

Disrupting medical publishing and the future of medical journals: a personal view

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Will the rise of open access journals spell the end of the subscription model?

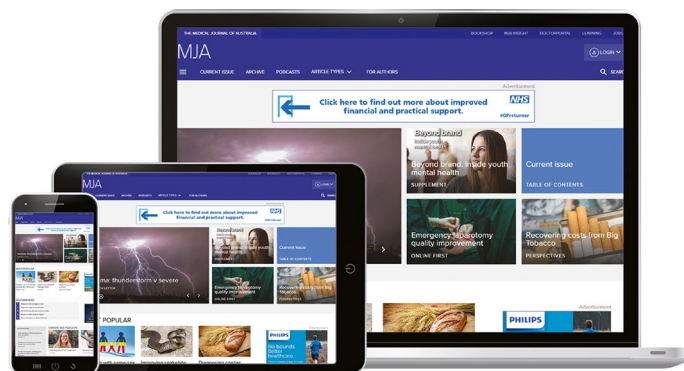


The technological advances of this century have seen virtually every industry affected by large scale disruption, with the rapid pace of innovation meaning that many businesses have had to make major adaptations in order to survive. Academic publishing is no exception, as Virginia Barbour explores in her Perspective in this issue.¹ In his famous book *The innovator's dilemma: when new technologies cause great firms to fail*, Clayton Christensen, professor at Harvard University, argued that leading well established companies can do a great job serving their customers' needs, yet become locked into fixed business models that fail over time when a lower cost competitor disrupts the market by developing innovations to which the established companies are unable to react.² Typically, the new entrant is of

lower quality initially but takes away the lower end of the established business, and over time (and in almost all cases according to Christensen) the established business dies to be replaced in some form by its new competitor. Recent examples include Wikipedia and traditional encyclopaedias, or Uber and the taxi industry. And arguably, publishing of subscription journals, including medical journals, is going to be added to the list.

What was once a wholly print-based media, funded by subscriptions held by readers and the universities, practices or hospitals who employed them, is now increasingly digital. Within this landscape, open access journals emerged as a new model of publishing, flipping the traditional subscription models so that the burden of costs fell to the funders or authors rather than the readers, who can access and download content for free. In either model, someone pays for the valuable and important services supplied by credible scientific journals, including editing, peer review, subediting and disseminating of information. These processes are all expensive if done well.

The open access model is lower cost because there is no need for a subscription department or to protect unauthorised access to content, no need to cover printing or postage costs, and no need to market to libraries or sell to other users. And quality can be maintained, assuming the costs recouped can cover editorial and structural editing costs. There is also the potential for serious abuse, as there is easy money to be made via charging



authors to publish and quality processes can be invisible to authors. The rise of predatory open access publishers and many predatory journals is one example.^{3,4}

The *Medical Journal of Australia (MJA)* is a leading medical journal with a distinguished 105-year history, enjoys a rapidly rising Journal Impact Factor over the past 3 years (now 5.332) (2018 Journal Impact Factor, Journal Citation Reports [Web of Science Group, 2019]), is home to outstanding indigenous research, and is viewed with integrity by clinicians, governments and the public.^{5,6} The *MJA* offers a hybrid subscription model, whereby authors are not charged to publish but all research is freely available to readers on www.mja.com.au. Gold Open Access publishing arrangements are also available since 2019 to all our authors for a fee (<https://onlinelibrary.wiley.com/page/journal/13265377/homepage/open-access>), and such agreements are not considered or entered into until after an article is accepted. Our publishing model means that we are not beholden to financial relationships that could impair the integrity of what we publish, and we do not feel pressured to accept lower quality work for fear of missing out on a publication payment.

COALition S in Europe has recently announced Plan S (www.coalition-s.org), which is a bold initiative with the goal of making all scientific research freely available to the community. By 2021, all research funded by the Plan S signatories, including the Wellcome Trust, United Kingdom Research and Innovation, and the Bill and Melinda Gates Foundation, must be published in fully open access journals listed (or arranging to be listed) in the Directory of Open Access Journals and identified as Plan S compliant; hybrid journals (ie, subscription journals with some open access content) are not supported by Plan S. Publishing funded work in hybrid journals (which include major highly reputable journals such as the *New England Journal of Medicine*, *JAMA*, *Science* and *Nature*) will only be permitted for a restricted period, under "transformative arrangements". This limits author choice if they comply — compliance will apparently be monitored and enforced contractually, although this may prove difficult in reality. While we strongly support open access to research, Plan S raises some concerns, which we have shared with cOALition S in their public feedback process.

COalition S argue: “There is no valid reason to maintain any kind of subscription-based business model for scientific publishing in the digital world” while they endorse open access dissemination by publishers who “may charge fair value” for their services to authors (www.coalition-s.org/why-plan-s). This is a political statement and depends on one’s point of view. For example, the Plan S model has the potential to highly disadvantage researchers with limited budgets. Researchers in Australia receive no specific funding from local funders to publish as yet and, not only in Australia, there is much valuable research undertaken with limited or no funding. Australian researchers are unlikely to meet exemptions from paying to publish under Plan S. The *MJA* hybrid model requires complete editorial independence to publish only on the basis of excellence, not volume. Under a Plan S open access model, we calculate that the costs per article required to maintain the *MJA*’s current rigorous editorial and structural editing processes would be unsustainable, pressuring us to publish more research of lesser quality. In addition, journals may risk conflicts of interest as they will be dependent on research funders for article processing charges, potentially affecting editorial decisions. Further, Plan S may inadvertently promote the success of predatory journals, despite requiring a journal listing on the Directory of Open Access Journals.⁷

There are other disruptors we all need to pay attention to and, unfortunately, Plan S is not the solution.^{8,9} There is the rise of antisense sentiments, demonstrated by the antivaccination movement. There are, we would argue, too many journals and too many articles with conflicting findings; the increase in scientific publishing means keeping up with the best evidence, even in a small subspecialty, is proving increasingly difficult. Peer review has been challenged because too many poor quality studies still slip through the process, but no better option has been identified — the *MJA* adheres to double blind peer review to reduce bias and emerging evidence supports this stand.^{10,11} A lack of scientific replication and slow translation have become serious concerns,^{8,9} and journals, in our view, need to tackle these problems and become part of the solution.

We strongly support the principle that research must be freely accessible. At the *MJA*, we practise what we believe and make all research freely accessible from publication, a unique feature of a subscription journal. We further support the idea that subscription journals should ensure all peer-reviewed articles are freely accessible after an embargo period and suggest this period be set at no more than 24 months after final publication. We suggest that Plan S is off track in its opposition to hybrid journals. There are many metrics of quality and impact, including media (and social media) attention, but the primary currency by which research quality is judged remains citations by peers;

major breakthroughs attract very high citations as the work is replicated then adapted and extended by others around the world, which is in reality how science advances and research is translated. Several of the journals with the greatest impact and highest citations will be excluded under Plan S if they maintain their current subscription models.

When it all boils down to basics, researchers want to have their research published quickly after peer and editorial review, with near perfect certainty in the most prestigious, most impactful place possible. In 2019, authors do not necessarily need a traditional subscription medical journal to achieve this goal, and if this spells the end of the subscription model, time will tell as the market decides. In the meantime and whatever our personal views, researchers will continue to seek to have their work widely read and cited, which is why the top medical journals (many of which remain subscription journals) will continue to attract the best research and will have a wide choice of what to accept.

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