as wide as the audience that OA sets out to serve, but it does appear that authors and public alike remain uninterested in the opportunities afforded by the policies. What is free access to journals worth? Revolutions that make things free are

short lived if few benefit from what is made free and if few have the money to pay for it.

CONFLICT OF INTEREST

The views presented in this paper are those of the author and do not represent those of Nature Publishing Group.

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