

Although publishers and authors are increasingly embracing the model, there remains concern about efforts by funding agencies and institutions to mandate use of gold open access. At a time of limited resources, should we be diverting funds from research in order to fund open-access publishing? Personally, I think not.

Disclosure forms provided by the author are available with the full text of this article at [NEJM.org](http://NEJM.org).

From the American Physiological Society, Bethesda, MD.

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## Creative Commons and the Openness of Open Access

Michael W. Carroll, J.D.

The Internet has inspired multiple movements toward greater openness — most prominently, open access, open data, open science, and open educational resources. None of these is based on the belief that there should be such a thing as a free lunch, but each recognizes that the Internet changes the economics of publication and digital-resource sharing so that changes can feasibly be made to traditional practices that are in some ways “closed,” requiring payment for access to information or prohibiting myriad reuses of accessible information. The quality of “openness” applies to both the terms of access and the terms of use. Advocates in each movement — and I am one, serving on the boards of directors of two organizations promoting open access, Creative Commons and the Public Library of Science (PLOS) — share an understanding that an open resource is freely accessible over the Internet. Opinions vary about the terms of use necessary for a resource to be open.

Copyright law supplies the

baseline terms of use for almost all information on the Internet. These terms can be altered if the copyright owner grants a license or permission to do something that would otherwise infringe copyright. Traditionally, copyright owners granted licenses to specific persons or entities. More recently, copyright owners seeking to grant permission to everyone have issued public licenses broadening the range of permitted uses, subject to certain conditions. Creative Commons licenses are the most widely used of these public licenses for all kinds of copyrighted works except software, for which free and open-source licenses are most common.

Within the open-access context, debate focuses on whether an article is “open” when it, like this one, is freely accessible over the Internet but still subject to the standard restrictions imposed by copyright law. The question also applies to most articles posted in PubMed Central under the Public Access Policy of the National Institutes of Health or

in institutional repositories under most university policies, such as that recently adopted by the University of California, San Francisco.<sup>1</sup> The three major declarations of purpose for the open-access movement (the Budapest Open Access Initiative, the Bethesda Statement on Open Access Publishing, and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities) say no: openness requires making the literature freely accessible under liberal terms that permit nearly all reuses so long as the author receives credit for the work when it’s republished or adapted.<sup>2</sup>

The rationale for seeking open terms of both access and use is as follows. Free access provides the literature to at least five overlapping audiences: researchers who happen upon open-access research articles while browsing the Web rather than a password-protected database; researchers at institutions that cannot afford the subscription prices for the growing literature; researchers in disciplines other than that of a

journal’s intended audience, who would not otherwise subscribe; patients, their families, students, and other members of the public with an interest in the information but without the means to subscribe; and researchers’ computers running text-mining software to analyze the literature. In addition, granting readers full reuse rights unleashes the full range of human creativity for translating, combining, analyzing, adapting, and preserving the scientific record, whereas tradi-

tional copyright arrangements in scientific publishing increasingly inhibit scholarly communication.







The argument for open licensing must be understood in the context of the baseline terms of use provided by copyright law. Copyright applies to works of authorship. One does not have to do anything to “get” a copyright. It attaches automatically when a work is created and stays intact even if a work is published without the copyright symbol (©). Copyright does not apply to the

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permit but to encourage, such as translation into other languages. Creative Commons is an organization that has responded by producing a suite of six copyright licenses that offer standardized terms of sharing to permit a range of uses beyond fair use, subject to certain conditions.<sup>3</sup> The four conditions are combined into six permutations reflecting the types of copyright restrictions that people who otherwise choose to share their works for free might like to retain (see table). The licenses, designed to allow all uses except those prohibited by a specified condition, have been adopted by a variety of institutional and individual copyright owners.

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various creators of the online educational materials in the University of Michigan Medical School's Open Michigan database have adopted nearly the full suite of Creative Commons licenses.<sup>4</sup> The broad adoption of these licenses reflects a belief that a work is not “open” until it's freely accessible on the Internet and under a public license offering more liberal terms of use than copyright law provides. Though options offered by Creative Commons licenses address the needs of copyright owners in various contexts, in the open-access context, the Attribution license in my opinion remains the gold standard.

Disclosure forms provided by the author are available with the full text of this article at NEJM.org.

From Washington College of Law, American University, Washington, DC.

1. The University of California, San Francisco, Open Access Policy (<http://www.library.ucsf.edu/help/scholpub/oapolicy>).
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3. Creative Commons home page ([www.creativecommons.org](http://www.creativecommons.org)).
4. University of Michigan open.michigan home page (<http://open.umich.edu/education/med>).

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## The Downside of Open-Access Publishing

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Over the past couple of years, many people involved in scientific research and publishing have received increasing numbers of emails with invitations to submit papers to newly established journals, join their editorial boards, or even apply to

serve as their editors-in-chief. Personally, I have been alternately amused and annoyed by these messages. A glance at the journal's name or the associated website has told me that these simply are not serious publications. But the establishment of new jour-

nals and publishers at a rapidly increasing pace should be taken seriously, since it affects the scientific record as a whole.

The Internet has profoundly and permanently changed the ways in which information can be disseminated and discussed.