

Request for Information on Maximizing Research Funds by Limiting Allowable Publishing Costs

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Summary

Cold Spring Harbor Laboratory (CSHL) is a research and education community with an embedded publishing house that has a track record of innovation in research communication. CSHL initiated the not-for-profit bioRxiv/medRxiv preprint platform which now offers the opportunity of building new, more cost-effective journals that assess research in open and more equitable ways. We suggest that NIH supports open access by mandating preprints from grantees and by offering grants to preprint-based initiatives that enable the evolution of research assessment. We understand the desire to make most effective use of NIH grant funds to support publication by capping articles publication charges (APCs) but until incentives change in academia, we believe scientists need opportunities to publish in high-profile journals regarded as career-influencing. Many of these journals have high APCs. We believe individual investigators should have the right to choose where to publish their work regardless of APC but should not spend more than a defined percentage of an NIH grant on publication charges. The percentage should vary by field and by an investigator's career stage. We also believe there is significant risk to the survival of valued, community-oriented, non-profit journals if APCs were capped at too low an amount. We suggest that NIH instigates an extended information period before any such caps are implemented. We understand the attraction of paying peer reviewers for their time and expertise but recommend that NIH does not endorse this. Instead we propose collaborations with publishers willing to conduct tests of this practice and assess its consequences.

Cold Spring Harbor Laboratory (CSHL) is a New-York-based, private, not-for-profit institution founded in 1890 with a worldwide reputation for innovation in biomedical research, education, and scientific communication. It includes an NCI Cancer Center and 50 research groups in a variety of scientific fields. CSHL faculty currently hold 77 awards from the NIH. One division of the Laboratory, CSHL Press, established in 1988, is a highly regarded biomedical publisher with a mission to create materials and services that help scientists succeed in their research and careers. Any surplus from its

operations helps support CSHL research and education activities. The output of the Press includes leading research journals, review journals, and books. CSHL also initiated the now independent preprint servers bioRxiv and medRxiv that are transforming scientists' communication practices. This response to NIH, therefore, comes from an institution that brings together both academic research scientists and professionals working to improve research collaboration, communication, discovery and assessment.

Providing open public access to taxpayer-funded research is an important goal that CSHL supports. We also strongly advocate for the necessity of peer review in the assessment of new research.

Conventional journal publishing permits distribution of new papers only after approval by a small number of reviewers, a process that is slow (months or years), closed, and relies on limited expertise. In addition, even once accepted, a paper's final version may only be available behind a paywall. By contrast, the distribution of new papers as preprints is rapid (hours or days), open, and makes them available for assessment by the entire research community. **NIH could add significantly to the growing momentum behind biomedical preprints by mandating, as other funders have, that grantees post preprints of their work before submitting them for publication, making new results immediately available to all.** But not all preprint servers have the same mission and goals. Some are for-profit, and some simply extensions of a journal submission process. Most do not aggregate community assessment of the science being reported, or track and alert the funders that made the reported work possible. bioRxiv and medRxiv are the exceptions in all cases. They continue to increase in submissions (now averaging more than 5500 manuscripts each month) and readership (approximately 10 million each month). **NIH could add significantly to the capacity of these increasingly important information resources through direct grant support of bioRxiv and medRxiv**

The increased availability of preprints through funder mandates has begun to prompt innovation in the assessment of research, by adaptation of existing processes and adoption of new ones. A variety of approaches to evaluation can be seen in action on the dashboard that accompanies every bioRxiv preprint. Not all the evaluation is formal peer review but more than 10,000 preprints have associated peer reviews that can be read alongside the paper. The most prominent review initiatives are currently eLife and Review Commons but neither provides authors with a journal acceptance and publication decision. We are working towards the creation of a new type of journal – an “overlay” journal - in which a paper would be hosted on bioRxiv, going through successive versions during peer review. When accepted, a signal would be added to the paper to indicate its change of status, with a new DOI. All peer reviews would be public.

The journal's table of contents would be a dedicated independent webpage with links to the article's full content and associated information on bioRxiv. No such journal currently exists. The cost of publishing in this kind of journal could be significantly less than current journal APCs. **NIH could assist this kind of initiative by directly funding the development of non-profit overlay journals that are either new or adaptations of existing journals, and permitting their indexing in PubMed/Medline.**

However, the development of robust assessment infrastructure around preprints will take time. At present, for biomedical scientists at large, peer review and acceptance of their work by conventional journals remain essential for community recognition and career advancement. We understand and support NIH's desire to maximize the effective use of taxpayer funds in paying for the cost of journal publication.

Publishing a journal is not free: expenses include people (editors, production and other staff), technology requirements (submission and peer review management, web hosting, burgeoning research integrity checks), and integration with publishing infrastructure (CrossRef, PubMed). A revenue model is necessary for a journal and must generate sufficient funds for its continuous improvement. The APC is not an optimal business model, owing to inequities across disciplines and regions in the ability to pay, and efforts are being made to establish alternatives. But for now, APCs are essential to the viability of many not-for-profit journals owned by scientific societies and independent organizations such as CSHL. This non-commercial sector is typically enthusiastic about public access to their content. **Providing no support for publication fees in NIH grants would therefore be a mortal blow for such community-oriented journals.** Selective journals, which review many submissions but publish few, are particularly vulnerable. This risk would add to the pressure not-for-profit journals are experiencing owing to increased competition for submissions from major commercial houses. The disappearance of such journals would reduce author choice in where to publish, at reasonable cost. A large proportion of NIH grants are awarded to early career investigators with no alternative sources of support for publication charges. By contrast, scientists with grants from private foundations that do not pay publication charges are often established career investigators with access to other funds.

If publication charges are allowable in NIH grants, what then is a reasonable charge? Publishers correctly point to the burden of increasing costs prompted by increasing demands on journals such as addressing research integrity issues, maintaining search and discovery processes across the ecosystem, and efforts to improve the speed and efficacy of peer review, including integration with generative AI. The cost of publication in any journal has to take into account the cost of rejection, which may be 80% or more of submissions at highly-cited, career-boosting journals. NIH's survey shows a wide range of charges but research journals have enormous variations in how they operate. Peer review, for example, can range from being so minimal that it barely deserves the

term or thoughtful, constructive, lengthy, and demanding on expert staff time. This contributes to variation among journals in costs and charges. It has been observed, however, that the size of an APC correlates strongly with the impact factor (IF) of the journal concerned, with charges at the high end of \$10-\$12,000 per paper. Although it is regrettable, the IF and associated brand of the journal that publishes a scientist's work remain major determinants of that scientist's career progression. **So an NIH-funded scientist prevented from publishing in a journal with a high IF and associated high APC is exposed to a risk of career stagnation that may drive her out of academic science altogether.** And it will certainly undermine her ability to compete with scientists in different circumstances (other countries, other funders) who aren't so encumbered.

The solution to this problem is not a simple cap on APCs. The development of Read and Publish (R&P) agreements between publishers and academic institutions further complicates the picture. The terms of such agreements are not public so it is not clear what payments are actually being made in return for publication. What is clear is that small research institutions such as CSHL are much less able than larger organizations to negotiate R&P agreements, especially with commercial publishers whose journals have high APCs and IFs, so their investigators are more likely to have to pay the APC list price. If the publication charge within an NIH grant is capped at, say, \$3000, and the listed APC is \$10,000, the gap must be covered and institutional funds, especially at this time, are increasingly not available for this purpose. So the investigator concerned would have to publish elsewhere, in a less expensive, possibly lower profile journal, with perceived risk to career advancement.

Journals in the non-profit sector, like CSHL's, have been in the vanguard of providing open public access to published papers by, for example, adopting a short embargo (6 months) before all published content is made openly available. The costs of such journals are significant, including employment of in-house personnel who underpin a journal's quality and integrity. Because they are selective and publish relatively few papers, these journals cannot transition to support by APC's alone unless the charge concerned is set at a level high enough to cover costs. These might be as much as \$8-10,000 per paper, close to the prices currently charged by high profile commercial journals in exchange for perceived career advantage. Non-profit publishers are typically reluctant to exploit the community with high APCs, and have pioneered new approaches to open access such as the APC-subscription hybrid to maintain financial viability while providing open content at a reasonable cost. Indiscriminate capping of APCs at too low a level by NIH would put the future of these selective, highly regarded, community-oriented journals at risk.

Of the options presented, option 4 gives investigators most choice and control over how cost-effectively they publish, much as they decide what experiments are financially

practical when pursuing their research. This option would provide for the opportunity to publish selected work in a high profile (high IF and high APC) journal should they choose to do so, while electing to distribute other work in journals with more modest charges. However, we do not support the across-the-board recommendation that only 0.8% of a grant can be spent on publication charges. This would handicap the output of early career researchers with new, small grants and highly productive scientists who work in fields where small grants are the norm. We suggest a sliding scale in which larger proportions of smaller grants are permitted to support publication.

Compensation for peer reviewers

Frustrations are frequently voiced within the research community about lengthy delays in journal-based peer review. This is in addition to often-mentioned dissatisfaction with the quality or value of the reviews authors eventually receive. Editors express similar discontents, pointing especially to the difficulty of getting suitably qualified scientists to agree to review papers. Reviews are generally done without compensation, on a vaguely defined premise of “community service”. But such service is seldom recognized by the community in a practical sense: institutions appoint or promote faculty on the basis of their own research output, not their critical assessment of other people’s work. There are no career incentives for doing peer review and with increasing pressure to compete for grants, fewer scientists are willing to put in the considerable time and expertise required.

Would reviewer compensation help? It's unproven. Compensation would acknowledge that peer review is skilled intellectual labor, not just community service. It could empower journals to insist on standards of thoroughness and rapid turnaround time. It could expand the reviewer pool and professionalize the activity, on a par with teaching and consulting. On the other hand, it would monetize an activity now considered community service done on time covered by a professional salary. It would be expensive, not just because of the payments themselves but the accounting required, something non-profit journals would be least able to afford without raising prices. And money, especially if tied to speed or volume of reviewing, might incentivize reviewers to be less thorough or accept assignments for which they are less qualified. While high-profit journals or publishers might be able to support reviewer payments, others would not, deepening inequalities.

There are unanswered questions about how much compensation should be, how it should be paid, and to whom. Modest honoraria or vouchers for eg. discounted APCs would not incentivize the established investigators who are typically asked for reviews. There could be a credit system for institutions that discounts fees paid to publishers in proportion to the reviews done by the institution’s faculty but the administration effort required may greatly outweigh the benefits. **On balance, we do not recommend that**

NIH initiates a policy that encourages reviewer payments at this time, while there are still many significant unknown consequences. But NIH could encourage experimentation by journals and publishers willing to explore these consequences and report on their findings by, for example, increasing the allowable APC for journals that adopt reviewer payment. There is also a need to expand the pool of reviewers across international boundaries and to train early career researchers in the ethical practice of peer review. NIH could encourage such innovations in peer review by being willing to adjust APC caps as part of such initiatives.